Catalogue 2021/2022

Product and Systems Information







Dear Sir or Madam, dear business partner,

SAUTER is continually expanding its range of new digital field devices and systems, and we are pleased to present a number of new products.

Intelligent building management becomes predictive: With the Smart Actuator we are putting intelligence into a local field device. It embodies a new generation of devices that can be controlled independently or fully integrated into a building management system. Its installation and commissioning, and the maintenance of the plant, are made possible through easy-to-understand user interfaces on smartphones via the Internet. This saves time and money.

In addition, intelligent building management fulfils user requirements for networking and comfort. The classic functions of room and building automation are expanded to include functions for the efficient management of space and the tracking of assets or people, and offer the user a new experience. The focus is on IoT sensor technology and its integration into the SAUTER building automation system. In addition to room temperature, the Smart Sensor viaSens also measures air humidity and air quality. The integrated brightness and presence detector is assisted by a microphone for reliable detection of people in the room. The iBeacon and Bluetooth Mesh interface enables automatic localisation of smartphones and, together with SAUTER Mobile Building Services, it can be used to operate room functions. The MQTT interface offers a fast connection to room automation devices, and thus to the IoT of the building.

In 2021, we will introduce the new Smart EcoClimate Control (LET6) wireless controller with the associated LRA room control units for the control of panel heating systems. The system, which is mainly designed for underfloor heating, is operated via the cloud with a smartphone or via voice assistants, such as Amazon Alexa.

The new **modulo 6 automation station** range has been very well received on the market. Since its launch in spring 2019, numerous projects have already been successfully implemented.

The omnipresent threat of cyber attacks prompted us to present our own effective and lean solution for securing building automation at an early stage in the development of the product range. The modu615-BM Building Data Integrity Manager is the local solution for data security in the plant. Our patented blockchain technology is used to store the data of local automation stations in blocks. If the data integrity is breached, the affected block is isolated and only reintegrated into the network once its original state has been restored.

With product innovations such as modulo 6 and the Smart Actuator, SAUTER has developed hardware tailored to the potential of cloud computing. The smart devices integrated into the IoT can provide clear recommendations for action. In the foreseeable future, further offers in the SAUTER Cloud will add yet more customer benefits. "Advanced Energy Management" made possible by the cloud will become a reality from spring 2021 with **SAUTER Vision Center 7**.

Our employees all over the world are on hand to carry out the successful implementation of your ideas!

Nathanaël Rôth Managina Director

Sauter Building Control International GmbH

The new SAUTER catalogue

Go online for further information

Every product page in this catalogue provides a QR code at the end of the page. Using the QR code on your smartphone or tablet allows you to access more detailed information on the SAUTER website. Find relevant product data sheets, material declarations, fitting instructions, manuals and operating instructions etc. for all of our products.





Download the PDF version

On the SAUTER website, you will also find the catalogue for electronic browsing and as a downloadable PDF.



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Building automation combines the heating, ventilation, climate and electrical supply to form a digitally networked system and ensures comfort and well-being. The controlled and targeted use of energy, water and air leads to low operating costs creating sustainable environments.

Building automation demands ever greater processing power, larger data volumes, and yet, easier operability. Today, the facility is meant to embed seamlessly in the Internet of Things (IoT), which interconnects equipment systems and people. Smart equipment integrated in IoT can make action recommendations.

The SAUTER Smart Spaces demonstration area in Freiburg, Germany impressively shows how smart, holistic, and demand-oriented solutions can be created that transcend classic building automation offering innumerable benefits to operators and users.

SAUTER has already created hardware and software attuned to the potential of cloud computing. And our digital journey continues: More and more services will be accessible via the SAUTER Cloud, creating an all-encompassing digital encounter for our customers.







Around the world and around the corner

With SAUTER specialists in over 70 countries, we optimise the climatic conditions and well-being factor of environments all over the world. Our local sales organisations ensure that our expertise is always close at hand. As an independent company we are able to think and act flexibly, developing tailor-made, innovative solutions for you.

Swiss and German quality hand in hand

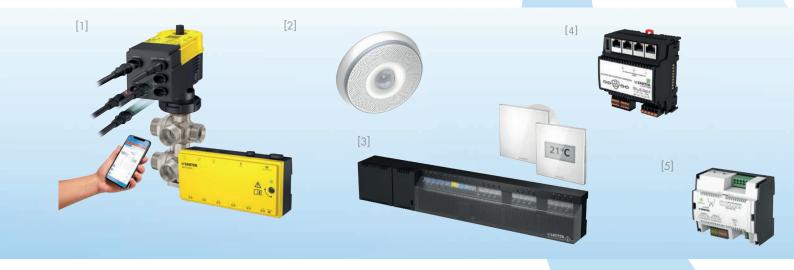
As part of SAUTER, staff in Switzerland and Germany undertake joint research, development and production. And our customers all over the world benefit: They can continue to depend on the fact that quality, superlative precision, reliability, know-how protection and the environmental friendliness of the materials used in the manufacture of SAUTER products are given the highest priority.

A partner for life

Our consistent specialisation plus many years of experience guarantee comprehensive expertise in all aspects of building management. During the planning, realisation, usage and modernisation phases, we are right by your side, every step of the way.

Widely recognised

SAUTER is excellently qualified to issue users and operators with a concise summary of energy flow and consumption. This is the key to reducing costs and increasing efficiency. SAUTER fulfils all basic criterias for Green Buildings and LEED. We also have IQNet, eu.bac and BTL BACnet certification. These seal our provendedication to uncompromising quality, functionality and precision.



New products

[1] SAUTER Smart Actuator

A Smart Actuator combines the functions of an actuator, of a controller as well as cloud integration for autonomous control of a wide range of applications. As an IoT device, the Smart Actuator continuously records the status of the installation and transmits this data to the SAUTER Cloud. Here the data is analysed by comparing it to reference values. Plant optimisations are carried out online via the mobile app and maintenance work can be scheduled according to needs.

The field devices required for specific applications can be connected directly to the actuator or the I/O box.

[2] SAUTER Smart Sensor viaSens

The Smart Sensor viaSens goes beyond measuring room temperature: it also measures air humidity and air quality. The integrated brightness and presence detector is assisted by a microphone for reliable detection of people in the room.

The iBeacon and Bluetooth Mesh interface enables automatic localisation of smartphones and, together with SAUTER Mobile Building Services, it can be used to operate room functions. The MQTT interface provides a fast connection to the room automation device and thus to the loT of the building.

[3] SAUTER ECC: Smart EcoClimate Control

The new wireless controller was developed for demandoriented underfloor heating systems. An integrated flow temperature control as well as the connection of smart home sensors and actuators represent intelligent extensions.

The system is operated via modern room control units, via smartphone or with the aid of a voice assistant, e.g. Amazon Alexa.

[4] SAUTER Building Data Integrity Manager

The modu615-BM provides a local solution for data integrity in the plant. It has an integrated web server for local commissioning, visualisation, operation and notification. A guided configuration process (wizard) creates a blockchain and starts an integrity check. The current process and the state of the blockchain can be accessed at any time in the dashboard. An e-mail notification is sent in case of integrity violation. Proven security technologies provide encryption, authentication and access protection. This means that the system is already well protected against cyber attacks at the automation level.

[5] SAUTER ecos-IoT

Powerful function modules in the ecos504/505 integrate the regulation of room temperature, lighting, and sunshading to create a comfortable room climate with minimum energy consumption.

The SAUTER ecos-loT is a programmable BACnet server with an integrated BACnet/MQTT gateway. On the one hand, BACnet devices in the operating technology network can publish data to the cloud via the ecos-loT, or MQTT data from the cloud can be subscribed to. This allows information and data from a public cloud (e.g. meteorological services) to be integrated into the building and room automation. The ecos-loT, on the other hand, enables efficient data exchange between different building automation devices via BACnet.

When combined with an MQTT app on a smartphone, the room automation can be operated intuitively with state-of-the-art technology.



[6] SAUTER MBS: Mobile Building Services

SAUTER MBS is a SAUTER Cloud solution. When combined with the "Mobile Room Control" (MRC) app available for smartphones and tablets, it can control room conditions in residential buildings, hotels and office buildings. Additional building information and services can be integrated into the MRC app, such as communication between room users and the facility management, hotel reception, or catering etc. The app easy-to-use from outside the building even – and associated user comfort help fulfil the requirements of planners and builders for a state-of-the-art building.

[7] SAUTER Digital Services

In order to meet growing customer requirements, the SAUTER Cloud is supplemented by further services. The 'Customer Portal" provides an overview of the installation status as well as related documents, contracts, and invoices etc. "Performance Management" combines current and historical data for plant optmisation. "Remote Management" allows the end customer secure access to assigned applications and for the service staff the possibility of remote maintenance and optimisation.

[8] SAUTER NRFC: FanCoil Controller with Modbus

The new thermostat can be used for a range of fancoil applications: 2- or 4-pipe plants, two-stage heating systems or water-bearing heat pumps. In addition to this, the NRFC comes with a customisable display, a timer as well as a key lock function.

[9] SAUTER UVC with BACnet

The SAUTER eValveco system is used for real-time flow regulation and automatic hydronic balancing in the full or partial load ranges. The dynamic flow control system has been supplemented by a BACnet interface.

[10] SAUTER Valveco Flanged

SAUTER's portfolio of dynamic control valves has been expanded. The Valveco valve series is now available as a flanged version in sizes DN65 to DN100.

[11] SAUTER CASE ValveDim App

The new CASE ValveDim mobile app complements SAUTER's tools for valve calculation. Finding ideal valve/actuator combinations is impressively convenient and very efficient: Intuitive operation makes it easier to search for individual products and combine them. Selected valve/actuator combinations can be stored in projects. Personal lists with valve/actuator combinations can be exported from the app as a project table in PDF format so that they can be shared with contacts. What's more, CASE ValveDim can also be used offline.

On/off controllers

Proven technology developed further.

Two-point controllers from SAUTER are used to limit, regulate and monitor temperature, pressure and humidity, with no auxiliary energy required. They provide reliability, even in difficult conditions.



2-point controllers

Thermostats

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Fan-coil room temperature controller

SAUTER fan-coil controllers are used for demand-led activation of fan-coil units and ensure that they are operated with optimum use of energy. There are controllers for fan-coil units with a three-speed fan and for the continuous activation of EC motors. The controllers are suitable for 2- and 4-pipe installations and also for fan-coil units with an electric reheater.

Overview of fan-coil room temperature controllers









	WSAUTER	16	10 5	
Type designation	TSO, TSH	TSHK 621643	TSHK 670672	TSHK 681682
Indicating and operating elements				
Mode switch for heating	•	•	•	-
Mode switch for cooling	•	•	•	-
Mode switch for fan	•	•	•	•
Setpoint adjuster	•	•	•	•
LCD	-	-	-	•
Mode of operation				
Load (A)	≤ 10	≤ 6	≤ 10	≤ 6
External sensor	_	-	-	•
2-pipe installation	_	•	-	•
4-pipe installation	_	•	•	•
C/O (changeover)	_	-	-	•
Further information	Page 11	Page 13	Page 15	Page 17

TSO, TSH: Room thermostat

Features

- Variable room temperature as setpoint based on printed temperature scale
- Variants of the standard devices are available, such as thermal feedback, night set-back mode, fan switches and switches for heating/cooling
- Setpoint adjuster with mechanical min. and max. limitation of the setting range



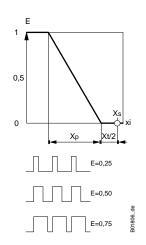




TSO67*F001



TSH67*F002



E= control factor

Technical data

Power supply		
•• •	Load ¹⁾	230 V~ 10(2,5) A,
	2000	24 V= max. 1 A,
		24 V~ min. 0.2 A
		24 V IIIII. 0.2 A
Parameters		
	Setting range	530 °C
	Night-time reduction (N/R)	Approx. 5 K
	Time constant in still air	17 minutes
	Time constant in moving air (0.2 m/s)	13 minutes
Thermal feedback	Proportional band	Approx. 3 K
	Shortest switching interval	Approx. 19 minutes (E = 0.5)
		•
Ambient conditions		
	Ambient temperature	050 °C
Construction		
	Weight	0.11 kg
	Dimensions	76 × 76 mm
	Housing	Pure white (RAL 9010)
	Housing material	Fire-retardant thermoplastic
	Fitting	Wall/recessed
	Cable inlet	At rear
	Baseplate	Black thermoplastic with membrane
		sensor and contact system
	Screw terminals	For electrical cables of up to 1.5 mm
Standards and directives		
	Type of protection	IP20 (EN 60529)
	Protection class	II (IEC 60730)
	Energy class	I = 1%
		as per EU 811/2013, 2010/30/EU 2009/125/EC
CE conformity according to	EMC Directive 2014/30/EU	EN 60730-1, EN 60730-2-9
,		

Overview of types

Supply voltage: 10% more voltage means proportional band approx. 4 K, switching period 15 minutes and actualvalue reduction approx. 0.5 K

Low-Voltage Directive 2014/35/EU

EN 60730-1

 \mathbf{i} H/C = heating or cooling, depending on connection; H//C = heating or cooling, selectable

Туре	Operating mode switch	Output for	Power supply
TSO670F001		H/C	
TSO672F001	Heating/OFF/Cooling	H//C	-
TSH670F002		H/C	230 V~, ±10%, 5060 Hz
TSH676F002	-	H/C	230 V~, ±10%, 5060 Hz

¹⁾ For TSO672F001 for cooling 5(1.5) A



2-point controllers | Thermostats

- * TSO670F001, TSO672F001: Switching difference 1.3 K without thermal feedback²⁾
- * TSH670F002, TSH676F002: Dynamic switching difference 0.5 K with thermal feedback³
- * TSH676F002: Additional feature N/R (normal/reduced) for external clock

Accessories	
Туре	Description
0362225001	Intermediate plate, pure white, for wall mounting on recessed junction box
0303124000	Recessed junction box

→ 0303124000: Only in combination with intermediate cover plate 0362225001



²⁾ Devices without thermal feedback are pure 2-point controllers. The static switching difference is given, i.e. for very slow changes in temperature. For faster changes in temperature, the time constant must be taken into account.

Devices with thermal feedback are pulsed by a built-in heating resistor. The control factor falls as the temperature increases, i.e. the controller has proportional behaviour. A small temperature variation of ±0.1...0.5 K occurs as a result of switching, depending on the time constant of the room.

TSHK 621...643: Fan-coil room temperature controller, electromechanical

Features

- Variable room temperature as setpoint based on printed temperature scale
- Changeover from heating to cooling via switch or type of connection
- ON/OFF toggle switch for mains voltage, plus other slide switches for operating mode and fan, depending on the type
- More constant room temperature due to thermal feedback
- Suitable for wall mounting or fitting on recessed junction boxes
- Setpoint adjuster with mechanical min. and max. limitation of the setting range
- 2-point pulsed activation
- Individual unitary temperature control in residential and business rooms for activating, for example, electric heating systems, thermal actuators, or fans or cooling units in air-conditioning systems.

Technical data		
Power supply		
	Power supply ¹⁾	230 V~, approx. ±10%, 5060 Hz
Parameters		
	Setting range	530 °C
	Proportional band	3 K
	Hysteresis ²⁾	Approx. ±0.10.5 K
	Shortest switching interval	Approx. 19 minutes (E = 0.5)
	Time constant in still air	20 minutes
	Dead time in still air	2 minutes
	Time constant in moving air (0.2 m/s)	15 minutes
	Dead time in moving air (0.2 m/s)	1 minute
Ambient conditions		
	Ambient temperature	055 °C
Outputs		
	Load	6(3) A, 230 V~
	Fan load	6(3) A, 230 V~
Construction		
	Weight	0.18 kg
	Housing	Pure white (RAL 9010)
	Housing material	Fire-retardant thermoplastic (fire classif cation UL94 HB)
	Baseplate	Black thermoplastic with bimetallic sen sor and contact snap mechanism with permanent magnet
	Cable inlet	At rear
	Screw terminals	For electrical cables of up to 2.5 mm ²
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	II (IEC 60730)
	Energy class	I = 1% as per EU 811/2013, 2010/30/EU, 2009/125/EC

^{1) 10%} more voltage results in: Proportional band approx. 4 K, switching period 15 min, actual-value reduction approx.







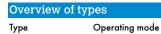






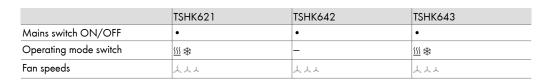
Devices with thermal feedback are pulsed by a built-in heating resistor. The control factor reduces as the temperature increases (i.e. the controller has proportional behaviour). A small temperature variation of $\pm 0.1...0.5$ K occurs as a result of pulsing, depending on the time constant of the room

2-point controllers | Thermostats



TSHK621F001 Heating/cooling; 2-pipe
TSHK642F001 Heating only/cooling only; 2-pipe

TSHK643F001 Heating/cooling; 4-pipe



Accessories

Type Description

0362239001 Pure white intermediate cover plate, suitable for various recessed junction boxes



TSHK 670...672: Fan-coil room temperature controller, heating/cooling sequence

Features

- Variable room temperature as setpoint based on printed temperature scale
- Gradual transition from heating to cooling through sequence characteristic
- Variants with master switch plus slide switch for the fan
- Suitable for wall mounting or fitting on recessed junction boxes
- Electronics unit and switching relay
- Setpoint adjuster with mechanical min. and max. limitation of the setting range
- Quasi-continuous temperature control
- 2-point pulsed activation
- Individual unitary temperature control in residential and business rooms for activating, for example, electric heating systems, thermal actuators, or fans or cooling units in air-conditioning systems.

Power supply		
	Power supply	230 V~, approx. ±10%, 5060 Hz
Parameters		
	Setting range	530 °C
	Proportional band	2 × 3 K
	Sequence dead zone	2 K ±0,7
	Hysteresis ¹⁾	Approx. ±0.10.5 K
	Shortest switching interval	Approx. 19 minutes (E = 0.5)
	Time constant in still air	20 minutes
	Dead time in still air	2 minutes
	Time constant in moving air (0.2 m/s)	15 minutes
	Dead time in moving air (0.2 m/s)	1 minute
Ambient conditions		
	Ambient temperature	055 °C
Outputs		
	Load	10(4) A, 230 V~
	Fan load	6(3) A, 230 V~
Function		
	Operating mode	Heating/cooling sequence; 4-pipe
Construction		
	Weight	0.18 kg
	Housing	Pure white (RAL 9010)
	Housing material	Fire-retardant thermoplastic (fire classifi cation UL94 HB)
	Baseplate	Black thermoplastic with NTC sensor
	Cable inlet	At rear
	Screw terminals	For cables of up to 2.5 mm ²
Standards and directives		
	Type of protection	IP30 (EN 60529)









The device is pulsed electronically. When the temperature increases, the control factor is reduced to 0 on the "Heating" output and increased to E=1 on the "Cooling" output. A small temperature variation of $\pm 0.1...0.5$ K occurs as a result of pulsing, depending on the time constant of the room

2-point controllers | Thermostats

Protection class	II (IEC 60730)
Energy class	I = 1%
	as per EU 811/2013, 2010/30/EU,
	2009/125/EC

Overview of ty	Overview of types		
Type Number of switches			
TSHK670F001	0		
TSHK672F001	2		

	TSHK670	TSHK672		
Mains switch ON/OFF	_	•		
Fan speeds	-	人人人		
Indicators/display	_	1 LED		

Accessories	
Туре	Description
0362239001	Pure white intermediate cover plate, suitable for various recessed junction boxes



TSHK 681, 682: Fan-coil room temperature controller, with digital display

Features

- ullet LCD of the room temperature or setpoint, with two buttons (\pm) for adjusting the setpoint
- Output for heating or cooling depending on connection type, or change in direction of operation with external switch
- With main switch for mains power supply and slide switch for three fan speeds
- Suitable for wall mounting or fitting on recessed junction boxes
- Electronics unit and switching relay
- Quasi-continuous temperature control
- 2-point pulsed activation
- Individual unitary temperature control in residential and business rooms for activating e.g. electric heating systems, thermal actuators, or fans or cooling units in air-conditioning systems.

Technical data		
Power supply		
	Power supply ¹⁾	230 V~, approx. ±10 V, 5060 Hz
Parameters		
	Setting range	530 °C; resolution 0.5 °C
	Proportional band	3 K
	Display of actual value	040 °C; resolution 0.1 °C
	Hysteresis ²⁾	Approx. ±0.10.5 K
	Shortest switching interval	Approx. 18 minutes (E = 0.5)
	Time constant in still air	20 minutes
	Dead time in still air	2 minutes
	Time constant in moving air (0.2 m/s)	15 minutes
	Dead time in moving air (0.2 m/s)	1 minutes
Ambient conditions		
	Ambient temperature	055 °C
Outputs		
	Load	3(2) A, 230 V~
	Fan load	6(3) A, 230 V~
Construction		
	Weight	0.18 kg
	Housing	Pure white (RAL 9010)
	Housing material	Fire-retardant thermoplastic (fire classification UL94 HB)
	Baseplate	Black thermoplastic with NTC sensor
	Cable inlet	At rear
	Screw terminals	For cables of up to 2.5 mm ²
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	II (IEC 60730)
	Energy class	I = 1%
		as per EU 811/2013, 2010/30/EU, 2009/125/EC

^{1) 10%} more voltage results in: Proportional band approx. 4 K, switching period 15 min, actual-value reduction approx. 0.5 K











The device is pulsed electronically. When the temperature increases, the control factor falls to zero at the "Heating" output and rises to E = 1 at the "Cooling" output. A small temperature variation of ±0.1...0.5 K occurs as a result of pulsing, depending on the time constant of the room

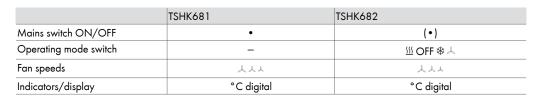
2-point controllers | Thermostats



Type Operating mode

TSHK681F001 Heating or cooling or heating/cooling; 2-pipe

TSHK682F001 Heating/cooling; 4-pipe



Accessories	
Туре	Description
0362238001	Cable temperature sensor, 4 m long, made of PVC, for external temperature measurement (max. 50 m)
0362239001	Pure white intermediate cover plate, suitable for various recessed junction boxes



Universal thermostats

Temperature control, temperature monitoring and temperature limitation: SAUTER universal thermostats are used for these three applications. They provide control, monitoring and limitation according to needs without auxiliary energy.

Overview of universal thermostats



Type designation	TUC
Application	
Clamp-on temperature	•
Duct	•
Pipe	•
Operating mode	
Temperature controller, monitor (TR, TW)	•
Safety temperature limiter (STB)	•
Temperature limiter (TB)	•
Further information	Page 20





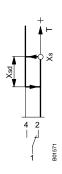
TUC*0*F00*



TW, STW



TB, STB





TUC407F001

TUC407F002

TUC207F003

TUC: Universal thermostat

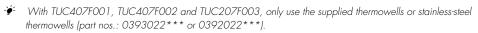
Features

- Regulates and monitors the temperature of liquids in baths, containers, pipes and ducts
- Variants as temperature monitors (TW), safety temperature monitors (STW), temperature limiters (TB) or safety temperature limiters (STB)
- Thermostat with remote sensor
- Clamp-on thermostat
- Capillary tube thermostat with or without thermowell
- Double thermostat, e.g. as TW and STB
- Certified as per EN 14597 (TUC207F003 and TUC407F001, TUC407F002)
- As per PED 2014/68/EU classified as cat. IV (TUC207F003, TUC407F001 and TUC407F002)
- The shift in the change-over point is minimised due to the temperature compensation.
- Thermowell 100 mm supplied (max. 12 bar)

Technical data			
Power supply			
Max. load	Terminal 1-2	$230 V^{\sim}$, $10 (2.5) A$ (on the normally-closed contact)	
	Terminal 1-4	230 V~, 2 (0.4) A	
Min. load	Terminals 1-2, 1-4	24V =/~, 100 mA	
Parameters	A 10	5	
	Adjustment point	For t _a 22 °C	
	Effect of temperature at instrument head	Approx0.10.2 K/K	
	Time constant with thermowell (LW 7)	< 45 s (water) < 60 s (oil)	
	Time constant without thermowell	< 120 s (air)	
Ambient conditions			
	Ambient temperature	070 °C	
	Storage and transport temperature	-2580 °C	
	Max. Pipe temperature during fitting	120 °C	
Construction			
	Connection terminals	Plug-in connectors	
	Cable cross-section	0.752.5 mm ²	
	Sensor cartridge	Ø 6.5 mm	
	Housing	Two sections, lower section black, up- per section yellow, including inspection window	
	Housing material	PA, ABS, PMMA	
	Weight	0.2 kg	
Ohan danda and dinasti			
Standards and directives	T	IDS 4 (5) 1 (0.500)	
	Type of protection	IP54 (EN 60529)	
	Protection class	I (EN 60730)	
	Test mark	TÜV ID: 0000046121 (EN 14597)	



Overview of types							
Туре	Setting range	Туре	Switching dif- ference	Capillary tube length	Sensor car- tridge length (± 12 mm)	Thermowell	Max. sensor temp.
TUC101F003	-1050 °C	TW	Approx. 4.2 K	1.6 m	80 mm	100 mm, brass	140 °C
TUC102F001	530 °C	TW	Approx. 5.6 K	0.7 m	65 mm	100 mm, brass	200 °C
TUC105F001	1595 °C	TW	Approx. 5.6 K	0.7 m	65 mm	100 mm, brass	200 °C
TUC106F001	40120 °C	TW	Approx. 5.6 K	0.7 m	65 mm	100 mm, brass	200 °C
TUC107F001	50130 °C	TW	Approx. 5.6 K	0.7 m	65 mm	100 mm, brass	200 °C
TUC108F001	80160 °C	TW	Approx. 5.6 K	0.7 m	65 mm	100 mm, stainless steel	200 °C
TUC207F003	70130 °C	STW	Approx. 10 K	1.6 m	60 mm	100 mm, brass	160 °C
TUC303F001	1560 °C	ТВ	≤ 20 K	0.7 m	70 mm	100 mm, brass	200 °C
TUC307F001	50130 °C	ТВ	≤ 20 K	0.7 m	65 mm	100 mm, brass	200 °C
TUC407F001	95130 °C	STB	≤ 20 K	0.7 m	76 mm	100 mm, brass	160 °C
TUC407F002	95130 °C	STB	≤ 20 K	0.7 m	76 mm	150 mm, brass	160 °C



TUC 108 with adapter for temperature reduction, only use the supplied thermowell.

Accessories	
Туре	Description
0300360008	Retaining holder for cable temperature sensor or capillary tube with 0392022*** (LW 7) or LW 15 (10 pcs)
0300360009	Holder for sensor cartridge
0300360010	Retaining strap for fitting onto pipes for a pipe diameter of 15-100 mm
0300360011	Mounting plate for double thermostats
0300360012	Sensor support spiral for fitting in ventilation duct
0300360013	Duct/wall mounting bracket







Thermowells

Features

- Fitted in pipes and containers for holding sensor cartridges, immersion stems, temperature sensors, temperature controllers or thermostats
- Made of brass (Ms) or stainless steel (V4A)
- Versions with cylindrical pipe thread (G $\frac{1}{2}$ " male ISO 228/1, flat-sealing) $^{1)}$ or cone-shaped (R $\frac{1}{2}$ " ISO 7/1 sealing in thread)
- With pressure spring (LW 15)
- With retaining holder

Overview of t							
Туре	LW	Length	Material	Thread	Nominal pres- sure	Test pressure	T _{max}
0391022050	7	50 mm	Stainless steel	G½"	40 bar	60 bar	325 °C
0391022100	7	100 mm	Stainless steel	G½"	40 bar	60 bar	325 °C
0391022200	7	200 mm	Stainless steel	G½"	40 bar	60 bar	325 °C
0391022300	7	300 mm	Stainless steel	G½"	40 bar	60 bar	325 °C
0391022450	7	450 mm	Stainless steel	G½"	40 bar	60 bar	325 °C
0391022600	7	600 mm	Stainless steel	G½"	40 bar	60 bar	325 °C
0391011050	7	50 mm	Brass	R½"	10 bar	16 bar	160 °C
0391011100	7	100 mm	Brass	R½"	10 bar	16 bar	160 °C
0391011150	7	150 mm	Brass	R½"	10 bar	16 bar	160 °C
0391011200	7	200 mm	Brass	R½"	10 bar	16 bar	160 °C
0391011300	7	300 mm	Brass	R½"	10 bar	16 bar	160 °C
0391011450	7	450 mm	Brass	R½"	10 bar	16 bar	160 °C
0393022100	15	100 mm	Stainless steel	G½"	40 bar	60 bar	450 °C
0393022200	15	200 mm	Stainless steel	G½"	40 bar	60 bar	450 °C
0393022450	15	450 mm	Stainless steel	G½"	40 bar	60 bar	450 °C
0393012100	15	100 mm	Brass	G½"	16 bar	25 bar	160 °C
0393012200	15	200 mm	Brass	G1/2"	16 bar	25 bar	160 °C
0392022100	7	100 mm	Stainless steel	G½"	25 bar	40 bar	450 °C
0392022300	7	300 mm	Stainless steel	G½"	25 bar	40 bar	450 °C



 $^{^{1)}~~}G^{1\!\!/_{\!2}}"$ male ISO 228/1, flat-sealing: for welding bushings with flat seal (accessories)

- 0392022100 and 0392022300 for TUC thermostats only
- With TUC407F001 and TUC207F003, only use the supplied thermowells or stainless-steel thermowells (part nos.: 0393022*** or 0392022***).
- 0391... with pressure screw (retaining holder) up to max. 200°C

Accessories	
Туре	Description
0300360008	Retaining holder for cable temperature sensor or capillary tube with 0392022^{***} (LW 7) or LW 15 (10 pcs)
0364263000	Welding sleeve of steel, with female thread $G^{1/2}$ ", flat seal of copper
0300360017	Pressure spring for LW 15 (10 pieces)

LW 7, 50 mm	•	• L > 50 mm	_
LW 7, 100 mm	•	•	-
LW 7, 150 mm	•	•	_
LW 7, 200 mm	•	•	-
LW 7, 300 mm	•	• L > 300 mm	_
LW 7, 450 mm	•	•	_
LW 7, 600 mm	•	-	-
LW 15, 100 mm	•	-	•
LW 15, 200 mm	•	_	•
LW 15, 450 mm	•	-	•
0392022100	_	_	•
0392022300	_	_	•

- 0392022100 and 0392022300 for TUC thermostats only.
- $With \ TUC407F001 \ and \ TUC207F003, \ only \ use \ the \ supplied \ thermowells \ or \ stainless-steel \ thermowells \ (part \ nos.:$ 0393022*** or 0392022***).
- Only use the thermowells (LW 15) with at least 2 sensors or thermostats with a diameter of at least 6 mm.
- 0391... with pressure screw (retaining holder) up to max. 200°C.



Frost monitors

SAUTER frost monitors protect ventilation systems against icing. With their special construction and design, they are particularly suitable for compact installations and/or installations that are subject to vibrations.

Overview of frost monitors





Type designation	TFL 201	TFL 611
Function		
Monitor	•	•
Limiter	•	-
Output signal		
Switched	•	•
Continuous	-	•
Auxiliary energy	•	-
Further information	Page 25	Page 27

TFL 201: Frost protection monitor/limiter with capillary-tube sensor

Features

- Temperature monitoring in heating coils and air ducts
- Variants as monitors or limiters
- Copper capillary tube
- Switching point can be set internally
- Small switching difference
- With capillary-tube holders made of plastic



Technical data		
Power supply		
Max. load	Terminal 1-2	230 V~, $10 (2.5) A$ (on the normally-closed contact)
	Terminal 1-4	230 V~, 2 (0.4) A
Parameters		
	Setting range	-1015 °C
	Factory setting	5 °C
	Switching difference	1.5 K
	Tolerance of switching difference	Max. ±1 K
	Max. sensor temperature	120 °C
Time characteristic	Time constant in moving air (0.3 m/s) ¹⁾	Capillary tube length 1.5 m: 25 s Capillary tube length 3 m: 31 s Capillary tube length 6 m: 51 s
Ambient conditions		
	Ambient temperature ²⁾	-570 °C
	Max. capillary temperature	120 °C
	Storage and transport temperature	-3080 °C
Construction		
	Connection terminals	Plug-in connectors
	Cable cross-section	Ø 0.752.5 mm ²
	Housing	Two sections, lower section black, up- per section yellow, including inspection window
	Housing material	ABS, PMMA
	Weight	0.2 kg
Standards and directives		
	Type of protection	IP65 (EN 60529)
	Protection class	I (IEC 60730)
	EMC Directive 2014/30/EU	EN 60730-1, EN 60730-2-9

Overview of types				
Туре	Function	Switching difference	Capillary tube	Capillary tube holder
TFL201F002	Monitor	1.5 K (±1 K)	3000 mm	3
TFL201F022	Limiter	1.5 K (±1 K)	3000 mm	3
TFL201F102	Monitor	1.5 K (±1 K)	1500 mm	3
TFL201F602	Monitor	1.5 K (±1 K)	6000 mm	6
TFL201F622	Limiter	1.5 K (±1 K)	6000 mm	6

Low-Voltage Directive 2014/35/EU

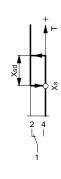
EN 60730-1, EN 60730-2-9







TFL201F*02





TFL201F*22





 $^{^{1)}}$ The frost monitor always reacts to the coldest point (minimum length 7.5 cm (1.5 m), 15 cm (3 m) und 30 cm (6 m))

²⁾ The head of the instrument must be fitted in a warmer location than the sensor, see fitting instructions

2-point controllers | Frost monitors

Accessories	
Туре	Description
0300360014	Six holders for fitting the capillary tube



TFL 611: Continuous frost monitor with capillary sensor

Features

- Records the lowest temperature that occurs for a length of at least 250 mm at any position along the capillary tube
- Used on air side in ventilation and air conditioning units where protective measures must be taken against freezing
- Active capillary sensor for measuring the lowest temperatures in the range 0...15 °C
- Vapour-filled capillary tube and diaphragm system with inductive system of measurement
- Setting range 1...10 °C
- Start-up function
- LED and 7-segment display
- Self-monitoring of sensor line

Technical data

Power supply	2 1 1)	0.434 10.4000
	Power supply ¹⁾	24 V~, 10/-20%
	Power consumption	< 6.6 VA
	Frequency	5060 Hz
Parameters		
	Measuring range	015 °C
	Setting range	110 °C
	Adjustment point	5 °C
	Accuracy for adjustment point	± 1 K
	Switching difference	Approx. 2 K
	Temperature for capillary tube	<110 °C
	Time constant in still air	Approx. 90 s
	Time constant in moving air	< 40 s
	Response length for capillary tube	Min. 250 mm
	,,,,	
Inputs/outputs		
	Admissible cable length	300 m with 1.5 mm ²
Analogue input	Valve control for terminal Y	010 V
	Current	< 0.1 mA
Analogue outputs	Sensor temperature for terminal B	010 V ≙ 015 °C
	Valve control for terminal Y10	010 V
	Current	±1 mA
Potential-free relay outputs (Q terminals)	Min. switching capacity	12 V~/=, 100 mA
·	Max. switching capacity	250 V~, 6(2) A; 24 V=, 6 A
Ambient conditions		
Operation	Humidity (non-condensing)	< 85% rh
	Temperature	-1555 °C
Storage and transport	Humidity (non-condensing)	< 95% rh
	Temperature	-2565 °C
Q		
Construction	T . I I .	
	Terminals with spring technology	Max. 2 × 1.5 mm ² Or 1 × 2.5 mm ²
		Or 1 × 2.5 mm ² Min. 0.25 mm ²
	Cable inlet	Cable gland M16 for cable diamete
	Cubic liller	510 mm
	Protection class ²⁾	1
	1100CHOH Cluss	Dt. d. (Dt. 7001)

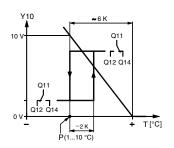
PA, silver grey (RAL 7001)

Housing











¹⁾ SELV/PELV: Safety Extra Low Voltage/Protected Extra Low Voltage

²⁾ No earth conductor necessary

2-point controllers | Frost monitors

Housing cover	PC, transparent
Сар	ABS, light grey (RAL 7035)
Capillary tube	Copper

Standards and directives		
	Vibration resistance	EN 60721-3-3 (class 3M2)
	Type of protection	IP42 (EN 60529)
	Operation as per IEC 721-3-3	Class 3K5
	Storage and transport as per IEC 721-3-2	Class 2K3
	RoHS Directive 2011/65/EU	EN 50581
	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN60730-2-9

Overview of types			
Туре	Description	Weight	
TFL611F201	Continuous frost monitor; 015 °C; capillary tube length= 2 m	340 g	
TFL611F601	Continuous frost monitor; 015 °C; capillary tube length= 6 m	410 g	

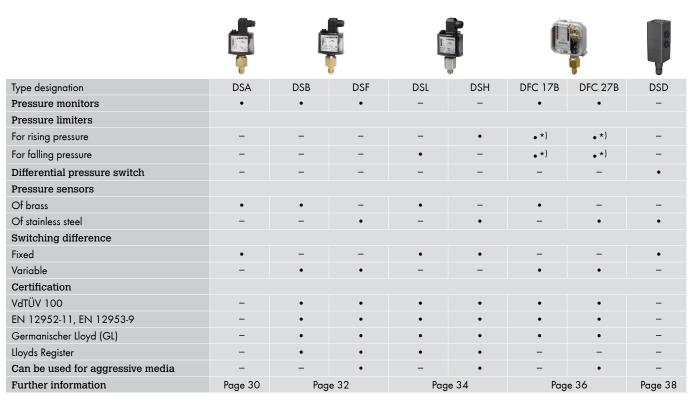
Accessories	
Туре	Description
0292146001	Set for duct fitting consisting of: 5 capillary-tube holders, 1 depth-adjustable flange
0300360014	Six holders for fitting the capillary tube
0374534001	Depth-adjustable flange



Pressure switches

SAUTER pressure switches can be used in any application for controlling and monitoring the pressure in liquids, gases and vapours. They detect changes in pressure in gaseous and/or liquid media and are used to switch pumps, valves or compressors.

Overview of pressure switches



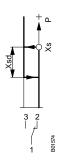
^{*} Depending on approval





DSA14*F002





DSA: Pressure switch

Features

- For regulating and monitoring pressure in liquids, gases and vapours
- Especially suitable for applications in compact installations
- Upper switching point can be adjusted
- Fixed switching difference, no hysteresis setting is necessary
- Sealable
- Pressure sensor made of brass for non-aggressive media

Power supply		
	Maximum load with gold-plated contacts ¹⁾	400 mA, 24 V, 10 VA
	Minimum load with gold-plated contacts	4 mA, 5 V
	Maximum load with silver-plated contacts	10(4) A, 250 V~, 50 W, 250 V=
	Minimum load with silver-plated contacts	100 mA, 24 V
Parameters		
	Pressure connection	G½" male
Ambient conditions		
	Admissible sensor temperature	70 °C
	Ambient temperature	-2070 °C
Construction		
	Fitting	Pipe and wall mounting
	Housing	Transparent cover
	Housing material	Impact-proof thermoplastic
	Device plug	Standard plug with female cable connector for cable of Ø 610 mm
Standards and directives		
	Type of protection ²⁾	IP65 (EN 60529)
	Protection class	I (IEC 60730)
CE conformity according to ³⁾	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-6
	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4
	Machinery Directive 2006/42/EC (according to Appendix II, 1B)	EN ISO 12100

Overview of types					
Туре	Setting range	Switching difference	Maximum pressure	Admissible vacuum loading	Weight
DSA140F002	0.52.5 bar	0.25 bar	12 bar	-0.7 bar	0.5 kg
DSA143F002	0.56 bar	0.3 bar	16 bar	-0.7 bar	0.5 kg
DSA146F002	110 bar	0.4 bar	20 bar	-1.0 bar	0.4 kg

³⁾ Excluded from the Pressure Equipment Directive 97/23/EC (as per Art. 1.3.6)

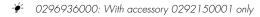


¹⁾ If the contacts are subjected to a load greater than specified, the gold plating will be destroyed. They are then classed merely as silver contacts and lose the properties of gold-plated contacts

²⁾ Depending on the fitting position, see the fitting instructions. The devices are not suitable for outdoor applications.

DSA: Pressure sensor made of brass for non-aggressive media; $X_{\rm S}$ = upper switching point

Accessories	
Туре	Description
0035465000	Throttle screw for absorbing pressure surges, brass
0192222000	Cap nut with solder connector
0192700000	1 m capillary tube for absorbing pressure surges, copper
0214120000	Throttle screw for absorbing pressure surges, stainless steel
0259239000	Reduction nipple G½" on $7/16$ " 20-UNF-2A for copper tubes of Ø 6 mm, brass
0292001000	Setpoint adjuster according to customer's wishes (setting accuracy: $\pm 3\%$ of the setting range, but a minimum of ± 0.2 bar)
0292004000	Setpoint adjuster sealed (with accessory 0292001 only)
0292018001	Damping screw for absorbing pressure surges in low viscosity media
0292150001	Fixing bracket for wall mounting
0296936000	Fixing brackets for rail: top-hat rail EN 60715, 35×7.5 mm and 35×15 mm
0311572000	Screw fitting for copper tubes of \varnothing 6 mm, brass
0381141001	Profile sealing ring, copper, for G½"



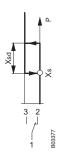






DSB1**F001













DSB, DSF: Pressure monitors and pressure switches

Features

- For regulating and monitoring pressure in liquids, gases and vapours
- Adjustable lower switching point
- Adjustable switching difference
- Sealable
- Pressure sensor made of brass for non-aggressive media (DSB)
- Pressure sensor made of stainless steel for aggressive media (DSF)
- SIL 2 certified as per EN 61508
- Approved for marine applications (GL and LR certified)

Technical data		
Power supply		
	Maximum load with gold-plated contacts ¹⁾	400 mA, 24 V, 10 VA
	Minimum load with gold-plated contacts	4 mA, 5 V
	Maximum load with silver-plated contacts	10(4) A, 250 V~, 50 W, 250 V=
	Minimum load with silver-plated contacts	100 mA, 24 V
Parameters		
	Pressure connection	G½" male
Ambient conditions		
	Ambient temperature	-2070 °C
	·	
Construction		
	Housing	Transparent cover
	Housing material	Impact-proof thermoplastic
	Device plug	Standard plug with female cable connector for cable Ø 610 mm
Standards, directives		
	Type of protection ²⁾	IP65 (EN 60529)
	Protection class	I (IEC 60730)
	Test mark ³⁾	TÜV DWFS (SDBFS) ID: 0000006024
	PED 2014/68/EU	VdTÜV pressure information sheet 100 cat. IV (as SDBFS) EN 12952-11, EN 12963-9
	Ship-approved	Germanischer Lloyd (GL) Lloyds Register
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-6
	Machinery Directive 2006/42/EC (according to Appendix II, 1B)	EN ISO 12100
SIL-conformity as per SIL 2	Standards	IEC 61508 parts 1-2 and 4-7



¹⁾ If the contacts are subjected to a load greater than specified, the gold plating will be destroyed. They are then classed merely as silver contacts and lose the properties of gold-plated contacts

Depending on the fitting position, see the fitting instructions. The devices are not suitable for outdoor applications.

DWFS (SDBFS): As a safety pressure limiter when an external electrical locking facility is fitted downstream in the circuit. Certificates can be downloaded from www.certipedia.com

Overview of types						
Туре	Setting range	Switching differ- ence	Maximum pres- sure	Max. sensor temp.	Admissible vac- uum loading	Weight
DSB138F001	01.6 bar	0.250.65 ba r	12 bar	70 °C	-0.7 bar	0.5 kg
DSB140F001	02.5 bar	0.250.75 ba r	12 bar	70 °C	-0.7 bar	0.5 kg
DSB143F001	06 bar	0.31.6 bar	16 bar	70 °C	-0.7 bar	0.5 kg
DSB146F001	010 bar	0.83.7 bar	30 bar	70 °C	-1 bar	0.4 kg
DSB152F001	616 bar	14 bar	30 bar	70 °C	-1 bar	0.4 kg
DSB158F001	025 bar	17.5 bar	60 bar	70 °C	-1 bar	0.4 kg
DSB170F001	540 bar	1.47.5 bar	60 bar	70 °C	-1 bar	0.4 kg
DSF125F001	-11.5 bar	0.250.75 ba r	12 bar	110 °C	-1 bar	0.5 kg
DSF127F001	-15 bar	0.31.5 bar	16 bar	110 °C	-1 bar	0.5 kg
DSF135F001	00.6 bar	0.120.60 ba r	12 bar	110 °C	-1 bar	0.5 kg
DSF138F001	01.6 bar	0.250.7 bar	12 bar	110 °C	-1 bar	0.5 kg
DSF140F001	02.5 bar	0.250.75 ba r	12 bar	110 °C	-1 bar	0.5 kg
DSF143F001	06 bar	0.31.5 bar	16 bar	110 °C	-1 bar	0.5 kg
DSF146F001	010 bar	0.83.0 bar	18 bar	110 °C	-1 bar	0.5 kg
DSF152F001	016 bar	1.23.8 bar	60 bar	110 °C	-1 bar	0.3 kg
DSF158F001	025 bar	1.58.0 bar	60 bar	110 °C	-1 bar	0.3 kg
DSF170F001	1540 bar	1.78.2 bar	60 bar	110 °C	-1 bar	0.3 kg



DSF: Pressure sensor made of stainless steel for aggressive media; X_S = lower switching point.

The switching difference must be within the setting range of the switching point. The minimum values of the switching difference are only possible in the lower setting range.

Accessories	
Туре	Description
0259239000	Reduction nipple G½" on $7/16$ " 20-UNF-2A for copper tubes of Ø 6 mm, brass
0292001000	Setpoint adjuster according to customer's wishes (setting accuracy: $\pm 3\%$ of the setting range, but a minimum of ± 0.2 bar)
0292002000	Switching difference according to customers' wishes (setting accuracy: $\pm 5\%$ of the setting range, but a minimum of ± 0.05 bar, with accessory 0292001 only)
0292004000	Setpoint adjuster sealed (with accessory 0292001 only)
0292150001	Fixing bracket for wall mounting
0296936000	Fixing brackets for rail: top-hat rail EN 60715, 35×7.5 mm and 35×15 mm
0311572000	Screw fitting for copper tubes of Ø 6 mm, brass
0381141001	Profile sealing ring, copper, for $G^{1/2}$ "

^{0296936000:} With accessory 0292150001 only











DSL1 * * FOO 1





DSH1**F001











Features

- Switching point can be adjusted
- Sealable
- Pressure sensor made of brass for non-aggressive media (DSL)
- Pressure sensor made of stainless steel for aggressive media (DSH)
- Locking type: With falling pressure (DSL) or with rising pressure (DSH)
- SIL 2 certified as per EN 61508
- Approved for marine applications (GL and LR certified)

Power supply		
	Maximum load with gold-plated contacts ¹⁾	400 mA, 24 V, 10 VA
	Minimum load with gold-plated contacts	4 mA, 5 V
	Maximum load with silver-plated contacts	10(4) A, 250 V~, 50 W, 250 V=
	Minimum load with silver-plated contacts	100 mA, 24 V
Parameters		
- 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	Pressure connection	G½" male
Ambient conditions		
	Ambient temperature	-2070 °C
Construction		
	Housing	Transparent cover
	Housing material	Impact-proof thermoplastic
	Device plug	Standard plug with female cable connector for cable of Ø 610 mm
Standards and directives		
	Type of protection ²⁾	IP65 (EN 60529)
	Protection class	I (IEC 60730)
	Test mark ³	TÜV DSL: SDBF ID: 0000006022 DSH: SDB ID: 0000006023 PED: 2014/68/EU, cat. IV
	Ship-approved	Germanischer Lloyd (GL) Lloyds Register
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-6
	PED 2014/68/EU	VdTÜV pressure information sheet 100 cat. IV EN 12952-11 EN 12953-9
	Machinery Directive 2006/42/EC (according to Appendix II, 1B)	EN ISO 12100
SIL-conformity as per SIL 2	Standards	IEC 61508 parts 1-2 and 4-7

If the contacts are subjected to a load greater than specified, the gold plating will be destroyed. They are then classed merely as silver contacts and lose the properties of gold-plated contacts

³⁾ Certificates can be downloaded from www.certipedia.com

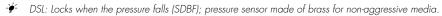


Depending on the fitting position, see the fitting instructions. The devices are not suitable for outdoor applications.

Overview of types

i Min. change for reset: Average values

Туре	Setting range	Min. change for reset	Maximum pressure	Admissible sensor temperature	Admissible vac- uum loading	Weight
DSL140F001	02.5 bar	0.4 bar	12 bar	70 °C	-0.7 bar	0.5 kg
DSL143F001	06 bar	0.5 bar	16 bar	70 °C	-0.7 bar	0.5 kg
DSL152F001	616 bar	1.2 bar	30 bar	70 °C	-1.0 bar	0.4 kg
DSH127F001	-15 bar	-0.4 bar	16 bar	110 °C	-1.0 bar	0.5 kg
DSH143F001	0.56 bar	-0.45 bar	16 bar	110 °C	-0.7 bar	0.5 kg
DSH146F001	110 bar	-0.8 bar	18 bar	110 °C	-1.0 bar	0.5 kg
DSH152F001	216 bar	-1.5 bar	60 bar	110 °C	-1.0 bar	0.3 kg
DSH158F001	525 bar	-1.8 bar	60 bar	110 °C	-1.0 bar	0.3 kg
DSH170F001	1540 bar	-2.0 bar	60 bar	110 °C	-1.0 bar	0.3 kg



 $[\]stackrel{\leftarrow}{\Psi}$ DSH: Locks when the pressure rises (SDB); pressure sensor made of stainless steel.

Accessories	
Туре	Description
0259239000	Reduction nipple G½" on $7/16$ " 20-UNF-2A for copper tubes of Ø 6 mm, brass
0292001000	Setpoint adjuster according to customer's wishes (setting accuracy: $\pm 3\%$ of the setting range, but a minimum of ± 0.2 bar)
0292004000	Setpoint adjuster sealed (with accessory 0292001 only)
0292150001	Fixing bracket for wall mounting
0296936000	Fixing brackets for rail: top-hat rail EN 60715, 35×7.5 mm and 35×15 mm
0311 <i>57</i> 2000	Screw fitting for copper tubes of \varnothing 6 mm, brass
0381141001	Profile sealing ring, copper, for G½"

^{0296936000:} With accessory 0292150001 only



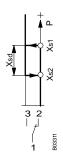






DFC17B76F001







DFC 17B, 27B: Heavy-duty pressure switch

- For regulating and monitoring pressure in liquids, gases and vapours
- Especially suitable for installations subject to vibrations
- Contact rating 1 mA/6 V to 10 A/400 V
- Gold-plated silver contacts, vibration-proof snap-action switch with single-pole change-over switch
- Upper and lower switching points can be set independently of each other
- Sealable
- Splashproof
- DFC17B**F001: Pressure sensor made of brass for non-aggressive media
- DFC27B**F002: Pressure sensor made of stainless steel for aggressive media

Technical data

Tooliiiour data		
Power supply		
	Maximum load with gold-plated contacts ¹⁾	200 mA, 50 V
	Minimum load with gold-plated contacts	1 mA, 6 V
	Maximum load with silver-plated contacts ²	10(2) A, 400 V~ (25 W), 250 V=
	Minimum load with silver-plated contacts	100 mA, 24 V
Ambient conditions		
	Temperature of medium	≤ 110 °C
	Ambient temperature	-4070 °C
Construction		
	Housing	Transparent cover
	Housing material	Light metal
	Cable inlet	PG 13.5
	Screw terminals	For electrical cables of up to 2.5 mm ²
	Pressure connection	G½" male
Standards and directives		
	Type of protection	IP44 (EN 60529)
	Protection class	I (IEC 60730)
	Test mark ³	TÜV DWFS (SDBF) ID: 0000006018 DWFS (SDB) ID: 0000006019 DB (SDBF) ID: 0000006017
	Mode of operation	Type 2 B (EN 60730)
CE conformity according to	Low-Voltage Directive 2014/35/EU	EN 60730-1, 60730-2-6
	EMC Directive 2014/30/EU	EN 6100-6-1, EN61000-6-2 EN 61000-6-3, EN 61000-6-4
	PED 2014/68/EU	VdTÜV pressure information sheet 100 sheet 1, cat. IV, DIN 3398 T4 EN 12952-11, EN 12953-9



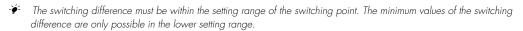
¹⁾ If the contacts are subjected to a load greater than 200 mA, 50 V, the gold plating will be destroyed. They are then classed merely as silver contacts and lose the properties of gold-plated contacts

Take the RC circuitry into account for inductive loads 230/400 V networks

From 70 °C media temperature, the current must be reduced to 6 A

³⁾ Certificates can be downloaded from www.certipedia.com

Overview of types						
Туре	Setting range (bar)	Min. switching difference (bar)	Maximum pres- sure (bar)	Max. temp., sensor (°C)	Admissible vac- uum loading (bar)	Weight (kg)
DFC17B54F001	02.5	0.14	16	70	-0.7	1.2
DFC17B58F001	06.0	0.18	16	70	-1.0	1.2
DFC17B59F001	-15.0	0.20	16	70	-1.0	1.2
DFC17B76F001	010	0.50	40	70	-1.0	1.1
DFC17B78F001	016	0.50	40	70	-1.0	1.1
DFC17B79F001	1632	0.80	42	70	-1.0	1.1
DFC17B96F001	025	1.70	100	70	-1.0	1
DFC17B97F001	2550	2.00	100	70	-1.0	1
DFC17B98F001	040	1.80	100	70	-1.0	1
DFC27B26F002	-12.5	0.30	21	110	-1.0	0.9
DFC27B43F002	0.56.0	0.30	21	110	-1.0	0.9
DFC27B46F002	110	0.30	21	110	-1.0	0.9
DFC27B52F002	216	0.30	21	110	-1.0	0.9



Accessories	
Туре	Description
0259239000	Reduction nipple G½" on $7/16$ " 20-UNF-2A for copper tubes of Ø 6 mm, brass
0311 <i>57</i> 2000	Screw fitting for copper tubes of Ø 6 mm, brass
0035465000	Throttle screw for absorbing pressure surges, brass
0214120000	Throttle screw for absorbing pressure surges, stainless steel
0292018001	Damping screw for absorbing pressure surges in low viscosity media
0259189000	Holder for raised wall mounting
0259409000	Fixing bracket (provides 3-point fixing with accessory 0259189)
0292019001	Setpoint adjustment for each switching point according to customer's wishes (setting accuracy: $\pm 3\%$ of the setting range)
0292019002	Sealing of the adjustment screw for each switching point (only with accessory 0292019001)
0381141001	Profile sealing ring, copper, for G½"

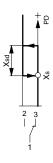






DSD1**F002





DSD: Differential pressure switch

Features

- For monitoring the differential pressure in liquids, gases and vapours
- For use in, for example, filter technology and plant and machine engineering
- Differential pressure setting ranges from 0.06 to 6 bar
- Up to 80 °C media temperature
- High repeat precision
- High overload protection
- Can be used in all neutral media, such as heating water, neutral gases, oils etc.
- Long serviceable life
- With fitting bracket

Technical data

Parameters		
	Min. load	0.1 A, 250 V~, 25 VA
		0.1 A, 30 V=
	Max. load	3(1) A, 250 V~, 250 VA
		0.4 A, 30 V=, 10 W
	Temperature dependence	1.5%/10 K
	Accuracy	3% of the setting range
	Hysteresis	5% of the setting range
	Mechanical serviceable life	10 ⁶ switchings
	Max. static operating pressure (positive and negative pressure)	16 bar
Ambient conditions		
	Ambient temperature	-1070 °C
	Temperature of medium	080 °C
		(non-freezing media)
	Ambient humidity	4575% rh
Construction		
	Power cable ¹⁾	3 x 0.5 mm ²
	Diaphragms	Chromium-nickel steel 1.4310
	Connecting thread	G 1/8" (female thread)
	Weight	0.2 kg
Standards and directives		
	Type of protection	IP65 (EN 60529)
	Protection class	II (EN 60730)
CE conformity according to	Low-Voltage Directive 2014/35/EU	EN 60730-1 / EN 60730-2-6
	EMC Directive 2014/30/EU	EN 55014
		Click rate N < 0.2 Art. 4.2
	PED 97/23/EC	Art. 3.3
	PED 2014/68/EU	Art. 13, fluid group 2

Overview of types		
Туре	Setting range (bar)	
DSD134F102	0.060.6	
DSD137F002	0.101.0	
DSD140F002	0.252.5	
DSD143F002	0.66.0	



^{1) 1} m long, fixed wiring

Accessories	
Туре	Description
0300360005	Cutting ring fitting G1/8" to 6 mm pipe (2 pcs)
0300360006	Pneumatic fitting G1/8" to 6 mm hose (2 pcs)
0300360016	Throttle screws G1/8", G1/8" (2 pcs)



Humidistats

Room-, panel- and duct-mounted humidistats are employed for monitoring and controlling devices that are used for humidity regulation (fans, driers and humidifiers).

Overview of humidistats







	No. of the last of		
Type designation	HSC 120	HSC 101	НВС
Application			
Room	•	-	-
Panel	-	•	-
Duct	-	-	•
Further information	Page 41	Page 42	Page 43

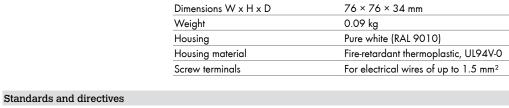
HSC 120: Room humidistat

Features

- · Monitoring and regulation of relative air humidity in rooms by controlling fans, drying units and air humidifiers
- \bullet Variable relative humidity as setpoint based on printed scale in % rh
- Measurement taken via a measuring element of stabilised synthetic textile tape.
- \bullet Controller with fixed switching difference of X_{sd}

Tochnical data

Technical data		
Power supply		
	Max. load	5(3) A, 250 V~
	Min. load	100 mA, 24 V=/~
Parameters		
	Setting range	3090% rh
	Setting accuracy ¹⁾	±5% rh
	Humidity calibration at	55% rh, 23 °C
	Switching difference	Typ. 6% rh
	Long-term stability	Approx1.5% rh/a
	Time constant in moving air (0.2 m/s)	Approx. 5 minutes
	Temperature effect	0.5% rh/K
Ambient conditions		
Operation	Ambient humidity	3090% rh non-condensing
	Temperature	050 °C
Storage and transport	Ambient humidity	1095% rh non-condensing
	Temperature	-2570 °C without condensation



Standards and directives		
	Type of protection ²⁾	IP 30 (EN 60730-1), operating status
	Protection class	II (IEC 60730)
	Environment class	3K3 (IEC 60721-3-3)
CE conformity according to	EMC Directive 2014/30/EU	EN 60730
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-13

Overview of types

Construction

Туре	Features
HSC120F001	Setting via external setpoint adjuster
HSC120F010	Internal setpoint adjuster

10005501105		
Туре	Description	
0362225001	Intermediate plate, pure white, for wall mounting on recessed junction box	

The setting accuracy of the humidistat is valid for the calibration point ±5% rh at 55% rh and 23 °C following initial calibration at the factory. See diagram "Setting accuracy". In general, humidity sensors (humidistats) are subject to increased ageing if they are used and/or stored in very contaminated air or aggressive gases. The humidistat may start to drift and its linearity may change under these conditions. If the humidistats are used in very contaminated air, the warranty does not cover a premature re-calibration or the replacement of the complete humidistat

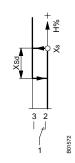


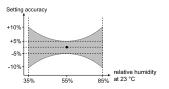




HSC120F010











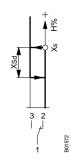
²⁾ Operating status: device mounted and closed

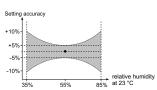




HSC101F001







HSC 101: Panel-mounted humidistat (packing unit: 50 pieces)

Features

- Monitoring and regulation of relative humidity by controlling fans, drying units and air humidifiers
- Adjustment of change-over point via setpoint adjustment axis
- Suitable for fitted applications with protection class II
- Measurement via a measuring element of stabilised synthetic textile tape
- Secured with bolting hole and fixing hole (blind hole)
- Micro-switch with single-pole change-over contacts and fixed switching difference
- Suitable for panel-mounted units only

Technical data

Power supply		
	Max. load	5(3) A, 250 V~
	Min. load	100 mA, 24 V
Parameters		
	Setting range	2595% rh
	Setting accuracy ¹⁾	±5% rh
	Humidity calibration at	55% rh, 23 °C
	Switching difference ²⁾	6% rh
	Long-term stability	–1.5% rh/a
	Time constant in moving air (0.2 m/s)	Approx. 3 minutes
	Temperature effect	0.5% rh/K
Ambient conditions		
Operation	Humidity (non-condensing)	2595% rh
	Temperature	070 °C
Storage and transport	Humidity (non-condensing)	1095% rh
	Temperature	-2070 °C
Construction		
	Weight	0.03 kg
	Baseplate	Thermoplastic
	Electrical connection	AMP terminals 2.8 mm
Standards and directives3)		
	Type of protection	IP00 (EN 60529)
	Protection class	0 (IEC 60730)
CE conformity according to	EMC Directive 2014/30/EU	EN 55014 Art. 4.2

Overview of types

Туре	Features
HSC101F001	Panel-mounted humidistat

Low-Voltage Directive 2014/35/EU

³⁾ The fitting method must adhere to the relevant safety standards



EN 60730-1, EN 60730-2-13

The setting accuracy of the humidistat is valid for the calibration point ±5% rh at 55% rh and 23 °C following initial calibration at the factory. See diagram "Setting accuracy". In general, humidity sensors (humidistats) are subject to increased ageing if they are used and/or stored in very contaminated air or aggressive gases. The humidistat may start to drift and its linearity may change under these conditions. If the humidistats are used in very contaminated air, the warranty does not cover a premature re-calibration or the replacement of the complete humidistat

²⁾ Can be substantially improved by recalibration during usage

HBC: Duct-mounted humidistat

Features

- Monitoring and regulation of relative humidity by controlling fans, drying units and air humidifiers
- Temperature-compensated humidity sensor
- \bullet Variable relative humidity as setpoint based on printed scale in % rh
- Includes fixing bracket with seal for duct or wall mounting
- For fitting in a ventilation duct or on a wall
- \bullet With single-pole change-over contacts and fixed switching difference X_{sd}
- Immersion depth 130...156 mm; includes fixing bracket

Technical data

Power supply		
	Max. load	5(3) A, 250 V~
	Min. load	100 mA, 24 V
Parameters		
	Setting range	1595% rh
	Setting accuracy	±5% rh
	Humidity calibration at	55% rh, 23 °C
	Temperature influence	Compensated
	Long-term stability	– 1.5% rh/a
	Time constant in moving air (0.2 m/s)	Approx. 3 minutes
	Switching difference X _{sd}	4% rh (after humidity calibration)
	Max. air speed	10 m/s
Ambient conditions		
Operation	Humidity (non-condensing)	3090% rh
	Temperature	070 °C
Storage and transport	Humidity (non-condensing)	1095% rh
	Temperature	-2070 °C
Construction		
	Housing material	Glass-fibre-reinforced thermoplastic
	Housing cover	Thermoplastic, sealable
	Sensor tube	Glass-fibre-reinforced thermoplastic, Ø 30 mm
	Cable inlet	PG 11
	Screw terminals	For electrical cables of up to 1.5 mm ²
Standards and directives	T (IDOO (5) L (0500)
	Type of protection	IP30 (EN 60529)
	Protection class	II (IEC 60730)
	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-13

Overview of types			
Туре	Switching range X _{sh}	Number of switches	Weight
HBC111F001	-	1	0.33 kg
HBC112F001	625% rh	2	0.35 kg

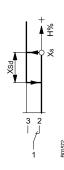
HBC 112: For 3-point control or min./max. monitoring and internally adjustable switching range X_{sd}



HBC11*F001



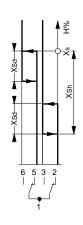
HBC111F001



HBC111F001



HBC112F001



HBC112F001





2-point controllers | Humidistats

Accessories	
Туре	Description
0303538001	Set for increasing protection rating to IP55 (housing lid with transparent cap for setpoint knob, seal, 1 cable gland - PG 11, 1 plug - PG 11)
0370560011	Cable screw fitting PG 11, plastic, for cable of Ø 911 mm



Data capture

Accurate data form the basis for efficient control.

The results from the data acquisition form the basis for control and monitoring. SAUTER provides quality sensors for all physical variables, such as temperature, humidity, pressure, flow and air quality, that are specifically geared towards building automation systems and the HVAC industry.





Data capture

Temperature

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Temperature sensors

SAUTER temperature sensors are used for heating and air-conditioning systems in residential, office and business spaces. They are used to measure room, duct, outside and pipe temperatures.

Overview of temperature sensors









Type designation	EGT 130	EGT 330335, 430	EGT 386, 388, 486, 686, 688	EGT 301, 401
Application				
Pipe/duct	-	-	-	-
Cable	-	-	-	-
Room (passive)	-	•	•	-
Room (active)	•	_	-	-
Clamp-on temperature	-	-	-	-
Outdoor temperature	-	_	-	•
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		l l		
Type designation	EGT 353356, 456, 554	EGT 346348, 392, 446, 447	EGT 311, 411	EGS 100
Application				
Pipe/duct	-	•	-	-
Cable	•	-	-	-
Room (passive)	-	-	-	-
Room (active)	-	-	-	-
Clamp-on temperature	-	-	•	-
Outdoor temperature	-	-	-	-
Radiation temperature	-	-	-	•
Further information	Page 54	Page 56	Page 60	Page 62

EGT 130, 330, 332, 335, 430: Room-temperature sensor, surface-mounted

Features

- Passive measuring element
- Temperature measurement in dry rooms
- Variants with setpoint adjuster, presence button and status LED

Technical data

Power supply		
	Power supply	See type list
Parameters		
Time characteristic	Time constant in still air	12 minutes
Ambient conditions		
	Storage and transport temperature	−3570 °C
	Ambient temperature	−3570 °C
Construction		
	Housing	Pure white, similar to RAL9010
	Housing material	ASA
	Cable inlet	From rear or side top/bottom
	Connection terminals	Screw terminal, max. 1.5 mm ²
	Weight	50 g
Standards and directives		
	Type of protection	IP30 (EN 60529)
CE conformity according to	EMC Directive 2014/30/EU	EN 60730-1 (mode of operation 1,
		residential premises)
	RoHS Directive 2011/65/EU	EN 50581



 $m{i}$ The tolerance listed below applies only to the corresponding measuring element. The accuracy of the sensor depends on the cable length and the measuring element used.

Measuring element	Standards	Nominal value	Tolerance at 0°C
Ni500	DIN 43760	500 Ω at 0 °C	±0.4 K
Ni1000	DIN 43760	1000 Ω at 0 °C	±0.4 K
Pt100	DIN EN 60751	100 Ω at 0 °C	±0.3 K
Pt1000	DIN EN 60751	1000 Ω at 0 °C	±0.3 K

Overview of passive types

Туре	Measuring range	Output signal	Adjuster
EGT330F052	-3570 °C	Passive, Ni500	-
EGT330F102	-3570 °C	Passive, Ni 1000	-
EGT332F102	-3570 °C	Passive, Ni 1000	Resistor signal 2.5 kΩ
EGT335F102	-3570 °C	Passive, Ni 1000	Resistor signal 2.5 kΩ
EGT430F012	-3570 °C	Passive, Pt100	-
EGT430F102	-3570 °C	Passive, Pt1000	-

[÷] EGT 335 with presence button and 3 LEDs









EGT332F102





Active

Туре		Measuring accuracy at 21 °C	Output signal	117	Power consumption	Adjuster
	3 temperature ranges, adjustable on device (see con- nection diagram)	, ,	Active, 010 V, min. load 5 k Ω	1524 V= (±10%)/ 24 V~ (±10%)	Max. 12 mA / 24 V=	-



 $^{^{1)}}$ With offset adjustment ± 3 K

The transducers must be operated at a constant operating voltage (±0.2 V). Current/voltage peaks when switching the supply voltage on/off must be avoided by the customer.

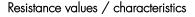
EGT 386, 388, 486, 686, 688: Room temperature sensor, recessed

Features

- Passive room temperature measurement
- For temperature measurement in dry rooms (e.g. in residential properties, offices and business premises)
- Including frame

Technical data

Parameters		
	Measuring range	-3570 °C
Time characteristic	Time constant in still air	30 minutes
Ambient conditions		
	Storage and transport temperature	-3570 °C
	Ambient temperature	-3570 °C
Construction		
	Housing	Pure white
	Housing material	Thermoplastic
	Frame design	Gira E2
Standards and directives		
	Type of protection	IP20 (EN 60529)
CE conformity according to	RoHS Directive 2011/65/EU	EN 50581



 $m{i}$ The tolerance listed below applies only to the corresponding measuring element. The accuracy of the sensor depends on the cable length and the measuring element used.

Measuring element	Standard	Nominal value at 0 °C	Tolerance at 0 °C
Ni1000	DIN 43760	1000 Ω	±0.4 K
Pt1000	DIN EN 60751	1000 Ω	±0.3 K
NTC 10k	-	10 kΩ at 25 °C	±0.3 K

Overview of types				
Туре	Measuring element	Adjuster	Weight	
EGT386F101	Ni1000	-	53 g	
EGT388F101	Ni1000	10 kΩ	83 g	
EGT388F102	Ni1000	100 Ω	83 g	
EGT486F101	Pt1000	-	83 g	
EGT686F101	NTC 10k	-	53 g	
EGT688F101	NTC 10k	10 kΩ	83 g	



EGT386F101

EGT486F101

EGT686F101





EGT388F101

EGT388F102

EGT688F101







EGT*01F102



EGT301F031



EGT 301, 401, 601: Outdoor-temperature sensor

Features

- Passive or active measuring element
- Extra protection against dust and humidity (IP65)
- Cable inlet on back or via cable gland
- For weather-dependent heating and ventilation systems

Technical data

Parameters		
	Recommended measurement current	< 1 mA
Time characteristic	Time constant in still air	EGT*01F102: 12 minutes EGT301F031: 7 minutes
A 1 1 1 100		
Ambient conditions		
	Ambient temperature	EGT*01F102: -3590 °C EGT301F031: -3570 °C
Storage and transport	Storage and transport temperature	-3570 °C
	Humidity (non-condensing)	85% rh
Construction		
CONSTRUCTION .	Sensor sleeve	EGT301F031: stainless steel 1.4571 Ø 6 × 25 mm
	Housing	White
	Housing material	Polyamide
	Connection terminals	Screw terminals
		0.351.5 mm ² ,
		for number of poles, see connection diagram
	Cable inlet	EGT*01F102: M16 for cable min. Ø 5 mm, max. Ø 8 mm EGT301F031: M20 for cable min. Ø 5 mm, max. Ø 8 mm
Standards and directives		
	Type of protection	IP65 (EN 60529)
CE conformity according to	RoHS Directive 2011/65/EU	EN 50581
, <u>-</u>	EMC Directive 2014/30/EU	EGT301F031: EN 60730-1 (mode of operation 1, residential premises)

Resistance values / characteristics

i The tolerance listed below applies only to the corresponding measuring element. The accuracy of the sensor depends on the cable length and the measuring element used.

Measuring element	Standards	Nominal value at 0 °C	Tolerance at 0 °C
Ni1000	DIN 43760	1000 Ω	±0.4 K
Ni1000 TK5000		1000 Ω	±0.4 K
Pt1000	DIN EN 60751	1000 Ω	±0.3 K

Overview of types			
Туре	Description		
EGT301F102	Outdoor-temperature sensor; Ni 1000		
EGT401F102	Outdoor-temperature sensor; Pt1000		
EGT601F102	Outdoor-temperature sensor; Ni 1000 TK5000		
EGT301F031	Outdoor-temperature transmitter; 010 V		

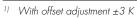


Passive types

Туре	Measuring element	Measuring range	Weight
EGT301F102	Ni1000	-3590 °C	80 g
EGT401F102	Pt1000	-3590 °C	80 g
EGT601F102	Ni1000 TK5000	-3590 °C	80 g

Active types

/ I	Measuring accuracy at 21 °C	Output signal	Power supply	Power consumption	Measuring range	Weight
EGT301F031	Typ. ±1% of measuring range ¹⁾²⁾	010 V, min. load impedance 1 k Ω	1524 V= (±10%)/ 24 V~ (±10%)	Max. 0.42 W / 0.84 VA	5 temperature ranges (-50160 °C), adjustable on device (see connection di- agram)	120 g



The transducers must be operated at a constant operating voltage (±0.2 V). Current/voltage peaks when switching the supply voltage on/off must be avoided by the customer.







EGT*5*F***



EGT 353...356, 456, 554, 654: Cable temperature sensor

Features

- Passive measuring element
- Particularly suitable for direct connection in installations with short distances between the controllers and the sensors
- Sensor with a wide range of applications and high type of protection (IP67) and fast time characteristic
- Used in air, used in liquid media with thermowells, or as a clamp-on temperature sensor with an accessory
- Large temperature measuring range

Technical data

Technical data		
Parameters		
	Recommended measurement current	Typ. < 1 mA
Time characteristic in water	Time constant with thermowell (LW 7) in still water	9 seconds (t ₆₃)
Time characteristic in air	Time constant in still air	155 seconds (t ₆₃)
	Time constant in moving air (3 m/s)	35 seconds (t ₆₃)
Construction		
	Sensor sleeve	Ø 6 × L (mm) - see table, up to 16 bar
	Material	Sensor sleeve: Stainless steel 1.4571 Cable: see table
	Power cable	Ø 5 mm with wire ferrules
	Cable cross-section	2 x 0.25 mm ²
	Active length	10 mm
Standards and directives		
	Type of protection	IP67 (EN 60529)
CE conformity according to	RoHS Directive 2011/65/EU	EN 50581

Resistance values / characteristics

The tolerance listed below applies only to the corresponding measuring element. The accuracy of the sensor depends on the cable length and the measuring element used.

Measuring element	Standards	Nominal value	Tolerance at 0 °C
Ni1000	DIN 43760	1000 Ω at 0 °C	±0.4 K
Ni1000 TK5000		1000 Ω at 0 °C	±0.4 K
Pt100	DIN EN 60751	100 Ω at 0 °C	±0.3 K
Pt1000	DIN EN 60751	1000 Ω at 0 °C	±0.3 K
NTC 10k	-	10 kΩ at 25 °C	±0.3 K
NTC 22k	-	22 kΩ at 25 °C	±0.3 K

Overview of types						
Туре	Measuring ele- ment	Sleeve length LH	Total length Lg	Material	Measuring range	Weight
EGT353F101	NTC 10k	50 mm	1.5 m	PVC	-35100 °C	40 g
EGT353F103	NTC 10k	50 mm	3 m	PVC	-35100 °C	85 g
EGT353F110	NTC 10k	50 mm	10 m	PVC	-35100 °C	280 g
EGT353F120	NTC 10k	50 mm	20 m	PVC	-35100 °C	550 g
EGT554F103	NTC 22k	50 mm	3 m	PVC	-35100 °C	85 g
EGT354F102	Ni1000	50 mm	1 m	PVC	-35100 °C	30 g
EGT354F104	Ni1000	50 mm	3 m	PVC	-35100 °C	85 g
EGT354F111	Ni1000	50 mm	10 m	PVC	-35100 °C	280 g
EGT354F121	Ni1000	50 mm	20 m	PVC	-35100 °C	550 g



Туре	Measuring ele- ment	Sleeve length LH	Total length Lg	Material	Measuring range	Weight
EGT654F102	Ni1000 TK5000	50 mm	1 m	PVC	-35100 °C	30 g
EGT355F902	Ni1000	100 mm	2 m	Silicone	-50180 °C	60 g
EGT355F903	Ni1000	150 mm	2 m	Silicone	-50180 °C	60 g
EGT356F102	Ni1000	50 mm	1 m	Silicone	-50180 °C	30 g
EGT356F104	Ni1000	50 mm	3 m	Silicone	-50180 °C	90 g
EGT356F111	Ni1000	50 mm	10 m	Silicone	-50180 °C	300 g
EGT356F304	Ni200	50 mm	3 m	Silicone	-50180 °C	90 g
EGT456F012	Pt100	50 mm	1 m	Silicone	-50180 °C	30 g
EGT456F102	Pt1000	50 mm	1 m	Silicone	-50180 °C	30 a

Accessories	
Туре	Description
0300360000	Compression fitting G1/4"; stainless steel, up to 16 bar
0300360003	Mounting flange; plastic (max. 140 °C)
0300360004	Heat-conducting paste incl. gun with 2 g content
0300360008	Retaining holder for cable temperature sensor or capillary tube with 0392022*** (LW 7) or LW 15 (10 pcs)
0300360012	Sensor support spiral for fitting in ventilation duct
0313214001	Fixing kit for cable temperature sensor (holder, heat-conducting paste, retaining strap)

^{* 039*****:} Thermowells (LW 7 and LW 15) made of brass or stainless steel (see product data sheet)





EGT*4*



EGT392F102



EGT 346...348, 392, 446, 447, 646, 647: Duct temperature sensor

Features

- Passive or active measuring element
- For use in pipes and vessels by means of optional thermowells (LW 7). For use in standard HVAC applications up to 160 °C and aggressive ambient conditions up to 260 °C (EGT392F102)

Technical data

Parameters		
	Recommended measurement current	Typ. < 1 mA
Time characteristic	Time constant in moving air (3 m/s)	35 s (t ₆₃)
	Time constant in still air	155 s (t ₆₃)
	Time constant in still water	9 s (t ₆₃)
	Time constant in still water, with thermo- well made of brass	· 17 s (t ₆₃)
	Time constant in still water, with thermo- well made of stainless steel	- 20 s (t ₆₃)

Ambient conditions		
	Ambient temperature	EGT*4* passive: -3590 °C EGT*4* active: -3570 °C EGT392F102: -2590 °C
Storage and transport	Storage and transport temperature	-3570 °C
	Humidity (non-condensing)	85% rh
Construction		
	Housing	EGT*4*: Black/yellow
	Housing material	EGT*4*: Polyamide EGT392F102: Form J made of die-cast aluminium
	Connection terminals	EGT*4*: 45° screw terminals 0.351.5 mm ² For number of poles, see connection diagram
	Cable inlet	M16 for cable min. Ø 5 mm, max. Ø 8 mm
	Immersion stem	Ø 6×L (mm) made of stainless steel 1.4571, up to 16 bar, see table
	Active length	10 mm

Standards and directives		
	Type of protection	IP65 (EN 60529)
CE conformity according to	RoHS Directive 2011/65/EU	EN 50581
	EMC Directive 2014/30/EU	EGT34*F031: EN 60730-1 (mode of operation 1, residential premises)

Resistance values / characteristics

 $m{i}$ The tolerance listed below applies only to the corresponding measuring element. The accuracy of the sensor depends on the cable length and the measuring element used.

Measuring element	Standard	Nominal value at 0 °C	Tolerance at 0 °C
Ni1000	DIN 43760	1000 Ω	±0.4 K
Ni1000 TK5000		1000 Ω	±0.4 K
Ni200	DIN 43760	200 Ω	±0.4 K
Pt1000	DIN EN 60751	1000 Ω	±0.3 K
Pt100	DIN EN 60751	100 Ω	±0.3 K



Overview of ty	pes
Туре	Description
EGT346F022	Duct temperature sensor; Ni200; -50160 °C; L=100 mm
EGT346F102	Duct temperature sensor; Ni1000; -50160 °C; L=100 mm
EGT347F022	Duct temperature sensor; Ni200; -50160 °C; L=200 mm
EGT347F102	Duct temperature sensor; Ni1000; -50160 °C; L=200 mm
EGT348F102	Duct temperature sensor; Ni1000; -50160 °C; L=450 mm
EGT392F102	Duct temperature sensor; Ni1000; -50260 °C; L = 100 mm
EGT446F012	Duct temperature sensor; Pt100; -50160 °C; L=100 mm
EGT446F102	Duct temperature sensor; Pt1000; -50160 °C; L=100 mm
EGT447F012	Duct temperature sensor; Pt100; -50160 °C; L=200 mm
EGT447F102	Duct temperature sensor; Pt1000; -50160 °C; L=200 mm
EGT646F102	Duct temperature sensor; Ni1000 TK5000; -35160 °C; L=100 mm
EGT647F102	Duct temperature sensor; Ni1000 TK5000; -35160 °C; L=200 mm
EGT346F031	Duct temperature transmitter; 010 V; L=100 mm
EGT347F031	Duct temperature transmitter; 010 V; L=200 mm
EGT348F031	Duct temperature transmitter; 010 V; L=450 mm

Passive types

Туре	Measuring element	Immersion length L (mm)	Measuring range	Weight
EGT346F022	Ni200	100 mm	-50160 °C	85 g
EGT346F102	Ni1000	100 mm	-50160 °C	85 g
EGT347F022	Ni200	200 mm	-50160 °C	95 g
EGT347F102	Ni1000	200 mm	-50160 °C	95 g
EGT348F102	Ni1000	450 mm	-50160 °C	120 g
EGT392F102	Ni1000	100 mm	-50260 °C	105 g
EGT446F012	Pt100	100 mm	-50160 °C	85 g
EGT446F102	Pt1000	100 mm	-50160 °C	85 g
EGT447F012	Pt100	200 mm	-50160 °C	95 g
EGT447F102	Pt1000	200 mm	-50160 °C	95 g
EGT646F102	Ni1000 TK5000	100 mm	-35160 °C	85 g
EGT647F102	Ni1000 TK5000	200 mm	-35160 °C	85 g

Active types

Туре	Measuring accuracy at 21 °C ¹⁾²⁾	Output sig- nal	Power supply	Power consumption	Immersion length L (mm)	Measuring range	Weight
EGT346F031	Typ. ±1% of measuring range	010 V, min. load 5 $k\Omega$	1524 V= (±10%) or 24 V~ (±10%)	Typ. 0.35 W / 0.82 VA	100 mm	5 temperature ranges (-50160 °C), adjustable on device (see connection diagram)	90 g
EGT347F031	Typ. ±1% of measuring range	010 V, min. load 5 $k\Omega$	1524 V= (±10%) or 24 V~ (±10%)	Typ. 0.35 W / 0.82 VA	200 mm	5 temperature ranges (-50160 °C), adjustable on device (see connection diagram)	100 g
EGT348F031	Typ. ±1% of measuring range	010 V, min. load 5 kΩ	1524 V= (±10%) or 24 V~ (±10%)	Typ. 0.35 W / 0.82 VA	450 mm	5 temperature ranges (-50160 °C), adjustable on device (see connection diagram)	120 g

Accessories	
Туре	Description
0300360000	Compression fitting G1/4"; stainless steel, up to 16 bar
0300360003	Mounting flange; plastic (max. 140 °C)
0300360004	Heat-conducting paste incl. gun with 2 g content

039*****: Thermowells (LW 7 and LW 15) made of brass or stainless steel (see product data sheet)





 $^{^{1)}}$ With offset adjustment ± 3 K

The transducers must be operated at a constant operating voltage (±0.2 V). Current/voltage peaks when switching the supply voltage on/off must be avoided by the customer.



Thermowells

Features

- Fitted in pipes and containers for holding sensor cartridges, immersion stems, temperature sensors, temperature controllers or thermostats
- Made of brass (Ms) or stainless steel (V4A)
- Versions with cylindrical pipe thread (G $\frac{1}{2}$ " male ISO 228/1, flat-sealing) $^{1)}$ or cone-shaped (R $\frac{1}{2}$ " ISO 7/1 sealing in thread)
- With pressure spring (LW 15)
- With retaining holder

Overview of t							
Туре	LW	Length	Material	Thread	Nominal pres- sure	Test pressure	T _{max}
0391022050	7	50 mm	Stainless steel	G½"	40 bar	60 bar	325 °C
0391022100	7	100 mm	Stainless steel	G½"	40 bar	60 bar	325 °C
0391022200	7	200 mm	Stainless steel	G½"	40 bar	60 bar	325 °C
0391022300	7	300 mm	Stainless steel	G½"	40 bar	60 bar	325 °C
0391022450	7	450 mm	Stainless steel	G½"	40 bar	60 bar	325 °C
0391022600	7	600 mm	Stainless steel	G½"	40 bar	60 bar	325 °C
0391011050	7	50 mm	Brass	R½"	10 bar	16 bar	160 °C
0391011100	7	100 mm	Brass	R½"	10 bar	16 bar	160 °C
0391011150	7	150 mm	Brass	R½"	10 bar	16 bar	160 °C
0391011200	7	200 mm	Brass	R½"	10 bar	16 bar	160 °C
0391011300	7	300 mm	Brass	R½"	10 bar	16 bar	160 °C
0391011450	7	450 mm	Brass	R½"	10 bar	16 bar	160 °C
0393022100	15	100 mm	Stainless steel	G½"	40 bar	60 bar	450 °C
0393022200	15	200 mm	Stainless steel	G½"	40 bar	60 bar	450 °C
0393022450	15	450 mm	Stainless steel	G½"	40 bar	60 bar	450 °C
0393012100	15	100 mm	Brass	G½"	16 bar	25 bar	160 °C
0393012200	15	200 mm	Brass	G1/2"	16 bar	25 bar	160 °C
0392022100	7	100 mm	Stainless steel	G½"	25 bar	40 bar	450 °C
0392022300	7	300 mm	Stainless steel	G½"	25 bar	40 bar	450 °C



 $^{^{1)}~~}G^{1\!\!/_{\!2}}"$ male ISO 228/1, flat-sealing: for welding bushings with flat seal (accessories)

- 0392022100 and 0392022300 for TUC thermostats only
- With TUC407F001 and TUC207F003, only use the supplied thermowells or stainless-steel thermowells (part nos.: 0393022*** or 0392022***).
- 0391... with pressure screw (retaining holder) up to max. 200°C

Accessories	
Туре	Description
0300360008	Retaining holder for cable temperature sensor or capillary tube with 0392022*** (LW 7) or LW 15 (10 pcs)
0364263000	Welding sleeve of steel, with female thread $G^{1/2}$ ", flat seal of copper
0300360017	Pressure spring for LW 15 (10 pieces)

LW 7, 50 mm	•	• L > 50 mm	-
LW 7, 100 mm	•	•	_
LW 7, 150 mm	•	•	_
LW 7, 200 mm	•	•	-
LW 7, 300 mm	•	• L > 300 mm	-
LW 7, 450 mm	•	•	-
LW 7, 600 mm	•	-	_
LW 15, 100 mm	•	-	•
LW 15, 200 mm	•	_	•
LW 15, 450 mm	•	_	•
0392022100	_	_	•
0392022300	_	_	•

- 0392022100 and 0392022300 for TUC thermostats only.
- $With \ TUC407F001 \ and \ TUC207F003, \ only \ use \ the \ supplied \ thermowells \ or \ stainless-steel \ thermowells \ (part \ nos.:$ 0393022*** or 0392022***).
- Only use the thermowells (LW 15) with at least 2 sensors or thermostats with a diameter of at least 6 mm.
- 0391... with pressure screw (retaining holder) up to max. 200°C.





EGT*11F***



EGT 311, 411, 611: Clamp-on temperature sensor

Features

- Passive or active measuring element
- Extra protection against dust and humidity (IP65)
- Temperature measurement on pipes
- Including retaining strap for pipes of \varnothing 10...50 mm
- Heat-conducting paste (silicone-free) is included in the scope of delivery

Technical data

Parameters		
	Recommended measurement current	Typ. < 1 mA
Time characteristic with heat- conducting paste	Time constant	16 s
Ambient conditions		
	Storage and transport temperature	-3570 °C
	Humidity (non-condensing)	85% rh
Construction		
Construction	Housing	Yellow/black
	Housing material	Polyamide
	Connection terminals	Screw terminals 0.351.5 mm ² , for number of poles, see connection diagram
	Cable inlet	M16 for cable min. Ø 5 mm, max. Ø 8 mm
Standards and directives		
	Type of protection	IP65 (EN 60529)
CE conformity according to	RoHS Directive 2011/65/EU	EN 50581
, ,	EMC Directive 2014/30/EU	EGT311F031: EN 60730-1 (mode of operation 1, residential premises)

Resistance values / characteristics

I The tolerance listed below applies only to the corresponding measuring element. The accuracy of the sensor depends on the cable length and the measuring element used.

Measuring element	Standards	Nominal value	Tolerance at 0 °C
Ni1000	DIN 43760	1000 Ω at 0 °C	±0.4 K
Ni1000 TK5000		1000 Ω at 0 $^{\circ}$ C	±0.4 K
Ni200	DIN 43760	200 Ω at 0 °C	±0.4 K
Pt1000	DIN EN 60751	1000 Ω at 0 °C	±0.3 K

Overview of types			
Туре	Description		
EGT311F022	Clamp-on temperature sensor; Ni200		
EGT311F102	Clamp-on temperature sensor; Ni1000		
EGT411F102	Clamp-on temperature sensor; Pt1000		
EGT611F102	Clamp-on temperature sensor; Ni1000 TK5000		
EGT311F031	Clamp-on temperature transmitter; 010 V		
Passivo tupos			

Passive types

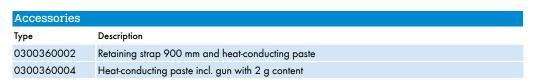
Туре	Measuring element	Measuring range	Weight
EGT311F022	Ni200	-3590 °C	80 g
EGT311F102	Ni1000	-3590 °C	80 g



Туре	Measuring element	Measuring range	Weight
EGT411F102	Pt1000	-3590 °C	80 g
EGT611F102	Ni1000 TK5000	-3590 °C	80 g

Active types

Туре	Measuring accuracy at 21 °C	Output signal	Supply voltage	Power consumption	Measuring range	Weight
EGT311F031	measuring	010 V, min. load impedance 5 k Ω	1524 V= (±10%) 24 V~ (±10%)		5 temperature ranges (-50160 °C), adjustable on device (see connection di- agram)	120 g





With offset adjustment $\pm 3~\mathrm{K}$

²⁾ The transducer's must be operated at a constant operating voltage (±0.2 V). Current/voltage peaks when switching the supply voltage on/off must be avoided by the customer.



EGS100F70*

EGS 100: Radiation temperature sensor

Features

- Mean value measuring of radiation temperature and room temperature
- Ni or NTC characteristic
- Passive measuring element
- Measuring range: -35...70 °C
- Measuring element: Thin-film sensor

Technical data

Parameters		
	Measuring range	-3570 °C
Time characteristic	Time constant in still air	1 <i>5</i> min
Construction		
	Weight	0.1 kg
	Dimensions	84.5 × 84.5 mm
	Housing	Pure white, similar to RAL 9010
	Housing material	Thermoplastic with black hemisphere
	Connection terminals	$2 \times 1.5 \text{ mm}^2$
Standards and directives		
	Type of protection	IP30 (EN 60529)
	RoHS Directive 2011/65/EU	EN 50581
CE conformity	EMC Directive 2014/30/EU	EN 60730-1 (mode of operation 1, residential premises)

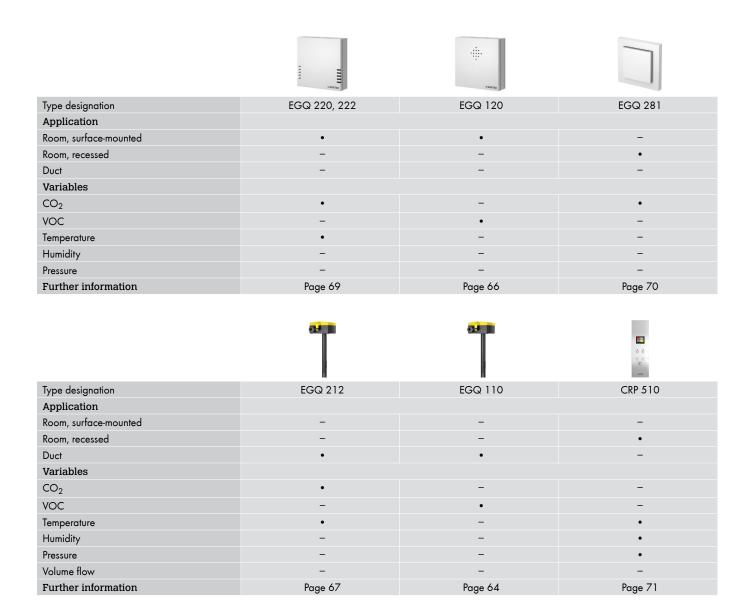
Overview of types				
Туре	Resistance values	Tolerance	Measuring elements	
EGS100F705	1 kΩ (at 0 °C)	±0.4 K (at 0 °C)	2 × Ni500 as per DIN 43760 in series	
EGS100F706	10 k Ω (at 25 °C)	±1% (at 25 °C)	2 × NTC 5 $k\Omega$ in series	
EGS100F707	22 kΩ (at 25 °C)	±1% (at 25 °C)	2 × NTC 11 $k\Omega$ in series	



Air quality sensors

Air quality is of the utmost importance for the performance and well-being of people in closed rooms. With CO_2 and VOC sensors from SAUTER, it is possible to measure air quality exactly, so that ventilation systems can be controlled in accordance with demand. As a result, not only is the indoor air quality improved, but energy consumption is also reduced by improving the operational efficiency of ventilation systems.

Overview of air quality sensors





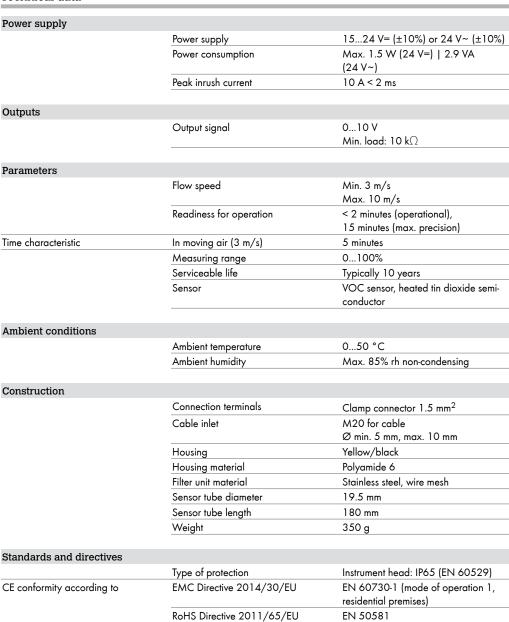
AQ

EGQ 110: Duct transducer, air quality (VOC)

Features

- · Measures the relative mixed gas concentration (organic components in the room air), such as tobacco smoke, kitchen vapours or human body odours
- Demand-based ventilation control in buildings such as restaurants and offices
- For measuring air quality in air ducts
- Automatic self-calibration through software algorithm
- Calibrated ex works and ready to use immediately
- The sensors have been developed according to the DIN EN 13779, DIN EN 15251, VDI 6038 and 6040 directives
- Mounting flange supplied

Technical data





Overview of types

Туре Features

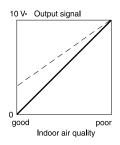
EGQ110F031 Duct transducer; VOC; 0-10 V





EGQ120F031





EGQ 120: Room transducer, air quality, surface-mounted

Features

- Measures the relative mixed gas concentration (organic components in the room air), such as tobacco smoke, kitchen vapours or human body odours
- Demand-based ventilation control in buildings such as restaurants and offices
- Active VOC semi-conductor sensor (volatile organic compound) for measuring the mixed gas concentration
- Calibration of the output signal using a trim potentiometer
- Suitable for fitting directly to walls

Technical data

Power supply		
	Power supply	24 V=/~ ±10%
	Power consumption	1.2 W / 2.2 VA
	Warming-up time	Approx. 30 minutes
Parameters		
	Time constant in moving air (0.5 m/s)	Approx. 100 seconds
Ambient conditions		
	Ambient temperature	-2050°C
	Ambient humidity	Max. 85% rh, no condensation
Inputs/outputs		
	Output signal	010 V, min. load 10 k Ω
Construction		
	Housing	Pure white
	Housing material	ABS, ASA
	Connection terminals	Screw terminal, max. 1.5 mm ²
	Weight	65 g
		-
Standards and directives		
	Type of protection	IP30 (EN 60529)
CE conformity according to	EMC Directive 2014/30/EU	EN 60730-1 (mode of operation 1, residential premises)

Overvi		

Туре	Description
EGQ120F031	Room transducer, air quality, surface-mounted



EGQ 212: Duct transducer, CO₂ and temperature

Features

- ullet Selective measurement of the ${
 m CO}_2$ concentration and temperature for demand-controlled ventilation of rooms (e.g. meeting rooms, conference rooms, offices, classrooms, etc.)
- \bullet $\rm CO_2$ measurement with NDIR $^{\rm 1)}$ Dual-beam technology, therefore stable in the long term and largely resistant to external influences
- Suitable for 24-hour operation
- Calibrated ex works and ready to use immediately
- The sensors have been developed according to the DIN EN 13779, DIN EN 15251, VDI 6038 and 6040 directives
- Mounting flange supplied

Technical data		
Power supply		
	Power supply	1524 V= (±10%) or 24 V~ (±10%)
	Power consumption	Max. 1.5 W (24 V=) 2.9 VA (24 V~)
	Peak inrush current	10 A, 2 ms
Outputs		
	Output signal	2 × 010 V, load > 10 k Ω
Parameters		
	Readiness for operation	< 2 minutes (operational), 15 minutes (max. precision)
	Flow speed	Min. 3 m/s Max. 10 m/s
Time characteristic	In moving air (3 m/s)	5 minutes
CO ₂	Measuring range	02000 ppm
	Measuring accuracy	±75 ppm, >750 ppm:±10% (typ. at 21 °C)
	Pressure dependence	Typ.0.135% of the measured value per mm Hg
	Temperature dependence	Typ.2 ppm per °C (050 °C)
	Gradual drift	< 5% FS or < 10% per year
Temperature	Measuring range	050 °C
	Measuring accuracy	± 1 °C for the measuring range (typ. 21 °C and 24 V=)
Ambient conditions		
	Ambient temperature	050 °C
	Ambient humidity	Max. 85% rh non-condensing
Construction		
	Connection terminals	Plug-in connector, max. 1.5 mm ²
	Cable inlet	M20 for cable
		Ø min. 5 mm, max. 10 mm
	Housing	Yellow/black
	Housing material	PA6
	Filter unit material	Stainless steel, wire mesh
	Sensor tube diameter	19.5 mm
	Sensor tube length	180 mm
	Weight	180 g
Standards and directives		
	Type of protection	Instrument head: IP65 (EN 60529)

¹⁾ NDIR: Non-dispersive infrared sensor









Data capture | Air quality

CE conformity according to	EMC Directive 2014/30/EU	EN 60730-1 (mode of operation 1, residential premises)
	RoHS Directive 2011/65/EU	EN 50581

Overview of types

Type Description

EGQ212F031 Duct transducer, CO_2 and temperature; 2 x 0-10 V



EGQ 220, 222: Room transducer, CO₂, surface-mounted

- Selective measurement of the CO₂ concentration for demand-controlled ventilation of rooms (e.g. meeting rooms, conference rooms, offices, classrooms, etc.)
- Available in 2 versions: With and without temperature measurement
- CO₂ measurement with NDIR¹⁾ Dual-beam technology, therefore stable in the long term and largely resistant to external influences
- Suitable for 24-hour operation
- Calibrated ex works and ready to use immediately
- ullet Very fast response to changes in the ${\rm CO_2}$ concentration in rooms
- Temperature-compensated calibration for the standard air pressure of 1013 mbar
- The sensors have been developed according to the DIN EN 13779, DIN EN 15251, VDI 6038 and 6040 directives



Power supply	15 041/ (1109/) 041/ (1109/)
Power supply	15 041/ /:100/1 041/ /:100/1
	1524 V= (±10%) or 24 V~ (±10%)
Power consumption	Max. 3 W (24 V=) 6 VA (24 V~)
Peak inrush current	10 A, 2 ms
In room (0.1 m/s)	2 minutes
Pressure dependence	Typ.0.135% of the measured value pe
Temperature dependence	Typ.2 ppm per °C (050 °C)
Gradual drift ²⁾	< 5% FS or < 10% per year
Measuring range	050 °C
Measuring accuracy	±1% of measuring range (typ. at 21 °C)
Ambient temperature	050 °C
Ambient humidity	Max. 85% rh non-condensing
Connection terminals	Screw terminal, max. 1.5 mm ²
Cable inlet	From behind, top, bottom
Housing	Pure white
Housing material	ASA
Weight	90 g
Type of protection	IP30 according to EN 60529
EMC Directive 2014/30/EU	EN 60730-1 (mode of operation 1, residential premises)
RoHS Directive 2011/65/EU	EN 50581
	In room (0.1 m/s) Measuring range Measuring accuracy Pressure dependence Temperature dependence Gradual drift²) Measuring range Measuring accuracy Ambient temperature Ambient humidity Connection terminals Cable inlet Housing Housing material Weight Type of protection EMC Directive 2014/30/EU

Overview of types				
Туре	Description	Readiness for operation	Output signal	
EGQ220F031	Room transducer, surface-mounted, CO ₂ ; 0-10 V	< 2 minutes (operational), < 15 minutes (response time)	1 x 010 V, load ≥ 10 kΩ	
EGQ222F031	Room transducer, surface-mounted, CO ₂ + temp; 2 x 0-10 V	< 2 minutes (operational), 15 minutes (response time)	2 x 010 V, load ≥ 10 kΩ	

¹⁾ NDIR: Non-dispersive infrared sensor







EGQ222F031









²⁾ Air flow speed 0, 15 m/s, air flow direction, laminar from below upwards.



EGQ281F031



EGQ 281: Room transducer, CO₂, recessed

Features

- CO₂ sensor for continuous measurement of the CO₂ concentration for the demand-controlled ventilation of rooms (e.g. meeting rooms, conference rooms, offices, classrooms, etc.)
- CO₂ measurement with NDIR dual-beam technology¹⁾, therefore stable in the long term and resistant to
 external influences
- Any ageing or contaminating effects are continuously compensated in real time
- Very fast response to changes in the CO₂ concentration in rooms
- Temperature-compensated calibration for the standard air pressure of 1013 mbar
- Calibrated ex works and ready to use immediately
- Low energy requirement of the ventilation system during the warming up time of the sensor
- Including frame

Technical data

recillical data		
Power supply		
	Power supply (SELV)	1524 V= (±10%) / 24 V~ (±10%)
	Power consumption	< 1.6 W (typ. 0.3 W)
	·	< 3.9 VA (typ. 0.7 VA)
Output signal		
	Analogue output	010 V
	Load current	Max. 10 mA
Parameters		
	Measuring range	02000 ppm
	Measuring accuracy	< ±50 ppm 2% of the measured value (25 °C and 1013 mbar)
	Time constant	< 195 s (t ₉₀)
	Measuring cycle	15 s
	Long-term stability	Typ.20 ppm/year
	·	
Ambient conditions		
	Ambient temperature	-2070 °C
Construction		
	Housing	Pure white
	Housing material	Lower section: PA6
		Front plate: PC
	Frame design	Gira E2
	Weight	90 g
Standards and directives		
	Type of protection	IP30 (EN 60529)
CE conformity according to	EMC Directive 2014/30/EU	EN 60730-1 (mode of operation 1, residential premises)
	RoHS Directive 2011/65/EU	EN 50581

Overview of types

EGQ281F031 Room transducer, CO₂; 0...10 V, recessed



¹⁾ NDIR: Non-dispersive infrared sensor

CRP 510: Cleanroom Monitoring Panel

Features

- Clean room panel for data capture of temperature, pressure, humidity in clean rooms and safety laboratories as per EN ISO 14644-1, class 1-9 and GMP, class A-D
- \bullet Integration via serial RS-485 interface with SLC protocol or 0...10 V signals
- Notification via acoustic alarm and background colour of display
- Ports for zero adjustment of pressure sensor
- Convenient operation and actual value indication via touch display
- USB port for convenient data transfer and configuration
- Very precise temperature and humidity sensor
- Dual-membrane pressure sensor with calibrating valve
- Freely configurable inputs and outputs and display tiles
- Surface resistant to chemicals
- Quick display of measured values with alarm thresholds
- User management

Technical data

Power supply		
	Power supply	24 V~ ± 20%, 5060 Hz
	117	24 V= ± 20%
	Power consumption	15 VA / 8 W
	Start-up current	700 mA
Temperature		
	Measuring range	-40100 °C
	Accuracy	± 0.5 °C at 23 °C
	Stability	< 0.04 °C/p.a.
Humidity		
	Measuring range	0100% rh
	Accuracy	< 2% rh at 1090% rh
	Stability	< 0.3% rh/p.a. at 1090% rh
Pressure		
	Measuring range Δp (gain = 1)	-7575 Pa
	Linearity error	2% FS
	Time constant	0.1 s
	Reproducibility	0.2% FS
	Zero point stability	0.2% FS at 20 °C
	Admissible positive pressure	± 10 kPa
	Admissible operating pressure p _{stat}	± 3 kPa
Touch colour display, LCD		
	Size of display	3.5"
	Туре	TN TFT
	Resolution	320 x 240 pixels
	Touch	Resistive
Ambient conditions		
	Ambient temperature	050 °C
	Ambient humidity	1090% rh
	Storage and transport temperature	−1070 °C
	Environment	For use in all clean room classes as pe EN ISO 14611-1 and EU GMP guide lines



CRP510F010D











Data capture | Air quality

Inputs/outputs		
	Analogue inputs	010 V
	Analogue outputs	010 V, 20 mA
Inputs/outputs in combination	on with ecos500/504/505	
	Ni1000/Pt1000	-20100 °C
	Digital outputs	Relay normally-open contact 230 V~/5 A (total max. 10 A)
	Analogue outputs	010 V, 2 mA
Function		
	Horn	Acoustic, integrated into back
Interfaces and communication	n	
	Interface	RS-485
	Protocol	SLC (SAUTER Local Communication)
Construction		
	Weight	3.1 kg
	Dimensions W x H x D	700 × 200 × 49 mm
	Connections	Terminals/plugs
	Panel fitting	6 × hexagon socket screws, M4
	Fitting cut-out	Min. H: 480 (+2) mm
		Min. B: 138 (+2) mm
	Front panel material	V2A
Standards and directives		
	Type of protection	IP67 (front, when built-in) IP20 (back cover)
	Protection class	II (EN 60730-1)

Overview of types		
Туре	Description	
CRP510F010D	Clean room panel with integrated pressure, temperature and humidity sensor (rel.)	
CRP510F001D	Clean room panel with integrated pressure sensor	

Low-Voltage Directive 2014/35/EU

EMC Directive 2014/30/EU

CE conformity according to

Accessories	
Туре	Description
0297867001	Reference pressure container



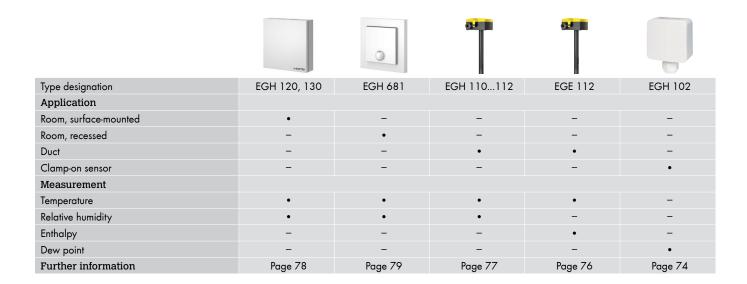
EN 61000-6-1, EN 61000-6-3

EN 60730-1

Humidity sensors

SAUTER humidity sensors are used for the energy-efficient control and monitoring of ventilation systems. Sensors are available for measuring the relative humidity and enthalpy of the air. They can be used in residential or business premises and can also be fitted in air ducts.

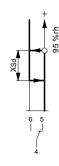
Overview of humidity sensors

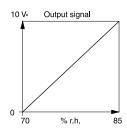




EGH102F*01







EGH 102: Dew point monitor and transducer

Features

- Protects against dew formation on chilled ceilings
- Controls a regulating unit via a holding relay that interrupts the cooling water flow or increases the cooling water temperature
- Best solution for monitoring chilled-ceiling systems
- Measurement taken by a spring-mounted dew point sensor
- Active measuring element
- Variant with external sensor (EGH102F101)
- Holding relay with changeover contacts
- Includes retaining strap for pipes of Ø 10...100 mm and heat-conducting paste

Technical data

Power supply		
Tower suppry	Power supply	24 V~/=, ±20%
	Power consumption	Max. 1 VA
	Tower consumption	Max. 1 VA
Parameters		
	Measuring range	7085% rh
	Changeover contact ¹⁾	1 A, 24 V~/=
	Response time in still air	80 to 99% rh,
	•	99 to 80% rh, max. 3 minutes
	Exposure to dew	Max. 30 min
	Switching difference	Fixed, approx. 5% rh
	Switching point	95 ±4% rh
Ambient conditions		
	Ambient temperature	560 °C
	<u>.</u>	
Inputs/outputs		
	Output signal	Approx. 7085% rh, 010 V, load > 10 k Ω
Construction		
	Screw terminals	For electrical cables of up to 1.5 mm ²
	Housing	Pure white (RAL 9010)
	Housing material	Fire-retardant thermoplastic
	Weight	0.1 kg
	Cable inlet	For Pg 11
Standards and directives		
	Type of protection	IP40 (EN 60529)
	Mode of operation	Type 1 C (EN 60730)

Overview of types

Туре	Clamp-on sensor
EGH102F001	Integrated in housing
EGH102F101	Cable 1 m long, sensor integrated in the cable end



When activating relays, gates etc. with $\cos \phi <$ 0.3, it is recommended to use RC circuitry in parallel to the coil. This reduces contact pitting and prevents high-frequency interference

EGH 103: Dew point monitor

Features

- Protects against dew formation on chilled ceilings, etc.
- Controls a regulating unit via a holding relay that interrupts the cooling water flow or increases the cooling water temperature.
- Measurement is performed by a dew point sensor
- \bullet Potential-free output contact for 24 V and 230 V
- Holding relay with changeover contacts
- LED indicator for power supply and dew formation
- ullet Plug-in connectors for electrical cables up to 1.5 mm 2
- Cable inlet M20
- Fitted onto pipes using the provided cable tie for pipes Ø 10...40 mm

Technical data

Power supply		
	Power supply	230 V~ ±10%
	Power consumption	Max. 3.5 VA
	<u> </u>	
Parameters		
	Changeover contact ¹⁾	5 A, 230 V~
	Switching point	95 ±4% rh
	Switching difference	Fixed, approx. 5% rh
Ambient conditions		
	Ambient temperature	-2060 °C (non-condensing)
Construction		
	Housing	Pure white, PA6
	Weight	0.19 kg
Standards and directives		
	Type of protection	IP 65 (EN 60529)
CE conformity according to	EMC Directive 2014/30/EU	EN 60730-1 (mode of operation 1, residential premises)
	Low-Voltage Directive 2014/35/FU	FN 61000-6-1 FN 61000-6-3

rview	

Туре Description

EGH103F001 Dew point monitor 230 V~

Accessories

Туре

0300360004 Heat-conducting paste incl. gun with 2 g content









When activating relays, gates, etc. with $\cos \phi < 0.3$, it is recommended to use RC circuitry in parallel to the coil. This reduces contact pitting and prevents high-frequency interference



EGE112F031



EGE 112: Duct transducer, enthalpy

Features

- Measures the enthalpy and temperature in air ducts
- Measurement by means of fast capacitive measuring element
- Active measuring element
- Unaffected by flow speeds and normal contamination
- Mounting flange supplied

Power supply		
	Power supply	1524 V= (±10%) or 24 V~ (±10%)
	Power consumption	Max. 0.4 W (24 V=) 0.8 VA (24 V~)
Outmarte		
Outputs	0	0.0.107//: 1010/
	Output signal	2 x 010 V (min. load 10 kΩ)
Parameters		
	Flow speed	Min. 3 m/s Max. 10 m/s
Time characteristic	Time constant in moving air (3 m/s)	3 minutes
Enthalpy	Measuring range	0100 kJ/kg
	Measuring accuracy	3.5 kJ/kg (typ. at 21 °C)
Temperature	Measuring range	-2080 °C
	Measuring accuracy	±0.5 °C (typ. at 25 °C)
Ambient conditions		
	Ambient temperature	-2070 °C
Construction		
Oorish dollor	Connection terminals	Screw terminal, max. 1.5 mm ²
	Cable inlet	M20 for cable Ø min. 5.8 mm, max.
	Housing	Yellow/black
	Housing material	PA6
	Filter unit material	Stainless steel, wire mesh
	Sensor tube diameter	19.5 mm
	Sensor tube length	140 mm
	Weight	120 g
Standards and directives		
	Type of protection	Instrument head: IP65 (EN 60529)
CE conformity according to	EMC Directive 2014/30/EU	EN 60730-1 (mode of operation 1, residential premises)
	RoHS Directive 2011/65/EU	EN 50581

Overview	of typ	pes

Туре	Description
EGE112F031	Duct transducer, enthalpy and temperature, 2 x 0-10 V



EGH 110...112: Duct transducer, relative humidity and temperature

Features

- Measures the relative humidity and temperature in air ducts
- Measurement by means of fast capacitive measuring element
- Active and passive measuring element
- Immersion depth 140 mm
- Mounting flange supplied

Power supply		
	Power supply	1524 V= (±10%) or 24 V~ (±10%
	Peak inrush current	1.5 A, 4 ms
Parameters		
Humidity	Measuring range, humidity	0100% rh, no condensation
,	Measuring accuracy, humidity	Typ. ±2% (1090% rh)
	Repeat accuracy	Typ. ±0.1% rh
	Gradual drift	Typ. < 0.5% rh/year
Temperature	Measuring range, temperature	-2080 °C
•	Measuring accuracy, temperature	±0.5 °C (typ. at 25 °C)
	Repeat accuracy	Typ. ±0.1 °C
	Gradual drift	Typ. < 0.04 °C/year
Time characteristic	In moving air (3 m/s)	2 minutes (t63)
	Readiness for operation	10 seconds (operational), 5 minutes (max. precision)
	Flow speed	Min: 0 m/s
		Max: 10 m/s
	Hysteresis	±1%
Ambient conditions		
	Ambient temperature	-2070 C
Construction		
	Connection terminals	Screw terminals, max. 1.5 mm ²
	Cable inlet	M20 for cable with min. Ø 5 mm,
	Housing	Yellow/black
	Housing material	PA6
	Filter unit material	Stainless steel, wire mesh
	Sensor tube diameter	19.5 mm
	Sensor tube length	140 mm
	Weight	120 g
Standards and directives		
	Type of protection	Instrument head: IP65 (EN 60529)
CE conformity according to	EMC Directive 2014/30/EU	EN 60730-1 (mode of operation 1, residential premises)
	RoHS Directive 2011/65/EU	EN 50581

Overview of types			
Туре	Power consumption	Output signal	
EGH110F041	Max. 1 W (24 V=)	2 × 420 mA (max. load 500 Ω)	
EGH111F031	Max. 0.4 W (24 V=) 0.8 VA (24 V~)	2 × 010 V (min. load 10 k Ω) + Ni1000	
FGH112F031	Max 0.4 W (24 V=) 1.0.8 VA (24 V~)	2 × 0 10 V (min, load 10 kO)	



EGH11*F0*1







EGH1*0F0*1



EGH 120, 130: Room transducer, relative humidity and temperature

Features

- Measurement by means of fast capacitive sensor
- Active measuring element
- Suitable for fitting directly to walls
- \bullet Converts the measured values into a continuous analogue signal (0...10 V or 4...20 mA)

Power supply		
	Power supply	1524 V= $(\pm 10\%)$ or 24 V~ $(\pm 10\%)$
Parameters		
Relative humidity	Measuring range	0100% rh, no condensation
	Measuring accuracy	±2% between 1090% rh (typ. at 21 °C)
Temperature	Measuring range	050 °C
	Measuring accuracy	±0.5 °C (typ. at 25 °C)
Ambient conditions		
	Ambient temperature	-2070 °C
Construction		
	Housing material	ASA
	Housing	Pure white
	Connection terminals	Screw terminals, max. 1.5 mm ²
	Weight	80 g
Standards and directives		
	Type of protection	IP30 (EN 60529)
CE conformity according to	EMC Directive 2014/30/EU	EN 60730-1 (mode of operation 1, residential premises)
	RoHS Directive 2011/65/EU	EN 50581

Overview of types		
Туре	Output signal	Power consumption
EGH120F041	2 x 420 mA	Max. 1 W (24 V=)
EGH130F031	2 x 010 V	Max. 0.3 W (24 V=) 0.5 VA (24 V~)

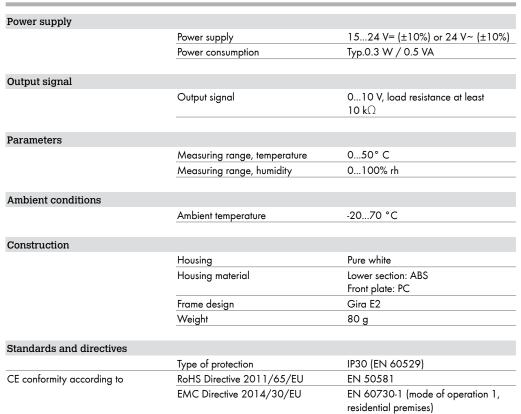


EGH 681: Room transducer, relative humidity and temperature, recessed

Features

- Measures the relative humidity and temperature in rooms
- Regulation of the room climate in combination with room automation systems
- Fast response time and high precision
- Including frame





Overview	of types
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Туре

Description

ECIT/01E001	n , 1	1 6 1 15		1
EGH681F031	ROOM transducer	relative humidity a	nd temperature	recessed





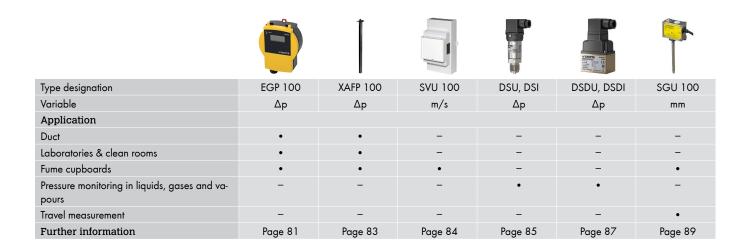




Flow and pressure sensors

SAUTER flow and pressure sensors enable the accurate measurement of air pressures and flow speeds in rooms and ventilation ducts. This includes the measurement of duct pressures for precise control and monitoring of ventilation systems. Additionally, SAUTER flow and pressure sensors can also be used to measure room pressures in laboratories and clean rooms and for flow monitoring in fume cupboards.

Overview of flow and pressure sensors



EGP 100: Differential pressure transducer

Features

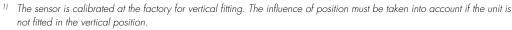
- Exact measurement of positive, negative and differential pressures in gases
- Optimised for applications such as filter monitoring, room or duct pressure monitoring, level monitoring in fluids, actuating frequency converters for fan control and recording volume flow, especially for room air balancing in laboratories
- Can be ideally combined with XAFP 100 flow probe for precise measurement of volume flow
- Static pressure sensor
- Can be fitted in any position
- Can be used for dusty air or air polluted with chemicals (not ATEX approved)
- Manufacturer's test certificate ex works
- The measuring range can be adapted optimally to the needs of the application
- Variable zero point and filter time constant to suppress pressure surges in the system
- Display shows the actual value and the signal progression (depending on type)
- Status LED for immediate indication of operating status (depending on type)
- Measuring range can be reduced to one third (depending on type)
- Fitted to either wall or DIN rail (EN 60715)
- Cover that does not require special tools to open

Technical data

Power supply		
	Power supply	24 V~/=, ±20%
Power consumption F**2	24 V~	3.0 VA
	24 V=	1.3 W
Power consumption F**1	24 V~	1.4 VA
	24 V=	0.4 W
Parameters		
	Admissible positive pressure	±10 kPa
	Influence of position ¹⁾	±1% full span (FS) at 150 Pa, ±75 Pa, ±0,75% FS at 300 Pa, ±150 Pa
	Non-linearity	1% FS pressure-linear
	Zero point stability	< 0.3% FS
	Reproducibility	0.2% FS
	Pneumatic connection ²⁾	6.2 mm
	Parts in contact with media	PC/ABS blend, MQ, CuSn6, FR4
Ambient conditions		

Temperature of medium	070 °C
Admissible operating pressure p _{stat} 3)	±3 kPa
Ambient temperature	060 °C
Ambient humidity	595% rh, no condensation

Inputs/outputs		
	Output signal ⁴⁾	F*01: 010 V, load > 10 k Ω
		F*02/F*12: 0(2)10 V,
		load < 500 Ω

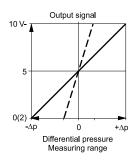


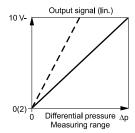
Max. length of measuring wire (di = 6.2 mm): Lmax = 15 m for time constant < 0.5 s, Lmax = 60 m for time constant

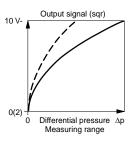












- Gain ∆p = 1 — Gain ∆p = 3







The zero point should be recalibrated if the admissible operating pressure is exceeded

With a load of $< 500 \Omega$, a change-over to 0...20 mA or 4...20 mA occurs automatically. Output protected against short circuits and excess voltage up to 24 V~

	Filter time constant	F*01: 0.052 s F*02, F*12: 0.155.2 s
Construction		
	Pressure connection	Internal Ø 6 mm
	Housing	PC/ABS
	Cable gland	M16
	Screw terminals	For electrical cables of up to 1.5 mm ²
Standards and directives		
	Type of protection	IP65 (EN 60529)
	Protection class	III (EN 60730-1)
	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4

Overview of types

- 1 Output signal: Analogue output limited to 10.6 V. Measured values with an overrun of 6% of the measuring range can therefore be transferred
- *i* Variable characteristic/LED: Manual adjustment of measuring range with gain potentiometer. Signal curve: linear/root-extracted. Output signal: 0...10 V/2...10 V via DIP switches or with CASE Sensors software

Туре	Measuring range	Display	Variable characteris- tic/LED	Weight (kg)
EGP100F101	±75 Pa, ±0,75 mbar	-	-	0.17
EGP100F102	±75 Pa, ±0,75 mbar	-	•	0.18
EGP100F112	±75 Pa, ±0,75 mbar	•	•	0.19
EGP100F201	±150, 1,5 mbar	-	-	0.17
EGP100F202	±150, 1,5 mbar	-	•	0.18
EGP100F212	±150, 1,5 mbar	•	•	0.19
EGP100F301	0150 Pa, 01.5 mbar	-	-	0.17
EGP100F302	0150 Pa, 01.5 mbar	-	•	0.18
EGP100F312	0150 Pa, 01.5 mbar	•	•	0.19
EGP100F401	0300 Pa, 03.0 mbar	-	-	0.17
EGP100F402	0300 Pa, 03.0 mbar	-	•	0.18
EGP100F412	0300 Pa, 03.0 mbar	•	•	0.19
EGP100F601	01000 Pa, 010.0 mbar	-	-	0.17
EGP100F602	01000 Pa, 010.0 mbar	•	•	0.18
EGP100F612	0300 Pa, 03.0 mbar	•	•	0.19

Accessories		
Туре	Description	
0010240300	Connection set, 6 mm, complete	
XAFP100F001	Flow probe to measure the air volume in ventilation ducts	
CERTIFICATO01	Manufacturer's test certificate type M	
CERTIFICAT999	Test for further device (from 2 pcs.)	
0300360001	USB-RS-485 converter	



XAFP 100: Flow probe for ventilation ducts

Features

- Flow probe for precise and inexpensive recording of differential pressure signals in ventilation and air conditioning systems
- Efficient regulation of applications for demand-controlled ventilation in offices, laboratories, fume cupboards and clean rooms, by combining an air damper and an electronic/pneumatic volume flow
- In combination with a square root differential pressure sensor, air volume flows can be reliably recorded and monitored
- Optimised flow profile for accurate measurement of differential pressure signals
- Can be used in atmospheres containing aggressive substances
- Length (396 mm) can be shortened on site if necessary

Technical data

Parameters		
	Measurement tolerance	< 3%
	Range (mm)	DN 80400
Admissible ambient condi	tions	
	Operating temperature	050 °C
	Ambient humidity	< 85% rh, no condensation
	·	
Function		
	Function	Flow probe
		·
Construction		
	Dimensions	$65 \times 40 \times 396 \text{ mm} (W \times H \times L)$
	Bore	Ø 3032 mm
Material	Flow probe	PA 6
	Seal	PE, physiologically safe
	Connecting tube	PU
Standards and directives		
Flow probe	Electrical	UL 7468
•	Flammability	UL 94, IEC 60695-2-12,
	,	IEC 60695-2-13

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Туре	Features
XAFP100F001	Flow probe for ventilation ducts



XAFP100F001

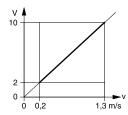






SVU100F005





SVU 100: Air-flow transducer

Features

- Precise and long-term stable recording of air inflow speeds in fume cupboards with a time constant of <100
- Particularly suitable for fume cupboards with horizontal and vertical front sashes
- · Air volume control according to needs for fume cupboards with horizontal and vertical front sashes
- Precise and long-term stable recording of air inflow speeds in fume cupboards
- Reliable detection of reversal of flow direction
- Integrated filter unit that protects against contamination of the sensor
- Dynamic pressure sensor based on thin-film technology
- Fitted to the fume cupboard simply and quickly

Technical data

Power supply		
	Power supply	24 V~, -15%/+20%, 5060 Hz
	Power consumption	1 VA
Parameters		
	Measuring range	01 Pa
	Measuring span ¹⁾	01.3 m/s
	Differential pressure	Approx. 01 Pa
	Time constant	< 0.1 s
	Air throughput rate	3 cm ³ /min (at 1 m/s)
Ambient conditions		
	Ambient temperature	555 °C
	Ambient humidity	< 90% rh
Inputs/outputs		
	Output signal ²⁾	010 V
	Linearity	2% (based on the output signal)
Standards and directives		
	Type of protection	IP40 (EN 60529) with terminal cover
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3

Overview of types

Туре	Feature
SVU100F005	Linear to v [m/s]

Specified flow speed is based on $\rho = 1.2 \text{ kg/m}^3$





Recommended measuring span 0.2...1.3 m/s (output 2...10 V)

Output signal: Output protected against short circuits and excess voltage up to 24 V~

DSU, DSI: Pressure transmitter

Features

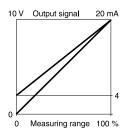
- For measuring pressure in liquids, gases and vapours
- Sturdy device with ceramic diaphragm
- High precision
- High positive pressure protection
- High vibration resistance
- Low hysteresis
- Standard signal 2...10 V or 4...20 mA
- Pressure sensor made of stainless steel for aggressive media
- With standard plug as per DIN EN 175301-803-A

Power supply		
	Power supply	See type list
	Electrical connection	DSI: Two-wire DSU: Three-wire
Parameters	-	7
	Temperature dependence	Zero point 0.07% FS/K Measuring range 0.05% FS/K
	Admissible load	DSU: $U_b \ge 15 \text{ V} \ge 5 \text{ k}\Omega$ $U_b \ge 20 \text{ V} \ge 2 \text{ k}\Omega$ DSI: $(U_b-6 \text{ V})/0.02 \text{ A}$
Ambient conditions		
	Ambient temperature	060 °C
	Temperature of medium	085 °C
	<u>-</u>	
Inputs/outputs		
	Hysteresis	< 0.5% FS
	Linearity	< 1% FS
Construction		
	Housing material	Chromium-nickel steel 1.4305
	Device plug	Plug connection 4-pin, standard plug DIN EN 175 01-803-A, cable gland M16
	Cable cross-section	Max. 1.5 mm ²
	Pressure connection	G ½"
	Weight	0.2 kg
Standards and directives		
Standards and unconves	Type of protection	IP65 (EN 60529)
	Protection class	III (EN 61140)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1 / EN 61000-6-2 EN 61000-6-3 / EN 61000-6-4 EN 60730
	PED 2014/68/EU	Subject to Art. 3.3 of PED without sail ty function













Data capture | Flow and pressure



Accessories	
Туре	Description
0300360007	Capillary throttle, stainless steel, length 1 m, $G\frac{1}{2}$ "- $G\frac{1}{2}$ "
0300360015	Wall holder for DSU/DSI



DSDU, **DSDI**: Differential pressure transmitter

Features

- For measuring pressure differences in liquids, gases and vapours
- Pressure measuring in non-aggressive fluids or gaseous media
- Sturdy device with ceramic diaphragm
- For use in filter technology, heating systems etc.
- Differential pressure measuring range from 0...6 bar
- Analogue signal 0...10 V or 4...20 mA
- 24 V~/= supply voltage
- With fitting bracket
- Standard plug as per DIN EN 175301-803-A



Toominour data		
Power supply		
	Power supply	24 V=/~, ±20%, (5060 Hz)
	Electrical connection	Three-wire
	Power consumption	< 1.5 W (VA)
	<u>-</u>	, ,
Parameters		
	Output signal	010 V Load: > 2 k Ω
		420 mA
		Load: ≤ 700 Ω (V=), ≤ 400 Ω (V~)
	Accuracy ¹⁾	≤ 1%
Ambient conditions		
	Ambient temperature	-2080°C
	Temperature of medium	080°C
		(non-freezing media)
	Ambient humidity	4575% rh
	Burst pressure	64 bar (both sides)
Construction		
	Housing material	Brass
	Diaphragms	Ceramic
	Connecting thread	G 1/8" (female thread)
	Device plug	Plug connection 4-pin, standard plug
		DIN EN 175 01-803-A, cable gland
		M16
	Weight	0.62 kg
Standards and directives		
Standards and directives	Time of masterian	ID45 (EN 40520)
	Type of protection	IP65 (EN 60529)
CE conformity according to	EMC Directive 2014/30/EU	EN 61326-1, EN 61326-2-3
	PED 2014/68/EU	Fluid group II, article 4.3

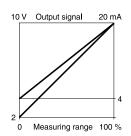
Overview of types				
Туре	Measuring range Δp	Output signal	Max. pressure (connection +)	Max. pressure (connection -)
DSDI101F021	01 bar	420 mA	10 bar	5 bar
DSDI103F021	02.5 bar	420 mA	21 bar	15 bar
DSDI106F021	06 bar	420 mA	21 bar	15 bar
DSDU101F021	01 bar	010 V	10 bar	5 bar
DSDU103F021	02.5 bar	010 V	21 bar	15 bar
DSDU106F021	06 bar	010 V	21 bar	15 bar

¹⁾ Including non-linearity and hysteresis in compensated temperature range 10...70°C













Data capture | Flow and pressure

Accessories	
Туре	Description
0300360005	Cutting ring fitting G1/8" to 6 mm pipe (2 pcs)
0300360006	Pneumatic fitting G1/8" to 6 mm hose (2 pcs)
0300360016	Throttle screws G1/8", G1/8" (2 pcs)



SGU 100: Sash sensor

Features

- Infinitely-variable measurement of the position of the vertical front sash on laboratory fume cupboards
- Accurate detection of sash position, with no wear and tear
- Fast control of the air volume; no oscillation
- Easy fitting, preferably on the counterweight of the front sash
- Teach-in function for adjusting the travel of the front sash
- Easy to program using the SAUTER CASE Sensors software
- Integrated excess-travel alarm
- Power cable 2.5 m long, 7×0.32 mm², fixed to housing
- Fitted with halogen-free cable as standard
- Remote access and remote maintenance: Commissioning and service via bus or external push-button
- 3-colour LED status indicator
- Acoustic status and alarm elements (can be deactivated)

TCCIIIICAI aata		
Power supply		
	Power supply 24 V~	±20%, 5060 Hz
	Power supply 24 V=	±20%
	Power consumption 24 V~1)	Typically: 2 VA, 0.75 W, inactive buzzer,
		max.: 4 VA, 1.5 W, active buzzer
	Power consumption 24 V= ²⁾	Typically: 0.6 W, inactive buzzer, max.: 1.1 W, active buzzer
Parameters		
	Linearity error	Max. 1.5% based on working range, e.g.: 210 V = 8 V
	Hardware response time ³⁾	< 100 ms
	Filter time constant	O5, 22 s, variable using SAUTER CASE Sensors
Ambient conditions		
	Operating temperature	055 °C
	Storage and transport temperature	-2070 °C
	Humidity	85% rh, no condensation
Inputs/outputs		
	Digital input	I _{out_source} max.: 1 mA, V _{out} max.: 18 V at R _{load} = ∞
	Alarm output	I _{sink} max.: 2 mA, open collector output, 100 mV at I _{sink} 2 mA,
		V_{in} max.: 24 V=, 20% at I_{sink} = 0 mA
	Voltage output ⁴⁾	0/210 V, 1 mA max., V _{out} max.: 11.5 V, can be parametr-
		ised,
	T	Default 210 V
	Typical overall error	2.5% (unlinearity, hysteresis, offset, am plified; based on working range)
	Temperature effect	< 0.04 %/K

Default is buzzer active









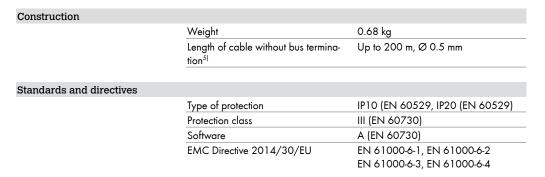


Inactive/active buzzer: Default is buzzer active

The set filter time constant must be added

Protected against short circuits and excess voltage to 24~

Data capture | Flow and pressure



Overview of types		
Туре	Working range	Resolution of working stroke
SGU100F010	200800 mm for bench-mounted fume cup- boards (max. spring travel 1000 mm)	< 1 mm
SGU100F011	4001600 mm for walk-in fume cupboards (max. spring travel 2000 mm)	< 2 mm

Accessories	
Туре	Description
0300360001	USB-RS-485 converter

 $^{^{5)}}$ Cable length of bus termination on both sides 120 Ω : 200...500 m, Ø 0.5 mm

Single-room, heating and air-conditioning controllers

For all building situations: either stand-alone or networked.

SAUTER stand-alone controllers are ideally suited to dedicated applications such as heating, air-conditioning, ventilation, room control. They can be installed quickly. The intuitive operating concept ensures maximum comfort and guarantees, at the same time, the greatest possible energy efficiency in day-to-day operations. SAUTER's stand-alone controllers meet all the demands with regard to smooth functionality, yet enable the installation to be run economically.











58.

Single-room, heating and air-conditioning controllers

Single-room control

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equitherm heating control

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flexotron controllers for ventilation and air-conditioning

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VAV compact controllers

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Room temperature controllers

SAUTER single-room controllers combine easy operability with a modern design. The devices can be used in various applications on hotel, business or residential premises. These include individual temperature control for single rooms, apartments and zones in 2- and 4-pipe systems. The electronic room controllers from SAUTER are efficient, economical and easy to operate.

Overview of room temperature controllers







	1		
Type designation	NRT300F0*1	NRT300F0*2	NRFC 4
Application			
Air-conditioning controller	•	•	•
Fan-coil controller	-	-	•
For 2-pipe installation	•	-	•
For 4-pipe installation	•	•	•
For 2/3-way zone valve	•	-	-
For 6-way ball valve	-	•	-
Outputs			
Continuous	-/•	•	•
Quasi-continuous, 2-point	-/•	-	•
3-point	-/•	-	-
Relay	-	-	•
Control			
PI	•	•	•
Operation and indicator			
Display	-	-	•
Presence button	•	•	-
Communication			
Protocols	-	-	Modbus RTU
Further information	Page 95	Page 97	Page 99

NRT 300: Electronic air-conditioning controller, heating/cooling, equiflex

Features

- Air-conditioning controller for 2- and 4-pipe systems (heating, cooling, heating/cooling)
- Measurement of room temperature by either integrated or external temperature sensor
- Saves energy costs by means of presence/absence key and rotary knob on front
- Inputs for C/O signal, changeover between presence and absence, dew-point monitoring and setpoint shift
- Choice of P or PI control with 2-point, pulse-pause, 3-point or outputs (0...10 V)
- LED indicator
- Servicing level with adjustable control parameters
- Frost-protection facility
- Electrical connection in baseplate
- Electronics in attachable housing

Technical data		
Power supply		
	Power supply	24 V~, ±20%, 5060 Hz
	Power consumption	Approx. 2.5 VA
Parameters		
1 didilictors	Setting range X _s	1030 °C
	Proportional band	220 K
	Integral action time	220 minutes or OFF (as P-controller)
	Period or running time of actuator	0.520 minutes
	Control parameters	Non-volatile
Dead zone X _t	Normal	0,45 K
Dedd Zorie A _t		•
	Extended	8 K
Sensor time constant for air	In room (0.1 m/s)	8 minutes
	In duct (0.5 m/s)	3 minutes
	In duct (3 m/s)	1 minutes
Ambient conditions		
	Ambient temperature	050 °C
	Ambient humidity	595% rh, no condensation
•		
Inputs/outputs	Command variable w	0.10 // B = 00 l-0
		010 V, R_i = 90 kΩ
	Influence of w	1.6 K/V
Function		
	Operating mode	Sequence (heating/cooling)
	Change-over functions ¹⁾	X _t , C/O, TP
Construction		
	Weight	0.1 kg
	Housing	Pure white (RAL 9010)
	Housing material	Fire-retardant thermoplastic
	Fitting	Wall fitting/recessed junction box
	Cable feed	At rear
	Screw terminals	For wire of up to 1 mm ²
a. 1 1 11 11 11		
Standards and directives	-	JD00 /5\1 (0.500)
	Type of protection	IP30 (EN 60529)

 $^{^{1)}}$ $X_t = dead\ zone\ ON/OFF;\ C/O = summer/winter,\ (changeover);\ TP = dew\ point\ monitoring$



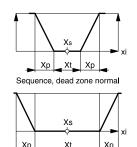
NRT300F0*1



NRT300F041



NRT300F061



Sequence, dead zone extended



	Protection class	III (IEC 60730)
	Energy class	I = 1%
		as per EU 811/2013, 2010/30/EU,
		2009/125/EC
CE conformity according to	EMC Directive 2014/30/EU	EN 60730-1, EN 60730-2-9

Overview of types		
Туре	Output signal	Load on outputs
NRT300F041	Switched	0.5 A (0.9 A when external sensor fitted)
NRT300F061	Continuous	010 V, load > 5 k Ω ; with overflow > 11 V (load-dependent)

NRT300F061: Suitable as a master controller for max. 10 x NRT 300: (slope S = P-band X_p; shift starting point FF = setpoint X_s; operating mode = sequence)

Accessories	
Туре	Description
AVF***	Motorised valve actuator (see product data sheet)
AVM***	Motorised valve actuator (see product data sheet)
AXM***	Motorised valve actuator (see product data sheet)
AXT2**	Thermal actuators for unit valves (see product data sheet)
EGH102F001	Dew-point monitor with sensor in housing
EGH102F101	Dew-point monitor with sensor on cable
0296724000	Sensor holder for wall mounting
0368139000	Rubber bung as sensor holder in ventilation duct
0303124000	Recessed junction box
0313347001	Cover plate, pure white, for $76 \times 76 \text{ mm}$
EGT353F101	Cable temperature sensor; NTC 10k; -35100 °C; L = 1.5 m
EGT353F103	Cable temperature sensor; NTC 10k; -35100 °C; L = 3 m
EGT353F110	Cable temperature sensor; NTC 10k; -35100 °C; L = 10m
EGT353F120	Cable temperature sensor; NTC 10k; -35100 °C; L = 20m
0386273001	Plug-in power unit, input 230 V~, output 21 V~ (0.34 A), length of cable 1.8 m, IP30
0313409001	Holder for sensor cartridge in ventilation duct
0313501001	Housing with scale 1030 °C



NRT 300: Electronic air-conditioning controller for 6-way ball valve, heating/cooling

Features

- Air-conditioning controller for 4-pipe systems (heating/cooling)
- Measurement of the room temperature either by integrated or external temperature sensor, e.g. in heated/chilled ceilings in hotels and residential and business spaces
- Saves energy costs by means of presence/absence key and rotary knob on front
- Inputs for changeover between presence and absence, dew point monitoring and setpoint shift
- P-/PI control (F063) or PI control (F062)
- LED indicator for presence, heating, cooling and dew point
- Servicing level with adjustable control parameters
- Frost-protection facility
- Electrical connection in baseplate
- Adjustable limiting of the heating volume flow

100mmour data		
Power supply		
	Power supply	24 V~, ±20%, 5060 Hz
	Power consumption	Approx. 2.5 VA
Parameters		
	Setting range X _s	1030 °C
	Proportional band	222 K
	Integral action time	220 minutes or OFF (as P-controller)
	Control parameters	Non-volatile
Dead zone X _t	Normal	0.26 K
	Extended	8 K
Sensor time constant for air	In room (0.1 m/s)	8 minutes
Ambient conditions	A 1:	0.50.00
	Ambient temperature	050 °C
	Ambient humidity	595% rh, no condensation
Inputs		
	Setpoint shift w	010 V, Ri = 90 k Ω
	Dead zone	ON/OFF
	Dew point	ON/OFF
Function		
- 411011011	Operating mode	Sequence (heating/cooling)
	Change-over functions ¹⁾	X _t , TP
Construction		
	Weight	0.1 kg
	Housing	Pure white (RAL 9010)
	Housing material	Flame-retardant thermoplastic
	E:44:4-4-	Wall mounting/recessed junction box
	Fitting	Trail incoming/ recessed jonement box
	Cable feed	At rear
Standards and directives	Cable feed	At rear
Standards and directives	Cable feed	At rear

 $X_t = \text{dead zone ON/OFF}$; TP = dew point monitoring





NRT300F062



NRT300F063



	Energy class	I = 1% as per EU 811/2013, 2010/30/EU, 2009/125/EC
CE conformity according to	EMC Directive 2014/30/EU	EN60730-1
		EN60730-2-9

Overview of types			
Туре	Function	Output	
NRT300F062	Regulation of heating/cooling with 6-way ball valve	$1 \times 10 \text{ V load} > 5 \text{ k}\Omega$; with overflow at 11 V (load-dependent)	
NRT300F063	Heating/cooling changeover with 6-way ball valve; control with dynamic regulating valve	1 x 010 V load > 5 k Ω ; with overflow > 11 V (load-dependent) 1 x switching 0.5 A (0.9 A with external sensor)	

Accessories	
Туре	Description
AKM115SF132	Rotary actuator with SAUTER Universal Technology (SUT) for ball valve; 24 V
AKM115F122	Rotary actuator for ball valve 2-/3-pt; 24 V~
AXM***	Motorised valve actuator (see product data sheet)
AXS2**	Continuous thermal actuators for unit valves (see product data sheet)
EGH102F001	Dew-point monitor with sensor in housing
EGH102F101	Dew-point monitor with sensor on cable
0303124000	Recessed junction box
0313214001	Fixing kit for cable temperature sensor (holder, heat-conducting paste, retaining strap)
0313347001	Cover plate, pure white, for 76 × 76 mm
EGT353F101	Cable temperature sensor; NTC 10k; -35100 °C; L = 1.5 m
EGT353F103	Cable temperature sensor; NTC 10k; -35100 °C; L = 3 m
EGT353F110	Cable temperature sensor; NTC 10k; -35100 °C; L = 10m
EGT353F120	Cable temperature sensor; NTC 10k; -35100 °C; L = 20m
0386273001	Plug-in power unit, input 230 V~, output 21 V~ (0.34 A), length of cable 1.8 m, IP30
0313501001	Housing with scale 1030 °C



NRFC 413, 422...424: Modbus fan coil thermostat

Features

- · Single-room controller for heating and cooling by means of air conditioning units in commercial and residential buildings
- For 2- or 4-pipe fan coil units, two-stage heating systems or water-bearing heat pumps
- Can be integrated into building management systems via Modbus/RTU
- Large configurable display with backlight
- Integrated on/off timer
- Deactivatable button operation for public installations
- Valve control via 2-point or 0...10 V output
- Supports 3-speed fans or fans with EC motor
- Summer/winter changeover in 2-pipe applications
- Automatic deactivation of internal temperature sensor when using a cable temperature sensor
- Installation via mounting plate without opening the controller
- Universal design and low installation height of 14 mm for inconspicuous fitting

Technical data

Power supply		
s. supp.j	Power supply	100240 V~, 50/60 Hz
	Power consumption	5 VA
	TOWER CONSUMPTION	3 77.
Ambient conditions		
	Ambient temperature	040 °C
	Ambient humidity	595% rh, no condensation
	Storage and transport temperature	-2560 °C
Inputs/outputs		
Inputs	Temperature sensor	NTC 10k
	Digital input	closed < 0.3 V=
		open > 0.7 V=
	Analogue input	010 V
Outputs	Analogue output U	010 V (100 kOhm)
	Relay output	$1 \times 2.2 \text{ A (I}_{R})$
		1 × 3.6 A (I _X)
		cos ф 0.98 each at 240 V~
Interfaces, communication		
RS-485	Communication protocol	Modbus/RTU
	Connection	Terminal, 3-pin
	Baud rate	9600, 4800 (adjustable)
	Indicator/display	LCD display with backlight (adjustable)
	Buttons	6
Construction		
	Weight	0.3 kg
	Dimensions W x H x D	88 × 88 × 46.2 mm
	Housing	Upper and lower part white
	Housing material	Polycarbonate
	Fitting	On round or square recessed box
Standards, directives		
	Type of protection	IP20 (EN 60529)
	Protection class	III as per IEC 60730
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3
	Low-Voltage Directive 2014/35/EU	EN 60730-1/EN 60730-2-9



NRFC413MF111





Inputs/outputs

Туре	Al	DI	AO	DO
NRFC413MF111	1 × NTC, 1 × 010 V	1	1	3 × relay (single-pole normally-open contact)
NRFC422MF111	1 × NTC	1	0	5 × relay (single-pole normally-open contact)
NRFC423MF111	1 × NTC	1	2	3 × relay (single-pole normally-open contact)
NRFC424MF112	1 × NTC	1	2	3 × relay (single-pole normally-open contact)

Overview of types			
Туре	Description	Fan	
NRFC413MF111	2-pipe, continuous, with positional feedback signal	3 speeds	
NRFC422MF111	2-pipe or 4-pipe, 2-point	3 speeds	
NRFC423MF111	2-pipe or 4-pipe, continuous	3 speeds	
NRFC424MF112	2-pipe or 4-pipe, 2-point or 2-pipe, continuous	EC motor with cut-off function	



Surface temperature regulation

The systems and solutions from SAUTER set standards for convenient control of surface heating and cooling systems. The products stand for technologically advanced, precise and easy to operate installations. The systems provide modern solutions for single- and multi-family residences, hotels and public buildings, where the focus is on optimal comfort, easy operation and energy efficiency.

Overview of surface temperature regulation









	WANTE	WALKETS.		
Type designation	LRA 650	LRA 660	TRA 410, 421	TRT 317, 327
Application				
Controller	-	-	•	•
Electrical distributor	-	-	-	-
Operating device	•	-/•	•	•
Circuits/zones				
Channels	-	-	-	-
Time programme/setback mode	•	-	•	•
Power supply				
24 V / 230 V	-	-	•	•
Battery mode	•	•	-	-
Operation and indicator				
Display	•	-	•	-
Sensor buttons	•	-/•	-	-
Rotary knob	-	-	•	•
Status LED	-	•	-	-
Communication and functions				
Communication via wireless connection	•	•	-	-
Communication via wire connection	-	-	•	•
Network connection/LAN	-	-	-	-
Heating/cooling	•	-	•	•
Access via app	•	•	-	-
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Type designation	LET 62*	FXV 3***	FXV 33**
Application			
Controller	•	-	-
Electrical distributor	•	•	•
Operating device	-	-	-
Circuits/zones			
Channels	4/8/12	6/10	8
Time programme/setback mode	•	•	•
Power supply			
24 V / 230 V	• / •	• / •	-/•
Battery mode	-	-	-
Operation and indicator			
Display	-	-	-
Sensor buttons	-	-	-
Rotary knob	-	-	-
Status LED	•	•	•
Communication and functions			
Communication via wireless connection	•	-	-
Communication via wire connection	-	•	•
Network connection/LAN	•	-	-
Heating/cooling	•	•	•
Access via app	•	-	-
Further information	Page 111 Available from end of 2021	Page 114	Page 116

LRA 650: Room operating unit, temperature and humidity, display

Features

- Comfortable single-room control in residential and business premises with bidirectional radio transmission
- Compatible with SAUTER Eco Climate Control (ECC) and LET62* wireless controller (868 MHz)
- Display with graphical interface and plain text display for user-friendly operation and easy parameterisation
- Operation via three touch keypads
- Adjustment of setpoint and the heating/cooling operating mode
- Display of the weather forecast
- Configuration also via smartphone app
- Simple commissioning without wiring
- Integrated temperature and humidity sensor
- Battery-saving e-paper display
- Plastic front panel with scratch-resistant surface
- Optional accessories for 230 V power supply and connection of external sensors

Technical data

Dower cumply

Power supply		
	Power supply	Button cell, type CR2032 (3 V)
Parameters	_	
Temperature	Temperature sensor	Integrated digital sensor
	Setting range for temperature	1530 °C
	Measuring range, temperature	045 °C
	Measuring accuracy, temperature	±0.3 °C (typical at 21 °C)
	Setting accuracy	1 °C steps
	Frost-protection temperature	8 °C (factory activated)
Humidity	Measuring range, humidity	1085% rh, no condensation
	Measuring accuracy, humidity	±2% at 2080% rh (typical at 21 °C)
	Hysteresis	±1% rh (average value, typical at 21 °C)
Ambient conditions		
	Ambient temperature	050 °C
	Storage temperature	−2070 °C
	Ambient humidity	1085% rh, no condensation
	Place of use	Indoor spaces
Indicators, display, operation		
	Indicator/display	Setpoint/actual value, weather data and weather forecast
	Resolution of display	0.1 °C
	Screen diagonal	2.13 inches
	Size of display	Approx. 24 × 49 mm
	Resolution	250 × 122 pixels (130 DPI)
	Туре	E-paper (monochrome)
	Operation	3 touch keypads (sensor surfaces as soft keys)
		35 10731
Wireless communication		
	Integration	In SAUTER Eco Climate Control with LET62* wireless controller
	Protocol	SAUTER wireless protocol (proprietary)
	Radio frequency	868 MHz
	Transmission interval	Autom. every 10 minutes



LRA65ORF101





Range ¹⁾	≤ 30 m (through walls)
Transmission power	13 mW (self-adjusting)
Number of participants ²⁾	Max. 12 per controller
External sensor ³⁾	Optional, see accessories

Construction		
	Fitting	Wall mounting with mounting plate (al- so suitable for 60 mm recessed junc- tion box)
	Dimensions W x H x D	79 × 79 × 11 mm
	Housing	White (similar to RAL9016)
	Housing material	Plastic, ABS+GF, flame retardant as per UL94 V-0
	Front panel material	Plastic, scratch-resistant
	Material of adapter plate	Plastic
	Weight	0.013 kg
Standards, directives		
	Type of protection	IP20 (EN 60529)
	Protection class	III (FN 60730-1)

Type of protection	IP20 (EN 60529)
Protection class	III (EN 60730-1)
EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2,
	EN 61000-6-3, EN 61000-6-4
RED Directive 2014/53/EU	EN 300220-1, EN 300220-3
	Protection class EMC Directive 2014/30/EU

Overview of type	verview of types	
Туре	Description	
LRA650RF101	Wireless room operating unit with temperature and humidity sensor, e-paper display, sensor keys	

Supplied with the unit: 1 pc. CR2032 battery (already inserted), 2 pcs. Torx screw (3 × 19 mm), 2 pcs. plastic dowels (5 mm), 1 pc. adapter plate for wall mounting

Accessories	Accessories	
Туре	Description	
0450576001	Power supply 230 V for wireless room units	
0313214001	Fixing kit for cable temperature sensor (holder, heat-conducting paste, retaining strap)	
EGT353F101	Cable temperature sensor; NTC 10k; -35100 °C; L = 1.5 m	
EGT353F103	Cable temperature sensor; NTC 10k; -35100 °C; L = 3 m	
EGT501F102	Outdoor-temperature sensor (NTC 10k), in housing, -3590 °C, type of protection IP65	



¹⁾ In buildings or single-family homes with solid construction. Up to 300 metres in open field without obstacles and local sources of interference

²⁾ Mixed installation possible, but max. 12 room operating units or room sensors in total

³⁾ Cable temperature sensor or outdoor temperature sensor

LRA 660: Room sensor/room operating unit, temperature and humidity

Features

- Comfortable single-room control in residential and business premises with bidirectional radio transmission
- Compatible with SAUTER Eco Climate Control (ECC) and LET62* wireless controller (868 MHz)
- LRA660RF201: LED indicator with intuitive circular touch sensor for setpoint adjustment of the room temperature
- Configuration via smartphone app
- Simple commissioning without wiring
- Status LED to indicate the heating/cooling mode, battery capacity and wireless signal strength
- Integrated temperature and humidity sensor
- Plastic front panel with scratch-resistant surface
- Optional accessories for 230 V power supply and connection of external sensors

Power supply		
	Power supply	Button cell, type CR2032 (3 V)
Parameters		
Temperature	Temperature sensor	Integrated digital sensor
	Setting range for temperature	1530 °C
	Measuring range, temperature	045 °C
	Measuring accuracy, temperature	±0.3 °C (typical at 21 °C)
	Setting accuracy	1 °C steps
	Frost-protection temperature	
Humidity	Measuring range, humidity	1085% rh, no condensation
	Measuring accuracy, humidity	±2% at 2080% rh (typical at 21 °C
	Hysteresis	±1% rh (average value, typical at 21 °C)
Ambient conditions		
Ambient conditions	Ambient temperature	050 °C
	Storage temperature	-2070 °C
	Ambient humidity	1085% rh, no condensation
	Place of use	Indoor spaces
Display, signalling		
	Status indicator	Three-colour status LED (blue, green, red)
	Buzzer	Piezo sound converter
Wireless communication		
	Integration	In SAUTER Eco Climate Control with LET62* wireless controller
	Protocol	SAUTER wireless protocol (proprietary
	Radio frequency	868 MHz
	Transmission interval	Autom. every 10 minutes
	Range ¹⁾	≤ 30 m (through walls)
	Transmission power	13 mW (self-adjusting)
	Number of participants ²⁾	Max. 12 per controller
	External sensor ³⁾	Optional, see accessories

In buildings or single-family homes with solid construction. Up to 300 metres in open field without obstacles and local sources of interference



LRA66ORFO01



LRA66ORF201



Mixed installation possible, but max. 12 room operating units or room sensors in total

Cable temperature sensor or outdoor temperature sensor

Construction		
	Fitting	Wall mounting with mounting plate (also so suitable for 60 mm recessed junction box)
	Dimensions W x H x D	79 × 79 × 11 mm
	Housing	White (similar to RAL9016)
	Housing material	Plastic, ABS+GF, flame retardant as per UL94 V-0
	Front panel material	Plastic, scratch-resistant
	Material of adapter plate	Plastic
	Weight	0.013 kg
Standards, directives		
	Type of protection	IP20 (EN 60529)
	Protection class	III (EN 60730-1)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4
	RED Directive 2014/53/EU	EN 300220-1, EN 300220-3

Overview of types		
Туре	Description	
LRA660RF001	Wireless room sensor with temperature and humidity sensor	
LRA660RF201	Wireless room operating unit with temperature and humidity sensor, circular touch sensor	

Supplied with the unit: 1 pc. CR2032 battery (already inserted), 2 pcs. Torx screw (3 × 19 mm), 2 pcs. plastic dowels (5 mm), 1 pc. adapter plate for wall mounting

Accessories		
Туре	Description	
0450576001	Power supply 230 V for wireless room units	
0313214001	Fixing kit for cable temperature sensor (holder, heat-conducting paste, retaining strap)	
EGT353F101	Cable temperature sensor; NTC 10k; -35100 °C; L = 1.5 m	
EGT353F103	Cable temperature sensor; NTC 10k; -35100 °C; L = 3 m	
FGT501F102	Outdoor-temperature sensor (NTC 10k) in housing -35 90 °C, type of protection IP65	



TRA 410, 421: Electronic room thermostat for heating and heating/cooling with display

Features

- Electronic room thermostat for 24 V or 230 V for heating or heating/cooling with display
- Easy to read LCD with backlight on TRA 421
- Silent-switching Triac output (24 V types)
- Easy to wire up
- NTC sensor
- Time programme and pilot clock output integrated in TRA 421
- Optimised time programme for comfort control and energy saving
- Input for lowering the room temperature (TRA 410)
- Input for heating/cooling changeover (TRA 421)
- Input for external temperature sensor
- Cooling lock function on versions for heating/cooling
- Integrated "NC" and "NO" changeover
- Modern design with ergonomic setpoint adjuster
- Restriction of temperature setting range
- Automatic frost protection facility at 5 °C and valve protection facility

Power supply		
	Power supply	See type list
	Power consumption	< 0.3 W in idle state
	Fuse	In housing: 230 V= T1AH 24 V= T1A
arameters		
	Number of actuators	AXT 211/201: 230 V, max. 5 pcs. parallel 24 V, max. 4 pcs. parallel
	Setting range	530 °C
	Switching difference	±0.2 K
	Set-back	2 K or adjustable
	Measuring element	NTC 22k
Ambient conditions		
	Ambient temperature	050 °C
	Ambient humidity	580% rh, no condensation
Construction		
	Housing	Cover: White (RAL 9016) Lower section: Signal white (RAL 9003)
	Housing material	Thermoplastic PC + ABS
	Fitting	Wall, recessed junction box
inputs/outputs		
	Switching element	230 V, relay 24 V, Triac
	Switch rating	230 V, 1 A 24 V, 1 A
	ECO input	230 V, voltage detection 230 V 24 V, voltage detection 24 V









	Heating/cooling	Input: 230 V, voltage detection 230 V 24 V, voltage detection 24 V
	Pilot timer	Output: 230 V, 100 mA 24 V, 100 mA
Connection terminals / cable		
	Connection terminals	Screw terminals 0.22 mm ² to 1.5 mm ²
	Power cable	Solid:

Standards and directives		
	Type of protection	IP20 (EN 60529)
	Protection class 24 V	III (EN 60730)
	Protection class 230 V	II (EN 60730)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-9

NYM-J/NYM-O (max. $5 \times 1.5 \text{ mm}^2$) Flexible: H03V2V2H2-F / H05V2V2H2-F

Overview of types			
Туре	Description	Power supply	Weight
TRA410F210	Heating, lowering, frost protection function	230 V~, ±10%, 50 Hz	130 g
TRA410F212	Heating, lowering, frost protection function	24 V~, ±20%, 50 Hz	130 g
TRA421F210	Heating/cooling, lowering, frost protection and valve protection function, cooling lock	230 V~, ±10%, 50 Hz	140 g
TRA421F212	Heating/cooling, lowering, frost protection and valve protection function, cooling lock	24 V~, ±10%, 50 Hz	140 g

Accessories	
Туре	Description
AXT2**	Thermal actuators for unit valves (see product data sheet)
EGT554F103	Cable temperature sensor NTC 22k, -35100 °C, IP67, length 3 m



TRT 317, 327: Electronic room thermostat for heating and heating/cooling

Features

- Electronic room thermostat for 24 V or 230 V for heating or heating/cooling
- Silent-switching Triac output on 24 V types
- Easy to wire up
- NTC sensor
- With input for lowering the room temperature
- With input for heating/cooling changeover (TRT 327)
- With cooling lock function on versions for heating/cooling
- Modern design with ergonomic setpoint adjuster
- With restriction of temperature setting range
- Electrical connection in baseplate with screw terminals
- With automatic frost protection facility at 8 °C and valve protection function







Power supply		
	Power supply	24 V~ / 230 V~
	Power consumption	< 0.3 W in idle state
	Fuse	In housing: 230 V = T2AH 24 V = T1A
Parameters		
Tarameters	Number of actuators	AXT211/201: 230 V, max. 6 pcs. parallel 24 V, max. 4 pcs. parallel
	Setting range	1028 °C
	Switching difference	±0.5 K
	Set-back	2 K
	Measuring element	NTC
Ambient conditions		
	Ambient temperature	050 °C
	Ambient humidity	580% rh, no condensation
Construction		
	Housing	Cover: White (RAL 9016) Lower section: Signal white (RAL 9003)
	Housing material	Thermoplastic PC + ABS
	Fitting	Wall, recessed junction box
Inputs/outputs		
. , .	Switching element	230 V, relay 24 V, Triac
	Switch rating	230 V, 1.8 A
	ECO input	230 V, voltage detection 230 V 24 V, voltage detection 24 V
	Heating/cooling	230 V, voltage detection 230 V 24 V, voltage detection 24 V
Connection terminals / cable		
, cano	Connection terminals	Screw terminals
		0.22mm ² to 1.5mm ²
		·······
	Switching difference	±0.5 K



Standards and directives		
	Type of protection	IP20 (EN 60529)
	Protection class 24 V	III (EN 60730)
	Protection class 230 V	II (EN 60730)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-9

Overview of types			
Туре	Description	Voltage	Weight
TRT317F210	Heating, lowering, frost protection function	230 V~, ± 10 %, 50 Hz	90 g
TRT317F212	Heating, lowering, frost protection function	24 V~, ± 20 %, 50 Hz	90 g
TRT327F210	Heating/cooling, lowering, frost protection and valve protection function, cooling lock	230 V~, ± 10 %, 50 Hz	135 g
TRT327F212	Heating/cooling, lowering, frost protection and valve protection function, cooling lock	24 V~, ± 10 %, 50 Hz	135 g

Accessories	
Туре	Description
AXT2**	Thermal actuators (see product data sheet)



LET 62*: Underfloor heating controller, Eco Climate Control

Features

- Intelligent bidirectional wireless controller for heating/cooling of surface heating
- Commissioning and operation via smartphone app
- Control and monitoring of individual zones, rooms and complete buildings
- User roles in the app allow defined access to activated functions
- Optional connection to the SAUTER cloud for remote access, historical data, weather forecast, and presence and absence profiles
- Connect and control with Amazon Alexa
- LED indicators for communication and operating modes
- Integrated safety circuit in case of break in wireless connection to room operating unit or room sensor
- Optional connectable heating and cooling release function based on outside temperature
- Functions for weather-dependent supply temperature control
- Heating/cooling changeover via room operating unit or app via digital input
- Input for outdoor temperature or supply temperature sensor
- Inputs for return temperature sensor, supply temperature limiter and dew point monitor
- Integrated pump logic and potential-free output contact
- Output for mixer actuator
- Can be upgraded to a smart home central unit with optional wireless accessories (switchable socket, window contacts, valve actuator)
- Window contacts enable heating and cooling operation to be switched off (optional accessory)
- Up to three controllers can be integrated into one system via wireless

Technical data

Technical data			
Power supply			
	Power supply ¹⁾	$24 V = \pm 15\%$	
	Distributor fuse	Internal, self-resetting	
	Power consumption in stand-by mode	2.6 W	
Ambient conditions			
	Ambient temperature	055 °C	
	Storage temperature	-2070 °C	
	Ambient humidity	580% rh, non-condensing	
Inputs/outputs			
Outputs	Pump connection	230 V~, max. 2.5 (1) A, potential-free	
	Heating/cooling	230 V~, max. 2.5 (1) A	
	Power supply for mixer	24 V~	
	Mixer connection	010 V	
	Number of actuators	1 or 2 pcs. per channel, Triac: 24 V~, 1 A	
Inputs	Changeover (CO) or temperature limiter (TB)	24 V~ or 230 V~, contacts input potential-free	
	Changeover (CO)	Contacts input potential-free	
	Dew point monitor (%H)	Contacts input potential-free	
	Outdoor temperature or supply temperature sensor	r- NTC input (10 kΩ)	
	Return-temperature sensor	NTC input (10 k Ω)	
	· · · · · · · · · · · · · · · · · · ·		



LET6212RF001







¹⁾ 24 V power supply via included transformer 230 V~ / 24 V=, 50/60 Hz, 42 VA power consumption incl. transformer power supply



²⁾ Battery not replaceable

Average transmission capacity depending on the distance between the room operating unit and the wireless controller In buildings or single-family homes with solid construction. Up to 300 metres in open field without obstacles and local

sources of interference
5) Memory card not included in delivery

Overview of types					
Туре	Features	Power consumption	Number of thermal actuators	Dimensions W x H x D (mm)	Weight
LET6204RF001	4 channels	15 W	Max. 6	225 × 74 × 52	1.3 kg
LET6208RF001	8 channels	27 W	Max. 12	290 × 74 × 52	1.5 kg
LET6212RF001	12 channels	39 W	Max. 18	355 × 74 × 52	1.7 kg

- Power consumption depends on the number of thermal actuators connected $% \left(\frac{1}{2}\right) =\frac{1}{2}\left(\frac{1}{2}\right) =\frac{1}$
- Weight including transformer
- Supplied with the unit: Transformer 230 V~ / 24 V= (0450573001), 1 pc. DIN rail 35 mm

Accessories				
Туре	Description			
LRA65ORF101	Wireless room operating unit with twhite	emperature and humidity sensor, e-paper display, sensor keys,		
LRA660RF001	Wireless room sensor with tempero	ture and humidity sensor, white		
LRA660RF201	Wireless room operating unit with t	remperature and humidity sensor, circular touch sensor, white		
EGT353F101	Cable temperature sensor; NTC 10	0k; -35100 °C; L = 1.5 m		
EGT353F103	Cable temperature sensor; NTC 10	0k; -35100 °C; L = 3 m		
EGT501F102	Outdoor-temperature sensor (NTC 10k), in housing, -3590 °C, type of protection IP65			
0313214001	Fixing kit for cable temperature sensor (holder, heat-conducting paste, retaining strap)			
0450576001	Power supply 230 V for wireless room units			
System extension	System extensions			
Wireless room ope	erating units	Max. 12 pcs.		
Configurable zone	s	Max. 3 per controller		
Wireless switchable sockets		Max. 2 pcs.		
Wireless window contacts		Max. 24 pcs.		
		Max. 4 per room		
Wireless valve actu	uators	Max. 4 pcs.		
Wireless controllers		Additional 2 connectable to master		





FXV3210F002



FXV 3***: Electric distributor for positioning signals

Features

- For easy wiring of up to 6 or 10 zones in a surface heating system
- For transferring switching signals from the unitary controllers for heating or heating/cooling
- Individual forwarding of time commands or night set-back to the appropriate actuators; max. 2 timer channels
- With pump and boiler control
- Pump logic with adjustable follow-on time for actuating the circulation pump
- Integrated valve protection function
- Input for temperature limiter or dew point monitor
- LED status indicator
- Pump control direction switching for NC/NO actuators
- For connecting up to 18 actuators
- Cable guidance, standard-compliant cord grip and screwless terminal connections
- Easy, intuitive wiring and installation

recillical data		
Power supply		
	Power supply 230 V~	±10%, 5060 Hz
	Power supply 24 V~	±20%, 5060 Hz
	Distributor fuse 24 V	T2A
	Distributor fuse 230 V	T4AH
Parameters		
	Circuits/zones	6 or 10
	Timer channels/set-back	2
Ambient conditions		
	Ambient temperature	050 °C
	Storage temperature	-2070 °C
	Ambient humidity	< 80% rh
Inputs/outputs		
Outputs	Number of actuators	6 channels:Max. 15 pcs.
·		10 channels:Max. 18 pcs.
	Pump connection	Max. 6 (2) A
	Boiler connection	Max. 6 (2) A
Inputs	Set-back	Potential-free contact input
	Heating/cooling	Potential-free contact input
	TB or dew point	Potential-free NC contact
	·	
Construction		
	Housing material	Flame-retardant ABS plastic, black RAL9005
	Cover	Transparent grey plastic
	Fitting	Mounted unit, DIN rail
Connection terminals / cable		
	Connection terminals	Terminals with spring technology for 0.2 to 1.5 mm ² vertical cable entry
	Power cable	Solid: NYM-J/NYM-O (max. 5 × 1.5 mm²) Flexible: H03V2V2H2-F / H05V2V2H2-F
	Cable clamping device	Integrated in housing



Standards and directives		
Statidards and directives		
	Type of protection	IP20 (EN 60529)
	Protection class	II (EN 60730)
CE conformity	EMC Directive 2014/30/EU	EN 60730-1 Type 1C
	Low-Voltage Directive 2014/35/EU	EN 60730-1 & -2-9 Type 1C

Overview of types				
Туре	Nominal voltage	Features	Channels	Weight
FXV3006F001	24 V~ / 230 V~	Heating, with decrease	6	482 g
FXV3110F001	230 V~	Heating/cooling, with decrease and pump control	10	515 g
FXV3110F002	24 V~	Heating/cooling, with decrease and pump control	10	515 g
FXV3210F001	230 V~	Heating/cooling, with decrease, pump logic, boiler control and LED indicator	10	550 g
FXV3210F002	24 V~	Heating/cooling, with decrease, pump logic, boiler control and LED indicator	10	534 g

Accessories	
Туре	Description
0450573001	Transformer 230 / 24 V, 42 VA





FXV3308F011

FXV 33** EasySwitch: Electric distributor for positioning signals

Features

- For the control of a maximum of twelve thermal actuators for unit valves and the connection of up to eight
- Flexible assignment of the actuators to the room thermostats via rotary switch
- Distribution of the power supply, the positioning signals and a shared time programme for room operating
- Easy to change channel assignment without rewiring
- Pump logic module for activating a circulation pump
- Input for timer for individual forwarding of time commands to the heating zones
- LED status indicators for power supply, pump logic module and active heating channels
- Integrated cable guides and terminal connection without tools
- Fitting on DIN rail or wall mounting

Power supply		
	Power supply	230 V~, ±10%, 5060 Hz
	Distributor fuse 230 V	T4AH (5 × 20 mm)
Parameters		
2 44 44 44 44 44 44 44 44 44 44 44 44 44	Control loops/heating zones ¹⁾	Max. 8 inputs
	Timer channel/set-back	Yes
Ambient conditions		
Ambient conditions	Ambient temperature	050 °C
	Storage temperature	-2070 °C
	Ambient humidity	1085% rh
Inputs/outputs		
Outputs	Number of actuators	Max. 12 thermal actuators for unit valves (for heating circuits)
	Pump connection	Max. 2 (1) A
Inputs	Set-back	Contacts input
Construction		
	Housing material	PC-ABS plastic, black (similar to RAL9005)
		Fire-retardant as per UL94V-0
	Cover material	PC plastic, grey transparent Fire-retardant as per UL94V-0
	Fitting	Mounted unit, DIN rail, 35 mm or optionally screw-on mounting
	Dimensions W x H x D	350 × 100 × 52 mm
Connection terminals / cable		
Connection terminals / Cable	Connection terminals	Spring-loaded plug-in connectors
	Cable cross-section	0.51.5 mm ²
	Power cable	Solid: NYM-J/NYM-O
	Tower capie	(max. 5 × 1.5 mm²) Flexible: H05V2V2H2-F
	Cable clamping device	Cable fastening points integrated with out tools into housing

TRA or TRT room thermostats: TRA: max. five AXT2 per heating zone TRT: max. six AXT2 per heating zone





Standards and directives		
	Type of protection	IP20 (EN 60730)
	Protection class	II (EN 60730)
CE conformity	EMC Directive 2014/30/EU	EN 60730-1, residential premises
	Low-Voltage Directive 2014/35/EU	EN 60730-1 & -2-9 type 1C

Overview of types				
Туре	Nominal voltage	Features	Channels	Weight
FXV3308F011	230 V~	Heating/cooling, with set-back, pump logic module and LED indica- tor		580 g



Heating controller

SAUTER heating controllers of the equitherm series are easy to operate, while ensuring that your installation meets the highest standards of energy-optimised operation. Using communication accessories, the devices can be networked together in larger plants or integrated into a building automation system. The applications for these heating controllers include weather-dependent boiler and/or supply temperature control and domestic hot water preparation, as well as heating control in local or district heating networks.

Overview of heating controllers









	•	•	•	•
Type designation	EQJW 126	EQJW146F001	EQJW146F002	EQJW246F002
Application				
Solar	-	•	•	•
Boiler control	-	•	•	•
Supply temperature control	•	•	•	•
Heating of drinking water	-	•	•	•
Local/district heating	•	•	•	•
Operation				
Symbol display	•	•	-	-
Graphics display	-	-	•	•
Function				
Control loops	1	:	2	3
Switching programmes	•	•	•	•
Inputs/outputs				
Inputs/outputs (010 V)	-		1	1/1
Digital inputs	-	2		17
Analogue inputs (Ni1000/ Pt1000)	3	8		17
Relay (pump/actuator)	3	7		11
Communication				
Interfaces	RJ45			
Protocols	Modbus RTU, device bus (TAP)		Modbus RTU, Device bus (TAP), M-Bus	
Logbook	-	-	•	•
Further information	Page 119	Page 121	Page 121	Page 124

EQJW 126: Heating controller with digital user interface, equitherm

Features

- Pl supply temperature control by heating curve or 4-point characteristic
- Convenient to use with modern operating concept (turn and press) and large LCD
- Convenient weekly and annual switching programmes with optimisation of switching times
- Automatic summertime/wintertime changeover
- Min./max. limitation of supply temperature and max. limitation of return temperature
- Frost-protection facility and pump and valve anti-jamming function
- Function heating (floor-drying function)
- Room temperature switching using room temperature sensor
- Ni/Pt1000 inputs for the outside, supply, return flow and room temperature
- Relay outputs with varistor suppression for activating control units and pump
- Manual mode
- Electrical connection in baseplate
- Interface for various accessories such as modem, gateway, data logging module etc.

Technical data

Power supply		
	Power supply	230 V~, ±15%, 5060 Hz
	Power consumption	Approx. 1.5 VA
Parameters		
Control parameters	Amplification KP	0.150
	Integral action time	1999 seconds
	Frost-protection temperature	3 °C
Temperature ranges	Normal temperature	040 °C
	Reduced temperature	040 °C
	Supply temperature	−5150 °C
	Outdoor temperature	−5050 °C
	Cycle time	Running time of the valve ÷ 15
	Running time of valve	30300 seconds
Ambient conditions		
	Ambient temperature	040 °C
	Ambient humidity	595% rh, no condensation
	Storage and transport temperature	−1060 °C
Inputs/outputs		
	Number of inputs	3 analogue, Ni1000/Pt1000
	Number of outputs	3 relays
	Pump relay ¹⁾	$1 \times 2 \text{ A}, 250 \text{ V} \sim, \cos \phi > 0.5$
	Actuator relay (3-point or 2-point) ²⁾	$2 \times 2 \text{ A}, 250 \text{ V} \sim, \cos \phi > 0.5$
Function		
Digital timer for weekly/annual switching programme	Backup power supply	Min. 24 hours, typically 48 hours
	Accuracy	< 10 minutes/year
Weekly switching programme	Number of switching commands	42/week
	Min. switching interval	15 minutes
Annual switching programme	Number of switching commands	20
	Min. switching interval	1 day

¹⁾ Start-up current max. 16 A (1 second)



EQJW126F001







²⁾ Extra low voltage not admissible

Overview of types

0440210005

0440210011

0440210006

0440210007

0440210008

0440210010

0440210012

ModBus-TCP gateway

ModBus-GPRS gateway

ModBus-MBus gateway

RS-485 overvoltage protection

Cable converter, 2 conductors, RS-485

Converter/repeater for RS-232 or RS-485 interfaces

Parameter storage module for transferring controller parameters



Interfaces and communication	1	
	Interface	RJ45
	Protocol	Modbus, device bus (TAP)
Construction		
	Weight	0.5 kg
	Dimensions	144 × 98 × 54 mm
	Housing	Light-grey
	Housing material	Fire-retardant thermoplastic
	Fitting	Wall, switch panel, DIN rail
	Screw terminals	For electrical cables of up to 2.5 mm ²
Standards and directives		
	Type of protection (when fitted in panels)	IP40 (EN 60529)
	Protection class	II (IEC 60730-1)
	Software class	A (IEC 60730-1, Appendix H)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3
	Low-Voltage Directive 2014/35/EU	EN 60730-1

Туре	Features
EQJW126F001	Heating controller with digital user interface
Accessories	
Туре	Description
AVF***	Motorised valve actuator (see product data sheet)
AVM***	Motorised valve actuator (see product data sheet)
AXM***	Motorised valve actuator (see product data sheet)
EGT***	External temperature sensor Ni1000 (see product data sheet)
0440210001	Communication module for connecting EQJW 126/146 controllers to RS-232 (PC)
0440210002	Communication module for connecting EQJW 126/146 controllers to modem
0440210003	Communication module for connecting EQJW 126/146 controllers to RS-485 bus
0440210004	Communication module for connecting EQJW 126/146 controllers to RS-485 bus (master)

EQJW 146: Heating and district heating controller, equitherm

Features

- Weather-dependent supply temperature control by heating curve or 4-point characteristic and drinking water heating
- 29 system models, for example for district heating, single-stage boilers, drinking water heating with solar energy or buffer tank.
- Convenient to use with modern operating concept (turn and press) and large LCD
- Convenient weekly and annual switching programmes with optimisation of switching times
- Automatic summertime/wintertime changeover
- Min./max. limitation of supply temperature and max. limitation of return temperature
- Frost-protection facility and anti-jamming function for valve and pump
- Floor-drying function
- Function for protecting against legionellae
- Room temperature switching using room-temperature sensors
- Ni/PT1000 inputs for the outside, supply, drinking water, return flow and room temperature
- Relay outputs with varistor suppression for activating control units and pumps
- Manual mode
- Logbook (only EQJW146F002)
- Configurable input/output 0...10 V
- External demand processing, binary or analogue (0..10 V)
- Interface for various accessories such as modem, gateway, data logging module etc.

Power supply		
	Power supply	230 V~, ±15%, 5060 Hz
	Power consumption	Approx. 1.5 VA
Parameters		
Control characteristic	Supply temperature	PI control
	Drinking water temperature	2-point
Control parameters	Amplification KP	0.150
	Integral action time	1999 seconds
	Switching difference for drinking water	130 K
Temperature ranges	Normal temperature	040 °C
	Reduced temperature	040 °C
	Supply temperature	0140 °C
	Return temperature	0140 °C
	Outdoor temperature	−5050 °C
	Drinking water temperature	2090 °C
	Frost-protection temperature	-153°C
	Running time of valve	30300 seconds
	Cycle time	Running time of the valve ÷ 15
Ambient conditions		
	Ambient temperature	040 °C
	Ambient humidity	595% rh, no condensation
	Storage and transport temperature	-1060 °C
Inputs/outputs		
	Number of outputs	7 relays
	Pump relay ¹⁾	3 × 2 A, 250 V~, cos φ > 0,5

¹⁾ Start-up current max. 16 A (1 second)

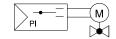


EQJW146F001



EQJW146F002









Actuator relay ²⁾	$4 \times 2 \text{ A}, 250 \text{ V}^{\sim}, \cos \phi > 0,5$
Continuous input/output ³⁾	1 × 010 V
Number of inputs	2 digital, 8 analogue
Analogue inputs	8 Ni1000/Pt1000

Function		
Timer	Backup power supply	Min. 24 hours, typically 48 hours
	Accuracy	< 10 minutes/year
Weekly switching programme	Number of programmes	3
	Number of switching commands	42 each
	Min. switching interval	15 minutes
Annual switching programme	Number of programmes 1 (for heating circuits)	
	Number of switching commands	20 each
	Min. switching interval	1 day
Interfaces and communication		
Communication	Interface	RJ45
	Protocol	Modbus, device bus (TAP)
Construction		
	Weight	0.5 kg
	Dimensions	$144 \times 98 \times 54 \text{ mm}$
	Housing	Light-grey
	Housing material	Fire-retardant thermoplastic
	Fitting	Wall, switch panel, DIN rail
	Screw terminals	For electrical cables of up to 2.5 mm ²
Standards and directives		
	Type of protection	IP40 (EN 60529) (when fitted in panels)
	Protection class	II (IEC 60730-1)
CF ()	Software class	A (IEC 60730-1, Appendix H)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3
	Low-Voltage Directive 2014/35/EU	EN 60730-1

Overview of types		
Туре	Features	
EQJW146F001	Heating and district heating controller with symbol display	
EQJW146F002	Heating and district heating controller with graphic display	

Accessories	
Туре	Description
AVF***	Motorised valve actuator (see product data sheet)
AVM***	Motorised valve actuator (see product data sheet)
AXM***	Motorised valve actuator (see product data sheet)
EGT***	External temperature sensor Ni 1000 (see product data sheet)
0440210001	Communication module for connecting EQJW 126/146 controllers to RS-232 (PC)
0440210002	Communication module for connecting EQJW 126/146 controllers to modem
0440210003	Communication module for connecting EQJW 126/146 controllers to RS-485 bus
0440210004	Communication module for connecting EQJW 126/146 controllers to RS-485 bus (master)
0440210005	ModBus-TCP gateway
0440210011	ModBus-GPRS gateway
0440210006	ModBus-MBus gateway
0440210007	Converter/repeater for RS-232 or RS-485 interfaces
0440210008	RS-485 overvoltage protection

Extra low voltage not admissible

As input for requirement or outside temperature signal. As output for continuous control or requirement request, load $> 5 \text{ k}\Omega$

Single-room, heating and air-conditioning controllers \mid equitherm heating control

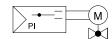
Туре	Description
0440210010	Parameter storage module for transferring controller parameters
0440210012	Cable converter for 2-conductor RS-485 interface





EQIW246F002





EQJW 246: Heating and district heating controller, equitherm

Features

- Max. three control loops in the following combinations:
 - Control of a primary heat exchanger or boiler, two regulated and one unregulated heating circuit, and control of the drinking water heating in the secondary circuit
 - Weather-dependent buffer tank control with solid fuel boiler and solar circuit control, as well as max. two
 mixed-heating circuits
 - Control of two weather-dependent heating circuits and one drinking water heating with three valves in the primary circuit
 - Control of three weather-dependent heating circuits
- Different system models, e.g. for district heating, single-stage boilers, buffer tanks, drinking water heating with solar energy
- Weather-dependent supply temperature control based on heating characteristic or 4-point characteristic
- To regulate more circuits, multiple controllers can be connected to each other via a device bus
- Convenient operation with state-of-the-art operating concept (turn and press) and large graphical display
- Convenient weekly and annual switching programmes with optimisation of switching times
- Automatic summertime/wintertime change-over
- Min./max. limitation of supply temperature and max. limitation of return temperature
- Frost-protection facility and anti-jamming function for valve and pump
- Floor-drying function
- Function for protecting against legionellae
- Room temperature switching using room-temperature sensors
- Ni/PT1000 inputs for the outside, supply, drinking water, return flow and room temperature
- Relay outputs with varistor suppression for activating control units and pumps
- Manual mode
- Logbook
- 0...10 V input for external requirement or outdoor temperature signal
- 0...10 V output for continuous control for control loop RK1 or signal for external requirement
- Binary inputs for fault signals or external requirement processing
- Interface for various accessories such as modem, gateway, data storage module etc.

Power supply		
	Power supply	230 V~, ±15%, 5060 Hz
	Power consumption	Approx. 1.5 VA
Parameters		
Control characteristic	Supply temperature	PI control
	Drinking water temperature	2-point
Control parameters	Amplification KP	0.150
	Integral action time	1999 seconds
	Switching difference for drinking water	130 K
Temperature ranges	Normal temperature	040 °C
	Reduced temperature	040 °C
	Supply temperature	0140 °C
	Return temperature	0140 °C
	Outdoor temperature	−5050 °C
	Drinking water temperature	2090 °C
	Frost-protection temperature	-153°C
	Running time of valve	15240 seconds
	Cycle time	Running time of the valve ÷ 15





Ambient conditions		
	Ambient temperature	040 °C
	Ambient humidity	595% rh, no condensation
	Storage and transport temperature	-1060 °C
Inputs/outputs		
	Number of outputs	11 relays, 2 × 010 V
	Pump relay ¹⁾	$5 \times 2 \text{ A}, 250 \text{ V} \sim, \cos \phi > 0.5$
	Actuator relay ²⁾	$6 \times 2 \text{ A}, 250 \text{ V} \sim, \cos \phi > 0.5$
	Continuous output	010 V (e.g. for continuous control, outdoor temperature, external requirement request or for speed control of pumps, load > $5~\mathrm{k}\Omega$) 0/10 V PWM signal for speed control of pumps 17 configurable Ni1000/Pt1000 and binary 1 × 010 V (e.g. for requirement or outdoor temperature) 1 × pulse 3800 lmp/h of heat meter for output limitation in RK1
Function	De alcon management	Min 24 hours to be allowed to
Timer	Backup power supply	Min. 24 hours, typically 48 hours
A/ 11 - 5.15	Accuracy	< 10 minutes/year
Weekly switching programme	Number of programmes	3
	Number of switching commands	42 each
	Min. switching interval	15 minutes
Annual switching programme	Number of programmes	1 (for heating circuits)
	Number of switching commands	20 each
	Min. switching interval	1 day
Interfaces and communication		
	M-Bus	For max. 3 M-Bus units, protocol as per EN 1434-3 (with accessories)
	Device bus interface	RS-485, for max. 32 bus participants (2-wire bus, inverse, with protection against reversed polarity, with accessories)
	Modbus	Optional, for 2-wire bus with RS-485 communication module (Modbus RTU protocol, data format 8N1, RJ45)
Construction		
Constitution 1	Weight	0.5 kg
	Dimensions	144 × 98 × 54 mm
	Housing	Light-grey
	Housing material	Fire-retardant thermoplastic
		Wall, switch panel, DIN rail
	Fitting Screw terminals	For electrical cables of up to 2.5 mm ²
	ociew leminus	To electrical capies of up to 2.5 inm
Standards and directives		
	Type of protection	IP40 (EN 60529) (when fitted in panels)
	Protection class	II (IEC 60730-1)
	Software class	A (IEC 60730-1, Appendix H)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3
	Low-Voltage Directive 2014/35/EU	EN 60730-1

Start-up current max. 16 A (1 second)
2) Extra low voltage not admissible

Overview of types		
Туре	Features	
EQJW246F002	Heating and district heating controller with graphic display	

Accessories	
Туре	Description
AVF***	Motorised valve actuator (see product data sheet)
AVM***	Motorised valve actuator (see product data sheet)
AXM***	Motorised valve actuator (see product data sheet)
EGT***	External temperature sensor Ni1000 (see product data sheet)
0440210001	Communication module for connecting EQJW 126/146 controllers to RS-232 (PC)
0440210002	Communication module for connecting EQJW 126/146 controllers to modem
0440210003	Communication module for connecting EQJW 126/146 controllers to RS-485 bus
0440210004	Communication module for connecting EQJW 126/146 controllers to RS-485 bus (master)
0440210005	ModBus-TCP gateway
0440210006	ModBus-MBus gateway
0440210011	ModBus-GPRS gateway
0440210007	Converter/repeater for RS-232 or RS-485 interfaces
0440210008	RS-485 overvoltage protection
0440210010	Parameter storage module for transferring controller parameters
0440210012	Cable converter for 2-conductor RS-485 interface



Controllers for ventilation and air-conditioning

SAUTER controllers for ventilation and air-conditioning cover all the possible applications for demand-led control of ventilation and air-conditioning systems. The large number of integrated standard applications meets the requirements for the modularity and the energy-efficient operation of your installations. A wide range of additional functions enable the establishment of complex control systems and the integration into a building automation system.

Overview of controllers for ventilation and air-conditioning





	flexot	ron400	flexotron800
Type designation	RDT405F201	RDT410F*01	RDT 808, 815, 828
Control loops			
Cascade	-	•	•
P-controller	•	•	•
Pl-controller	•	•	•
PID-controller	-	•	•
Function			
Time programme	-	•	•
Communication			
Number of inputs	3	5	5 / 8/ 16
Number of outputs	2	5	3/7/12
Modbus	-	-	•
BACnet	-	-	•
Serial interface for parameters	-	-	•
and configuration			
Application			
Supply temperature control	•	•	•
Supply-air cascade control	-	•	•
Air-conditioning control	-	-	•
Further information	Page	e 128	Page 130







RDT405F201



RDT410F*01

RDT 405, 410: Electronic controller for simple applications, flexotron400

Features

- Five different control models for each device, for temperature, pressure, CO₂, supply air cascade, heating
- Easy to operate with large, illuminated LCD and rotary knob
- Fast commissioning due to simple operating concept
- Weekly programme (depending on variant)
- External setpoint

Technical data

Power supply		
	Power supply	24 V~, ±15%, 5060 Hz (RDT4**F201 230 V~, +10%/-15% 5060 Hz (RDT4**F301)
RDT 405	Power consumption	4 VA, 2 W
RDT 410	Power consumption	7.5 VA, 5 W
	Start-up current	16 A (2 ms) 24V~ devices 23 A (2 ms) 230 V~ devices
Parameters		
	Control characteristics	P/PI
	P-band X _p	099 K
	Integral action time	0990 s
Setting and measuring ranges		
RDT 405	Measuring range, temperature	-2060, 20100, 60140°C
RDT 410	Measuring range, temperature	580, -3050°C
	Input for external setpoint	040°C
	Humidity	0100% rh
	Humidity	0100% rh
	CO ₂	109900 ppm for 100% signal
Ambient conditions	A 1	0.50.00
	Ambient temperature	050 °C
	Ambient humidity	595% rh, no condensation -2070 °C
	Storage and transport temperature	-20/0 °C
Inputs/outputs		
	Universal inputs	Ni1000 (DIN 43760)
	Digital inputs	Potential-free contacts
	Analogue inputs	Ni 1000 (DIN 43760) for temperature, setpoint
	Analogue outputs	010 V, 2 mA, protected against short circuit
	Digital outputs	RDT410F201: Triac 2 × 24 V~, 0.3 A 1 × 230 V~, 5 A RDT410F301: Triac 2 × 24 V~, 0.16 A 1 × 230 V~, 5 A
Construction		
	Dimensions W x H x D	123 × 99 × 64 mm

Screw terminals Fitting

Housing material

PC+ABS

Top-hat rail, wall, panel

For electrical cables of up to $1.5\ mm^2$

Standards and directives		
	Type of protection ¹⁾	IP20 (EN 60529)
	Protection class	II (RDT410F301 only)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN61000-6-3

Overview of t	ypes							
Туре	Analogue inputs	Digital in- puts	Universal in- puts	Analogue outputs	Digital out- puts	Input for ex- ternal set- point	Week time- switch	Weight
RDT405F201	1	1	1	2	0	1	-	0.2 kg
RDT410F201	2	2	1	2	3	1	•	0.3 kg
RDT410F301	2	2	1	2	3	1	•	0.45 kg

Week time-switch: only RDT410F*01 (number of switching commands: 8)

Accessories	
Туре	Description
XYE460F001	flexotron400 demo case
0460240001	flexotron400/800 pluggable terminal strips
0460240010	Cabinet fitting kit for flexotron400
EGT388F102	External setpoint adjuster, room operating unit with potentiometer and temperature sensor



¹⁾ When installed



RDT828F222



RDT 808, 815, 828: Communicative controller for universal use, flexotron800

Features

- Configurable controller for a wide range of applications for ventilation, air-conditioning and heating
- Many functions for sequences and monitoring
- Easy to operate with large, illuminated LCD and buttons
- Menus in 20 languages
- Weekly and annual switching programmes with summertime/wintertime change-over
- Configuration using display or PC tool
- RS-485 interfaces with Modbus/RTU or TCP/IP with BACnet/IP (B-ASC controller) or integrated web server

Technical data		
Power supply		
	Power supply	24 V~, ±15%, 5060 Hz 2136 V=
	Dissipated power	Approx. 7.5 VA, 3.4 W Approx. 8 VA, 3.7 W TCP models
	Start-up current	28 A (2 ms)
Parameters		
raiailleleis	Integral action time	0600 s
	Control characteristics	P, P/Pl
	P-band X _n	0300 K
AA		-50115 °C
Measuring ranges	Normal temperature	
	Pressure sensor	-5005000 Pa
	Auxiliary controller for setpoint/actual value	-50115 C
	Reduced temperature	-50115 °C
	Humidity	0100% rh
	CO ₂	05000 ppm
Ambient conditions		
Andrew Conditions	Ambient temperature	050 °C
	Ambient humidity	595% rh, no condensation
	Storage and transport temperature	-2070 °C
Inputs/outputs		
	Digital inputs	Potential-free connection
	Analogue inputs	Ni1000, 010 V
	Input impedance	10 MΩ (for 010 V)
	Digital outputs	MOSFET each 2 A, 24 V~/V=, not protected against short circuit, max. 8 A total
	Analogue outputs	010 V, 2 mA, protected against short circuit
	Universal inputs	Ni1000 or 010 V Potential-free contacts
Function		
	Timer	24 h system clock
	A	Backup with battery
	Accuracy	< 2.5 s/d at 25 °C
	Backup power supply	Min. 24 h
Weekly switching programme	Number of switching commands	4/d individual
A 1 2.1.	Min. switching interval	15 minutes
Annual switching programme	Number of switching commands	24
	Min. switching interval	1 d



Timer channel	Number of switching commands	4/d individual
	Number of timer channels	5
Interfaces and communicatio	n	
	Interfaces	RS-485
		TCP/IP (option)
	Protocol	Modbus/RTU (slave)
		BACnet/IP (B-ASC)
Construction		
	Weight	0.4 kg
	Dimensions W x H x D	$148 \times 123 \times 60$ mm (with terminals)
	Screw terminals	Pluggable terminals for connecting ca-
		bles
		up to 1.5 mm ²
	Fitting	DIN rail, switch panel (with accesso-
		ries)
Standards and directives		
	Type of protection	IP20 (EN 60529)
CE conformity according to	EMC Directive 2014/30/EU	EN 60730-1
	RoHS Directive 2011/65/EU	EN 50581

Overview of types			
Туре	Description		
RDT808F012	Universal controller, 8 inputs/outputs, without LCD, RS-485		
RDT808F212	Universal controller, 8 inputs/outputs, with LCD, RS-485		
RDT815F012	Universal controller, 15 inputs/outputs, without LCD, RS-485		
RDT815F212	Universal controller, 15 inputs/outputs, with LCD, RS-485		
RDT815F022	Universal controller, 15 inputs/outputs, without LCD, TCP interface		
RDT815F222	Universal controller, 15 inputs/outputs, with LCD, TCP interface		
RDT815F032	Universal controller, 15 inputs/outputs, without LCD, TCP interface and RS-485		
RDT815F232	Universal controller, 15 inputs/outputs, with LCD, TCP interface and RS-485		
RDT828F012	Universal controller, 28 inputs/outputs, without LCD, RS-485		
RDT828F212	Universal controller, 28 inputs/outputs, with LCD, RS-485		
RDT828F022	Universal controller, 28 inputs/outputs, without LCD, TCP interface		
RDT828F222	Universal controller, 28 inputs/outputs, with LCD, TCP interface		
RDT828F032	Universal controller, 28 inputs/outputs, without LCD, TCP interface and RS-485		
RDT828F232	Universal controller, 28 inputs/outputs, with LCD, TCP interface and RS-485		

Accessories	
Туре	Description
XYE460F002	flexotron800 demo case
0460240001	flexotron400/800 pluggable terminal strips
0460240011	Cabinet fitting kit for flexotron800
RDB800F002	Operating unit for flexotron800 V2
0300360001	USB-RS-485 converter
EGT388F102	External setpoint adjuster, room operating unit with potentiometer and temperature sensor



VAV compact controller for laboratory and pharmaceutical applications

SAUTER VAV controllers enable the air volume to be regulated in accordance with demand in order to optimise energy consumption in ventilation systems. They are used in laboratories, clean rooms, hospital wards and operating theatres. In combination with additional sensors and monitoring facilities, they ensure that fume cupboards are regulated in accordance with the relevant standards.

Overview of VAV compact controllers





Type designation	ASV205BF132*, ASV215BF132*	ASV215BF152
Technical data		
Adm. dimensions of damper shaft (mm)	Ø 816	Ø 816
Running time (s)	30105 60105	315
Power supply (V)	24	24
Communication/protocol	RS-485 SLC / BACnet MS/TP	RS-485 SLC / BACnet MS/TP
Further information	Page 133	Page 136

ASV205BF132E, ASV215BF132E: VAV compact controller

Features

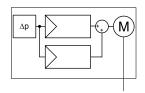
- Supply and return air control for individual rooms such as offices, conference rooms and hotel rooms, in conjunction with a VAV box or a damper and flow probe
- Pressure control in supply and return air ducts for low-noise, energy-efficient air distribution
- Static measurement of differential pressure with MEMS sensor
- Can be used for measuring in areas with dirty or contaminated return air
- Low energy consumption and long serviceable life thanks to low-wear stepping motor
- Electromechanical torque-based switch-off for safe operation
- Extremely simple installation due to self-centring shaft adapter
- Disengageable gear unit for manual adjustment and positioning of damper
- Integrated second control loop for the following applications:¹⁾:
 - Duct pressure and zone control
 - Room climate regulation
- 2 x RS-485 bus interface on RJ12 and connection terminal
 - Up to 31 subscribers in a segment with SLC (SAUTER Local Communication) protocol
 - Communication within network via BACnet MS/TP
- Input and output signals for connecting:
- Setpoints and actual values
- Power outputs for reheaters and recoolers
- EY-RU 3** digital room operating units
- Analogue output
- Easy programming of the following applications using the SAUTER CASE VAV software²⁾:
 - Volume flow control
 - Room pressure control
 - Duct pressure control
- Adjustable end values of the differential pressure measuring range³⁾
 - 100...300 Pa
- Efficient control algorithm for fast control loops
- Priority control via switching contacts
- Zero point can be calibrated

Power supply		
	11 /	24 V~, +/-20%, 5060 Hz 24 V=, -10%/+20%
Power consumption at nominal voltage 50/60 Hz (~/=)	Power consumption during operation ⁵⁾	4.7 VA/2.5 W
	Power consumption when idle ⁶⁾	1.5 VA/0.7 W



ASV205BF132E











Application support depending on hardware and software version in CASE VAV manual D100316836 (German), D100316957 (English), D100316878 (French)

²⁾ Application support depending on hardware and software version in CASE VAV manual D100316836 (German), D100316957 (English), D100316878 (French)

³⁾ Available measuring ranges depending on hardware/type

^{4) 24} V=: Analogue inputs that are not connected are rated 0 V. The nominal torque is achieved within the specified tolerances.

 $^{^{5)}}$ Power specified without operating units FCCP 200, EY-RU 3 *

Holding torque ASV205*: 4 Nm ASV215*: 8 Nm

Darameters		
Parameters Integrated damper actuator	Angle of rotation ⁷⁾	90°
megraled damper actualor	Admissible dimensions of damper shaft	· ·
	Admissible damper shaft (hardness)	Max. 300 HV
	Surge-voltage resistance	500 V (EN 60730)
	Operating noise	< 35 dB (A)
Δ p sensor	Measuring range Δp (gain = 1) ⁸⁾	0500 Pa
Др 3611301	Linearity error	2% (at 25 °C)
	Time constant	0.2 s
	Influence of position ⁹⁾	< 1 Pa
	Reproducibility	0.2% FS
	Zero point stability	0.2% for 1 year
	Admissible positive pressure	±12.5 kPa
	Admissible operating pressure p _{stat} 10)	±7 kPa
	Low-pressure connections ¹¹⁾	Ø i = 3.56 mm
Ambient conditions		
	Operating temperature	055 °C
	Storage and transport temperature	-2055 °C
	Humidity	< 85% rh, no condensation
Innuta/outnuta		
Inputs/outputs	Analogue inputs	$010 \text{ V } (R_i = 100 \text{ k}\Omega)$
	Analogue outputs	$010 \text{ V, load} > 10 \text{ k}\Omega$
	Digital inputs ¹²⁾	Closed 1 V=, 1 mA,
	Digital inputs	open > 2 V=
	Digital output	0.3 A at 24 V ~/=
	Resistive input	0 to 50 °C
		Ni1000 (DIN 43760),
		NTC10k (10k3A1),
		Pt1000 (EN 60751)
	Resolution	0.3 °C (Ni1000/Pt1000), 0.1 °C (NTC)
	Measuring difference	+/- 0.6 °C
	PWM	0.3 A at 24 V ~/=
		Period duration 1 s15 minutes 0100%
Interfaces and communication		
	RS-485 not electrically isolated	115 kBaud
	Communication protocols	SAUTER Local Communication (SLC), BACnet MS/TP, 1/4 load
	Access method	Master/slave
	Topology	Line
	Number of participants ¹³⁾	31 (32) with SLC
	Bus termination	120 Ω (both ends)
Construction	W/ · I.	0.01
	Weight	0.8 kg
	Fitting	Self-centring spindle adapter
Standards and directives		
	Type of protection	IPOO, IP30 (EN 60529) (with protection set)
	Protection class	III (EN 60730)

⁷⁾ Maximum rotation angle 102° (without end stop)

⁸⁾ Available measuring ranges depending on hardware/type

⁹⁾ Zero adjustment recommended during commissioning

¹⁰⁾ Short-term overload; zero adjustment of sensor is recommended

Recommended hardness of tubing < 40 Sha (e.g. silicone)

¹²⁾ Digital inputs for external potential-free contacts (gold-plated recommended)

One participant is always also the parametering tool, hence the maximum number of 31 connectible devices

Conformity	Machine directive 2006/42/EC, appendix II 1.B
EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3,
	EN 61000-6-4,
	EN 61000-6-2

Overview of types				
Туре	Measuring range Δp	Running time for 90°	Torque	Holding torque
ASV205BF132E	0300 Pa	30, 45, 60, 75, 90, 105 s	5 Nm	4 Nm
ASV215BF132E	0300 Pa	60, 75, 90, 105 s	10 Nm	8 Nm

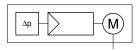
- For a running time of 105 s and an ambient temperature of \geq 55 °C, the specified torque is reduced by 0.5 Nm.
- Current-free holding torque by means of interlocking in gear unit.

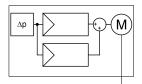
Accessories	
Туре	Description
0372301001	Spindle adaptor for squared end hollow profile (x 15 mm), pack of 10 pcs.
XAFP100F001	Flow probe to measure the air volume in ventilation ducts
0300360001	USB-RS-485 converter
0297867001	Reference pressure container
0430360100	IP30 protection set
0430360200	Replacement LP connector
0372129001	Torsion protection





ASV215BF152D





ASV215BF152*: VAV compact controller for laboratory and pharmaceutical applications

Features

- Controlling the return air in fume cupboards and controlling the supply and return air in laboratories, clean rooms, hospital wards and operating theatres using a VAV box or a damper and flow probe
- Static measurement of differential pressure based on the capacitive method of measurement
- Zero point can be calibrated using software
- Adjustable end values of the differential pressure measuring range¹⁾
 - 50...150 Pa
 - 100...300 Pa
- Can be used for measuring in areas with dirty or contaminated return air
- Brushless DC motor guarantees minimum energy consumption and a long service life
- Electromechanical torque-based switch-off for safe operation
- Extremely simple installation due to self-centring shaft adapter
- Disengageable gear unit for manual adjustment and positioning of damper
- Easy programming of the following applications using SAUTER CASE Components:²⁾
 - Volume flow control
 - Room pressure control
 - Duct pressure control
 - Flow control for fume cupboards
- Efficient control algorithm for fast control loops
- Integrated second control loop for:3)
 - Room-pressure control: can be ideally combined with EGP 100 with symmetrical measuring range
 - Fume-cupboard control ideally combined with SVU 100, SGU 100 and FCCP 200
- 2 x RS-485 bus interface on RJ12 and connection terminal
 - Up to 31 subscribers in a segment with SLC (SAUTER Local Communication) protocol
 - Communication within network via BACnet MS/TP4)
 - Integration of EY-RU 3** digital room operating units
 - FCCP 200 display and alarm unit for fume-cupboard control or room monitoring
- Input and output signals for integrating:
 - Setpoints and actual values
 - Analogue output
 - · Priority control via switching contacts

Power supply		
	Torque	10 Nm
	Power supply ⁵⁾	24 V~, ±20%, 5060 Hz 24 V=, -10%/+20%
Power consumption at nominal voltage 50/60 Hz (\sim /=) after 3 s running time		Approx. 19 VA/10 W (10 Nm) Approx. 20 VA/11 W with FCCP 200
	Power consumption when idle ⁶⁾	Approx. 6 VA/2 W

¹⁾ Available measuring ranges depending on hardware/type





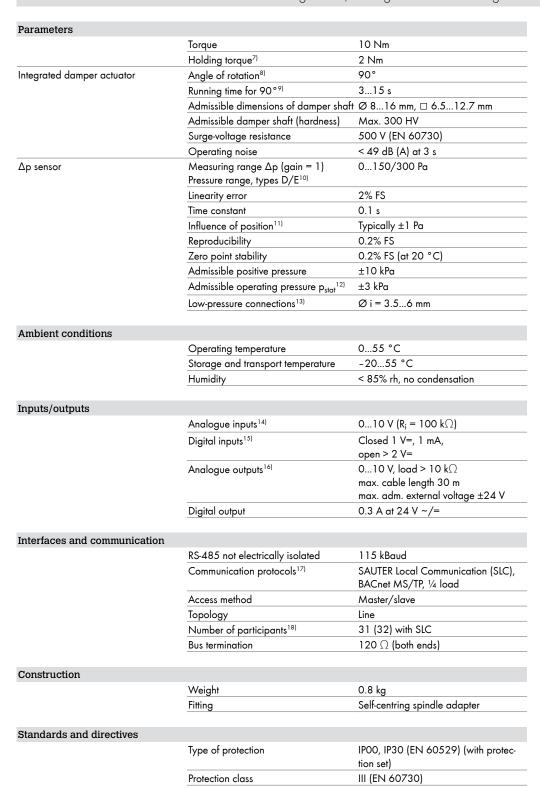
²⁾ Application support depending on hardware and software version in CASE VAV manual

³⁾ Application support depending on hardware and software version in CASE VAV manual

Support of BACnet MS/TP interface

²⁴ V=: Analogue inputs that are not connected are rated 0 V. The nominal torque is achieved within the specified toler-

Holding torque approx. 5 Nm



⁷⁾ Current-free holding torque by means of interlocking in gear unit



⁸⁾ Maximum rotation angle 102° (without end stop)

⁹⁾ Running time can be set via software

¹⁰⁾ Available measuring ranges depending on hardware/type

¹¹⁾ Zero adjustment recommended during commissioning

 $^{^{\}rm 12)}$ Short-term overload; zero adjustment of sensor is recommended

¹³⁾ Recommended hardness of tubing < 40 Sha (e.g. silicone)

¹⁴⁾ Depending on the application, can be parameterised as an analogue input or output using SAUTER CASE Components

¹⁵⁾ Digital inputs for external potential-free contacts (gold-plated recommended)

¹⁶⁾ Depending on the application, can be parameterised as an analogue input or output using SAUTER CASE Components

¹⁷⁾ Available protocols switched using software

^{18]} One participant is always also the parametering tool, hence the maximum number of 31 connectible devices

Conformity	Machine directive 2006/42/EC, appendix II 1.B
EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3,
	EN 61000-6-4,
	EN 61000-6-2

Overview of types	
Туре	Measuring range Δp
ASV215BF152D	0150 Pa
ASV215BF152E	0300 Pa

Accessories	
Туре	Description
0372301001	Spindle adaptor for squared end hollow profile (x 15 mm), pack of 10 pcs.
XAFP100F001	Flow probe to measure the air volume in ventilation ducts
0300360001	USB-RS-485 converter
0297867001	Reference pressure container
0430360100	IP30 protection set
0430360200	Replacement LP connector
0372129001	Torsion protection



FCCP 200: Fume-cupboard indicator and monitor

Features

- Measured value display and indication of operating statuses for a range of ambient conditions such as
 pressure, temperature, relative humidity etc. in combination with an EY-RU 504/505 room automation
 station or an ASV 2*5 VAV compact controller
- Monitoring fume cupboards as per EN 14175-2 to check that they are functioning correctly and that the
 ventilation is operated to provide maximum safety for the laboratory staff
 - Indication when the front sash is open > 500 mm
 - Switching the fume cupboard lighting on and off
 - Up to two function indicators for double-sided fume cupboards
 - Indication of day/night change-over
 - Audible alarm can be delayed or muted via configuration
- Demand-controlled regulation of fume cupboards as per EN 14175-6 in combination with the ASV 2*5 VAV compact controller
- Function indicator with visual and audible notification as per EN 14175-2
- Storage of all defined parameters with protection from power failure
- Interface for easy configuration of the connected VAV ASV 2*5
- Five freely configurable push-buttons1)
- Chemical-resistance glass surface
- Units that can be displayed: m/s, fps, l/s, m3/h, cfm, Pa, °C, °F, %rh, ppm

Technical data

Power supply		
	Power supply	5V; ±10%
	Power consumption	0.7 VA
Parameters		
Audible alarm	Sound pressure level	80 dB (A)
	Frequency	4 kHz
	Alarm duration ²⁾	60 s
	Start-up delay	Adjustable from 0 to 3200 s
Optical alarm	Brightness	EN 842, punctiform
	Field of view	> 120°
Temperature sensor	Measuring range of temperature sensor ³	-5 +50°C
Admissible ambient conditions		
	Operating temperature	545 °C
	Storage temperature	-20+80 °C
	Humidity without condensation	<585% rh
Construction		
	Dimensions W x H x D	169 × 36 × 12 mm
Standards and directives		
	Protection class	III
	Protection class (when installed)	IP41 installed vertically
	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2,
		EN 61000-6-3, EN 61000-6-4



FCCP200F010

International Design Award



Focus Open 2016 Special Mention





 $^{^{1)}\,}$ In combination with the EY-RU 504/505 room automation station and CASE Engine.

²⁾ Can be set using software.

³⁾ After it is installed, the temperature sensor must be calibrated using CASE Engine software during the commissioning

Single-room, heating and air-conditioning controllers | VAV compact controllers

Overview of types	
Туре	Features
FCCP200F010	Fume cupboard monitor and indicator

Accessories	
Туре	Description
0300360001	USB-RS-485 converter
0430600100	USB-C RJ12 cable FCCP 200



Valves, control valves, dampers, actuators

A high degree of flexibility provides optimum results.

SAUTER's valves and SUT actuators cover all possible needs with regard to reliable and long-lasting control elements. The valve and the actuator, being perfectly matched to one another, form the basis for a high degree of control quality.

With the latest addition to the portfolio, the Smart Actuator, predictive maintenance has become reality: The Smart Actuator enables the heating, ventilation and air-conditioning regulation to be performed autonomously. SAUTER provides cloud-based applications for controlling various plants. Commissioning then follows through simple configuration in the mobile app. Operating data is visualised graphically via the SAUTER Cloud, allowing operation to be optimised online via smartphone.



Valve specification – calculating made easy

[1] SAUTER valve slide rule

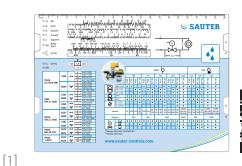
Use SAUTER's practical valve slide rule to specify the valve nominal diameter depending on the flow rate for liquids and saturated steam. You can order the slide rule at your sales partner or sales consultant.

[2] **SAUTER VALVEDIM** software

A tried and tested tool for convenient valve and actuator specification, SAUTER provides installers and project engineers with its SAUTER VALVEDIM PC software. The tool comprises three function levels:

- 1. Valve and actuator specification
 - using recommended values for a rough specification of the required versions and variables;
 - based on the existing or stipulated installation values for the definitive specification of the required versions and variables.
- 2. Selection of the valve and the suitable actuator based on characteristics.
- 3. Direct transfer of the results to the project documentation.

VALVEDIM is available from your SAUTER subsidiary or as a download at https://www.sauter-controls.com/produkt/case-suite/







[3] SAUTER CASE ValveDim mobile app

With the new CASE ValveDim mobile app, finding the right parts and the ideal valve/actuator combinations is impressively convenient and very efficient: Intuitive operation makes it easier to search for individual products and combine them.

Selected valve/actuator combinations can be stored in projects. Personal lists with valve/actuator combinations can be exported from the app as a project table in PDF format so that they can be shared with contacts. What's more, CASE ValveDim can also be used offline.



Valve specification - manual calculation

Here you will find all the necessary information for the manual valve specification.

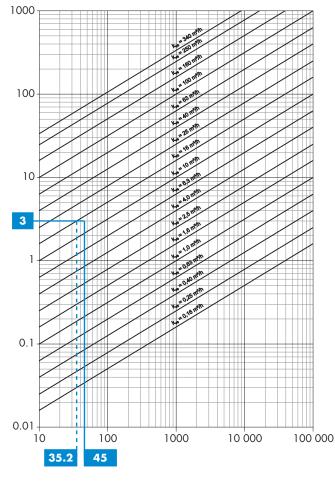
[1] Variables, constants and formulas

Variable	Description	Value	Unit
Ÿ	Volume flow		m³/h
Q _{to}	Supplied heat per unit of time (heat flow)		kW, kJ/h
Q _{from}	Supplied heat per unit of time (heat flow)		kW, kJ/h
Δt	Temperature difference		K
C _W	Specific thermal capacity of water	4,19 =1,164·10 ⁻³	kJ/(kg·K) kWh/(kg·K)
$\rho_{\vee\!\!\vee}$	Density of water	Supposition: $\rho_{w} = const. = 1000$	kg/m³
Δp_v	Pressure difference across the valve		bar, kPa
k_{v}	Calculated flow rate for the valve		m³/h
k _{vs}	Actual flow rate for the valve at nominal stroke, selected according to table or chart		m³/h

Calculation formula for k,

$$k_v = \mathbf{V} \cdot \sqrt{\frac{1 \text{ bar}}{\Delta p_v}}$$

[3] **Diagram**



Calculations

The following are given:

$$\dot{Q}_{to} = 70 \text{ kW} \approx 250000 \text{ kJ/h}$$

$$\Delta t = 20 \text{ K}$$

 $\Delta p_v = 45 \text{ mbar} = 4.5 \text{ kPa}$ (corresponds to 450 mm water column)

To be found:

Approximate calculation of V

Assumption: $\dot{Q}_{to} = \dot{Q}_{from}$

$$\dot{Q}_{to} = \dot{Q}_{from} = \dot{V} \cdot c_{w} \cdot \Delta t \cdot \rho_{w}$$

$$\Rightarrow \qquad | \dot{V} = \frac{Q_{to}}{C_{w} \cdot \Delta t \cdot \rho_{w}}$$

$$\dot{\nabla} = \frac{\dot{Q}_{10}}{c_{w} \cdot \Delta t \cdot \rho_{w}}$$

$$\dot{\nabla} = \frac{70}{1.164 \cdot 10^{-3} \cdot 20 \cdot 1000} \cdot \frac{kW \cdot (kg \cdot K) \cdot m^{3}}{kWh \cdot K \cdot kg \cdot h} \approx 3 \text{ m}^{3}/\text{h}$$

Calculation of Kv

$$k_v = 3 \text{ m}^3/\text{h} \cdot \sqrt{\frac{1 \text{ bar}}{0.045 \text{ bar}}} \approx 14.1 \text{ m}^3/\text{h}$$

Determination of flow rate

Determination of $\boldsymbol{k_{_{\boldsymbol{v}}}}$ from the diagram

$$k_{vs} = 16 \text{ m}^3/\text{h}$$

Example plotted: Given are the volume flow (3 m 3 /h) and a desired Δp_v of 45 mbar, which results in a Kv value of 14.1 m 3 /h. The Kvs values entered are deliverable values. Selected: A valve with $k_{vs} = 16 \text{ m}^3/\text{h}$, which results in a pressure difference Δp_v of 35.2 mbar.

Valves, control valves, dampers, actuators

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and energy monitoring, eValveco		VDL 050100: 2-way regulating valve, PN 16, Valveco flange	293
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Entitle of they regulating ball valve, in the		<u> </u>	



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SAUTER smart actuators

Smart actuator 3 in 1: Actuator, controller and cloud integration for autonomous control of a wide range of heating, ventilation and airconditioning applications.

Information on the status of the plant is continuously recorded and transferred to the SAUTER Cloud. The data is analysed by comparing it with reference values.

Maintenance work can be specifically planned. The system is operated and commissioned using a smartphone and the mobile app.

The I/O box, available as an accessory, is used to record additional sensors and directly control circulation pumps.

Overview of smart actuators









				S1397-1020				
Type designation	AKM115S AF232	AKM115S AF332	AVM115S AF232	AVM115S AF332	ASM115S AF232	ASM115S AF332	SAIO100F 010	SAIO100F 020
Parameters								
Torque (Nm)		8		_	1	0		_
Pushing force (N)		_	5	00		_		_
Actuator stroke (mm)		- 8				-		
Angle of rotation	9	90° – 90° –				_		
Running time for 90° (s)			35/6	0/120				_
Characteristic		Line	ear, equal-per	centage, quad	ratic			_
Inputs/outputs								
Universal I/O				2				5
Relay		_		_		_	-	3
Rating		_		_		_	-	10 A / 5 A
Type of universal inputs		010 V /	0 (4)20 m/	4/Ni1000/	Pt1000 / digi	ital 0/1 / 100	02500 Ω	
Analogue output				0	10 V			
Interfaces and communication								
Interfaces	RS-485, Bluetooth, Wi-Fi	RS-485, Bluetooth, Wi-Fi, Ethernet	RS-485, Bluetooth, Wi-Fi	RS-485, Bluetooth, Wi-Fi, Ethernet	RS-485, Bluetooth, Wi-Fi	RS-485, Bluetooth, Wi-Fi, Ethernet	RS-	485
Protocols			BACnet, I	MQTT, SLC			S	LC
Combination options		-way regulat- ll valves	the VUI VUD/BUD o	ray valves of N/BUN, and VUE/BUE ries	dampers, c	and multi-leaf and butterfly lves		_
Further information	Page	e 148	Page	e 151	Page	154	Page	157



AKM115SAF332



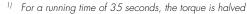
AKM 115SA: Smart actuator for ball valves

Features

- Smart actuator as intelligent IoT solution in smart buildings
- IoT device with cloud connection via MQTT using TLS encryption
- Predictive maintenance functions for plant monitoring
- Enables creation of smart actuator networks with distributed intelligence
- Autonomous control of heating and air-conditioning applications
- Comprehensive application library available from the SAUTER Cloud
- BACnet, MQTT, Bluetooth LE and Wi-Fi interfaces for flexible system integration
- Mobile app for easy commissioning and maintenance
- Local memory for archiving historical data and BACnet Trend Logs
- Real Time Clock for calendar functions and time programmes
- Two universal I/Os for connecting external sensors and actuators
- Direct connection of a room operating unit
- Flexibly expandable with up to two smart actuator I/O modules for comprehensive control tasks
- Pre-assembled cables, with colour- and mechanically-coded connectors, allow fast and error-free wiring
- For actuation of 2-, 3- and 6-way ball valves
- Fitting without tools using a bayonet ring made of glass-fibre reinforced plastic
- BLDC motor for advanced and reliable predictive maintenance
- Intelligent angle of rotation adaptation and detection incl. feedback signal
- Electronic, torque-dependent cut-off
- Gear unit can be disengaged for manual adjustment

Technical data

Power supply		
- c zapp.)	Power supply	24 V~, ±20%, 5060 Hz 24 V=, -10%/+20%
Parameters		
	Surge-voltage resistance	500 V (EN 60730)
	Torque	8 Nm
	Holding torque	8 Nm
	Angle of rotation	90°
	Response time	200 ms
	Running time for 90°1)	35/60/120 sec.
	Characteristic	Linear, equal-percentage, quadratic
	Noise during operation (unloaded)	< 49 dB (A)
Ambient conditions		
	Temperature of medium ²⁾	Max. 100 °C
	Ambient temperature	-1055 °C
	Ambient humidity	595% rh, no condensation
	Storage and transport temperature	-2070 °C
Immunta / acctmenta		
Inputs/outputs	Niverban of universal I/O	2
T	Number of universal I/O	_
Type of inputs	Analogue input U	010 V (Ri = 100 k Ω , ±0.05 V)
	Analogue input I	420 mA (with ext. resistor 500 Ω)
	Digital input	Closed:1 V=, 1 mA
		Open:> 2 V=



At media temperatures < 5 °C or > 100 °C, appropriate accessory must be used





	Ni1000	-20100 °C (DIN 43760)
	Pt1000	-20100 °C (IEC 751)
	Resistance	1002500 Ω (±25 Ω)
Type of output	Analogue output U	010 V (±0.4 V)
Function		
unouon	BACnet data point objects	Max. 50
	BACnet client links	16
	Control	6 loops
	Active COV subscription	64
Dynamic objects	Time programmes	4 (Schedule)
,	Calendar	3 (Calendar)
Historical data	Trend Log	10
noncar data	Historical database (HDB)	Max. 13 months for actuator data an predictive maintenance
	Alarms	4 (Notification Class)
		(
Architecture		
	Processor	ARM Cortex-M7 (528 Mhz)
	RAM (memory)	512 kB SDRAM
	Flash	2 × 16 MB for data and system
	Encryption	128 bit AES
	Application data	Via CASE Engine or mobile app
	Operating system	Zephyr
	Cycle time	50 ms
	Mobile app	For commissioning, operation and
		maintenance
	Cloud	Via MQTT
	Real-time clock	For time programmes and calendars
Interfaces, communication		
Ethernet/LAN ³⁾	Ethernet network	1 × RJ45 connector
	10/100 BASE-T(X)	10/100 Mbit/s
RS-485 A connection ⁴⁾	Communication protocol	BACnet MS/TP, 1/4 load
	Connection	2 × 3-pin connector, coded, dai- sy chain
	Termination/Pull-Up/Pull-Down	Internal, switchable via software
RS-485 B connection ⁵⁾	Communication protocol	SLC master
	Use	2 × I/O module, 1 × ecoUnit
	Connection	5-pin connector, coded
	Termination/Pull-Up/Pull-Down	Internal, switchable via software
Bluetooth	Version	BLE 4.0
	Range	< 10 m
	Radiation	6 mW
Wireless	Wi-Fi	IEEE 802.11 b/g/n
Display	LED indicator	3 status LEDs (green, orange, blue)
Construction	Pour su	
	Fitting position	Connections at the bottom or side, not at the top
		:
	Dimensions W x H x D	168 × 137 × 74 mm
	Weight	0.9 kg
		0.9 kg
	Weight	0.9 kg Lower section black, upper section ye
Standards, directives	Weight Housing	0.9 kg Lower section black, upper section yel low
Standards, directives	Weight Housing Housing material	0.9 kg Lower section black, upper section yellow Flame retardant plastic, PC/ABS
Standards, directives	Weight Housing	0.9 kg Lower section black, upper section ye low

³⁾ AKM215SAF332 only

⁴⁾ AKM215SAF232 only

⁵⁾ AKM215SAF232 only

	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3,
		EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1/EN 60730-2-14

Overview of ty	pes	
Туре	Features	Power consumption
AKM115SAF232	Rotary actuator for ball valve, RS-485	Max. 4 W / 7.3 VA (without peripherals)
AKM115SAF332	Rotary actuator for ball valve, Ethernet	Max. 4 W / 7.3 VA (without peripherals)

^{*} Power consumption: At runtime 60 seconds and without connected peripheral devices (room operating units, sensors, actuators or I/O modules)

Accessories	
Туре	Description
0510420001	Adaptor required when temperature of the medium > 100 °C
0510240011	Adaptor required when temperature of the medium < 5 $^{\circ}$ C
SAIO100F010	I/O module, 6 × UI/AO
SAIO100F020	I/O module, 6 × UI/AO, 3 × relay
05393601000	Dummy plug spare parts set IP54
05303601000	RJ45 connector IP54

^{ightharpoonup} Power cables or connecting cables (053060****), see order code in PDS 53.950



AVM 115SA: Smart actuator for globe valves

Features

- Smart actuator as intelligent IoT solution in smart buildings
- IoT device with cloud connection via MQTT using TLS encryption
- Predictive maintenance functions for plant monitoring
- Enables creation of smart actuator networks with distributed intelligence
- Autonomous control of heating and air-conditioning applications
- Comprehensive application library available from the SAUTER cloud
- BACnet, MQTT, Bluetooth LE and Wi-Fi interfaces for flexible system integration
- Mobile app for easy commissioning and maintenance
- Local memory for archiving historical data and BACnet Trend Logs
- Real Time Clock for calendar functions and time programmes
- Two universal I/Os for connecting external sensors and actuators
- Direct connection of a room operating unit
- Flexibly expandable with up to two smart actuator I/O modules for comprehensive control tasks
- Pre-assembled cables, with colour- and mechanically-coded connectors, allow fast and error-free wiring
- Activation of 2-way and 3-way valves of the VUN/BUN, VUD/BUD and VUE/BUE series
- Fitting without tools using a CuZn alloy screw ring
- BLDC motor for advanced and reliable predictive maintenance
- Autonomous adaptation to the valve stroke
- Electronic force-dependent cut-off
- Gear unit can be disengaged for manual adjustment

Technical data

Power supply		
	Power supply	24 V=, ±10%
		24 V~, +20%/-15%, 5060 Hz
Parameters		
	Surge-voltage resistance	500 V (EN 60730)
	Actuator stroke	010 mm
	Actuating power	500 N
	Response time	200 ms
	Running time for 90°1)	35/60/120 sec.
	Characteristic	Linear, equal-percentage, quadratic
	Noise during operation (unloaded)	< 49 dB (A)
Ambient conditions		
	Temperature of medium ²⁾	Max. 100 °C
	Ambient temperature	-1055 °C
	Ambient humidity	595% rh, no condensation
	Storage and transport temperature	-2070 °C
Inputs/outputs		
	Number of universal I/O	2
Type of inputs	Analogue input U	010 V (Ri = 100 k Ω , ±0.05 V)
	Analogue input I	420 mA (with ext. resistor 500 Ω)
	Digital input	Closed:1 V=, 1 mA
	•	Open:> 2 V=
	Ni1000	-20100 °C (DIN 43760)

¹⁾ For a running time of 35 seconds, the torque is halved



AVM115SAF232





²⁾ At media temperatures < 5 °C or > 100 °C, appropriate accessory must be used

	Pt1000	-20100 °C (IEC 751)
	Resistance	1002500 Ω (±25 Ω)
Type of output	Analogue output U	010 V (±0.4 V)
Function		
	BACnet data point objects	Max. 50
	BACnet client links	16
	Control	6 loops
	Active COV subscription	64
Dynamic objects	Time programmes	4 (Schedule)
2 / Halling 02 0010	Calendar	3 (Calendar)
Historical data	Trend Log	10
instruction dura	Historical database (HDB)	Max. 13 months for actuator data an
	Alarms	predictive maintenance 4 (Notification Class)
Architecture		
	Processor	ARM Cortex-M7 (528 Mhz)
	RAM (memory)	512 kB SDRAM
	Flash	2 × 16 MB for data and system
	Encryption	128 bit AES
	Application data	Via CASE Engine or mobile app
	Operating system	Zephyr
	Cycle time	50 ms
	Mobile app	For commissioning, operation and maintenance
	Cloud	Via MQTT
	Real-time clock	For time programmes and calendars
Interfaces, communication		
Ethernet/LAN ³⁾	Ethernet network	1 × RJ45 connector
Ethernet/LAN ³⁾	Ethernet network 10/100 BASE-T(X)	1 × RJ45 connector 10/100 Mbit/s
	10/100 BASE-T(X)	10/100 Mbit/s
	10/100 BASE-T(X) Communication protocol Connection	10/100 Mbit/s BACnet MS/TP, ½ load 2 × 3-pin connector, coded, dai- sy chain
RS-485 A connection ⁴⁾	10/100 BASE-T(X) Communication protocol Connection Termination/Pull-Up/Pull-Down	10/100 Mbit/s BACnet MS/TP, ¼ load 2 × 3-pin connector, coded, dai-
RS-485 A connection ⁴⁾	10/100 BASE-T(X) Communication protocol Connection	10/100 Mbit/s BACnet MS/TP, ¼ load 2 × 3-pin connector, coded, dai- sy chain Internal, switchable via software SLC master
RS-485 A connection ⁴⁾	10/100 BASE-T(X) Communication protocol Connection Termination/Pull-Up/Pull-Down Communication protocol	10/100 Mbit/s BACnet MS/TP, 1/4 load 2 × 3-pin connector, coded, dai- sy chain Internal, switchable via software SLC master 2 × I/O module, 1 × ecoUnit
RS-485 A connection ⁴⁾	10/100 BASE-T(X) Communication protocol Connection Termination/Pull-Up/Pull-Down Communication protocol Use Connection	10/100 Mbit/s BACnet MS/TP, 1/4 load 2 × 3-pin connector, coded, dai- sy chain Internal, switchable via software SIC master 2 × I/O module, 1 × ecoUnit 5-pin connector, coded
RS-485 A connection ⁴⁾ RS-485 B connection ⁵⁾	10/100 BASE-T(X) Communication protocol Connection Termination/Pull-Up/Pull-Down Communication protocol Use Connection Termination/Pull-Up/Pull-Down	10/100 Mbit/s BACnet MS/TP, 1/4 load 2 × 3-pin connector, coded, dai-sy chain Internal, switchable via software SIC master 2 × I/O module, 1 × ecoUnit 5-pin connector, coded Internal, switchable via software
RS-485 A connection ⁴⁾ RS-485 B connection ⁵⁾	10/100 BASE-T(X) Communication protocol Connection Termination/Pull-Up/Pull-Down Communication protocol Use Connection Termination/Pull-Up/Pull-Down Version	10/100 Mbit/s BACnet MS/TP, ½ load 2 × 3-pin connector, coded, daisy chain Internal, switchable via software SIC master 2 × I/O module, 1 × ecoUnit 5-pin connector, coded Internal, switchable via software BLE 4.0
RS-485 A connection ⁴⁾ RS-485 B connection ⁵⁾	10/100 BASE-T(X) Communication protocol Connection Termination/Pull-Up/Pull-Down Communication protocol Use Connection Termination/Pull-Up/Pull-Down Version Range	10/100 Mbit/s BACnet MS/TP, ½ load 2 × 3-pin connector, coded, dai-sy chain Internal, switchable via software SLC master 2 × I/O module, 1 × ecoUnit 5-pin connector, coded Internal, switchable via software BLE 4.0 < 10 m
RS-485 A connection ⁴ RS-485 B connection ⁵ Bluetooth	10/100 BASE-T(X) Communication protocol Connection Termination/Pull-Up/Pull-Down Communication protocol Use Connection Termination/Pull-Up/Pull-Down Version Range Radiation	10/100 Mbit/s BACnet MS/TP, 1/4 load 2 × 3-pin connector, coded, dai-sy chain Internal, switchable via software SLC master 2 × I/O module, 1 × ecoUnit 5-pin connector, coded Internal, switchable via software BLE 4.0 < 10 m 6 mW
RS-485 A connection ⁴ RS-485 B connection ⁵ Bluetooth Wireless	10/100 BASE-T(X) Communication protocol Connection Termination/Pull-Up/Pull-Down Communication protocol Use Connection Termination/Pull-Up/Pull-Down Version Range	10/100 Mbit/s BACnet MS/TP, 1/4 load 2 × 3-pin connector, coded, dai-sy chain Internal, switchable via software SLC master 2 × I/O module, 1 × ecoUnit 5-pin connector, coded Internal, switchable via software BLE 4.0 < 10 m
RS-485 A connection ⁴⁾ RS-485 B connection ⁵⁾ Bluetooth Wireless Display	10/100 BASE-T(X) Communication protocol Connection Termination/Pull-Up/Pull-Down Communication protocol Use Connection Termination/Pull-Up/Pull-Down Version Range Radiation Wi-Fi	10/100 Mbit/s BACnet MS/TP, ¼ load 2 × 3-pin connector, coded, dai- sy chain Internal, switchable via software SLC master 2 × I/O module, 1 × ecoUnit 5-pin connector, coded Internal, switchable via software BLE 4.0 < 10 m 6 mW IEEE 802.11 b/g/n
RS-485 A connection ⁴⁾ RS-485 B connection ⁵⁾ Bluetooth Wireless Display	10/100 BASE-T(X) Communication protocol Connection Termination/Pull-Up/Pull-Down Communication protocol Use Connection Termination/Pull-Up/Pull-Down Version Range Radiation Wi-Fi	10/100 Mbit/s BACnet MS/TP, ¼ load 2 × 3-pin connector, coded, daisy chain Internal, switchable via software SLC master 2 × I/O module, 1 × ecoUnit 5-pin connector, coded Internal, switchable via software BLE 4.0 < 10 m 6 mW IEEE 802.11 b/g/n 3 status LEDs (green, orange, blue)
RS-485 A connection ⁴⁾ RS-485 B connection ⁵⁾ Bluetooth Wireless Display	10/100 BASE-T(X) Communication protocol Connection Termination/Pull-Up/Pull-Down Communication protocol Use Connection Termination/Pull-Up/Pull-Down Version Range Radiation Wi-Fi LED indicator	10/100 Mbit/s BACnet MS/TP, ¼ load 2 × 3-pin connector, coded, daisy chain Internal, switchable via software SLC master 2 × I/O module, 1 × ecoUnit 5-pin connector, coded Internal, switchable via software BLE 4.0 < 10 m 6 mW IEEE 802.11 b/g/n 3 status LEDs (green, orange, blue) Connections at the bottom or side, not at the top
RS-485 A connection ⁴⁾ RS-485 B connection ⁵⁾ Bluetooth Wireless Display	10/100 BASE-T(X) Communication protocol Connection Termination/Pull-Up/Pull-Down Communication protocol Use Connection Termination/Pull-Up/Pull-Down Version Range Radiation Wi-Fi LED indicator Fitting position Dimensions W x H x D	10/100 Mbit/s BACnet MS/TP, ¼ load 2 × 3-pin connector, coded, daisy chain Internal, switchable via software SLC master 2 × I/O module, 1 × ecoUnit 5-pin connector, coded Internal, switchable via software BLE 4.0 < 10 m 6 mW IEEE 802.11 b/g/n 3 status LEDs (green, orange, blue) Connections at the bottom or side, not at the top 168 × 119 × 74 mm
RS-485 A connection ⁴⁾ RS-485 B connection ⁵⁾ Bluetooth Wireless Display	10/100 BASE-T(X) Communication protocol Connection Termination/Pull-Up/Pull-Down Communication protocol Use Connection Termination/Pull-Up/Pull-Down Version Range Radiation Wi-Fi LED indicator	10/100 Mbit/s BACnet MS/TP, ¼ load 2 × 3-pin connector, coded, daisy chain Internal, switchable via software SIC master 2 × I/O module, 1 × ecoUnit 5-pin connector, coded Internal, switchable via software BLE 4.0 < 10 m 6 mW IEEE 802.11 b/g/n 3 status LEDs (green, orange, blue) Connections at the bottom or side, not at the top 168 × 119 × 74 mm 0.9 kg Lower section black, upper section yel
RS-485 A connection ⁴⁾ RS-485 B connection ⁵⁾ Bluetooth Wireless Display	10/100 BASE-T(X) Communication protocol Connection Termination/Pull-Up/Pull-Down Communication protocol Use Connection Termination/Pull-Up/Pull-Down Version Range Radiation Wi-Fi LED indicator Fitting position Dimensions W x H x D Weight	10/100 Mbit/s BACnet MS/TP, ¼ load 2 × 3-pin connector, coded, daisy chain Internal, switchable via software SIC master 2 × I/O module, 1 × ecoUnit 5-pin connector, coded Internal, switchable via software BLE 4.0 < 10 m 6 mW IEEE 802.11 b/g/n 3 status LEDs (green, orange, blue) Connections at the bottom or side, not at the top 168 × 119 × 74 mm 0.9 kg
RS-485 A connection ⁴⁾ RS-485 B connection ⁵⁾ Bluetooth Wireless Display Construction	10/100 BASE-T(X) Communication protocol Connection Termination/Pull-Up/Pull-Down Communication protocol Use Connection Termination/Pull-Up/Pull-Down Version Range Radiation Wi-Fi LED indicator Fitting position Dimensions W x H x D Weight Housing	10/100 Mbit/s BACnet MS/TP, ¼ load 2 × 3-pin connector, coded, daisy chain Internal, switchable via software SIC master 2 × I/O module, 1 × ecoUnit 5-pin connector, coded Internal, switchable via software BLE 4.0 < 10 m 6 mW IEEE 802.11 b/g/n 3 status LEDs (green, orange, blue) Connections at the bottom or side, not at the top 168 × 119 × 74 mm 0.9 kg Lower section black, upper section yellow
RS-485 A connection ⁴⁾ RS-485 B connection ⁵⁾ Bluetooth Wireless Display Construction	10/100 BASE-T(X) Communication protocol Connection Termination/Pull-Up/Pull-Down Communication protocol Use Connection Termination/Pull-Up/Pull-Down Version Range Radiation Wi-Fi LED indicator Fitting position Dimensions W x H x D Weight Housing Housing material	10/100 Mbit/s BACnet MS/TP, ¼ load 2 × 3-pin connector, coded, daisy chain Internal, switchable via software SLC master 2 × I/O module, 1 × ecoUnit 5-pin connector, coded Internal, switchable via software BLE 4.0 < 10 m 6 mW IEEE 802.11 b/g/n 3 status LEDs (green, orange, blue) Connections at the bottom or side, not at the top 168 × 119 × 74 mm 0.9 kg Lower section black, upper section yellow Flame retardant plastic, PC/ABS
Ethernet/LAN³) RS-485 A connection⁴) RS-485 B connection⁵) Bluetooth Wireless Display Construction Standards, directives	10/100 BASE-T(X) Communication protocol Connection Termination/Pull-Up/Pull-Down Communication protocol Use Connection Termination/Pull-Up/Pull-Down Version Range Radiation Wi-Fi LED indicator Fitting position Dimensions W x H x D Weight Housing	10/100 Mbit/s BACnet MS/TP, ¼ load 2 × 3-pin connector, coded, dai- sy chain Internal, switchable via software SIC master 2 × I/O module, 1 × ecoUnit 5-pin connector, coded Internal, switchable via software BLE 4.0 < 10 m 6 mW IEEE 802.11 b/g/n 3 status LEDs (green, orange, blue) Connections at the bottom or side, not at the top 168 × 119 × 74 mm 0.9 kg Lower section black, upper section yellow

³⁾ AVM215SAF332 only

⁴⁾ AVM215SAF232 only 5) AVM215SAF232 only

CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1/EN 60730-2-14

Overview of types		
Туре	Features	Power consumption
AVM115SAF232	Valve actuator for globe valves, RS-485	Max. 4 W / 7.3 VA (without peripherals)
AVM115SAF332	Valve actuator for globe valves, Ethernet	Max. 4 W / 7.3 VA (without peripherals)

Power consumption: At runtime 60 seconds and without connected peripheral devices (room operating units, sensors, actuators or I/O modules)

Accessories	
Туре	Description
SAIO100F010	I/O module, 6 × UI/AO
SAIO100F020	I/O module, 6 × UI/AO, 3 × relay
05393601000	Dummy plug spare parts set IP54
05303601000	RJ45 connector IP54

Power cables or connecting cables (053060*****), see order code in PDS 53.950





ASM115SAF232

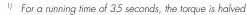
ASM 115SA: Smart actuator for ventilation dampers

Features

- Smart actuator as intelligent IoT solution in smart buildings
- IoT device with cloud connection via MQTT using TLS encryption
- Predictive maintenance functions for plant monitoring
- Enables creation of smart actuator networks with distributed intelligence
- Autonomous control of heating and air-conditioning applications
- Comprehensive application library available from the SAUTER cloud
- BACnet, MQTT, Bluetooth LE and Wi-Fi interfaces for flexible system integration
- Mobile app for easy commissioning and maintenance
- Local memory for archiving historical data and BACnet Trend Logs
- Real Time Clock for calendar functions and time programmes
- Two universal I/Os for connecting external sensors and actuators
- Direct connection of a room operating unit
- Flexibly expandable with up to two smart actuator I/O modules for comprehensive control tasks
- Pre-assembled cables, with colour- and mechanically-coded connectors, allow fast and error-free wiring
- For operating air dampers, shut-off dampers, butterfly valves and multi-leaf dampers
- BLDC motor for advanced and reliable predictive maintenance
- Intelligent angle of rotation adaptation and detection incl. feedback signal
- Electronic, torque-dependent cut-off
- Gear unit can be disengaged for manual adjustment

Technical data

Technical data		
Power supply		
	Power supply	24 V=, ±10% 24 V~, +20%/-15%, 5060 Hz
Parameters		
	Surge-voltage resistance	500 V (EN 60730)
	Torque	10 Nm
	Holding torque	10 Nm
	Angle of rotation	90°
	Response time	200 ms
	Running time for 90°1)	35/60/120 sec.
	Characteristic	Linear, equal-percentage, quadratic
	Noise during operation (unloaded)	< 49 dB (A)
	Admissible damper shaft	Ø 816 mm, □ 6.512.5 mm
	Admissible damper shaft (hardness)	Max. 300 HV
Ambient conditions		
	Temperature of medium ²⁾	Max. 100 °C
	Ambient temperature	-1055 °C
	Ambient humidity	595% rh, no condensation
	Storage and transport temperature	-2070 °C
Inputs/outputs		
inputs/outputs	Number of universal I/O	2
Type of inputs	Analogue input U	$010 \text{ V (Ri} = 100 \text{ k}\Omega, \pm 0.05 \text{ V)}$
./	Analogue input I	420 mA (with ext. resistor 500 Ω)



At media temperatures < 5 °C or > 100 °C, appropriate accessory must be used





	Digital input	Closed:1 V=, 1 mA
		Open:> 2 V=
	Ni1000	-20100 °C (DIN 43760)
	Pt1000	-20100 °C (IEC 751)
	Resistance	1002500 Ω (±25 Ω)
Type of output	Analogue output U	010 V (±0.4 V)
Function		
	BACnet data point objects	Max. 50
	BACnet client links	16
	Control	6 loops
	Active COV subscription	64
Dynamic objects	Time programmes	4 (Schedule)
	Calendar	3 (Calendar)
Historical data	Trend Log	10
	Historical database (HDB)	Max. 13 months for actuator data and
		predictive maintenance
	Alarms	4 (Notification Class)
Architecture		
	Processor	ARM Cortex-M7 (528 Mhz)
	RAM (memory)	512 kB SDRAM
	Flash	2 × 16 MB for data and system
	Encryption	128 bit AES
	Application data	Via CASE Engine or mobile app
	Operating system	Zephyr
	Cycle time	50 ms
	Mobile app	For commissioning, operation and
		maintenance
	Cloud	Via MQTT
	Real-time clock	For time programmes and calendars
Interfaces, communication	_,	
Ethernet/LAN ³⁾	Ethernet network	1 × RJ45 connector
	10/100 BASE-T(X)	10/100 Mbit/s
RS-485 A connection ⁴⁾	Communication protocol	BACnet MS/TP, ¼ load
	Connection	2 × 3-pin connector, coded, dai-
	T (D IIII /D II D	sy chain
	Termination/Pull-Up/Pull-Down	Internal, switchable via software
RS-485 B connection ⁵⁾	Communication protocol	SLC master
	Use	2 × I/O module, 1 × ecoUnit
	Connection	5-pin connector, coded
	Termination/Pull-Up/Pull-Down	Internal, switchable via software
Bluetooth	Version	BLE 4.0
	Range	< 10 m
	Radiation	6 mW
Wireless	Wi-Fi	IEEE 802.11 b/g/n
Display	LED indicator	3 status LEDs (green, orange, blue)
a :		
Construction	Eisting maritia.	Cannadiana milika kanana anati
	Fitting position	Connections at the bottom or side, not at the top
	Dimensions W x H x D	168 × 137 × 74 mm
	Weight	0.9 kg
	Housing	Lower section black, upper section yel-
		low
	Housing material	Flame retardant plastic, PC/ABS

³¹ ASM215SAF332 only 41 ASM215SAF232 only 51 ASM215SAF232 only

Standards, directives		
	Type of protection	IP54 (EN 60529)
	Protection class	III (IEC 60730)
	Energy class	
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3,
		EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1/EN 60730-2-14

Overview of types		
Туре	Features	Power consumption
ASM115SAF232	Damper actuator for ventilation dampers, RS-485	Max. 4 W / 7.3 VA (without peripherals)
ASM115SAF332	Damper actuator for ventilation dampers, Ethernet	Max. 4 W / 7.3 VA (without peripherals)

Power consumption: At runtime 60 seconds and without connected peripheral devices (room operating units, sensors, actuators or I/O modules)

Accessories	
Туре	Description
0361977002	Assembly materials for M3R, M4R, MH32R/F, MH42R with ASM 105, 115
0372300001	Torsion protection, long (230 mm)
SAIO100F010	I/O module, 6 × UI/AO
SAIO100F020	I/O module, 6 × UI/AO, 3 × relay
05393601000	Dummy plug spare parts set IP54
05303601000	RJ45 connector IP54

Power cables or connecting cables (053060*****), see order code in PDS 53.950



SAIO 100: I/O module for smart actuators

Features

- Extends the inputs and outputs of the smart actuator for extensive control tasks
- Connection of sensors or actuators via five integrated universal inputs and outputs
- Version with three additional changeover relays available
- Connection to the smart actuator via plug-in I/O module cable (SLC)
- Direct connection of a room operating unit
- Housing according to IP54 enables use without cabinet
- Separate 24 V power supply for sensors and actuators with power requirement up to 1 A

Technical data

Power supply		
	Power supply	24 V~/= (via smart actuator) 24 V~/= for terminals T4T7 (via sep arate power supply)
	Power consumption	1.2 VA at 24 V= (without sensors and actuators)
Ambient conditions		
	Ambient temperature	-1055 °C
	Ambient humidity	595% rh, no condensation
	Storage and transport temperature	-2070 °C
Inputs/outputs		
	Number of universal I/O	5 (+1 from smart actuator)
	Number of relays	3
	Rating	10 A (resistive) 5 A (inductive)
	Туре	Change-over
Type of inputs	Analogue input U	$010 \text{ V (Ri} = 100 \text{ k}\Omega, \pm 0.05 \text{ V)}$
	Analogue input I	420 mA (with ext. resistor 500 Ω)
	Digital input	Closed:1 V=, 1 mA Open:> 2 V=
	Ni1000	-20100 °C (DIN 43760)
	Pt1000	-20100 °C (IEC 751)
	Resistance	1002500 Ω (±25 Ω)
Type of output	Analogue output U	010 V (±0.4 V)
Interfaces, communication		
RS-485 connection	Communication protocol	SLC slave
	Use	1 × I/O module, 1 × ecoUnit
	Connection	5-pin connector, coded
	Termination	Internal, DIP switch
Display	LED indicator	1 status LED (green, red)
Construction		
	Fitting	On DIN rail 35 × 7.5/15 (EN 60715 or on supplied rail
	Dimensions W x H x D	200 × 107 × 55 mm
	Weight	0.5 kg
	Housing	Lower section black, upper section yellow
	Housing material	Flame retardant plastic, PC/ABS
Standards, directives		
Standards, directives	Type of protection	IP54 (EN 60529)
Standards, directives	Type of protection Protection class	IP54 (EN 60529) III (IEC 60730)



SAIO100F010





Valves, control valves, dampers, actuators | Smart actuators

CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3,
		EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1/EN 60730-2-14

Overview of types		
Туре	Features	Power consumption
SAIO100F010	I/O module for smart actuator, 6 pcs. UI/AO	Max. 0.8 W / 1.9 VA (without peripherals)
SAIO100F020	I/O module for smart actuator, 6 pcs. UI/AO, 3 pcs. relay	Max. 1.7 W / 3.6 VA (without peripherals)

Accessories	
Туре	Description
05393601000	Dummy plug spare parts set IP54



Power cables and connecting cables for smart actuators

Features

- For connection to the power supply, to cable sensors, and for connecting the actuators
- \bullet Pre-assembled cables in various lengths from 0.5 to 30 metres
- Flexible, robust PVC sheathed cables with mechanically and colour coded connectors
- Cable type: H05VV-F
- Plug and sheath colour: black (RAL 9005)

Overview of types				
Туре	Cable type	Cable length	Connector type	
05306020000	24 V power supply, open cable end	0.5 m	2-pin	
05306020001	24 V power supply, open cable end	1.0 m	2-pin	
05306020005	24 V power supply, open cable end	5.0 m	2-pin	
05306020010	24 V power supply, open cable end	10.0 m	2-pin	
05306020020	24 V power supply, open cable end	20.0 m	2-pin	
05306020030	24 V power supply, open cable end	30.0 m	2-pin	
05306020201	24 V power supply, Y-connector	1.0 m	2-pin	
05306031001	I/O signals, open cable end, 3-core	1.0 m	3-pin	
05306031005	I/O signals, open cable end, 3-core	5.0 m	3-pin	
05306031010	I/O signals, open cable end, 3-core	10.0 m	3-pin	
05306031020	I/O signals, open cable end, 3-core	20.0 m	3-pin	
05306031030	I/O signals, open cable end, 3-core	30.0 m	3-pin	
05306032005	I/O signals, cable sensor Ni1000 (-35100 °C), ready to plug in	5.0 m	3-pin	
05306032105	I/O signals, cable sensor Pt1000 (-50180 °C), ready to plug in	5.0 m	3-pin	
05306034000	RS-485, daisy chain, open cable end, 3-core	0.5 m	3-pin	
05306034001	RS-485, daisy chain, open cable end, 3-core	1.0 m	3-pin	
05306034005	RS-485, daisy chain, open cable end, 3-core	5.0 m	3-pin	
05306034010	RS-485, daisy chain, open cable end, 3-core	10.0 m	3-pin	
05306034020	RS-485, daisy chain, open cable end, 3-core	20.0 m	3-pin	
05306034030	RS-485, daisy chain, open cable end, 3-core	30.0 m	3-pin	
05306034100	RS-485, daisy chain, connection of two actuators, ready to plug in	0.5 m	3-pin	
05306034101	RS-485, daisy chain, connection of two actuators, ready to plug in	1.0 m	3-pin	







Туре	Cable type	Cable length	Connector type
05306034105	RS-485, daisy chain, connection of two actuators, ready to plug in	5.0 m	3-pin
05306034110	RS-485, daisy chain, connection of two actuators, ready to plug in	10.0 m	3-pin
05306034120	RS-485, daisy chain, connection of two actuators, ready to plug in	20.0 m	3-pin
05306034130	RS-485, daisy chain, connection of two actuators, ready to plug in	30.0 m	3-pin
05306051000	I/O signals, open cable end, 3-core	0.5 m	5-pin
05306051001	I/O signals, open cable end, 3-core	1.0 m	5-pin
05306051005	I/O signals, open cable end, 3-core	5.0 m	5-pin
05306051010	I/O signals, open cable end, 3-core	10.0 m	5-pin
05306051020	I/O signals, open cable end, 3-core	20.0 m	5-pin
05306051030	I/O signals, open cable end, 3-core	30.0 m	5-pin
05306052105	I/O signals, cable sensor Pt1000 (-50180 °C), ready to plug in	5.0 m	5-pin
05306053000	I/O signals, connection of actuator with I/O module SAIO100, ready to plug in	0.5 m	5-pin
05306053001	I/O signals, connection of actuator with I/O module SAIO100, ready to plug in	1.0 m	5-pin
05306053005	I/O signals, connection of actuator with I/O module SAIO100, ready to plug in	5.0 m	5-pin
05306053010	I/O signals, connection of actuator with I/O module SAIO100, ready to plug in	10.0 m	5-pin
05306053020	I/O signals, connection of actuator with I/O module SAIO100, ready to plug in	20.0 m	5-pin
05306053030	I/O signals, connection of actuator with I/O module SAIO100, ready to plug in	30.0 m	5-pin
05306053500	SLC connection, open cable end, 4-core	0.5 m	5-pin
05306053501	SLC connection, open cable end, 4-core	1.0 m	5-pin
05306053505	SLC connection, open cable end, 4-core	5.0 m	5-pin
05306053510	SLC connection, open cable end, 4-core	10.0 m	5-pin
05306053520	SLC connection, open cable end, 4-core	20.0 m	5-pin
05306053530	SLC connection, open cable end, 4-core	30.0 m	5-pin

 $[\]stackrel{\star}{=}$ Other models and lengths on request. For order numbers, see order code below

Example

Order no.	Designation
05306020000	Power cable, 2-pin, 24 V power supply, open cable end, 2-core, 0.5 m

Order code

(1) Product type	(2) Model	(3) Cable length
053060	200	00

Not all theoretically possible combinations can be ordered

(1) Product type

Order no.	Туре
053060	Power cables and connecting cables for smart actuator

(2) Model

Order no.	Plug	Function and connection	
200	2-pin	24 V power supply, open cable end	
201	2-pin	24 V power supply, daisy chain	
202	2-pin	24 V power supply, Y-connector	
310	3-pin	1/0: 1.2	
510	5-pin	I/O signals, 3-core open cable end	
320	3-pin	I/O signals, cable sensor Ni1000 (-35100 °C), ready to plug in	
321	3-pin	1/O:	
521	5-pin	I/O signals, cable sensor Pt1000 (-50180 °C), ready to plug in	
340	3-pin	RS-485, daisy chain, 3-core open cable end	
341	3-pin	RS-485, daisy chain, connection of two actuators, ready to plug in	
530	5-pin	I/O signals, connection of actuator with I/O module SAIO100, ready to plug	
		in	
533	5-pin	SLC-Y cable	
535	5-pin	SLC connection, 4-core open cable end	

(3) Cable length

Order no.	Length (m)	Wire cross section (mm²)
00	0.5	0.5
01	1.0	0.5
05	5.0	0.5
10	10.0	0.75
20	20.0	0.75
30	30.0	0.75



Unit valves

In combination with thermal actuators, unit valves are used to control radiators, air reheaters and recoolers as well as fan coil units.

Overview of unit valves











				W 65	
Type designation	VUL	BUL	VUT	BUT	BXL
Application					
Single-room control	•	•	•	•	•
Chilled ceiling, underfloor heating	•	•	•	•	•
Radiator	•	•	•	•	•
Underfloor device	•	•	•	•	•
Version					
2-way	•	-	•	-	-
3-way	-	•	-	•	•
Nominal diameter (DN)	1020	1020	1020	1020	2540
Nominal pressure	PN 16	PN 16	PN 16	PN 16	PN 16
Combination options with actuator	AXT 211, AXS 215S, AXM 217(S)	AXT 211, AXS 215S, AXM 217(S)	AXT 211, AXT 201, AXT 215S, AXM 217(S)	AXT 211, AXT 201, AXT 215S, AXM 217	AXT 211, AXS 215S, AXM 217(S)
Further information	Page 163	Page 166	Page 171	Page 173	Page 176

VUL: 2-way valve, PN16

Features

- Regulation of heating zones, air secondary-treatment units and fan coil units in combination with AXT 211, AXS 215S or AXM 217(S)
- ullet Flat-sealing standard version or version with clamping-ring screw fitting for pipe \varnothing 15 mm with DN 10
- Valve with male thread as per DIN EN ISO 228-1, class B
- Stuffing box can be replaced under system pressure
- Control passage A-AB is closed when the spindle is moved in
- Closing procedure against the pressure
- Valve body made of nickel-plated cast brass for DN 10 and gun metal for DN 15 and DN 20
- Plug with EPDM soft seal
- Stainless-steel spindle
- Stuffing box with double O-ring seal

Technical data

Parameters		
	Nominal pressure	PN 16
	Valve characteristic	Equal-percentage
	Valve stroke ¹⁾	4 mm
	Leakage rate	0.002% of K _{vs} value
Ambient conditions		
	Operating temperature for valve	2120 °C
	Admissible operating temperature for valve in combination with AXT 211, AXS 215 and AXM 217 (S)	100 °C at the valve
	Maximum operating pressure	Up to 120 °C, 16 bar
Standards and directives		
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	VDI/VDE 2173
	Pressure Equipment Directive	97/23/EC (fluid group II) No CE label article 3.3

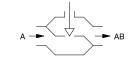
Overview of ty	Overview of types				
Туре	Nominal diameter	K _{vs} value	Connection	Weight	
VUL010F340	DN 10	0.16 m³/h	G1⁄2" B	0.19 kg	
VUL010F330	DN 10	0.4 m³/h	G1/2" B	0.18 kg	
VUL010F320	DN 10	$0.63 \text{ m}^3/\text{h}$	G½" B	0.18 kg	
VUL010F310	DN 10	1 m³/h	G½" B	0.18 kg	
VUL010F300	DN 10	1.6 m³/h	G1⁄2" B	0.18 kg	
VUL015F310	DN 15	2.5 m³/h	G¾" B	0.28 kg	
VUL015F300	DN 15	3.5 m³/h	G¾" B	0.28 kg	
VUL020F300	DN 20	4.5 m³/h	G1" B	0.33 kg	
VUL010F630	DN 10	0.4 m ³ /h	Clamping ring vers. Ø15 mm	0.18 kg	
VUL010F620	DN 10	0.63 m³/h	Clamping ring vers. Ø15 mm	0.18 kg	
VUL010F610	DN 10	1 m ³ /h	Clamping ring vers. Ø15 mm	0.18 kg	
VUL010F600	DN 10	1.6 m ³ /h	Clamping ring vers. Ø15 mm	0.18 kg	

¹⁾ The valve stroke is limited by the actuator



VULO10F310







Accessories	
Туре	Description
0378133010	1 threaded sleeve, R3/8", flat-sealing, with cap nut and flat seal, G1/2 - R3/8
0378133015	1 threaded sleeve, R½", flat-sealing, with cap nut and flat seal, $G^{3}\!\!/_{4}$ - R½
0378133020	1 threaded sleeve, $R^3\!4$ ", flat-sealing, with cap nut and flat seal, G1 - $R^3\!4$
0378134010	1 solder nipple, Ø 12, flat-sealing, with cap nut and flat seal, $G \!\!\!\! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$
0378134015	1 solder nipple, Ø 15, flat-sealing, with cap nut and flat seal, $G^{3}\!\!/\!\!/$
0378134020	1 solder nipple, Ø 22, flat-sealing, with cap nut and flat seal, G1
0378135010	1 clamping-ring screw fitting for pipe Ø 15 mm, DN 10
0378145015	1 clamping-ring screw fitting for pipe Ø 15 mm, DN 15, flat-sealing, $\ensuremath{\mbox{3}\!\mbox{4}}\mbox{"}$ B
0378145020	1 clamping-ring screw fitting for pipe Ø 22 mm, DN 20, flat-sealing, 1" B
0378128001	Stuffing box for VUL valves, can be replaced under pressure

Combination of VUL with electrical actuators

- *i* Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- i Definition of Δρ_s·Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve.
- i Definition of Δp max: Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.

Pressure differences with motorised actuators

Actuator	AXM217F200	AXM217F202	AXM217SF402
Page	185	185	188
Voltage	230 V~	24 V~/=	24 V~/=
Control signal	3-point	3-point	0/210 V, 05 V, 510 V, 0/420 mA
Running time	52 s	52 s	52 s

	Δp [bar]				
Closes against the pressure	Δp_{max}	Δp _{max}	Δp_{max}		
VUL010F340 VUL010F330 VUL010F320 VUL010F630 VUL010F620	4.0	4.0	4.0		
VUL010F310 VUL010F300 VUL010F610 VUL010F600	3.8	3.8	3.8		
VUL015F310 VUL015F300 VUL020F300	1.1	1.1	1.1		

Cannot be used to close with the pressure



Pressure differences with thermal actuators

Actuator	AXT211F210 AXT211HF210	AXT211F212 AXT211HF212	AXT211F110 AXT211F110B AXT211F110M AXT211F190 AXT211HF110	AXT211F112	AXT211F112B AXT211F112M AXT211F192 AXT211HF112
Page	180	180	180	180	180
Voltage	230 V~	24 V~/=	230 V~	24 V~/=	24 V~/=
Control signal	2-point	2-point	2-point	2-point	2-point
Running time	33 s/mm	40 s/mm	33 s/mm	33 s/mm	40 s/mm

	Δp [bar]							
Closes against the pressure	Δp_{max}	Δp_{max}	Δp _{max}	Δp_s	Δp_{max}	Δρς	Δp _{max}	Δp_s
VUL010F340 VUL010F330 VUL010F320 VUL010F630 VUL010F620	4.0	4.0	4.0	6.0	4.0	6.0	4.0	6.0
VUL010F310 VUL010F300 VUL010F610 VUL010F600	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
VUL015F310 VUL015F300 VUL020F300	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Cannot be used to close with the pressure

Actuator	AXS215SF222 AXS215SF222B	AXS215SF122 AXS215SF122B
Page	184	184
Voltage	24 V~	24 V~
Control signal	010 V	010 V
Running time	30 s/mm	30 s/mm

	Δp [bar]				
Closes against the pressure	Δp _{max}	Δp _{max}	Δp_s		
VUL010F340 VUL010F330 VUL010F320 VUL010F630 VUL010F620	4.0	4.0	6.0		
VUL010F310 VUL010F300 VUL010F610 VUL010F600	4.0	4.0	4.0		
VUL015F310 VUL015F300 VUL020F300	1.1	1.1	1.1		

Cannot be used to close with the pressure



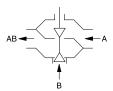


BUL015F310

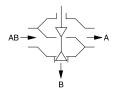


BUL010F410





Control valve



Distribution valve

BUL: 3-way unit valve, PN 16

Features

- Flat-sealing standard version or version with clamping-ring screw fitting for pipe Ø 15 mm with DN 10
- Valve with male thread as per DIN EN ISO 228-1, class B
- Special model for fan coil units with cast-on by-pass T-piece
- Control passage A-AB is closed when the spindle is moved in
- Can be used as a control valve and, thanks to its tight-sealing third passage, as a distribution valve
- Nickel-plated valve body made of cast brass
- Plug with EPDM soft seal for control passage and mixing passage
- Stainless-steel spindle
- Stuffing box with double O-ring seal

Technical data

Parameters		
	Nominal pressure	PN 16
	Valve characteristic, control passage	Equal-percentage
	Valve characteristic, mixing passage	Linear
	Valve stroke	3.7 mm
	Leakage rate of control passage A-AB	0.0001% of K_{vs} value
	Leakage rate of mixing passage B-AB	Approx. 0.1% of K _{vs} value
Ambient conditions		
	Operating temperature for valve	2120 °C
	Admissible operating temperature for valve in combination with AXT 211, AXS 215 and AXM 217 (S)	100 °C at the valve
	Operating pressure up to 120 °C	16 bar
Standards and directives		
	Pressure and temperature data	EN 764, EN 1333

Overview of types

- i The BUL 3-way valve must not be used as a 2-way valve
- $\emph{\textbf{i}}$ K_{vs} value: The K_{vs} value of the mixing passage (B-AB) is reduced by approx. 30%

Flow parameters

Pressure Equipment Directive

Туре	Nominal diameter	K _{vs} value	Connection	Weight
BUL010F330	DN 10	$0.4 \text{ m}^3/\text{h}$	G½" B	0.30 kg
BUL010F320	DN 10	0.63 m³/h	G½" B	0.30 kg
BUL010F310	DN 10	1 m³/h	G½" B	0.30 kg
BUL010F300	DN 10	1.6 m³/h	G½" B	0.30 kg
BUL015F310	DN 15	2.5 m³/h	G¾" B	0.33 kg
BUL015F300	DN 15	4 m³/h	G¾" B	0.33 kg
BUL020F300	DN 20	5 m³/h	G1" B	0.36 kg
BUL010F430	DN 10	$0.4 \text{ m}^3/\text{h}$	G½" B	0.38 kg
BUL010F420	DN 10	$0.63 \text{ m}^3/\text{h}$	G½" B	0.38 kg
BUL010F410	DN 10	1 m³/h	G½" B	0.38 kg
BUL010F400	DN 10	1.6 m³/h	G½" B	0.38 kg
BUL015F410	DN 15	$2.5 \text{ m}^3/\text{h}$	G¾" B	0.42 kg
BUL015F400	DN 15	4 m³/h	G¾" B	0.42 kg
BUL020F400	DN 20	5 m³/h	G1" B	0.50 kg

VDI/VDE 2173

No CE label article 4.3

2014/68/EU (fluid group II)

Туре	Nominal diameter	K _{vs} value	Connection	Weight
BUL010F630	DN 10	0.4 m ³ /h	Clamping ring vers. Ø	0.38 kg
BUL010F620	DN 10	0.63 m³/h	Clamping ring vers. Ø	0.38 kg
BUL010F610	DN 10	1 m³/h	Clamping ring vers. Ø	0.38 kg
BUL010F600	DN 10	1.6 m³/h	Clamping ring	0.38 kg

BULO**F4**: Version with bypass T-piece

Accessories	
Туре	Description
0378133010	1 threaded sleeve, R3%", flat-sealing, with cap nut and flat seal, G1/2 - R3/8
0378133015	1 threaded sleeve, $R \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! $
0378133020	1 threaded sleeve, $R\%$ ", flat-sealing, with cap nut and flat seal, G1 - $R\%$
0378134010	1 solder nipple, Ø 12, flat-sealing, with cap nut and flat seal, $G1/2$
0378134015	1 solder nipple, Ø 15, flat-sealing, with cap nut and flat seal, G3/4
0378134020	1 solder nipple, Ø 22, flat-sealing, with cap nut and flat seal, G1
0378135010	1 clamping-ring screw fitting for pipe Ø 15 mm, DN 10
0378145015	1 clamping-ring screw fitting for pipe Ø 15 mm, DN 15, flat-sealing, ¾" B
0378145020	1 clamping-ring screw fitting for pipe Ø 22 mm, DN 20, flat-sealing, 1" B
0378126001	Stuffing box for BUL valves
0378126002	Stuffing box for BUL valves as of manufacturing date 1501

Combination of BUL with electric actuators

- $m{i}$ Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **Definition of \Delta p_s:** Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve.
- Definition of Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.

Pressure differences with motorised actuators

Actuator	AXM217F200	AXM217F202	AXM217SF402
Page	185	185	188
Voltage	230 V~	24 V~/=	24 V~/=
Control signal	3-point	3-point	0/210 V, 05 V, 510 V, 0/420 mA
Running time	48 s	48 s	48 s

	Δp [bar]				
As control valve	Δp _{max}	Δp _{max}	Δp_{max}		
BUL010F330					
BUL010F320					
BUL010F310					
BUL010F300					
BUL010F430					
BUL010F420	1.7	1.7	1. <i>7</i>		
BUL010F410	1./	1./	1.7		
BUL010F400					
BUL010F630					
BUL010F620					
BUL010F610					
BUL010F600					
BUL015F310	1.4	1.4	1.4		
BUL015F410	1.4	1.4	1.4		



Actuator	AXM217F200	AXM217F202	AXM217SF402
Page	185	185	188
BUL015F300 BUL015F400	1.2	1.2	1.2
BUL020F300 BUL020F400	1.0	1.0	1.0

As distribution valve	Δp _{max}	Δp _{max}	Δp _{max}
BUL010F330 BUL010F320 BUL010F310 BUL010F300 BUL010F430 BUL010F420 BUL010F410 BUL010F400 BUL010F630 BUL010F620 BUL010F610 BUL010F600	1.9	1.9	1.9
BUL015F310 BUL015F300 BUL020F300 BUL015F410 BUL015F400 BUL020F400	1.2	1.2	1.2

Pressure differences with thermal actuators

Actuator	AXT211F210 AXT211HF210	AXT211F212 AXT211HF212	AXT211F110 AXT211F110B AXT211F110M AXT211F190 AXT211HF110	AXT211F112 AXT211F112B AXT211F192 AXT211HF112	AXT211F112M
Page	180	180	180	180	180
Voltage	230 V~	24 V~/=	230 V~	24 V~/=	24 V~/=
Control signal	2-point	2-point	2-point	2-point	2-point
Running time	122 s	148 s	122 s	148 s	148 s

	Δp [bar]							
As control valve	Δp _{max}	Δp_{max}	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp _{max}	Δp_s
BUL010F330 BUL010F320 BUL010F310 BUL010F300 BUL010F430 BUL010F410 BUL010F400 BUL010F630 BUL010F620 BUL010F610 BUL010F600	1.7	1.7	1.7	1.8	1.7	1.8	1.7	1.8
BUL015F310 BUL015F410	1.4	1.4	1.4	1.5	1.4	1.5	1.4	1.5
BUL015F300 BUL015F400	1.2	1.2	1.2	1.3	1.2	1.3	1.2	1.3
BUL020F300 BUL020F400	1.0	1.0	1.0	1.1	1.0	1.1	1.0	1.1
BUL010F420	1.7	1. <i>7</i>	1.7	1.8	1. <i>7</i>	1.8	1.8	1.8



Actuator	AXT211F210 AXT211HF210	AXT211F212 AXT211HF212	AXT211F110B AXT211F110M		211F110B AXT211F112B 211F110M AXT211F192 211F190 AXT211HF112		AXT211F	112M
Page	180	180	180		180		180	
As distribution valve	Δp _{max}	Δp _{max}	Δp _{max}	Δps	Δp _{max}	Δp_s	Δp _{max}	Δp_s
BUL010F330 BUL010F320 BUL010F310 BUL010F300 BUL010F430 BUL010F420 BUL010F410 BUL010F400 BUL010F630 BUL010F620 BUL010F610 BUL010F600	1.9	1.9	1.9	4.0	1.9	4.0	1.9	4.0
BUL015F310 BUL015F410	1.6	1.6	1.6	2.1	1.6	2.1	1.6	2.1
BUL015F300 BUL015F400	1.4	1.4	1.4	2.1	1.4	2.1	1.4	2.1
BUL020F300 BUL020F400	1.2	1.2	1.2	2.0	1.2	2.0	1.2	2.0

Actuator	AXS215SF222 AXS215SF222B	AXS215SF122 AXS215SF122B
Page	184	184
Voltage	24 V~	24 V~
Control signal	010 V	010 V
Running time	111 s	111 s

	Δp [bar]					
As control valve	Δp _{max}	Δp _{max}	Δp_s			
BUL010F330						
BUL010F320						
BUL010F310						
BUL010F300						
BUL010F430						
BUL010F420	1.7	1.7	1.8			
BUL010F410	1.7	1.7	1.0			
BUL010F400						
BUL010F630						
BUL010F620						
BUL010F610						
BUL010F600						
BUL015F310	1.4	1.4	1.5			
BUL015F410	1.4	1.4	1.5			
BUL015F300	1.0	1.0	1.0			
BUL015F400	1.2	1.2	1.3			
BUL020F300	1.0	1.0	1.1			
BUL020F400	1.0	1.0	1.1			



Actuator	AXS215SF222 AXS215SF222B	AXS215SF122 AXS215SF122B	
Page	184	184	
As distribution valve	Δp _{max}	Δp _{max}	Δp_s
BUL010F330 BUL010F320 BUL010F310 BUL010F300 BUL010F430 BUL010F420 BUL010F410 BUL010F400 BUL010F630 BUL010F620 BUL010F610 BUL010F600	1.9	1.9	4.0
BUL015F310 BUL015F410	1.6	1.6	2.1
BUL015F300 BUL015F400	1.4	1.4	2.1
BUL020F300 BUL020F400	1.2	1.1	1.2



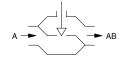
VUT: 2-way valve, PN 16

Features

- Regulation of fan coil units, air secondary-treatment units, heating zones and in combination with AXT 211, AXT 201, AXS 215S or AXM 217(S).
- Standard version flatsealing
- Adjustable Kvs value
- When the spindle is pressed in, the valve is closed
- Closing procedure against the pressure
- Valve with male thread as per DIN EN ISO 228-1, class B
- Valve body made of cast brass
- Nickel-plated brass spindle
- Plug with EPDM soft seal
- Stuffing box with O-ring seal



VUT015F200





Technical data

Parameters		
	Nominal pressure	PN 16
	Valve characteristic	Almost linear
	Leakage rate	\leq 0.0001% of K _{vs} value
Admissible ambient conditions		
	Operating temperature	2120 °C
	Operating pressure	Up to 120 °C, 16 bar
Standards and directives		
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	EN 60534 (page 3)
	Pressure Equipment Directive	2014/68/EU (fluid group II) No CE label article 4.3

Overview of types						
Туре	Nominal diameter (DN)	K _{vs} range	Valve stroke (mm)	Connection	Weight (kg)	
VUT010F200	10	0.21.6 m ³ /h	3	G½ B	0.18	
VUT010F210	10	0.21.0 m ³ /h	3	G½ B	0.18	
VUT010F220	10	$0.20.63 \text{ m}^3/\text{h}$	3	G½ B	0.18	
VUT015F200	15	1.03.5 m ³ /h	4	G¾ B	0.28	
VUT015F210	15	0.32.5 m ³ /h	3	G¾ B	0.28	
VUT020F200	20	$4.5 \text{ m}^3/\text{h}$	4	G1 B	0.33	

Combination of VUT with electric actuators

- Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **Definition of** Δp ; Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- ϕ Definition of Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.



Pressure differences with motorised actuators

Actuator	AXM217F200	AXM217F202	AXM217SF402
Page	185	185	188
Voltage	230 V~	24 V~/=	24 V~/=
Control signal	3-point	13-point	0/210 V, 05 V, 510 V, 0/420 mA
Running time	13 s/mm	13 s/mm	8 s/mm

	Δp [bar]					
Closes against the pressure	Δp _{max}	Δp _{max}	Δp _{max}			
VUT010F200 VUT010F210 VUT010F220	2.5	2.5	2.5			
VUT015F200 VUT015F210	1.8	1.8	1.8			
VUT020F200	1.0	1.0	1.0			

Cannot be used to close with the pressure

Pressure differences with thermal actuators

Actuator	AXT201F110	AXT201F112	AXT211F210 AXT211HF210	AXT211F212 AXT211HF212	AXT211F110 AXT211F110B AXT211F110M AXT211F190 AXT211HF110	AXT211F112 AXT211F112B AXT211F112M AXT211F192 AXT211HF112
Page	180	180	180	180	180	180
Voltage	230 V~	24 V~/=	230 V~	24 V~/=	230 V~	24 V~/=
Control signal	2-point	2-point	2-point	2-point	2-point	2-point
Running time	33 s/mm	40 s/mm	33 s/mm	40 s/mm	33 s/mm	40 s/mm

		Δp [bar]								
Closes against the pressure	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp _{max}	Δp _{max}	Δp _{max}	Δp_s	Δp _{max}	Δps
VUT010F200 VUT010F210 VUT010F220	2.3	2.3	2.3	2.3	2.5	2.5	2.5	2.5	2.5	2.5
VUT015F200 VUT015F210	1.6	1.6	1.6	1.6	1.8	1.8	1.8	1.8	1.8	1.8
VUT020F200	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0

Cannot be used to close with the pressure

Pressure differences with thermal actuators

Actuator	AXS215SF222 AXS215SF222B	AXS215SF122 AXS215SF122B
Page	184	184
Voltage	24 V~	24 V~
Control signal	010 V	010 V
Running time	30 s/mm	30 s/mm

	Δp [bar]					
Closes against the pressure	Δp _{max}	Δp _{max}	Δps			
VUT010F200 VUT010F210 VUT010F220	2.5	2.5	2.5			
VUT015F200 VUT015F210	1.8	1.8	1.8			
VUT020F200	1.0	1.0	1.0			
Cannot be used to a	lose with the pressure					

-₩

BUT: 3-way unit valve, PN 16 (el.)

Features

- Standard version flatsealing
- Special model for fan coil units with cast-on by-pass T-piece
- Control branch closed when spindle is pushed in
- Used as a control valve
- Valve body in cast brass
- Nickel-plated brass spindle
- Plug with soft seal made of EPDM for control branch and mixture branch
- Stuffing box with O-ring seal
- Valve with male thread as per DIN EN ISO 228-1, class B



Parameters		
	Nominal pressure	PN 16
	Valve characteristic, control passage	Almost linear
	Valve characteristic, mixing passage	Linear (not reduced)
	Leakage rate of control passage A-AB	0.0001% of K _{vs}
	Leakage rate of mixing passage B-AB	Approx. 0.1% of K _{vs}
Ambient conditions		
	Maximum operating pressure	≤ 120 °C, 16 bar
	Operating temperature	2120 °C
Standards, directives		
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	VDI/VDE 2173
	Pressure Equipment Directive	2014/68/EU (fluid group II) No CE label

article 4.3

Overview of types

 $m{i}$ The BUT 3-way unit valve must not be used as a through valve or diverting valve; mixing passage is not reduced

Туре	Nominal diameter (DN)	Valve stroke (mm)	K _{vs} value	Connection	Weight (kg)
BUT010F200	10	3	1 m³/h	G1⁄2 B	0.3
BUT010F400	10	3	$1.6 \text{ m}^3/\text{h}$	G1⁄2 B	0.38
BUT010F410	10	3	1 m³/h	G1⁄2 B	0.38
BUT010F420	10	3	$0.63 \text{ m}^3/\text{h}$	G1⁄2 B	0.38
BUT015F210	15	3	$2.5 \text{ m}^3/\text{h}$	G¾ B	0.33
BUT015F400	15	4	$3.5 \text{ m}^3/\text{h}$	G3/4 B	0.42
BUT015F410	15	4	$2.5 \text{ m}^3/\text{h}$	G3/4 B	0.42
BUT020F200	20	4	$4.5 \text{ m}^3/\text{h}$	G1 B	0.36
BUT020F400	20	4	$4.5 \text{ m}^3/\text{h}$	G1 B	0.5

→ BUTO**F4**: Version with bypass T-piece

Accessories	
Туре	Description
0378133010	1 threaded sleeve, R3/8", flat-sealing, with cap nut and flat seal, G1/2 - R3/8
0378133015	1 threaded sleeve, R½", flat-sealing, with cap nut and flat seal, $G^{3}\!\!/_{2}$ - $R^{1}\!\!/_{2}$
0378133020	1 threaded sleeve, $R^3\!4\text{"}$, flat-sealing, with cap nut and flat seal, G1 - $R^3\!4$
0378134010	1 solder nipple, Ø 12, flat-sealing, with cap nut and flat seal, $G \!\!\!\! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$

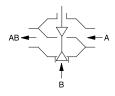


BUT015F210



BUT015F400







Туре	Description
0378134015	1 solder nipple, Ø 15, flat-sealing, with cap nut and flat seal, G^{3}_{4}
0378134020	1 solder nipple, Ø 22, flat-sealing, with cap nut and flat seal, G1
0378145015	1 clamping-ring screw fitting for pipe Ø 15 mm, DN 15, flat-sealing, $^{3}\!4$ " B
0378145020	1 clamping-ring screw fitting for pipe Ø 22 mm, DN 20, flat-sealing, 1" B

Combination of BUT with electric actuators

- *i* Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **1** Definition of Δp_s : Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve.
- i Definition of Δp max⁻. Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.

Pressure differences with motorised actuators

Actuator	AXM217F200	AXM217F202	AXM217SF402	AXM217SF404
Page	185	185	188	188
Voltage	230 V~	24 V~/=	24 V~/=	24 V~/=
Control signal	3-point	3-point	0/210 V, 05 V, 51 0 V, 0/420 mA	0/210 V, 05 V, 51 0 V, 0/420 mA
Running time	13 s/mm	13 s/mm	8 s/mm	-

	Δp [bar]						
As control valve	Δp_{max}	Δp_{max}	Δp_{max}	Δp_{max}			
BUT010F200 BUT010F400 BUT010F410 BUT010F420	2.5	2.5	2.5	2.5			
BUT015F210 BUT015F400 BUT015F410	1.8	1.8	1.8	1.8			
BUT020F200 BUT020F400	1.0	1.0	1.0	1.0			

Cannot be used as distribution valve

Pressure differences with thermal actuators

Actuator	AXT201F110 AXT211F110 AXT211F110B AXT211F110M AXT211F190 AXT211F210 AXT211HF110 AXT211HF110	AXT201F112 AXT211F112 AXT211F112B AXT211F112M AXT211F192 AXT211F212 AXT211HF112 AXT211HF112	AXT211F100 AXT211F100B AXT211F102 AXT211F102B AXT211F200 AXT211F202
Page	180	180	180
Voltage	230 V~	24 V~/=	-
Control signal	2-point	2-point	-
Running time	33 s/mm	40 s/mm	-

	Δp [bar]						
As control valve	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp _{max}	Δp_s	
BUT010F200 BUT010F400 BUT010F410 BUT010F420	2.5	2.5	2.5	2.5	2.5	2.5	
BUT015F210 BUT015F400 BUT015F410	1.8	1.8	1.8	1.8	1.8	1.8	



Actuator	AXT201F110 AXT211F110 AXT211F110B AXT211F110M AXT211F190 AXT211F210 AXT211HF110 AXT211HF110		AXT211F112 AXT211F112B AXT211F112M AXT211F192		AXT211F100 AXT211F100B AXT211F102 AXT211F102B AXT211F200 AXT211F202	
Page	180		180		180	
BUT020F200 BUT020F400	1.0	1.0	1.0	1.0	1.0	1.0

Cannot be used as distribution valve

Pressure differences with thermal actuators

Actuator	AXS215SF122 AXS215SF122B AXS215SF222 AXS215SF222B
Page	184
Voltage	24 V~
Control signal	010 V
Running time	30 s/mm

	Δp [bar]			
As control valve	Δp _{max}	Δps		
BUT010F200 BUT010F400 BUT010F410 BUT010F420	2.5	2.5		
BUT015F210 BUT015F400 BUT015F410	1.8	1.8		
BUT020F200 BUT020F400	1.0	1.0		

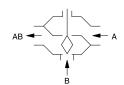
Cannot be used as distribution valve





BXL025F200





BXL: 3-way unit valve, PN 16

Features

- Valve with male thread as per DIN EN ISO 228-1, class A
- Control passage A-AB open when the spindle is moved in
- Used as a control valve
- Valve body made of gun metal
- Plug with EPDM soft seal
- Stainless-steel spindle
- Stuffing box with double O-ring seal
- Version with cap nut and flat seal

Technical data

Parameters		
	Nominal pressure	PN 16
	Valve characteristic, control passage	Linear
	Valve characteristic, mixing passage	Complementary, reduced
	Valve stroke	2.9 mm
	Leakage rate, control passage	Approx. 0.05% of K _{vs} value
	Leakage rate, mixing passage	Approx. 0.2% of K _{vs} value
Ambient conditions		
	Operating temperature for valve	2130 °C
	Admissible operating temperature for valve in combination with AXT 211, AXS 215 and AXM 217 (S)	100 °C at the valve
	Operating pressure	Max. 16 bar at 130 °C

Overview of types

i The BXL 3-way valve must not be used as a 2-way valve

Туре	Nominal diameter	K _{vs} value	Weight
BXL025F200	DN 25	6.5 m³/h	1200 g
BXL040F200	DN 40	9.5 m³/h	2350 g

Accessories			
Туре	Description		
0361824025	3 threaded sleeves, R 1", flat-sealing		
0361824040	3 threaded sleeves, R 5/4", flat-sealing		
0361825028	3 solder nipple, Ø 28; flat-sealing, DN 25		
0361825035	3 solder nipple, Ø 35; flat-sealing, DN 40		
0361825042	3 solder nipple, Ø 42; flat-sealing, DN 40		



Combination of BXL with electric actuators

- i Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- i Definition of Δp_s: Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve.
- Definition of Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.

Pressure differences with motorised actuators

Actuator	AXM217F200	AXM217F202	AXM217SF402
Page	185	185	188
Voltage	230 V~	24 V~/=	24 V~/=
Control signal	3-point	3-point	0/210 V, 05 V, 510 V, 0/420 mA
Running time	38 s	38 s	38 s

	Δp [bar]			
As control valve	Δp _{max}	Δp _{max}	Δp_{max}	
BXL025F200	0.5	0.5	0.5	
BXL040F200	2.0	2.0	2.0	
Cannot be used as distribution valve				

Pressure differences with thermal actuators

Actuator	AXT211F210 AXT211F110B AXT211F110M	AXT211HF210 AXT211F110 AXT211F190 AXT211HF110	AXT211F212 AXT211HF212 AXT211F112B AXT211F112M AXT211HF112	AXT211F112 AXT211F192	AXS215SF222 AXS215SF222B AXS215SF122 AXS215SF122B
Page	180	180	180	180	184
Voltage	230 V~	230 V~	24 V~/=	24 V~/=	24 V~
Control signal	2-point	2-point	2-point	2-point	010 V
Running time	96 s	96 s	116 s	116 s	87 s

			Δp [bar]		
As control valve	Δp _{max}				
BXL025F200	2.0	0.5	0.5	2.0	0.5
BXLO40F200	2.0	2.0	2.0	2.0	2.0
<u> </u>	le e el e e e e				

Cannot be used as distribution valve



Actuators for unit valves

SAUTER actuators for unit valves provide reliable and accurate control. Pulse-pause control (with pulse widths of a few seconds) or continuous activation guarantees accurate control characteristic.

Overview of actuators for unit valves









			//	19
Type designation	AXT 201, 211	AXS 215S	AXM 217	AXM 217S
Technical data				
Max. nominal stroke (mm)	4.5	4.5/3	6.3	5.5
Max. pushing force (N)	125	125	120	120
Running time	33/40 s/mm	30 s/mm	13 s/mm	8 s/mm
Power supply (V)	24/230	24	24/230	24
Mode of operation				
Stroke indicator	•	•	-	-
Thermal	•	•	-	-
Motor	-	-	•	•
Control				
2-point	•	-	•	-
3-point	-	-	•	-
Positioner	-	•	-	•
Combination options with valve	VUL, BUL, VCL, VDL, VUT, BUT, BXL	VUL, BUL, VCL, VDL, VUT, BUT, BXL	VUL, BUL, VUT, BUT, BXL, VCL, VDL	VUL, BUL, VUT, BUT, BXL, VCL, VDL
Further information	Page 179	Page 183	Page 185	Page 187

AXT 201, 211: Thermal actuator for unit valves with stroke indicator

Features

- Fitted to the valve using no force thanks to the Low-Force-Locking (LFL) connector
- ullet Fitted onto valve with M30 x 1.5 thread with automatic adjustment of closing dimension
- Pushing force max. 125 N
- With 230 V or 24 V thermal expansion element
- Large visible position indicator
- NC "normally closed" and NO "normally open" models (with and without auxiliary contacts)
- Model with manual adjustment
- Silent and maintenance-free
- Modular electrical plug connection (various functions, cable lengths and types)
- ullet Including bayonet nut made of plastic M30 imes 1.5
- Suitable for retrofitting existing installations without an adapter
- Fitting in any position, including upside down

Power supply		
	Power supply 24 V~	±20%, 5060 Hz
	Power supply 24 V=	±20%
	Power supply 230 V~	±15%, 5060 Hz
	Power consumption during operation	2.5 W (230 V~), 3 W (24 =/~)
	Starting power 24 V~/=	5 W/5 VA
	Starting power 230 V~	40 W/40 VA
	Start-up current 24 V~	220 mA
	Start-up current 230 V~	150 mA
Parameters		
	Stroke	Max. 4.5 mm
Ambient conditions		
	Operating temperature at valve	100 °C max.
	Storage and transport temperature	-2570 °C
	Ambient temperature	050 °C
	Ambient humidity	< 85% rh, no condensation
Construction		
CONSTRUCTION .	Housing	Pure white (RAL 9010) or jet black (RAL 9005), high-gloss surface (FV-0 as per EN 60707 and V-0 as per UL94)
	Housing material	Fire-retardant plastic
	Power cable	Standard length 0.8 m (AXT201), 1 m (AXT211, H03), PVC, 2 x 0.50 mm ² white/black
Standards and directives		
	Type of protection	IP54 (EN 60529)
	Protection class 24 V	III (EN 60730-1)
	Protection class 230 V	II (EN 60730-1)
CE conformity according to	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-14 EN 60335-1
	RoHS Directive 2011/65/EU	EN 50581
	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4











Overview of types				
Туре	Features			
AXT201F110	White version 230 V, NC, neutral, incl. raised M30 \times 1.5 bayonet nut, cable 0.8 m			
AXT201F112	White version 24 V, NC, incl. raised M30 \times 1.5 bayonet nut, cable 1 m			
AXT211F100	White version 230 V, NC, without cable, pack of one			
AXT211F100B	Black version 230 V, NC, without cable, pack of one			
AXT211F102	White version 24 V, NC, without cable, pack of one			
AXT211F102B	Black version 24 V, NC, without cable, pack of one			
AXT211F110	White version 230 V, NC, cable 1 m			
AXT211F110B	Black version 230 V, NC, cable 1 m			
AXT211F110M	White version 230 V, NC, with manual adjustment, cable 1 m			
AXT211F112	White version 24 V, NC, cable 1 m			
AXT211F112B	Black version 24 V, NC, cable 1 m			
AXT211F112M	White version 24 V, NC, with manual adjustment, cable 1 m			
AXT211F190	White version 230 V, NC, packing unit 50 pcs, without cable			
AXT211F192	White version 24 V, NC, packing unit 50 pcs, without cable			
AXT211F200	White version 230 V, NO, without cable, pack of one			
AXT211F202	White version 24 V, NO, without cable, pack of one			
AXT211F210	White version 230 V, NO, cable 1 m			
AXT211F212	White version 24 V, NO, cable 1 m			
AXT211HF110	White version 230 V, NC, with auxiliary contacts, cable 1 m			
AXT211HF210	White version 230 V, NO, with auxiliary contacts, cable 1 m			
AXT211HF112	White version 24 V, NC, with auxiliary contacts, cable 1 m			
AXT211HF212	White version 24 V, NO, with auxiliary contacts, cable 1 m			
	. , ,			

Technical details

 $\emph{\textbf{i}}$ Closing force in combination with SAUTER valves

Туре	Voltage	Max. stroke (mm)	Closing force (N)	NC/NO	Min. running time (minutes)	Weight (kg)
White version, neutral, incl. raised M30 × 1.5 bayonet nut, cable 0.8 m, pack of one						
AXT201F110	230 V	4.5	90	NC	3.5	0.18
AXT201F112	24 V	4.5	90	NC	4.5	0.18

Туре	Voltage	Max. stroke (mm)	Closing force (N)	NC/NO	Min. running time (minutes)	Weight (kg)
White version, including	1.5 bayor M30 × 1.5	et nut, cable 1 m, pack of one				
AXT211F110	230 V	4.5	115	NC	3.5	0.18
AXT211F210	230 V	4.5	110	NO	3.5	0.18
AXT211F112	24 V	4.5	115	NC	4.5	0.18
AXT211F212	24 V	4.5	110	NO	4.5	0.18

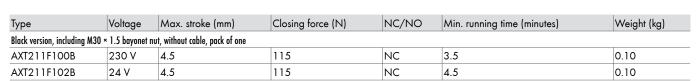
Туре	Voltage	Max. stroke (mm)	Closing force (N)	NC/NO	Min. running time (minutes)	Weight (kg)
Black version, including M30	× 1.5 bayonet nu	t, cable 1 m, pack of one				
AXT211F110B	230 V	4.5	115	NC	3.5	0.18
AXT211F112B	24 V	4.5	115	NC	4.5	0.18

Туре	Voltage	Max. stroke (mm)	Closing force (N)	NC/NO	Min. running time (minutes)	Weight (kg)
White version, with auxiliary contacts, including M30 × 1.5 bayonet nut, cable 1 m, pack of one						
AXT211HF110	230 V	4.5	115	NC	3.5	0.21
AXT211HF210	230 V	4.5	110	NO	3.5	0.21
AXT211HF112	24 V	4.5	115	NC	4.5	0.21
AXT211HF212	24 V	4.5	110	NO	4.5	0.21

Туре	Voltage	Max. stroke (mm)	Closing force (N)	NC/NO	Min. running time (minutes)	Weight (kg)
White version, with manual adjuster, including M30 × 1.5 bayonet nut, cable 1 m, pack of one						
AXT211F110M	230 V	4.5	115	NC	3.5	0.18
AXT211F112M	24 V	4.5	115	NC	4.5	0.18

Туре	Voltage	Max. stroke (mm)	Closing force (N)	NC/NO	Min. running time (minutes)	Weight (kg)
White version, packing unit	of 50 pieces, inc	luding M30 × 1.5 bayonet nut, witho	ut cable			
AXT211F190	230 V	4.5	115	NC	3.5	0.10
AXT211F192	24 V	4.5	115	NC	4.5	0.10

Туре	Voltage	Max. stroke (mm)	Closing force (N)	NC/NO	Min. running time (minutes)	Weight (kg)
White version, including	M30 × 1.5 bayon	et nut, without cable, pack of one				
AXT211F100	230 V	4.5	115	NC	3.5	0.10
AXT211F200	230 V	4.5	110	NO	3.5	0.10
AXT211F102	24 V	4.5	115	NC	4.5	0.10
AXT211F202	24 V	4.5	110	NO	4.5	0.10



Accessories

Connectors with different cable lengths for thermal actuator

Туре	Description
0550602801	Plug with cable, white, 0.8 m, PVC H03VV, $2 \times 0.50 \text{ mm}^2$
0550602021	Plug with cable, white, 2 m, PVC H03VV, 2 x 0.50 mm ²
0550602032	Plug with cable, white, 3 m, PVC H05VV, 2 x 0.75 mm ²
0550602032B	Plug with cable, black, 3 m, PVC H05VV, 2 x 0.75 mm ²
0550602042	Plug with cable, white, 4 m, PVC H05VV, 2 x 0.75 mm ²
0550602052	Plug with cable, white, 5 m, PVC H05VV, 2 x 0.75 mm ²
0550602052B	Plug with cable, black, 5 m, PVC H05VV, 2 x 0.75 mm ²
0550602062	Plug with cable, white, 6 m, PVC H05VV, 2 x 0.75 mm ²
0550602072	Plug with cable, white, 7 m, PVC H05VV, 2 x 0.75 mm ²
0550602102	Plug with cable, white, 10 m, PVC H05VV, $2 \times 0.75 \text{ mm}^2$
0550602102B	Plug with cable, black, 10 m, PVC H05VV, 2 x 0.75 mm ²
0550602152	Plug with cable, white, 15 m, PVC H05VV, 2 x 0.75 mm ²
0550602152B	Plug with cable, black, 15 m, PVC H05VV, 2 x 0.75 mm ²
0550602023	Plug with cable, halogen-free, white, 2 m, Hal F $H05Z1Z1$, $2 \times 0.75 \text{ mm}^2$
0550602053	Plug with cable, halogen-free, white, 5 m, Hal F \pm H05Z1Z1, 2 x 0.75 mm ²
0550602103	Plug with cable, halogen-free, white, 10 m, Hal F $\rm H05Z1Z1$, $\rm 2 \times 0.75~mm^2$

Connectors with integrated auxiliary contacts

Туре	Description
0550484121	Plug, white, with integrated auxiliary contacts for NC actuator, 2 m cable, PVC H03VV, $4\mathrm{x}$ 0.50 mm²
0550484221	Plug, white, with integrated auxiliary contacts for NO actuator, 2 m cable, PVC H03VV, 4 x 0.50 \mbox{mm}^2

Various accessories

Туре	Description
0550240001	Removal-protection device for AXT/AXS211 (prevents the unauthorised removal of the plug and actuator)
	104101)



Adapters & adapter sets

Туре	Description
0550390001	Raised M30 \times 1.5 bayonet nut (black), with N-insert (normal, black) and S-insert (reduced, white), for all valves with M30 \times 1.5 threads and angle valves or valves with measurement sockets; dimension of actuator 5 mm higher. Closing dimension depending on type of use: NC 4.5 mm to 18.5 mm and NO 8.5 mm to 22.5 mm
0550390101	Raised M28 \times 1.5 bayonet nut (grey), with N-insert (normal, black) and S-insert (reduced, white), for all valves with M28 \times 1.5 threads and angle valves or valves with measurement sockets; dimension of actuator 5 mm higher. Closing dimension depending on type of use: NC 4.5 mm to 18.5 mm and NO 8.5 mm to 22.5 mm, e.g. Pettinaroli
0550390201	Raised M30 × 1.0 bayonet nut (white), with N-insert (normal, black) and S-insert (reduced, white), for all valves with M30 × 1.0 threads and angle valves or valves of different manufacturers; dimension of actuator 5 mm higher. Closing dimension depending on type of use: NC 4.5 mm to 18.5 mm and NO 8.5 mm to 22.5 mm, e.g. Oventrop (up to 1997), Beulco (up to 2004)
0550393002	Adapter for fitting to Danfoss valves, type RAVL, 26 mm
0550393003	Adapter for fitting to Danfoss valves, type RAV, 34 mm
0550393004	Adapter for fitting to Danfoss valves, type RA 2000, 22 mm
0550394001	Adaptor for fitting to Giacomini valves, type R450, R452, R456 and range 60
0550399001	Adaptor set comprising: raised bayonet nut, black M30 \times 1.5 (all manufacturers, M30 \times 1.5); raised bayonet nut, grey M28 \times 1.5 (all manufacturers, M28 \times 1.5); raised bayonet nut, white M30 \times 1.0 (e.g. Oventrop, Beulco); 2 \times N-inserts (black) and 2 \times S-inserts (white); Danfoss adaptor RA 2000 (Ø 22 mm); Giacomini adaptors

Connectors with continuous actuation (for 24 V version only)

Туре	Description	
0550423121	Continuous activation NC adjustable: 0(2)10 / 100(2) V, split-range unit 04.5 V or 5.5 10 V, for 4.5 mm or 3 mm stroke, 2 m white cable, PVC 3 x 0.22 mm ²	
0550423221	Continuous activation NO adjustable: $0(2)10 / 100(2)$ V, split-range unit 04.5 V or 5.5 10 V, for 4.5 mm or 3 mm stroke, 2 m white cable, PVC 3 x 0.22 mm ²	
0550423151	Continuous activation NC adjustable: $0(2)10 / 100(2)$ V, split-range unit 04.5 V or 5.5 10 V, for 4.5 mm or 3 mm stroke, 5 m white cable, PVC 3 x 0.22 mm ²	
0550423251	Continuous activation NO adjustable: $0(2)10 / 100(2)$ V, split-range unit 04.5 V or 5.5 10 V, for 4.5 mm or 3 mm stroke, 5 m white cable, PVC 3 x 0.22 mm ²	
0550423171	Continuous activation NC adjustable: $0(2)10 / 100(2)$ V, split-range unit 04.5 V or 5.5 10 V, for 4.5 mm or 3 mm stroke, 7 m white cable, PVC 3 x 0.22 mm ²	
0550423271	Continuous activation NO adjustable: $0(2)10 / 100(2)$ V, split-range unit 04.5 V or 5.5 10 V, for 4.5 mm or 3 mm stroke, 7 m white cable, PVC 3×0.22 mm ²	
0550423123	Continuous activation NC adjustable: $0(2)10 / 100(2)$ V, split-range unit 04.5 V or 5.5 10 V, for 4.5 mm or 3 mm stroke, 2 m white halogen-free cable, 3×0.22 mm ²	
0550423153	Continuous activation NC adjustable: 0(2)10 / 100(2) V, split-range unit 04.5 V or 5.5 10 V, for 4.5 mm or 3 mm stroke, 5 m white halogen-free cable, 3 x 0.22 mm ²	
0550423173	Continuous activation NC adjustable: $0(2)10 / 100(2)$ V, split-range unit 04.5 V or 5.5 10 V, for 4.5 mm or 3.2 mm stroke, 7 m white halogen-free cable, H03 3 x 0.22 mm ²	

Connectors with integrated LED, lights up in blue (for 24 V version only)

Туре	Description
0550120022	White plug with integrated LED, lights up in blue, cable 2 m, PVC H03VV, 2 x 0.50 mm ²
0550120052	White plug with integrated LED, lights up in blue, cable 5 m, PVC H03VV, 2 x 0.75 mm ²

AXS 215S: Continuous actuator for unit valves, with stroke indicator

Features

- Fitted to the valve using no force thanks to the Low-Force-Locking (LFL) connector
- ullet Fitted onto the valve with M30 imes 1.5 thread, with automatic adjustment of closing dimension
- ullet With 24 V~ thermal expansion element and accurate continuous input
- Large, visible position indicator
- NC "normally closed" and NO "normally open" versions
- Choice of direction of operation, O(2)...10 V or 10...(2)0 V and split-range function, 0...4.5 V or 5.5...
- Position monitoring with inductive, non-wearing sensor; does not require periodic recalibration
- Silent and maintenance-free
- Modular electrical plug connection (various cable lengths and types)
- Connected to valve with plastic bayonet connection
- Suitable for retrofitting existing installations without an adapter
- Fitting in any position, including upside down

Power supply		
	Power supply	24 V~, ±20%, 5060 Hz
	Power consumption during operation	3 W
	Starting power	Max. 5 W
	Start-up current	220 mA
	Stand-by current	Max. 6 mA
	Operating current	Max. 90 mA
Parameters		
	Stroke	4.5/3 mm (can be selected)
	Min. running time ¹⁾	Approx. 30 s/mm
	Control signal 1	010 V, R _i ≥ 100 kΩ
Ambient conditions		
	Operating temperature at valve	100 °C
	Storage and transport temperature	-2570 °C
	Ambient temperature	050 °C
	Ambient humidity	< 85% rh, no condensation
Construction		
	Weight	0.21 kg
	Housing	High-gloss surface (FV-0 as per EN 60707 and V-0 as per UL94),
		pure white (RAL 9010) or jet black (RAL 9005)
	Housing material	Fire-retardant plastic
	Power cable	Standard length 2 m, H03VV, PVC or halogen-free, 3 x 0.22 mm², white or black
Standards and directives		











¹⁾ The total time for 100% stroke is approx. 3.5...4.5 minutes (warm-up time) in the cold state or approx. 150 seconds in control mode without a dead time, i.e. in stand-by mode, add a dead time of approx. 110 seconds

	Protection class 24 V	III (EN 60730-1, EN 60730-2, EN 60730-14)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1/EN 61000-6-2 EN 61000-6-3/EN 61000-6-4

Overview of types

 $m{i}$ Closing force in combination with SAUTER valves

Туре	Closing force	NC/NO
AXS215SF122	115 N	NC
AXS215SF122B	115 N	NC
AXS215SF222	110 N	NO
AXS215SF222B	110 N	NO

- 🕳 AXS215SF122, AXS215SF222: White version, including M30 x 1.5 bayonet nut, cable 2 m, pack of one
- AXS215SF122B, AXS215SF222B: Black version, including M30 x 1.5 bayonet nut, cable 2 m, pack of one

Accessories	
Connectors with co	ntinuous actuation (for 24 V AC version only)
Туре	Description
0550423121	Continuous activation NC adjustable: $0(2)10 / 100(2)$ V, split-range unit 04.5 V or 5.5 10 V, for 4.5 mm or 3 mm stroke, 2 m white cable, PVC 3 x 0.22 mm ²
0550423221	Continuous activation NO adjustable: $0(2)10 / 100(2)$ V, split-range unit 04.5 V or 5.5 10 V, for 4.5 mm or 3 mm stroke, 2 m white cable, PVC 3 x 0.22 mm ²
0550423151	Continuous activation NC adjustable: $0(2)10 / 100(2)$ V, split-range unit 04.5 V or 5.5 10 V, for 4.5 mm or 3 mm stroke, 5 m white cable, PVC 3 x 0.22 mm ²
0550423251	Continuous activation NO adjustable: $0(2)10 / 100(2)$ V, split-range unit 04.5 V or 5.5 10 V, for 4.5 mm or 3 mm stroke, 5 m white cable, PVC 3 x 0.22 mm ²
0550423171	Continuous activation NC adjustable: $0(2)10 / 100(2)$ V, split-range unit 04.5 V or 5.5 10 V, for 4.5 mm or 3 mm stroke, 7 m white cable, PVC 3 x 0.22 mm ²
0550423271	Continuous activation NO adjustable: $0(2)10 / 100(2)$ V, split-range unit 04.5 V or 5.5 10 V, for 4.5 mm or 3 mm stroke, 7 m white cable, PVC 3 x 0.22 mm ²
0550423123	Continuous activation NC adjustable: $0(2)10 / 100(2)$ V, split-range unit 04.5 V or 5.5 10 V, for 4.5 mm or 3 mm stroke, 2 m white halogen-free cable, 3×0.22 mm ²
0550423153	Continuous activation NC adjustable: 0(2)10 / 100(2) V, split-range unit 04.5 V or 5.5 10 V, for 4.5 mm or 3 mm stroke, 5 m white halogen-free cable, 3 x 0.22 mm ²
Various accessories	5
Туре	Description
0550240001	Removal-protection device for AXT/AXS211 (prevents the unauthorised removal of the plug and actuator)
Adapters & adapte	er sets
Туре	Description
0550390101	Raised M28 \times 1.5 bayonet nut (grey), with N-insert (normal, black) and S-insert (reduced, white), for all valves with M28 \times 1.5 threads and angle valves or valves with measurement sockets; dimensionally solves with measurement solves with the solves wi

1700	200 Capacitation
0550390101	Raised M28 \times 1.5 bayonet nut (grey), with N-insert (normal, black) and S-insert (reduced, white), for all valves with M28 \times 1.5 threads and angle valves or valves with measurement sockets; dimension of actuator 5 mm higher. Closing dimension depending on type of use: NC 4.5 mm to 18.5 mm and NO 8.5 mm to 22.5 mm, e.g. Pettinaroli
0550390201	Raised M30 \times 1.0 bayonet nut (white), with N-insert (normal, black) and S-insert (reduced, white), for all valves with M30 \times 1.0 threads and angle valves or valves of different manufacturers; dimension of actuator 5 mm higher. Closing dimension depending on type of use: NC 4.5 mm to 18.5 mm and NO 8.5 mm to 22.5 mm, e.g. Oventrop (up to 1997), Beulco (up to 2004)
0550393002	Adapter for fitting to Danfoss valves, type RAVL, 26 mm
0550393003	Adapter for fitting to Danfoss valves, type RAV, 34 mm
0550393004	Adapter for fitting to Danfoss valves, type RA 2000, 22 mm
0550394001	Adaptor for fitting to Giacomini valves, type R450, R452, R456 and range 60
0550399001	Adaptor set comprising: raised bayonet nut, black M30 \times 1.5 (all manufacturers, M30 \times 1.5); raised bayonet nut, grey M28 \times 1.5 (all manufacturers, M28 \times 1.5); raised bayonet nut, white M30 \times 1.0 (e.g. Oventrop, Beulco); 2 \times N-inserts (black) and 2 \times S-inserts (white); Danfoss adaptor RA 2000 (\emptyset 22 mm); Giacomini adaptors

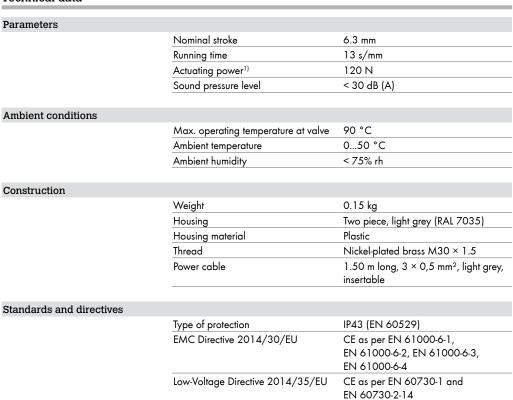


AXM 217: Motorised actuator for unit valves

Features

- Reliable actuation in efficient control systems
- For 2-point or 3-point controllers in conjunction with single-room control systems
- Stepping motor with electronic activation and cut-out
- Attached to valve with M30 × 1.5 thread
- Maintenance-free gear unit
- Suitable for retrofitting existing installations using the appropriate adapters
- Operating status indicated by integrated LED
- Fitting position vertically upright to horizontal, not suspended





Overview of types			
Туре	Power supply	Power consumption	Protection class
AXM217F200	230 V~, ±10%, 5060 Hz	6.5 VA, 2 W	II (IEC 60730)
AXM217F202	24 V~, ±15%, (5060 Hz)	2.5 VA, 1.5 W	III (IEC 60730)

✓ AXM217F202: Voltage 24V= with relay circuit only

Accessories	
Туре	Description
0550603001	Cable: 24 V, PVC, pluggable, 3 m long
0550603002	Cable: 24 V, PVC, pluggable, 7 m long
0550603003	Cable: 230 V, PVC, pluggable, 3 m long
0550603004	Cable: 230 V, PVC, pluggable, 7 m long
0550603005	Cable: 24 V, halogen-free, pluggable, 3 m long

¹⁾ Actuating power min. 100 N, max. 150 N



AXM217F20







Туре	Description
0550603006	Cable: 24 V, halogen-free, pluggable, 7 m long
0550603007	Cable: 230 V, halogen-free, pluggable, 3 m long
0550603008	Cable: 230 V, halogen-free, pluggable, 7 m long
0371235001	Adaptor for fitting to Oventrop valves (M30 \times 1)
0371356001	Adaptor for fitting to Beulco or Tobler underfloor-heating distributors (M30 \times 1)
0550393002	Adapter for fitting to Danfoss valves, type RAVL, 26 mm
0550393003	Adapter for fitting to Danfoss valves, type RAV, 34 mm
0550393004	Adapter for fitting to Danfoss valves, type RA 2000, 22 mm
0371361001	Adapter for fitting to Herz valves, type Herz-TS'90 (M28 × 1.5)
0371363001	Adapter for fitting to Tour & Andersson valves, type TA/RVT (M28 × 1.5)



AXM 217S: Motorised actuator for unit valves with positioner

Features

- Stepping motor with electronic activation and cut-out
- Attached to valve with M30 \times 1.5 thread
- Version with direction of operation 1 (direct acting) or 2 (reverse acting), adjustable
- Adjustable valve strokes
- Automatic stroke adjustment (AXM217SF404)
- Maintenance-free gear unit
- Suitable for retrofitting existing installations using the appropriate adapters
- Status and diagnostic indicator via integrated bi-colour LED
- Fitting position vertically upright to horizontal, not suspended

Technical data

Power supply		
	Power supply	24 V~/=, ±15%, 5060 Hz
	Power consumption	2.5 VA / 1.5 W
Parameters ¹⁾		
	Direction of operation	1 or 2 (adjustable)
	Nominal stroke	3.2 mm, 4.3 mm, 5.5 mm (adjustable) Automatic stroke adjustment (F404)
	Running time	8 s/mm
	Sound pressure level	< 30 dB(A)
	Control signal	0(2)10 V; 510 V; 05 V R _i > 100 kΩ;
		0(4)20 mA $R_i = 500 \Omega$
Ambient conditions		
Anision conditions	Ambient temperature	050 °C, no condensation
	Max. operating temperature at valve	95 °C
	Storage and transport temperature	-2065 °C
	Ambient humidity	< 75% rh
Construction		
Construction	Weight	0.15 kg
	Housing	Two-part, light grey (RAL 7035)
	Housing material	Plastic
	Thread	Nickel-plated brass M30 × 1.5
	Power cable	1.50 m long, 3 × 0.5 mm², light grey, pluggable 3.0 m long, halogen-free (F404)
Standards and directives		
	Type of protection	IP43 (EN 60529)
	Protection class	III (IEC 60730)

EMC Directive 2014/30/EU

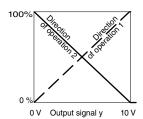
61000-6-1, 61000-6-2, 61000-6-3

and EN 61000-6-4



AXM217SF402 AXM217SF404









CE conformity according to

The direction of operation and the control voltage can be set using DIP switches; factory setting "2" (RA). Direction of operation 1: Control signal increasing = actuator moves out (valve VUT, VUL, VCL, VDL, BUL closes and valve BXL (control passage) opens). Direction of operation 2: Control signal increasing = actuator moves in (valve VUT, VUL, VCL, VDL, BUL opens and valve BXL (control passage) closes).

Overview of types			
Туре	Features	Actuating power	
AXM217SF402	Motorised actuator for unit valves with positioner	120 N	
AXM217SF404	Motorised actuator for unit valves with positioner and automatic stroke adjustment	160 N	

- AXM217SF402: Actuating power min. 100 N, max. 150 N

Accessories	
Туре	Description
0550603009	Cable: 24 V, PVC, pluggable, 3 m long
0550603010	Cable: 24 V, PVC, pluggable, 7 m long
0550603011	Cable: 24 V, halogen-free, pluggable, 3 m long
0550603012	Cable: 24 V, halogen-free, pluggable, 7 m long
0371235001	Adaptor for fitting to Oventrop valves (M30 \times 1)
0550393002	Adapter for fitting to Danfoss valves, type RAVL, 26 mm
0550393003	Adapter for fitting to Danfoss valves, type RAV, 34 mm
0371356001	Adaptor for fitting to Beulco or Tobler underfloor-heating distributors (M30 \times 1)
0371361001	Adapter for fitting to Herz valves, type Herz-TS'90 (M28 × 1.5)
0371363001	Adapter for fitting to Tour & Andersson valves, type TA/RVT (M28 × 1.5)
0550393004	Adapter for fitting to Danfoss valves, type RA 2000, 22 mm



Regulating valves

SAUTER regulating valves provide flexible combinations for all requirements. The wide product range at SAUTER comprises threaded valves made of DZR cast brass and flanged valves made of grey cast iron, ductile cast iron or cast steel, ensuring that you will find products that suit your requirements perfectly. These regulating valves can be used for the continuous control of hot and cold water in closed circuits.

Overview of regulating valves









Type designation	VUN	BUN	V6R	B6R
Application				
Preheater for ventilation & air-conditioning	•	•	•	•
Cooler for ventilation & air-conditioning	•	-	•	-
Steam humidifier for ventilation & air-conditioning	-	-	-	-
Reheater for ventilation & air-conditioning	•	•	•	•
Chilled ceiling, underfloor heating	•	•	-	-
Static heating	•	•	•	•
Cooling tower (open systems)	•	•	•	•
Multi-boiler system	•	-	•	-
Local heating	•	•	•	•
District heating	-	-	-	-
Version				
2-way	•	-	•	-
3-way	-	•	-	•
Female thread	-	-	•	•
Male thread	•	•	-	-
Nominal diameter (DN)	1550	1550	1550	1550
Nominal pressure	PN 16	PN 16	PN 16	PN 16
Combination options with actuator	AVM 105(S), AVM 115(S), AVF 124 AVF 125S AVM 321(S)	AVM 105(S), AVM 115(S), AVF 124 AVF 125S AVM 321(S)	AVM 234S, AVF 234S AVM 322(S)	AVM 234S, AVF 234S AVM 322(S)
Further information	Page 192	Page 195	Page 198	Page 201









Type designation	VUD	VQD	BUD	BQD
Application				
Preheater for ventilation & air-conditioning	•	•	•	•
Cooler for ventilation & air-conditioning	•	•	-	-
Steam humidifier for ventilation & air-conditioning	-	-	-	-
Reheater for ventilation & air-conditioning	•	•	•	•
Chilled ceiling, underfloor heating	•	•	•	•
Static heating	•	•	•	•
Cooling tower (open systems)	-	-	-	-
Multi-boiler system	•	•	•	•
Local heating	•	•	•	•
District heating	-	-	-	-
Version				
2-way	•	•	-	-
3-way	-	-	•	•
Flange	•	•	•	•
Nominal diameter (DN)	1550	65100	1550	65100
Nominal pressure	PN 6	PN 6	PN 6	PN 6
Combination options with actuator	AVM 105(S), AVM 115(S), AVM 321(S)	AVM 234S, AVM 322(S), AVF 234S	AVM 105(S), AVM 115(S), AVM321(S)	AVM 234S, AVM 322(S), AVF 234S
Further information	Page 204	Page 220	Page 208	Page 222









	_		_	
Type designation	VUE	VQE	BUE	BQE
Application				
Preheater for ventilation & air-conditioning	•	•	•	•
Cooler for ventilation & air-conditioning	•	•	_	-
Steam humidifier for ventilation & air-conditioning	-	-	-	-
Reheater for ventilation & air-conditioning	•	•	•	•
Chilled ceiling, underfloor heating	•	•	•	•
Static heating	•	•	•	•
Cooling tower (open systems)	-	-	-	-
Multi-boiler system	•	•	•	•
Local heating	•	•	•	•
District heating	-	-	-	-
Version				
2-way	•	•	-	-
3-way	-	-	•	•
Flange	•	•	•	•
Nominal diameter (DN)	1550	65100	1550	65100
Nominal pressure	PN 16/10	PN 16	PN 16/10	PN 16
Combination options with actuator	AVM 105, AVM 115, AVM 321(S)	AVM 234S, AVM 322(S), AVF 234S	AVM 105, AVM 115, AVM 321(S)	AVM 234S, AVM 322(S), AVF 234S
Further information	Page 212	Page 225	Page 216	Page 227







Type designation	VUG	BUG	VUP
Application			
Preheater for ventilation & air-conditioning	•	•	•
Cooler for ventilation & air-conditioning	•	-	•
Steam humidifier for ventilation & air-conditioning	•	-	-
Reheater for ventilation & air-conditioning	•	•	•
Chilled ceiling, underfloor heating	-	-	-
Static heating	•	•	•
Cooling tower (open systems)	-	-	-
Multi-boiler system	•	•	•
Local heating	•	•	•
District heating	•	•	•
Steam	•	-	•
Version			
2-way	•	-	•
3-way	_	•	-
Flange	•	•	•
Nominal diameter (DN)	15150	15150	40150
Nominal pressure	PN 25/16	PN 25/16	PN 25
Combination options with actuator	AVM 234S, AVF 234S, AVN 224S, AVM 322(S)	AVM 234S, AVF 234S, AVN 224S, AVM 322(S)	AVM 234S, AVF 234S, AVN 224S, AVM 322(S)
Further information	Page 230	Page 234	Page 237



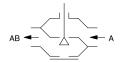


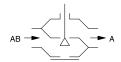
Type designation	VUS	BUS
Application		
Preheater for ventilation & air-conditioning	•	•
Cooler for ventilation & air-conditioning	•	-
Steam humidifier for ventilation & air-conditioning	•	•
Reheater for ventilation & air-conditioning	•	•
Chilled ceiling, underfloor heating	-	-
Static heating	•	•
Cooling tower (open systems)	-	-
Multi-boiler system	•	•
Local heating	•	•
District heating	•	•
Steam	•	-
Version		
2-way	•	-
3-way	-	•
Flange	•	•
Nominal diameter (DN)	15150	15150
Nominal pressure	PN 40	PN 40
Combination options with actuator	AVM 234S, AVF 234S, AVM 322(S)	AVM 234S, AVF 234S, AVM 322(S)
Further information	Page 239	Page 242



VUN032F300







VUN: 2-way valve with male thread, PN 16

Features

- Regulating valve free of silicone grease with male thread (DIN EN ISO 228-1) for cold or hot water in closed and open circuits
- In combination with valve actuators AVM 105(S), 115(S), 321(S) and AVF 124, 125S as a control unit
- Equal-percentage (F300) / linear (F200) characteristic, can be set with SUT valve actuators (SAUTER Universal Technology)
- The valve is closed when the spindle is moved out
- Closing procedure against the pressure or with the pressure
- Stainless-steel spindle
- Valve body and valve seat in dezincification-resistant (DZR) cast brass
- Plug with glass-fibre-reinforced PTFE sealing ring made of dezincification-resistant (DZR) cast brass
- Stuffing box with wiper ring made of dezincification-resistant (DZR) cast brass and double O-ring seal made of EPDM

Parameters		
	Nominal pressure	16 bar
	Control ratio	> 50:1
	Valve characteristic	F200 = linear
		F3*0 = equal percentage
	Nominal stroke	8 mm
	Leakage rate	\leq 0.02% of K _{vs} value
Ambient conditions		
	Operating temperature ¹⁾	-10130 °C
	Operating pressure up to 120 °C	16 bar
	Operating pressure up to 130 °C	13 bar

Overview of types					
Туре	Nominal diameter	K _{vs} value	Connection	Weight	
VUN015F350	DN 15	$0.4 \text{ m}^3/\text{h}$	G1" B	0.82 kg	
VUN015F340	DN 15	0.63 m³/h	G1" B	0.82 kg	
VUN015F330	DN 15	1 m³/h	G1" B	0.82 kg	
VUN015F320	DN 15	1.6 m³/h	G1" B	0.82 kg	
VUN015F310	DN 15	$2.5 \text{ m}^3/\text{h}$	G1" B	0.82 kg	
VUN015F300	DN 15	4 m³/h	G1" B	0.82 kg	
VUN020F300	DN 20	6.3 m³/h	G11/4" B	1 kg	
VUN025F300	DN 25	10 m³/h	G1½" B	1.3 kg	
VUN032F300	DN 32	16 m³/h	G2" B	1.74 kg	
VUN040F300	DN 40	22 m³/h	G21/4" B	2.52 kg	
VUN050F300	DN 50	28 m³/h	G2¾" B	3.44 kg	
VUN050F200	DN 50	40 m³/h	G2¾" B	3.44 kg	

Accessories	
Туре	Description
0361951015	1 screw fitting for male thread with flat seal, DN 15
0361951020	1 screw fitting for male thread with flat seal, DN 20
0361951025	1 screw fitting for male thread with flat seal, DN 25
0361951032	1 screw fitting for male thread with flat seal, DN 32



 $^{^{1)}}$ Use stuffing box heater at temperatures below 0 $^{\circ}$ C; use temperature adapter (accessory) at temperatures above

Туре	Description
0361951040	1 screw fitting for male thread with flat seal, DN 40
0361951050	1 screw fitting for male thread with flat seal, DN 50
0372240001	Manual adjustment for valves with 8 mm stroke
0372249001	Adaptor required when temperature of the medium is 100130 °C (recommended for temperatures <10 °C)
0372249002	Adaptor required when temperature of the medium is 130150 °C
0378284100	Stuffing box heater 230V~, 15 W for medium below 0 °C
0378284102	Stuffing box heater 24V~, 15 W for medium below 0 °C
0378368001	Complete replacement stuffing box for DN 1550

Combination of VUN with electric actuators

- i Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **Definition of \Delta p_s:** Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- i Definition of Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the

Pressure differences

Actuator	AVM105F100	AVM105F120 AVM105F122	AVM105SF132	AVM115F120 AVM115F122	AVM115SF132
Page	247	247	250	248	250
Actuating power	250 N	250 N	250 N	500 N	500 N
Control signal	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point	2-/3-point, 010 V
Running time	30 s	120 s	35/60/120 s	120 s	60/120 s

			Δp [bar]		
Closes against the pressure	Δp_{max}	Δp_{max}	Δp _{max}	Δp_{max}	Δp_{max}
VUN015F350 VUN015F340 VUN015F330 VUN015F320 VUN015F310 VUN015F300	4.0	4.0	4.0	6.0	6.0
VUN020F300	4.0	4.0	4.0	5.0	5.0
VUN025F300	4.0	4.0	4.0	4.0	4.0
VUN032F300	3.0	3.0	3.0	3.5	3.5
VUN040F300	1.9	1.9	1.9	3.0	3.0
VUN050F300 VUN050F200	1.0	1.0	1.0	2.4	2.4

Cannot be used to close with the pressure



Actuator	AVM321F110 AVM321F112	AVM321SF132	AVF124F130 AVF124F230	AVF125SF132 AVF125SF232
Page	256	259	269	272
Actuating power	1000 N	1000 N	500 N	500 N
Control signal	2-/3-point	2-/3- pt., 010 V, 420 mA	3-point	2-/3- pt., 010 V, 420 mA
Running time	48/96 s	32/96 s	60/120 s	60/120 s

	Δp [bar]					
Closes against the pressure	Δp _{max}	Δp _{max}	Δp _{max}	Δp_s	Δp _{max}	Δp_s
VUN015F350 VUN015F340 VUN015F330 VUN015F320 VUN015F310 VUN015F300	10.0	10.0	6.0	16.0	6.0	16.0
VUN020F300	10.0	10.0	5.0	12.0	5.0	12.0
VUN025F300	10.0	10.0	4.0	8.0	4.0	8.0
VUN032F300	10.0	10.0	3.5	6.0	3.5	6.0
VUN040F300	6.0	6.0	3.0	3.5	3.0	3.5
VUN050F300 VUN050F200	4.0	4.0	2.4	2.4	2.4	2.4

Closes with the pressure	Δp _{max}	Δp _{max}	Δp _{max}	Δp_s	Δp _{max}	Δp_s
VUN015F350 VUN015F340 VUN015F330 VUN015F320 VUN015F310 VUN015F300	6.0	6.0	4.0	16.0	4.0	16.0
VUN020F300	6.0	6.0	2.8	16.0	2.8	16.0
VUN025F300	5.0	5.0	2.8	8.0	2.8	16.0
VUN032F300	4.0	4.0	2.0	16.0	2.0	16.0
VUN040F300	2.5	2.5	1.5	16.0	1.5	16.0
VUN050F300 VUN050F200	2.0	2.0	0.8	16.0	0.8	16.0

⁻ At temperatures above 100°C, accessories are required



BUN: 3-way valve with male thread, PN 16

Features

- Regulating valve free of silicone grease with male thread (DIN EN ISO 228-1) for cold and hot water in closed and open circuits
- In combination with valve actuators AVM 105(S), 115(S), 321(S) and AVF 124, 125S as a control unit
- Equal-percentage (F300) / linear (F200) characteristic, can be set with SUT valve actuators (SAUTER Universal Technology)
- The valve is closed when the spindle is moved out
- Can be used as a control valve or a distribution valve
- Stainless-steel spindle
- Valve body with valve seat made from dezincification-resistant cast brass (DZR)
- Plug with glass-fibre-reinforced PTFE sealing ring made from dezincification-resistant cast brass (DZR)
- Stuffing box with wiper ring made from dezincification-resistant cast brass (DZR) and double O-ring seal made from EPDM



Nominal pressure	16 bar
Valve characteristic, control passage	F200 = linear
	F3*0 = equal percentage
Valve characteristic, mixing passage	Linear
Control ratio	> 50:1
Leakage rate, control passage	\leq 0.05% of k_{vs} value
Leakage rate, mixing passage	≤ 1% of K _{vs} value
Nominal stroke	8 mm

Ambient conditions		
	Operating temperature ¹⁾	-10130 °C
	Operating pressure up to 120 °C	16 bar
	Operating pressure up to 130 °C	13 bar

Overview of types					
Туре	Nominal diameter	K _{vs} value	Connection	Weight	
BUN015F330	DN 15	1 m³/h	G1" B	0.82 kg	
BUN015F320	DN 15	1.6 m³/h	G1" B	0.82 kg	
BUN015F310	DN 15	2.5 m³/h	G1" B	0.82 kg	
BUN015F300	DN 15	4 m³/h	G1" B	0.82 kg	
BUN020F300	DN 20	6.3 m³/h	G11/4" B	1 kg	
BUN025F300	DN 25	10 m³/h	G1½" B	1.3 kg	
BUN032F300	DN 32	16 m³/h	G2" B	1.74 kg	
BUN040F300	DN 40	22 m³/h	G21/4" B	2.52 kg	
BUN050F300	DN 50	28 m³/h	G2¾" B	3.44 kg	
BUN050F200	DN 50	40 m³/h	G2¾" B	3.44 kg	

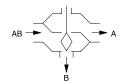
Accessories	
Туре	Description
0361951015	1 screw fitting for male thread with flat seal, DN 15
0361951020	1 screw fitting for male thread with flat seal, DN 20
0361951025	1 screw fitting for male thread with flat seal, DN 25
0361951032	1 screw fitting for male thread with flat seal, DN 32

Use stuffing box heater at temperatures below 0 °C; use temperature adapter (accessory) at temperatures above

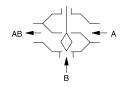


BUN032F300





Distribution valve



Control valve



Туре	Description
0361951040	1 screw fitting for male thread with flat seal, DN 40
0361951050	1 screw fitting for male thread with flat seal, DN 50
0372240001	Manual adjustment for valves with 8 mm stroke
0372249001	Adaptor required when temperature of the medium is 100130 $^{\circ}$ C (recommended for temperatures <10 $^{\circ}$ C)
0372249002	Adaptor required when temperature of the medium is 130150 °C
0378284100	Stuffing box heater 230V~, 15 W for medium below 0 °C
0378284102	Stuffing box heater 24V~, 15 W for medium below 0 °C
0378368001	Complete replacement stuffing box for DN 1550

Combination of BUN with electrical actuators

- *I Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **1** Definition of Δp_s : Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- 1 Definition of Δp max: Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve

Pressure differences

Actuator	AVM105F100	AVM105F120 AVM105F122	AVM105SF132	AVM115F120 AVM115F122	AVM115SF132
Page	247	247	250	248	250
Actuating power	250 N	250 N	250 N	500 N	500 N
Control signal	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point	2-/3-point, 010 V
Running time	30 s	120 s	35/60/120 s	120 s	60/120 s

	Δp [bar]				
As control valve	Δp _{max}				
BUN015F330 BUN015F320 BUN015F310 BUN015F300	4.0	4.0	4.0	6.0	6.0
BUN020F300	4.0	4.0	4.0	5.0	5.0
BUN025F300	3.0	3.0	3.0	4.0	4.0
BUN032F300	2.0	2.0	2.0	3.7	3.7
BUN040F300	1.2	1.2	1.2	2.7	2.7
BUN050F300 BUN050F200	0.8	0.8	0.8	1.8	1.8

Cannot be used as distribution valve

Actuator	AVM321F110 AVM321F112	AVM321SF132	AVF124F130 AVF124F230	AVF125SF132 AVF125SF232
Page	256	259	269	272
Actuating power	1000 N	1000 N	500 N	500 N
Control signal	2-/3-point	2-/3- pt., 010 V, 420 mA	3-point	2-/3- pt., 010 V, 420 mA
Running time	48/96 s	32/96 s	60/120 s	60/120 s

	Δp [bar]									
As control valve	Δp _{max}	Δp _{max}	Δp _{max}	Δp_s	Δp _{max}	Δp_s				
BUN015F330 BUN015F320 BUN015F310	10.0	10.0	6.0	16.0	6.0	16.0				
BUN015F300										
BUN020F300	10.0	10.0	5.0	9.5	5.0	9.5				
BUN025F300	10.0	10.0	4.0	6.5	4.0	6.5				



Actuator	AVM321F110 AVM321F112	AVM321SF132			AVF125SF132 AVF125SF232	
Page	256	259	269		272	
BUN032F300	10.0	10.0	3.7	4.3	3.7	4.3
BUN040F300	6.0	6.0	2.7	2.7	2.7	2.7
BUN050F300 BUN050F200	4.0	4.0	1.8	1.8	1.8	1.8

As distribution valve	Δp_{max}	Δp _{max}	Δp _{max}	Δps	Δp _{max}	Δps
BUN015F330 BUN015F320 BUN015F310 BUN015F300	6.0	6.0	4.0	16.0	4.0	16.0
BUN020F300	6.0	6.0	2.8	16.0	2.8	16.0
BUN025F300	5.0	5.0	2.8	16.0	2.8	16.0
BUN032F300	4.0	4.0	2.0	16.0	2.0	16.0
BUN040F300	2.5	2.5	1.5	16.0	1.5	16.0
BUN050F300 BUN050F200	2.0	2.0	0.8	16.0	0.8	16.0







V6R15F300



V6R: 2-way valve with female thread, PN 16 (el.)

- Regulating valve free of silicone grease with female thread DIN EN ISO 228-1 G for the control of cold/hot water in closed and open circuits
- In combination with valve actuators AVM 322, AVM 322S, AVM 234S, AVF 234S
- Equal-percentage or linear characteristic, can be set with SUT valve actuators (SAUTER Universal Technology) to linear or equal-percentage
- Control passage A-AB closed when the spindle is moved out
- Closing procedure against the pressure or with the pressure
- Valve body and seat made of gunmetal
- Stainless-steel spindle
- Stuffing box made of brass with wiper ring and double O-ring seal made of EPDM

_		
Parameters		
	Control ratio	> 50:1
	Leakage rate	\leq 0.05% of K _{vs} value
	Valve stroke	14 mm
	Nominal pressure	16 bar
Ambient conditions		
	Operating temperature ¹⁾	-15130 °C
	Operating pressure up to 120 °C	16 bar
	Operating pressure up to 130 °C	13 bar
Standards and directives		
	Pressure and temperature data	DIN 2401
	Flow parameters	VDI/VDE 2173

Overview of ty	Overview of types										
Туре	Nominal diameter	K _{vs} value	Valve character- istic	Materials for valve plug	Type of connection	Weight					
V6R15F350	DN 15	0.4 m³/h	equal-percent- age	Stainless steel	G½"	1.2 kg					
V6R15F340	DN 15	0.63 m ³ /h	equal-percent- age	Stainless steel	G1/2"	1.2 kg					
V6R15F330	DN 15	1 m³/h	equal-percent- age	Stainless steel	G½"	1.2 kg					
V6R15F320	DN 15	1.6 m³/h	equal-percent- age	Stainless steel	G½"	1.2 kg					
V6R15F310	DN 15	2.5 m³/h	equal-percent- age	brass	G½"	1.2 kg					
V6R15F300	DN 15	4 m³/h	equal-percent- age	brass	G½"	1.2 kg					
V6R15F200	DN 15	4 m³/h	linear	brass	G1/2"	1.2 kg					
V6R25F310	DN 25	6.3 m³/h	equal-percent- age	brass	G1"	1.6 kg					
V6R25F300	DN 25	10 m ³ /h	equal-percent- age	brass	G1"	1.6 kg					
V6R25F210	DN 25	6.3 m³/h	linear	brass	G1"	1.6 kg					
V6R25F200	DN 25	10 m³/h	linear	brass	G1"	1.6 kg					
V6R40F310	DN 40	16 m³/h	equal-percent- age	brass	G1½"	3.4 kg					



¹⁾ At temperatures below 0 °C, use stuffing box heater (accessory)

Туре	Nominal diameter	K_{vs} value	Valve character- istic	Materials for valve plug	Type of connection	Weight
V6R40F300	DN 40	25 m³/h	equal-percent- age	brass	G1½"	3.4 kg
V6R40F210	DN 40	16 m³/h	linear	brass	G1½"	3.4 kg
V6R40F200	DN 40	25 m³/h	linear	brass	G1½"	3.4 kg
V6R50F300	DN 50	35 m³/h	equal-percent- age	brass	G2"	4.6 kg
V6R50F200	DN 50	35 m³/h	linear	brass	G2"	4.6 kg

Accessories	
Туре	Description
0217268001	Stuffing box heater 15 W, 24 V
0217268004	Stuffing box heater 15 W, 230 V
0360391015	Screw fitting, DN 15, incl. seal, 2 pcs. required
0360391025	Screw fitting, DN 25, incl. seal, 2 pcs. required
0360391040	Screw fitting incl. seal, 2 pcs. required, $Rp1\frac{1}{2} - G1\frac{1}{2}$
0360391050	Screw fitting incl. seal, 2 pcs. required, Rp2 - G2

^{0217268***} Stuffing box heater 15 W, light alloy housing, IP54, 3×0.75 mm² power cable, earth connector, length 1 m, ferrule

Combination of V6R with electrical actuators

- Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **Definition of \Delta p_s:** Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- Definition of Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.

Pressure differences

Actuator	AVM234SF132	AVF234SF132	AVF234SF232	AVM322F120 AVM322F122	AVM322SF132
Page	267	274	274	256	259
Actuating power	2500 N	2000 N	2000 N	1000 N	1000 N
Control signal	2-/3-point, 010 V, 420 mA	2-/3-point, 010 V, 420 mA	2-/3-point, 010 V, 420 mA	2-/3-point	2-/3-point, 010 V, 420 mA
Running time	28/56/84 s	28/56/84 s	28/56/84 s	120/240 s	120/80 s

	Δp [bar]								
Closes against the pressure	Δp _{max}	Δp _{max}	Δps	Δp _{max}	Δp_s	Δp _{max}	Δp _{max}		
V6R15F350 V6R15F340 V6R15F330 V6R15F320 V6R15F310 V6R15F300 V6R15F200 V6R25F310 V6R25F300 V6R25F300 V6R25F210 V6R25F200	4.0	4.0	16.0	4.0	16.0	4.0	4.0		
V6R40F310 V6R40F300 V6R40F210 V6R40F200	3.0	3.0	11.5	3.0	11.5	3.0	3.0		
V6R50F300	2.0	2.0	8.6	2.0	8.6	2.0	2.0		



Actuator	AVM234SF132	AVF234SF132		AVF234SF132				' ' ' '		AVM322F120 AVM322F122	AVM322SF132
Page	267	274		274		256	259				
Closes with the pressure	Δp _{max}	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp _{max}	Δp _{max}				
V6R15F350 V6R15F340 V6R15F330 V6R15F320 V6R15F310 V6R15F300 V6R15F200	3.0	3.0	16.0	3.0	16.0	4.0	4.0				
V6R25F310 V6R25F300 V6R25F210 V6R25F200	2.0	2.0	16.0	2.0	16.0	4.0	4.0				
V6R40F310 V6R40F300 V6R40F210 V6R40F200	1.5	1.5	16.0	1.5	16.0	3.0	3.0				
V6R50F300 V6R50F200	1.0	1.0	16.0	1.0	16.0	2.0	2.0				



⁻ Accessories required: Mounting set 0510240012 for AVM 322(S)



B6R: 3-way valve with female thread, PN 16 (el.)

Features

- Regulating valve free of silicone grease with female thread DIN EN ISO 228-1 G for the control of cold/hot water in closed and open circuits
- In combination with valve actuators AVM 322, AVM 322S, AVM 234S, AVF 234S
- Equal-percentage or linear characteristic, can be set with SUT valve actuators (SAUTER Universal Technology) to linear or equal-percentage
- Control passage A-AB closed when the spindle is moved out
- Can be used as a control valve or a distribution valve
- Valve body and seat made of gunmetal
- Stuffing box made of brass with wiper ring and double O-ring seal made of EPDM
- Stainless-steel spindle



Parameters		
	Control ratio	> 50:1
	Leakage rate of control passage A-AB	\leq 0.05% of K _{vs} value
	Leakage rate of mixing passage B-AB	≤ 1% of K _{vs} value
	Valve stroke	14 mm
	Valve characteristic, mixing passage	Linear
Ambient conditions		
	Operating temperature ¹⁾	-15130 °C
	Operating pressure up to 120 °C	16 bar
	Operating pressure up to 130 °C	13 bar
Standards and directives		
	Pressure and temperature data	DIN 2401
	Flow parameters	VDI/VDE 2173

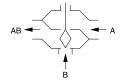
Overview of types									
Туре	Nominal diame- ter	K _{vs} value	Valve character- istic	Materials for valve plug	Type of connection	Weight			
B6R15F330	DN 15	1 m ³ /h	equal-percent- age	Stainless steel	G½"	1.2 kg			
B6R15F320	DN 15	1.6 m³/h	equal-percent- age	Stainless steel	G½"	1.2 kg			
B6R15F310	DN 15	2.5 m³/h	equal-percent- age	brass	G½"	1.2 kg			
B6R15F300	DN 15	4 m³/h	equal-percent- age	brass	G½"	1.2 kg			
B6R15F200	DN 15	4 m³/h	linear	brass	G1/2"	1.2 kg			
B6R25F310	DN 25	6.3 m ³ /h	equal-percent- age	brass	G1"	1.6 kg			
B6R25F300	DN 25	10 m³/h	equal-percent- age	brass	G1"	1.6 kg			
B6R25F210	DN 25	6.3 m³/h	linear	brass	G1"	1.6 kg			
B6R25F200	DN 25	10 m³/h	linear	brass	G1"	1.6 kg			
B6R40F310	DN 40	16 m³/h	equal-percent- age	brass	G1½"	3.4 kg			
B6R40F300	DN 40	25 m³/h	equal-percent- age	brass	G1½"	3.4 kg			
B6R40F210	DN 40	16 m³/h	linear	brass	G1½"	3.4 kg			

At temperatures below 0 °C, use stuffing box heater (accessory)

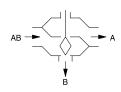


B6R25F300





Control valve



Distribution valve



Туре	Nominal diameter	K _{vs} value	Valve character- istic	Materials for valve plug	Type of connection	Weight
B6R40F200	DN 40	25 m³/h	linear	brass	G1½"	3.4 kg
B6R50F300	DN 50	35 m³/h	equal-percent- age	brass	G2"	4.6 kg
B6R50F200	DN 50	35 m³/h	linear	brass	G2"	4.6 kg

Accessories	
Туре	Description
0217268001	Stuffing box heater 15 W, 24 V
0217268004	Stuffing box heater 15 W, 230 V
0360391015	Screw fitting, DN 15, incl. seal, 3 pcs. required
0360391025	Screw fitting, DN 25, incl. seal, 3 pcs. required
0360391040	Screw fitting, DN 40, incl. seal, 3 pcs. required
0360391050	Screw fitting, DN 50, incl. seal, 3 pcs. required
0360429000	Adhesive label for distribution valve
0378034001	Stuffing box; with synthetic lubricant; max. 130 °C

^{• 0217268***}Stuffing box heater 15 W, light alloy housing, IP54, 3 x 0.75 mm² power cable, earth connector, length 1 m, ferrule

Combination of B6R with electrical actuators

- Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **i** Definition of Δp; Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- **1** Definition of Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.

Pressure differences

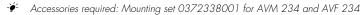
Actuator	AVM234SF132	AVF234SF132	AVF234SF232	AVM322F120 AVM322F122	AVM3225F132
Page	267	274	274	256	259
Actuating power	2500 N	2000 N	2000 N	1000 N	1000 N
Control signal	2-/3-point, 010 V, 420 mA	2-/3-point, 010 V, 420 mA	2-/3-point, 010 V, 420 mA	2-/3-point	2-/3-point, 010 V, 420 mA
Running time	28/56/84 s	28/56/84 s	28/56/84 s	120/240 s	120/80 s

		Δp [bar]					
As control valve	Δp _{max}	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp _{max}	Δp _{max}
B6R15F330 B6R15F320 B6R15F310 B6R15F300 B6R15F200 B6R25F310 B6R25F300 B6R25F210 B6R25F200	4.0	4.0	16.0	4.0	16.0	4.0	4.0
B6R40F310 B6R40F300 B6R40F210 B6R40F200	3.0	3.0	11.5	3.0	11.5	3.0	3.0
B6R50F300 B6R50F200	2.0	2.0	8.6	2.0	8.6	2.0	2.0



^{• 0360429} Sheet with 21 adhesive labels for flow change; see combinations

Actuator	AVM234SF132	AVF234S	F132	AVF234S	F232	AVM322F120 AVM322F122	AVM322SF132
Page	267	274		274		256	259
As distribution valve	Δp _{max}	Δp _{max}	Δps	Δp _{max}	Δps	Δp _{max}	Δp _{max}
B6R15F330 B6R15F320 B6R15F310 B6R15F300 B6R15F200	3.0	3.0	16.0	3.0	16.0	4.0	4.0
B6R25F310 B6R25F300 B6R25F210 B6R25F200	2.0	2.0	16.0	2.0	16.0	4.0	4.0
B6R40F310 B6R40F300 B6R40F210 B6R40F200	1.5	1.5	16.0	1.5	16.0	3.0	3.0
B6R50F300 B6R50F200	1.0	1.0	16.0	1.0	16.0	2.0	2.0



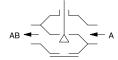
Accessories required: Mounting set 0510240012 for AVM 322(S)

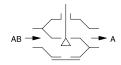




VUD032F300





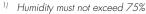


VUD: 2-way flanged valve, PN 6 (el.)

- Continuous control of cold and hot water in closed circuits
- Water quality as per VDI 2035
- In combination with valve actuators AVM 105(S), AVM 115(S), AVM 321(S) and AVF 124 and AVF 125(S) as a control unit
- Not suitable for steam or drinking water or potentially explosive atmospheres
- Valve with flange connection as per EN 1092-2, seal form B
- Regulating valve, free of silicone grease, painted black
- Characteristic can be set with SUT (SAUTER Universal Technology) valve actuator to linear, equalpercentage or quadratic
- The valve is closed when the spindle is moved out
- Closing procedure against the pressure or with the pressure
- Valve body and seat made of grey cast iron
- Stainless-steel spindle
- Plug made of brass with glass-fibre reinforced PTFE sealing ring
- Stuffing box made of brass with wiper ring and double O-ring seal made of EPDM

Parameters		
	Nominal pressure	PN 6
	Connection	Flange as per EN 1092-2, form B
	Valve characteristic, control passage F200	Linear
	Valve characteristic, control passage F300	Equal-percentage
	Control ratio of valve	> 50:1
	Stuffing box	2 EPDM O-rings
	Leakage rate	\leq 0.05% of K _{vs} value
	Valve stroke	8 mm
Ambient conditions ¹⁾		
	Operating temperature ²⁾	−10150 °C
	Operating pressure	Up to 120 °C; 6 bar At 150 °C; 5.4 bar Between 120 °C and 150 °C, a line ar interpolation can be performed
Standards and directives		
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	EN 60534 (page 3)
	Pressure Equipment Directive	97/23/EC (fluid group II) No CE label article 3.3

Overview of types				
Туре	Nominal diameter	K _{vs} value	Weight	
VUD015F320	DN 15	1.6 m ³ /h	3.2 kg	
VUD015F310	DN 15	$2.5 \text{ m}^3/\text{h}$	3.2 kg	
VUD015F300	DN 15	4 m³/h	3.2 kg	
VUD020F300	DN 20	6.3 m ³ /h	4.1 kg	
VUD025F300	DN 25	10 m³/h	4.7 kg	



At temperatures below 0 °C, use stuffing box heater. Use adapter (accessory) at temperatures above 100 °C





Туре	Nominal diameter	K _{vs} value	Weight
VUD032F300	DN 32	16 m³/h	7.3 kg
VUD040F300	DN 40	22 m³/h	8.6 kg
VUD050F300	DN 50	28 m³/h	11.2 kg
VUD050F200	DN 50	40 m³/h	11.2 kg

Accessories	
Туре	Description
0372240001	Manual adjustment for valves with 8 mm stroke
0372249001	Adapter required when temperature of the medium is 100130 °C (recommended for temperatures < 10 °C) DN 1550
0372249002	Adaptor required when temperature of the medium is 130150 °C, DN 1550
0378284100	Stuffing box heater 230 V~, 15 W for medium below 0 °C
0378284102	Stuffing box heater 24 V~, 15 W for medium below 0 °C
0378368001	Complete replacement stuffing box for DN 1550

Combination of VUD with electrical actuators

- i Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- i Definition of Δp_s : Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- i Definition of Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the

Combination of VUD with electric actuator, actuating power 250 N, 500 N

Actuator	AVM105F100	AVM105F120 AVM105F122	AVM105SF132	AVM115F120 AVM115F122	AVM115SF132
Page	247	247	250	248	250
Actuating power	250 N	250 N	250 N	500 N	500 N
Control signal	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point	2-/3-point, 010 V
Running time	30 s	120 s	35/60/120 s	120 s	60/120 s

	Δp [bar]					
Closes against the pressure	Δp _{max}					
VUD015F320 VUD015F310 VUD015F300 VUD020F300	4.0	4.0	4.0	6.0	6.0	
VUD025F300	2.8	2.8	2.8	6.0	6.0	
VUD032F300	2.1	2.1	2.1	5.2	5.2	
VUD040F300	1.2	1.2	1.2	3.3	3.3	
VUD050F300 VUD050F200	0.9	0.9	0.9	2.0	2.0	

Cannot be used to close with the pressure



Combination of VUD with electric actuator with spring return, actuating power 500 N $\,$

Actuator	AVF124F130 AVF124F230	AVF125SF132 AVF125SF232
Page	269	272
Actuating power	500 N	500 N
Control signal	3-point	2-/3-pt., 010 V, 420 mA
Running time	60/120 s	60/120 s

	Δp [bar]				
Closes against the pressure	Δp _{max}	Δp_s	Δp _{max}	Δp_s	
VUD015F320 VUD015F310 VUD015F300 VUD020F300 VUD025F300	6.0	6.0	6.0	6.0	
VUD032F300	5.2	5.2	5.2	5.2	
VUD040F300	3.3	3.3	3.3	3.3	
VUD050F300 VUD050F200	2.0	2.0	2.0	2.0	

Closes with the pressure	Δp _{max}	Δp_s	Δp _{max}	Δρς
VUD015F320 VUD015F310 VUD015F300 VUD020F300	6.0	6.0	6.0	6.0
VUD025F300	5.0	6.0	5.0	6.0
VUD032F300	4.0	6.0	4.0	6.0
VUD040F300	2.5	6.0	2.5	6.0
VUD050F300 VUD050F200	1.5	6.0	1.5	6.0

[★] At temperatures above 100°C, accessories are required.

Combination of VUD with electric actuator, actuating power 1000 $\ensuremath{\text{N}}$

Actuator	AVM321F110 AVM321F112	AVM321SF132
Page	256	259
Actuating power	1000 N	1000 N
Control signal	2-/3-point	2-/3-pt., 010 V, 420 mA
Running time	48/96 s	32/96 s

	Δp [bar]			
Closes against the pressure	Δp _{max}	Δp _{max}		
VUD015F320 VUD015F310 VUD015F300 VUD020F300 VUD025F300 VUD032F300 VUD040F300	6.0	6.0		
VUD050F300 VUD050F200	4.0	4.0		



Actuator	AVM321F110 AVM321F112	AVM321SF132
Page	256	259
Closes with the pressure	Δp _{max}	Δp _{max}
VUD015F320 VUD015F310 VUD015F300 VUD020F300	6.0	6.0
VUD025F300	5.0	5.0
VUD032F300	4.0	4.0
VUD040F300	2.5	2.5
VUD050F300 VUD050F200	1.5	1.5

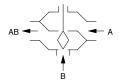
⁴ At temperatures above 100°C, accessories are required



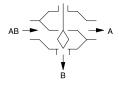


BUD032F300





Control valve



Distribution valve

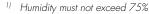
BUD: 3-way flanged valve, PN 6 (el.)

Features

- Continuous control of cold and hot water in closed circuits
- Water quality as per VDI 2035
- In combination with valve actuators AVM 105(S), AVM 115(S), AVM 321(S) and AVF 124 and AVF 125(S) as a control unit
- Not suitable for drinking water
- Valve with flange connection as per EN 1092-2, seal form B, for PN 16 and PN 10
- Regulating valve, free of silicone grease, painted black
- Characteristic can be set with SUT valve actuators to linear, equal-percentage or quadratic
- The control passage is closed when the spindle is moved out
- Used as control valve or as distribution valve
- Valve body with seat made of grey cast iron
- Stainless-steel spindle
- Plug made of brass with glass-fibre reinforced PTFE sealing ring
- Stuffing box made of brass with wiper ring and double O-ring seal made of EPDM

Parameters		
	Nominal pressure	PN 6
	Connection	Flange as per EN 1092-2, form B
	Valve characteristic, control passage F200	Linear
	Valve characteristic, control passage F300	Equal-percentage
	Valve characteristic, mixing passage	Linear
	Control ratio of valve	> 50:1
	Stuffing box	2 EPDM O-rings
	Leakage rate, control passage	$< 0.05\%$ of K_{vs} value
	Leakage rate, mixing passage	< 1% of K _{vs} value
	Valve stroke	8 mm
Ambient conditions ¹⁾		
	Operating temperature ²⁾	-10150 °C
	Operating pressure	Up to 120 °C; 6 bar At 150 °C; 5.4 bar Between 120 °C and 150 °C, a line- ar interpolation can be performed
Standards and directives		
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	EN 60534 (page 3)
	PED 2014/68/EU	Fluid group II, liquid or steam pressure no CE label as per article 4.3

Overview of types				
Туре	Nominal diameter	K _{vs} value	Weight	
BUD015F320	DN 15	1.6 m ³ /h	3200 g	
BUD015F310	DN 15	2.5 m³/h	3200 g	
BUD015F300	DN 15	4 m³/h	3200 g	
BUD020F300	DN 20	6.3 m ³ /h	4100 g	



²⁾ At temperatures below 0 °C, use a stuffing box heater. Use adapter (accessory) at temperatures above 100 °C



Туре	Nominal diameter	K _{vs} value	Weight
BUD025F300	DN 25	10 m³/h	4700 g
BUD032F300	DN 32	16 m³/h	7100 g
BUD040F300	DN 40	22 m³/h	8400 g
BUD050F300	DN 50	28 m³/h	10900 g
BUD050F200	DN 50	40 m³/h	11200 g

Accessories	
Туре	Description
0372240001	Manual adjustment for valves with 8 mm stroke
0372249001	Adapter required when temperature of the medium is 100130 $^{\circ}$ C (recommended for temperatures <10 $^{\circ}$ C)
0372249002	Adapter required when temperature of the medium is 130150 °C
0378284100	Stuffing box heater 230 V~, 15 W for medium below 0 °C
0378284102	Stuffing box heater 24 V~, 15 W for medium below 0 °C
0378368001	Complete replacement stuffing box for DN 1550

Combination of BUD with electric actuators

- i Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- i Definition of Δp_{s} : Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- **Definition of \Delta p_{max}:** Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.

Combination of BUD with electric actuator, actuating power 250 N, 500 N

Actuator	AVM105F100	AVM105F120 AVM105F122	AVM105SF132	AVM115F120 AVM115F122	AVM115SF132
Page	247	247	250	248	250
Actuating power	250 N	250 N	250 N	500 N	500 N
Control signal	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point	2-/3-point, 010 V
Running time	30 s	120 s	35/60/120 s	120 s	60/120 s

	Δp [bar]				
As control valve	Δp _{max}				
BUD015F320 BUD015F310 BUD015F300 BUD020F300	4.0	4.0	4.0	6.0	6.0
BUD025F300	2.8	2.8	2.8	6.0	6.0
BUD032F300	2.1	2.1	2.1	5.2	5.2
BUD040F300	1.2	1.2	1.2	3.3	3.3
BUD050F300 BUD050F200	0.9	0.9	0.9	2.0	2.0

Cannot be used as distribution valve



Combination of BUD with electric actuator with spring return, actuating power 500 $\ensuremath{\mathrm{N}}$

Actuator	AVF124F130 AVF124F230	AVF125SF132 AVF125SF232
Page	269	272
Actuating power	500 N	500 N
Control signal	3-point	2-/3-pt., 010 V, 420 mA
Running time	60/120 s	60/120 s

	Δp [bar]					
As control valve	Δp _{max}	Δp_s	Δp _{max}	Δp_s		
BUD015F320 BUD015F310 BUD015F300 BUD020F300 BUD025F300	6.0	6.0	6.0	6.0		
BUD032F300	5.2	5.2	5.2	5.2		
BUD040F300	3.3	3.3	3.3	3.3		
BUD050F300 BUD050F200	2.0	2.0	2.0	2.0		

As distribution valve	Δp _{max}	Δp_s	Δp _{max}	Δp_s
BUD015F320 BUD015F310 BUD015F300 BUD020F300	6.0	6.0	6.0	6.0
BUD025F300	5.0	6.0	5.0	6.0
BUD032F300	4.0	6.0	4.0	6.0
BUD040F300	2.5	6.0	2.5	6.0
BUD050F300 BUD050F200	1.5	6.0	1.5	6.0

[★] At temperatures above 100 °C, accessories are required.

Combination of BUD with electric actuator, actuating power 1000 N

Actuator	AVM321F110 AVM321F112	AVM321SF132
Page	256	259
Actuating power	1000 N	1000 N
Control signal	2-/3-point	2-/3-pt., 010 V, 420 mA
Running time	48/96 s	32/96 s

	Δp [bar]			
As control valve	Δp _{max}	Δp _{max}		
BUD015F320				
BUD015F310				
BUD015F300				
BUD020F300	6.0	6.0		
BUD025F300				
BUD032F300				
BUD040F300				
BUD050F300 BUD050F200	4.0	4.0		

As distribution valve	Δp_{max}	Δp_{max}
BUD015F320 BUD015F310 BUD015F300 BUD020F300	6.0	6.0
BUD025F300	5.0	5.0



Actuator	AVM321F110 AVM321F112	AVM321SF132	
Page	256	259	
BUD032F300	4.0	4.0	
BUD040F300	2.5	2.5	
BUD050F300 BUD050F200	1.5	1.5	

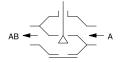
At temperatures above 100 °C, accessories are required

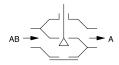




VUE032F300







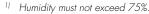
VUE: 2-way flanged valve, PN 16/10 (el.)

Features

- Continuous control of cold/hot water and low-pressure steam up to 115 °C in closed circuits
- Water quality as per VDI 2035
- In combination with valve actuators AVM 105(S), AVM 115(S), AVM 321(S) and AVF 124 and AVF 125(S) as a control unit
- Not suitable for drinking water
- Valve with flange connection as per EN 1092-2, seal form B, for PN 16 and PN 10
- Regulating valve, free of silicone grease, painted black
- Characteristic can be set with SUT (SAUTER Universal Technology) valve actuator to linear, equalpercentage or quadratic
- The valve is closed when the spindle is moved out
- Closing procedure against the pressure or with the pressure
- Valve body and seat made of grey cast iron
- Stainless-steel spindle
- Plug made of brass with glass-fibre reinforced PTFE sealing ring
- Stuffing box made of brass with wiper ring and double O-ring seal made of EPDM

Parameters		
	Nominal pressure	PN 16/10
	Connection	Flange as per EN 1092-2, form B
	Valve characteristic, control passage F200	Linear
	Valve characteristic, control passage F300	Equal-percentage
	Control ratio of valve	> 50:1
	Stuffing box	2 EPDM O-rings
	Leakage rate	$< 0.05\%$ of K_{vs} value
	Valve stroke	8 mm
Ambient conditions ¹⁾		
	Operating temperature ²⁾	-10150 °C
	Operating pressure	PN 16: Up to 120 °C, 16 bar At 150 °C, 14.4 bar PN 10: Up to 120 °C, 10 bar At 150 °C, 9 bar Between 120 °C and 150 °C, a line- ar interpolation can be performed
Standards and directives		
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	EN 60534 (page 3)
	Pressure Equipment Directive	97/23/EC (fluid group II) No CE label article 3.3

Overview of types					
Туре	Nominal diameter	K _{vs} value	Weight		
VUE015F350	DN 15	$0.4 \text{ m}^3/\text{h}$	3.2 kg		
VUE015F340	DN 15	$0.63 \text{ m}^3/\text{h}$	3.2 kg		



²⁾ At temperatures below 0 °C, use a stuffing box heater. Use adapter (accessory) at temperatures above 100 °C



Туре	Nominal diameter	K _{vs} value	Weight
VUE015F330	DN 15	1 m³/h	3.2 kg
VUE015F320	DN 15	1.6 m³/h	3.2 kg
VUE015F310	DN 15	2.5 m³/h	3.2 kg
VUE015F300	DN 15	4 m³/h	3.2 kg
VUE020F300	DN 20	6.3 m³/h	4.1 kg
VUE025F300	DN 25	10 m³/h	4.7 kg
VUE032F300	DN 32	16 m³/h	7.3 kg
VUE040F300	DN 40	22 m³/h	8.6 kg
VUE050F300	DN 50	28 m³/h	11.2 kg
VUE050F200	DN 50	40 m³/h	11.2 kg

Accessories	
Туре	Description
0372240001	Manual adjustment for valves with 8 mm stroke
0372249001	Adapter required when temperature of the medium is 100130 $^{\circ}$ C (recommended for temperatures <10 $^{\circ}$ C)
0372249002	Adapter required when temperature of the medium is 130150 °C
0378284100	Stuffing box heater 230 V~, 15 W for medium below 0 $^{\circ}$ C
0378284102	Stuffing box heater 24 V~, 15 W for medium below 0 $^{\circ}$ C
0378368001	Complete replacement stuffing box for DN 1550

Combination of VUE with electric actuators

- Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- i Definition of Δp_s : Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- **Definition of \Delta p_{max}:** Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.

Combination of VUE with electric actuator, actuating power 250 N, 500 N

Actuator	AVM105F100	AVM105F120 AVM105F122	AVM105SF132	AVM115F120 AVM115F122	AVM115SF132
Page	247	247	250	248	250
Actuating power	250 N	250 N	250 N	500 N	500 N
Control signal	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point	2-/3-point, 010 V
Running time	30 s	120 s	35/60/120 s	120 s	60/120 s

			Δp [bar]		
Closes against the pressure	Δp _{max}	Δp _{max}	Δp_{max}	Δp_{max}	Δp_{max}
VUE015F350 VUE015F340 VUE015F330 VUE015F320 VUE015F310 VUE015F300 VUE020F300	4.0	4.0	4.0	6.0	6.0
VUE025F300	2.8	2.8	2.8	6.0	6.0
VUE032F300	2.1	2.1	2.1	5.2	5.2
VUE040F300	1.4	1.4	1.4	3.3	3.3
VUE050F300 VUE050F200	0.9	0.9	0.9	2.0	2.0

Cannot be used to close with the pressure



Combination of VUE with electric actuator with spring return, actuating power 500 $\ensuremath{\mathrm{N}}$

Actuator	AVF124F130 AVF124F230	AVF125SF132 AVF125SF232
Page	269	272
Actuating power	500 N	500 N
Control signal	3-point	2-/3-pt., 010 V, 420 mA
Running time	60/120 s	60/120 s

	Δp [bar]			
Closes against the pressure	Δp _{max}	Δp_s	Δp _{max}	Δp_s
VUE015F350 VUE015F340 VUE015F330 VUE015F320 VUE015F310 VUE015F300	6.0	16.0	6.0	16.0
VUE020F300	6.0	11.0	6.0	11.0
VUE025F300	6.0	6.8	6.0	6.8
VUE032F300	5.2	5.2	5.2	5.2
VUE040F300	3.3	3.3	3.3	3.3
VUE050F300 VUE050F200	2.0	2.0	2.0	2.0

Closes with the pressure	Δp _{max}	Δp_s	Δp _{max}	Δρς
VUE015F350 VUE015F340 VUE015F330 VUE015F320 VUE015F310 VUE015F300 VUE020F300	6.0	16.0	6.0	16.0
VUE025F300	5.0	16.0	5.0	16.0
VUE032F300	4.0	16.0	4.0	16.0
VUE040F300	2.5	16.0	2.5	16.0
VUE050F300 VUE050F200	1.5	16.0	1.5	16.0

^{-#-} At temperatures above 100°C, accessories are required

Combination of VUE with electric actuator, actuating power 1000 N

Actuator	AVM321F110 AVM321F112	AVM321SF132
Page	256	259
Actuating power	1000 N	1000 N
Control signal	2-/3-point	2-/3-pt., 010 V, 420 mA
Running time	48/96 s	32/96 s

	Δp [bar]	
Closes against the pressure	Δp _{max}	Δp _{max}
VUE015F350 VUE015F340 VUE015F330 VUE015F320 VUE015F310 VUE015F300 VUE020F300 VUE025F300 VUE032F300	10.0	10.0



Actuator	AVM321F110 AVM321F112	AVM321SF132
Page	256	259
VUE040F300	6.0	6.0
VUE050F300 VUE050F200	4.0	4.0

Closes with the pressure	Δp _{max}	Δp _{max}
VUE015F350 VUE015F340 VUE015F330 VUE015F320 VUE015F310 VUE015F300 VUE020F300	6.0	6.0
VUE025F300	5.0	6.0
VUE032F300	4.0	6.0
VUE040F300	2.5	2.5
VUE050F300 VUE050F200	1.5	1.5

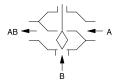
At temperatures above 100°C, accessories are required



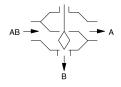


BUE032F300





Control valve



Distribution valve

BUE: 3-way flanged valve, PN 16/10 (el.)

- Continuous control of cold and hot water in closed circuits
- Water quality as per VDI 2035
- In combination with valve actuators AVM 105(S), AVM 115(S), AVM 321(S) and AVF 124 and AVF 125(S) as a control unit
- Not suitable for drinking water
- Valve with flange connection as per EN 1092-2, seal form B, for PN 16 and PN 10
- Regulating valve, free of silicone grease, painted black
- Equal-percentage characteristic with F300, can be set with SUT valve actuators (SAUTER Universal Technology) to linear or quadratic
- Valve passage A-AB is closed when the spindle is moved out
- Can be used as a control valve or a distribution valve
- Valve body and seat made of grey cast iron
- Stainless-steel spindle
- Plug made of brass with glass-fibre reinforced PTFE sealing ring
- Stuffing box made of brass with wiper ring and double O-ring seal made of EPDM

Parameters		
	Connection	PN 16/10
	Connection	Flange as per EN 1092-2, form B
	Valve characteristic, control passage F200	Linear
	Valve characteristic, control passage F300	Equal-percentage
	Valve characteristic, mixing passage	Linear
	Control ratio of valve	> 50:1
	Stuffing box	2 EPDM O-rings
	Leakage rate, control passage	$< 0.05\%$ of K_{vs} value
	Leakage rate, mixing passage	< 1% of K _{vs} value
	Valve stroke	8 mm
Ambient conditions ¹⁾		
	Operating temperature ²⁾	-10150 °C
	Operating pressure	PN 16: Up to 120 °C, 16 bar At 150 °C, 14.4 bar PN 10: Up to 120 °C, 10 bar At 150 °C, 9 bar Between 120 °C and 150 °C, a line- ar interpolation can be performed
Standards and directives		=\(-4 = \(4 = \) = = = =
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	EN 60534 (page 3)
	Pressure Equipment Directive	97/23/EC (fluid group II) No CE label article 3.3



Humidity must not exceed 75%

At temperatures below 0 °C, use a stuffing box heater. Use adapter (accessory) at temperatures above 100 °C

Overview of types			
Туре	Nominal diameter	K _{vs} value	Weight
BUE015F330	DN 15	1 m³/h	3.2 kg
BUE015F320	DN 15	1.6 m³/h	3.2 kg
BUE015F310	DN 15	2.5 m³/h	3.2 kg
BUE015F300	DN 15	4 m³/h	3.2 kg
BUE020F300	DN 20	6.3 m³/h	4.1 kg
BUE025F300	DN 25	10 m³/h	4.7 kg
BUE032F300	DN 32	16 m³/h	7.1 kg
BUE040F300	DN 40	22 m³/h	8.4 kg
BUE050F300	DN 50	28 m³/h	11.2 kg
BUE050F200	DN 50	40 m³/h	11.2 kg

Accessories	
Туре	Description
0372240001	Manual adjustment for valves with 8 mm stroke
0372249001	Adapter required when temperature of the medium is 100130 $^{\circ}$ C (recommended for temperatures <10 $^{\circ}$ C)
0372249002	Adapter required when temperature of the medium is 130150 °C
0378284100	Stuffing box heater 230 V~, 15 W for medium below 0 $^{\circ}$ C
0378284102	Stuffing box heater 24 V~, 15 W for medium below 0 °C
0378368001	Complete replacement stuffing box for DN 1550

Combination of BUE with electric actuators

- i Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **1** Definition of Δp_s : Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- **Definition of \Delta p_{max}:** Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the

Combination of BUE with electric actuator, actuating power 250 N, 500 N

Actuator	AVM105F100	AVM105F120 AVM105F122	AVM105SF132	AVM115F120 AVM115F122	AVM115SF132
Page	247	247	250	248	250
Actuating power	250 N	250 N	250 N	500 N	500 N
Control signal	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point	2-/3-point, 010 V
Running time	30 s	120 s	35/60/120 s	120 s	60/120 s

	Δp [bar]				
As control valve	Δp _{max}				
BUE015F330 BUE015F320 BUE015F310 BUE015F300 BUE020F300	4.0	4.0	4.0	6.0	6.0
BUE025F300	2.8	2.8	2.8	6.0	6.0
BUE032F300	2.1	2.1	2.1	5.2	5.2
BUE040F300	1.4	1.4	1.4	3.3	3.3
BUE050F300 BUE050F200	0.9	0.9	0.9	2.0	2.0

Cannot be used as distribution valve



Combination of BUE with electric actuator with spring return, actuating power $500\ N$

Actuator	AVF124F130 AVF124F230	AVF125SF132 AVF125SF232
Page	269	272
Actuating power	500 N	500 N
Control signal	3-point	2-/3-pt., 010 V, 420 mA
Running time	60/120 s	60/120 s

	Δp [bar]			
As control valve	Δp_{max}	Δps	Δp_{max}	Δp_s
BUE015F330 BUE015F320 BUE015F310 BUE015F300	6.0	16.0	6.0	16.0
BUE020F300	6.0	11.0	6.0	11.0
BUE025F300	6.0	6.8	6.0	6.8
BUE032F300	5.2	5.2	5.2	5.2
BUE040F300	3.3	3.3	3.3	3.3
BUE050F300 BUE050F200	2.0	2.0	2.0	2.0

As distribution valve	Δp _{max}	Δp_s	Δp _{max}	Δp_s
BUE020F300	6.0	16.0	6.0	16.0
BUE025F300	5.0	16.0	5.0	16.0
BUE032F300	4.0	16.0	4.0	16.0
BUE040F300	2.5	16.0	2.5	16.0
BUE050F300 BUE050F200	1.5	16.0	1.5	16.0

[÷] Spring return: 18 ± 10 s

Combination of BUE with electric actuator, actuating power 1000 $\ensuremath{\text{N}}$

Actuator	AVM321F110 AVM321F112	AVM321SF132
Page	256	259
Actuating power	1000 N	1000 N
Control signal	2-/3-point	2-/3-pt., 010 V, 420 mA
Running time	48/96 s	32/96 s

	Δp [bar]		
As control valve	Δp_{max}	Δp _{max}	
BUE015F330 BUE015F320 BUE015F310 BUE015F300 BUE020F300 BUE025F300 BUE032F300	10.0	10.0	
BUE040F300	6.0	6.0	
BUE050F300 BUE050F200	4.0	4.0	



At temperatures above 100°C, accessories are required

Actuator	AVM321F110 AVM321F112	AVM321SF132
Page	256	259
As distribution valve	Δp _{max}	Δp _{max}
BUE015F330 BUE015F320 BUE015F310 BUE015F300 BUE020F300	6.0	6.0
BUE025F300	6.0	5.0
BUE032F300	6.0	4.0
BUE040F300	2.5	2.5
BUE050F300 BUE050F200	1.5	1.5

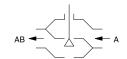
At temperatures above 100°C, accessories are required











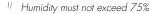
VQD: 2-way flanged valve, PN 6

Features

- Continuous control of cold and hot water in closed circuits
- Water quality as per VDI 2035
- In combination with valve actuators AVM 322(S), AVM 234S and AVF 234S as control unit
- Not suitable for steam or drinking water
- Valve with flange connection as per EN 1092-2, seal form B
- Regulating valve, free of silicone grease, painted black
- Characteristic can be set with SUT (SAUTER Universal Technology) valve actuators to linear, equalpercentage or quadratic
- The valve is closed when the spindle is moved out
- Closing procedure against the pressure
- Valve body and seat made of grey cast iron
- Stainless-steel spindle
- Plug made of stainless steel with metal-to-metal seal
- Stuffing box made of stainless steel with wiper ring and double O-ring seal made of EPDM

Parameters		
	Nominal pressure	PN 6
	Connection	Flange as per EN 1092-2, form B
	Valve characteristic	Equal-percentage
	Control ratio of valve	> 30:1
	Stuffing box	2 EPDM O-rings
	Leakage rate	Class III as per DIN EN 60534-4 (0.001 x K _{vs})
	Valve stroke	20 mm (DN 6580) 40 mm (DN 100)
Ambient conditions ¹⁾		
	Operating temperature ²⁾	-10150 °C
	Operating pressure	Up to 120 °C 6 bar At 150 °C 5.4 bar Between 120 °C and 150 °C, a line- ar interpolation can be performed
Standards and directives		
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	EN 60534, (page 3)
	Pressure Equipment Directive	97/23/EC (fluid group II) No CE label article 3.3

Overview of types				
Туре	Nominal diameter	K _{vs} value	Weight	
VQD065F300	DN 65	63 m³/h	18.0 kg	
VQD080F300	DN 80	100 m ³ /h	25.3 kg	
VQD100F300	DN 100	160 m ³ /h	37.1 kg	



²⁾ At temperatures below 0 °C, use stuffing box heater





Accessories	
Туре	Description
0372336180	Adapter (required when temperature of the medium is 130150 °C)
0378284100	Stuffing box heater 230 V~, 15 W for medium below 0 °C
0378284102	Stuffing box heater 24 V~, 15 W for medium below 0 °C
0378369101	Complete replacement stuffing box

Combination of VQD with electric actuators

- Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **Definition of** $\Delta p_{\vec{s}}$ Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- i Definition of Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.

Combination of VQD with electric actuator, actuating power 1000 N

Actuator	AVM322F120 AVM322F122	AVM322SF132
Page	256	259
Actuating power	1000 N	1000 N
Control signal	2-/3-point	2-/3-point, 010 V, 420 mA
Running time	120/240 s	120/80 s

	Δр [bar]
Closes against the pressure	Δp _{max}	Δp _{max}
VQD065F300	2.5	2.5
VQD080F300	1.5	1.5
Cannot be used to close with the pressure		

Maximum media temperature: 100 °C

Combination of VQD with electric actuator, actuating power 2500 N, 2000 N

Actuator	AVF234SF132 AVF234SF232	AVM234SF132	PLUS2G
Page	274	267	
Actuating power	2000 N	2500 N	4500 N
Control signal	2-/3-point, 010 V, 420 mA	2-/3-point, 010 V, 420 mA	2-/3-point, 010 V, 420 mA
Running time for DN 65, DN 80	40/80/120 s	40/80/120 s	0.25 / 0.38 / 0.47 / 1.0 mm/s
Running time for DN 100150	80/160/240 s	80/160/240 s	0.25 / 0.38 / 0.47 / 1.0 mm/s

	Δp [bar]			
Closes against the pressure	Δp_{max}	Δp_s	Δp _{max}	Δp _{max}
VQD065F300	3.0	5.1	1.2	11.0
VQD080F300	3.0	3.4	3.0	<i>7</i> .1
VQD100F300	2.0	2.2	2.0	4.6

Cannot be used to close with the pressure

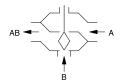
- Spring return: AVF234SF132 normally closed (NC); AVF234SF232 normally open (NO)
- At temperatures above 130 °C, accessories are required



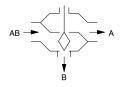


BQD





Control valve



Distribution valve

BQD: 3-way flanged valve, PN 6

Features

- Continuous control of cold and hot water in closed circuits
- Water quality as per VDI 2035
- In combination with valve actuators AVM 322(S), AVM 234S and AVF 234S as control unit
- Not suitable for drinking water
- Valve with flange connection as per EN 1092-2, seal form B
- Regulating valve, free of silicone grease, painted black
- Equal-percentage control passage characteristic, can be set with SUT (SAUTER Universal Technology) valve actuators to linear or quadratic
- Mixing passage, linear characteristic
- The control passage is closed when the spindle is moved out
- Used as control valve or as distribution valve
- Valve body with seat made of grey cast iron
- Stainless-steel spindle
- Plug made of stainless steel with metal-to-metal seal
- Stuffing box made of stainless steel with wiper ring and double O-ring seal made of EPDM

Donomotono		
Parameters		201
	Nominal pressure	PN 6
	Connection	Flange as per EN 1092-2, form B
	Valve characteristic, control passage	Equal-percentage
	Valve characteristic, mixing passage	Linear
	Control ratio of valve	> 30:1
	Stuffing box	2 EPDM O-rings
	Leakage rate	Class III as per DIN EN 60534-4 (0.001 x K _{vs})
	Valve stroke	20 mm (DN 6580) 40 mm (DN 100)
Ambient conditions ¹⁾		
	Operating temperature ²⁾	-10150 °C
	Operating pressure	Up to 120 °C 6 bar At 150 °C 5.4 bar Between 120 °C and 150 °C, a linear interpolation can be per- formed
Standards and directives		
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	EN 60534, (page 3)
	Pressure Equipment Directive	97/23/EC (fluid group II) No CE label article 3.3

Overview of types			
Туре	Nominal diameter	K _{vs} value	Weight
BQD065F300	DN 65	63 m³/h	14.8 kg
BQD080F300	DN 80	100 m³/h	21 kg
BQD100F300	DN 100	160 m³/h	31 kg

¹⁾ Humidity must not exceed 75%

²⁾ At temperatures below 0 °C, use a stuffing box heater



Accessories	
Туре	Description
0372336180	Adapter (required when temperature of the medium is 130150 °C)
0378284100	Stuffing box heater 230 V~, 15 W for medium below 0 °C
0378284102	Stuffing box heater 24 V~, 15 W for medium below 0 °C
0378369101	Complete replacement stuffing box

Combination of BQD with electric actuators

- Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **Definition of** $\Delta p_{\vec{s}}$ Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- i Definition of Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.

Combination of BQD with electric actuator, actuating power 1000 N

Actuator	AVM322F120 AVM322F122	AVM322SF132
Page	256	259
Actuating power	1000 N	1000 N
Control signal	2-/3-point	2-/3-point, 010 V, 420 mA
Running time	120/240 s	120/80 s

	Δp [bar]		
As control valve	Δp _{max}	Δp _{max}	
BQD065F300	2.5	2.5	
BQD080F300	1.5	1.5	

As distribution valve	Δp _{max}	Δp_{max}
BQD065F300	1.0	1.0
BQD080F300	0.7	0.7

At media temperature above 100 °C, accessories are required.

Combination of BOD with electric actuator, actuating power 2500 N, 2000 N

combination of 2 42 with electric detailed, detailing power 2000 11, 2000 11				
Actuator	AVF234SF132 AVF234SF232	AVM234SF132	PLUS2G	
Page	274	267		
Actuating power	2000 N	2500 N	4500 N	
Control signal	2-/3-point, 010 V, 420 mA	2-/3-point, 010 V, 420 mA	2-/3-point, 010 V, 420 mA	
Running time for DN 65, DN 80	40/80/120 s	40/80/120 s	0.25 / 0.38 / 0.47 / 1.0 mm/s	
Running time for DN 100150	80/160/240 s	80/160/240 s	0.25 / 0.38 / 0.47 / 1.0 mm/s	

	Δp [bar]			
As control valve	Δp _{max}	Δp_s	Δp _{max}	Δp _{max}
BQD065F300	3.0	5.1	3.0	11.0
BQD080F300	3.0	3.4	3.0	7.1
BQD100F300	2.0	2.2	2.0	4.6

As distribution valve	Δp _{max}	Δp_s	Δp_{max}	Δp _{max}
BQD065F300	1.0	6.0	1.0	5.5



Actuator	AVF234SF132 AVF234SF232		AVM234SF132	PLUS2G
Page	274		267	
BQD080F300	0.8	6.0	0.8	3.5
BQD100F300	0.5	6.0	0.5	2.3

⁻ At temperatures above 130 °C, accessories are required



VQE: 2-way flanged valve, PN 16

Features

- Continuous control of cold and hot water and low-pressure steam up to 115 °C in closed circuits
- Water quality as per VDI 2035
- In combination with valve actuators AVM 322(S), AVM 234S and AVF 234S as control unit
- Not suitable for drinking water
- Valve with flange connection as per EN 1092-2, seal form B
- Regulating valve, free of silicone grease, painted black
- Characteristic can be set with SUT (SAUTER Universal Technology) valve actuators to linear, equalpercentage or quadratic
- The valve is closed when the spindle is moved out
- Closing procedure against the pressure
- Valve body and seat made of grey cast iron
- Stainless-steel spindle
- Plug made of stainless steel with metal-to-metal seal
- Stuffing box made of stainless steel with wiper ring and double O-ring seal made of EPDM



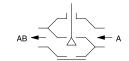
Technical data		
Parameters		
	Nominal pressure	PN 16
	Connection	Flange as per EN 1092-2, form B
	Valve characteristic	Equal-percentage
	Control ratio of valve	> 30:1
	Stuffing box	2 EPDM O-rings
	Leakage rate	Class III as per DIN EN 60534-4 (0.001 x K _{vs})
	Valve stroke	20 mm (DN 6580) 40 mm (DN 100150)
Ambient conditions ¹⁾		
	Operating temperature ²⁾	-10150 °C
	Operating pressure	Up to 120 °C 16 bar At 150 °C 14.4 bar Between 120 °C and 150 °C, a line- ar interpolation can be performed
Standards and directives		
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	EN 60534-3
	Pressure Equipment Directive	97/23/EC (fluid group II) With CE label

Overview of types				
Туре	Nominal diameter	K _{vs} value	Weight	
VQE065F300	DN 65	63 m³/h	23.8 kg	
VQE080F300	DN 80	100 m³/h	30.2 kg	
VQE100F300	DN 100	160 m³/h	41.3 kg	
VQE125F300	DN 125	220 m³/h	62 kg	
VQE150F300	DN 150	320 m³/h	89 kg	



VQE







Humidity must not exceed 75%

At temperatures below 0 °C, use a stuffing box heater. Use adapter (accessory) at temperatures above 130 °C

Accessories	
Туре	Description
0372336180	Adapter (required when temperature of the medium is 130150 °C)
0378284100	Stuffing box heater 230 V~, 15 W for medium below 0 °C
0378284102	Stuffing box heater 24 V~, 15 W for medium below 0 °C
0378369101	Complete replacement stuffing box

Combination of VQE with electric actuators

- *i* Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **i** Definition of Δp_s: Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- i Definition of Δp max: Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.

Combination of VQE with electric actuators, actuating power 1000 N

Actuator	AVM322F120 AVM322F122	AVM322SF132
Page	256	259
Actuating power	1000 N	1000 N
Control signal	2-/3-point	2-/3-point, 010 V, 420 mA
Running time	120/240 s	120/80 s

	Δp [bar]				
Closes against the pressure	gainst Δp _{max} Δp _{max}				
VQE065F300	2.5	2.5			
VQE080F300	1.5	1.5			
Cannot be used to a	Cannot be used to close with the pressure				

^{*} At media temperature above 100 °C, accessories are required.

Combination of VQE with electric actuators, actuating power 2500 N, 2000 N

Actuator	AVF234SF132 AVF234SF232	AVM234SF132	PLUS2G
Page	274	267	
Actuating power	2000 N	2500 N	4500 N
Control signal	2-/3-point, 010 V, 420 mA	2-/3-point, 010 V, 420 mA	2-/3-point, 010 V, 420 mA
Running time for DN 65, DN 80	40/80/120 s	40/80/120 s	0.25 / 0.38 / 0.47 / 1.0 mm/s
Running time for DN 100150	80/160/240 s	80/160/240 s	0.25 / 0.38 / 0.47 / 1.0 mm/s

	Δp [bar]			
Closes against the pressure	Δp_{max}	Δp_s	Δp _{max}	Δp_{max}
VQE065F300	3.0	5.1	3.0	11.0
VQE080F300	3.0	3.4	3.0	<i>7</i> .1
VQE100F300	2.0	2.2	2.0	4.6
VQE125F300	1.4	1.4	1.5	2.9
VQE150F300	1.0	1.1	1.0	2.0

Cannot be used to close with the pressure

- ★ Spring return: AVF234SF132 normally closed (NC); AVF234SF232 normally open (NO)
- → At temperatures above 130 °C, accessories are required



BQE: 3-way flanged valve, PN 16

Features

- Continuous control of cold and hot water in closed circuits
- Water quality as per VDI 2035
- In combination with valve actuators AVM 322(S), AVM 234S and AVF 234S as control unit
- Not suitable for drinking water
- Valve with flange connection as per EN 1092-2, seal form B
- Regulating valve, free of silicone grease, painted black
- Equal-percentage control passage characteristic, can be set with SUT (SAUTER Universal Technology) valve actuators to linear or quadratic
- Mixing passage, linear characteristic
- The control passage is closed when the spindle is moved out
- Used as control valve or as distribution valve
- Valve body with seat made of grey cast iron
- Spindle and plug made of stainless steel; plug with metal-to-metal seal
- Stuffing box made of stainless steel with wiper ring and double O-ring seal made of EPDM



Parameters		
	Nominal pressure	PN 16
	Connection	Flange as per EN 1092-2, form B
	Valve characteristic, control passage	Equal-percentage
	Valve characteristic, mixing passage	Linear
	Control ratio of valve	> 30:1
	Stuffing box	2 EPDM O-rings
	Leakage rate	Class III as per DIN EN 60534-4 (0.001 x K _{vs})
	Valve stroke	20 mm (DN 6580) 40 mm (DN 100150)
Ambient conditions ¹⁾		
	Operating temperature ²⁾	−10150 °C
	Operating pressure	Up to 120 °C 16 bar At 150 °C 14.4 bar Between 120 °C and 150 °C, a linear interpolation can be per- formed
<u></u>		
Standards and directives		
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	EN 60534, (page 3)
	Pressure Equipment Directive	97/23/EC (fluid group II)

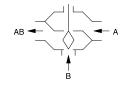
Overview of types			
Туре	Nominal diameter	K _{vs} value	Weight
BQE065F300	DN 65	63 m³/h	19000 g
BQE080F300	DN 80	100 m ³ /h	24000 g
BQE100F300	DN 100	160 m ³ /h	34000 g
BQE125F300	DN 125	220 m³/h	52000 g
BQE150F300	DN 150	320 m³/h	76000 g

With CE label

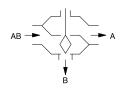


BQE





Control valve



Distribution valve



¹⁾ Humidity must not exceed 75%

²⁾ At temperatures below 0 °C, use a stuffing box heater. Use adapter (accessory) at temperatures above 130 °C

Accessories	
Туре	Description
0372336180	Adapter (required when temperature of the medium is 130150 °C)
0378284100	Stuffing box heater 230 V~, 15 W for medium below 0 °C
0378284102	Stuffing box heater 24 V~, 15 W for medium below 0 °C
0378369101	Complete replacement stuffing box

Combination of BQE with electric actuators

- *i* Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **Definition of \Delta p_s:** Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- i Definition of Δρ max⁻ Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.

Combination of BQE with electric actuators, actuating power 1000 N

Actuator	AVM322F120 AVM322F122	AVM3225F132
Page	256	259
Actuating power	1000 N	1000 N
Control signal	2-/3-point	2-/3-point, 010 V, 420 mA
Running time	120/240 s	120/80 s

	Δp [bar]		
As control valve	Δp _{max}		
BQE065F300	2.5	2.5	
BQE080F300	1.5	1.5	

As distribution valve	Δp _{max}	Δp_{max}
BQE065F300	1.0	1.0
BQE080F300	0.7	0.7

[🖆] At media temperature above 100 °C, accessories are required.

Combination of BQE with electric actuators, actuating power 2500 N, 2000 N

Actuator	AVM234SF132	AVF234SF132 AVF234SF232
Page	267	274
Actuating power	2500 N	2000 N
Control signal	2-/3-point, 010 V, 420 mA	2-/3-point, 010 V, 420 mA
Running time for DN 65, DN 80	40/80/120 s	40/80/120 s
Running time for DN 100150	80/160/240 s	80/160/240 s

	Δp [bar]		
As control valve	Δp_{max}	Δp_{max}	Δp_s
BQE065F300	3.0	3.0	5.1
BQE080F300	3.0	3.0	3.4
BQE100F300	2.0	2.0	2.2
BQE125F300	1.5	1.4	1.4



Actuator		AVF234SF132 AVF234SF232	
Page	267	274	
BQE150F300	1.0	1.0	1.1

As distribution valve	Δp_{max}	Δp _{max}	Δp_s
BQE065F300	1.0	1.0	16.0
BQE080F300	0.8	0.8	16.0
BQE100F300 BQE125F300 BQE150F300	0.5	0.5	16.0

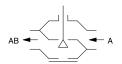
At temperatures above 130 °C, accessories are required.

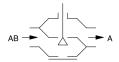




VUG032F304









VUG: 2-way flanged valve, PN 25/16 (el.)

Features

- Continuous control of cold and hot water in closed circuits, and of steam
- In combination with valve actuators AVM 322(S), AVM 234S, AVN 224S and AVF 234S as a control unit
- Water quality as per VDI 2035
- Valve with flange connection as per EN 1092-2, seal form B
- Nominal pressure 25 bar, except VUG065F316, nominal pressure 16 bar
- Not suitable for drinking water
- Complies with standard for control units as per DIN EN 1459711
- Regulating valve, free of silicone grease, painted black
- Equal-percentage characteristic, can be set with SUT (SAUTER Universal Technology) valve actuators to linear or quadratic
- The valve is closed when the spindle is moved out
- Closing procedure against the pressure or with the pressure
- Valve body made of ductile cast iron; seat and spindle of stainless steel
- Plugs of nominal diameter DN 15...50 made of stainless steel with glass-fibre-reinforced PTFE sealing ring
- Plugs of nominal diameter DN 65...150 made of stainless steel with metal-to-metal seal
- Maintenance-free stuffing box in brass with spring-loaded PTFE washer

Technical data

Parameters		
	Nominal pressure	PN 16/25
	Connection	Flange as per EN 1092-2, form B
	Valve characteristic	Equal-percentage
	Control ratio of valve	> 50:1
	Leakage rate at max. Δp_s	\leq 0.05% of K _{vs} value
Admissible ambient conditions		
	Operating temperature ²⁾	-20200 °C
	Operating pressure ³⁾	PN 16:
		30 °C, 16 bar
		At 120 °C, 16 bar
		At 200 °C, 14 bar
		PN 25:
		30 °C, 25 bar
		At 120 °C, 25 bar
		At 200 °C, 21.7 bar
Standards and directives		
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	EN 60534

Test mark

³⁾ For operating pressure, see table: Pressure / temperature assignment





ΤÜ۷

ID: 13556

The VUG065F316 valve does not have TÜV approval. It does not bear the test institute code and is classified under category I of the Directive on Pressure Equipment. This valve can be used with the AVN224SF*** actuator, but not as a safety device. Use stuffing box heater at temperatures below 0 °C; use the relevant adapter (accessory) at temperatures above 130 °C or 180 °C. Down to -10 °C, as per AD code of practice W 10, use water with antifreeze and brine solution. For use as per DIN EN 14597. When valve is combined with AVN 224S, admissible media temperature is > 0 °C.

For cold water applications from -20...30 °C, the versions VUG***F3**S with a stuffing box containing silicone (e.g.: VUG015F304S) must be used. The valves VUG***F3**S do not comply with the standard for regulating units as per DIN EN 14597. VUG***F3**S are only available up to DN 125.

Use stuffing box heater at temperatures below 0 °C; use the relevant adapter (accessory) at temperatures above 130 °C or 180 °C. Down to -10 °C, as per AD code of practice W 10, use water with anti-freeze and brine solution

Overview of ty	pes				
Туре	Nominal diameter	K _{vs} value	Valve stroke	Connection	Weight
VUG015F374	DN 15	$0.16 \text{m}^3/\text{h}$	20 mm	PN 25/16	4000 g
VUG015F364	DN 15	$0.25 \text{ m}^3/\text{h}$	20 mm	PN 25/16	4000 g
VUG015F354	DN 15	$0.4 \text{ m}^3/\text{h}$	20 mm	PN 25/16	4000 g
VUG015F344	DN 15	$0.63 \text{ m}^3/\text{h}$	20 mm	PN 25/16	4000 g
VUG015F334	DN 15	1 m³/h	20 mm	PN 25/16	4000 g
VUG015F324	DN 15	1.6 m ³ /h	20 mm	PN 25/16	4000 g
VUG015F314	DN 15	2.5 m ³ /h	20 mm	PN 25/16	4000 g
VUG015F304	DN 15	4 m³/h	20 mm	PN 25/16	4000 g
VUG020F304	DN 20	6.3 m ³ /h	20 mm	PN 25/16	5000 g
VUG025F304	DN 25	10 m³/h	20 mm	PN 25/16	5600 g
VUG032F304	DN 32	16 m³/h	20 mm	PN 25/16	9100 g
VUG040F304	DN 40	25 m³/h	20 mm	PN 25/16	11200 g
VUG050F304	DN 50	40 m³/h	20 mm	PN 25/16	13800 g
VUG065F316	DN 65	63 m³/h	40 mm	PN 16	25000 g
VUG065F304	DN 65	63 m³/h	40 mm	PN 25	25000 g
VUG080F304	DN 80	100 m³/h	40 mm	PN 25/16	37000 g
VUG100F304	DN 100	160 m³/h	40 mm	PN 25	50000 g
VUG125F304	DN 125	250 m³/h	40 mm	PN 25	75000 g
VUG150F304	DN 150	340 m ³ /h	40 mm	PN 25	100000 g

Accessories	
Туре	Description
0372336180	Adapter (required when temperature of the medium is 130150 °C)
0372336240	Adaptor (required when temperature of the medium is 180200 °C)
0378284100	Stuffing box heater 230 V~, 15 W for medium below 0 °C
0378284102	Stuffing box heater 24 V~, 15 W for medium below 0 °C
0378384001	Torsion protection DN 65150
0560260001	Stuffing box for VUG/BUG for cold water application with grease containing silicone



Combination of VUG with electric actuators

- *i* Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **1** Definition of $\Delta p_{\dot{s}}$: Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- **1** Definition of Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.

Pressure differences

Actuator	AVM322F120 AVM322F122	AVM3225F132	AVM234SF132	AVF234SF132	AVF234SF232	AVN224SF132 AVN224SF232
Page	256	259	267	274	274	277
Actuating power	1000 N	1000 N	2500 N	2000 N	2000 N	1100 N
Control signal	2-/3-point	2-/3-point, 010 V, 420 mA	2-/3- pt., 010 V, 420 mA			
Running time for DN 1550	120/240 s	80/120 s	40/80/120 s	40/80/120 s	40/80/120 s	40/80/120 s
Running time for DN 65150	-	-	80/160/240 s	80/160/240 s	80/160/240 s	80/160/240 s

			Δр [bar]					
Closes against the pressure	Δp _{max}	Δp_{max}	Δp_{max}	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp _{max}	Δp_s
VUG015F374 VUG015F364 VUG015F354 VUG015F344 VUG015F334 VUG015F324 VUG015F314 VUG015F304 VUG020F304	16.0	16.0	16.0	16.0	25.0	16.0	25.0	16.0	25.0
VUG025F304	15.2	15.2	16.0	16.0	25.0	16.0	25.0	16.0	17.0
VUG032F304	9.4	9.4	16.0	16.0	21.0	16.0	21.0	10.5	10.5
VUG040F304	6.1	6.1	16.0	13.5	13.5	13.5	13.5	6.5	6.5
VUG050F304	4.0	4.0	11.0	8.5	8.5	8.5	8.5	4.0	4.0
VUG065F316	-	-	<i>7</i> .1	5.6	5.6	5.6	5.6	-	-
VUG065F304	-	-	<i>7</i> .1	5.6	5.6	5.6	5.6	3.0	3.0
VUG080F304	-	-	4.7	3.4	3.4	3.4	3.4	2.0	2.0
VUG100F304	-	-	3.0	2.2	2.2	2.2	2.2	1.1	1.1
VUG125F304	-	-	2.0	1.6	1.6	1.6	1.6	0.8	0.8
VUG150F304	-	-	1.5	1.2	1.2	1.2	1.2	0.6	0.6

Closes with the pressure	Δp _{max}	Δp _{max}	Δp _{max}	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp _{max}	Δp_s
VUG015F374 VUG015F364 VUG015F354 VUG015F334 VUG015F324 VUG015F314 VUG015F304 VUG020F304 VUG025F304 VUG032F304	6.0	6.0	6.0	6.0	25.0	6.0	25.0	6.0	25.0
VUG040F304	5.5	5.5	6.0	6.0	25.0	6.0	25.0	6.0	25.0
VUG050F304	3.5	3.5	6.0	6.0	25.0	6.0	25.0	4.0	25.0
VUG065F316	-	-	4.5	4.5	25.0	4.5	25.0	-	-
VUG065F304	-	-	4.5	4.5	25.0	4.5	25.0	2.6	25.0
VUG080F304	-	-	3.5	3.4	25.0	3.4	25.0	1.7	25.0



Actuator	AVM322F120 AVM322F122	AVM322SF132	AVM234SF132	AVF234SF132		AVF234SF232		AVN224SF132 AVN224SF232	
Page	256	259	267	274		274		277	
VUG100F304	-	-	3.0	2.2	25.0	2.2	25.0	1.1	25.0
VUG125F304	-	-	-	1.6	25.0	1.6	25.0	0.8	25.0
VUG150F304	-	-	-	1.0	25.0	1.0	25.0	0.6	25.0

At temperatures above 130 °C, accessories are required

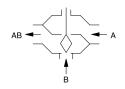


Combination with AVN 224S: with safety function as per DIN EN 14597

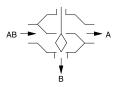


BUG032F304





Control valve



Distribution valve



BUG: 3-way flanged valve, PN 25/16 (el.)

Features

- Continuous control of cold and hot water in closed circuits
- In combination with valve actuators AVM 322(S), AVM 234S, AVN 224S and AVF 234S as a control unit
- Water quality as per VDI 2035
- Valve with flange connection as per EN 1092-2, seal form B
- Nominal pressure 25 bar, except BUG065F316, nominal pressure 16 bar
- Not suitable for drinking water
- \bullet Complies with standard for control units as per DIN EN 14597 $^{1)}$
- Regulating valve, free of silicone grease, painted black
- Equal-percentage characteristic, can be set with SUT valve actuators to linear or quadratic
- The control passage is closed when the spindle is moved out
- Can be used as a control valve or a distribution valve
- Valve body made of ductile cast iron
- Stainless-steel seat and spindle
- Plugs of nominal diameter DN 15...50 made of stainless steel with glass-fibre-reinforced PTFE sealing ring
- Plugs of nominal diameter DN 65...150 made of stainless steel with metal-to-metal seal
- Maintenance-free stuffing box in brass with spring-loaded PTFE washer

	Nominal pressure	PN 16/25
	Connection	Flange as per EN 1092-2, form B
	Control ratio	> 50 : 1
	Valve characteristic, control passage	Equal-percentage
	Valve characteristic, mixing passage	Linear
Leakage rate at max. Δps	Leakage rate, control passage	\leq 0.05% of K _{vs} value
	Leakage rate, mixing passage	≤ 1.0% of K _{vs} value

ient conditions		
	Operating temperature ²⁾	−20200 °C
	Operating pressure	PN 16:
		30 °C, 16 bar
		At 120 °C, 16 bar
		At 200 °C, 14 bar
		PN 25:
		30 °C, 25 bar
		Up to 120 °C, 25 bar
		At 200 °C, 21.7 bar

Standards and directives		
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	EN 60534
	Test mark	TÜV ID: 0000018388

The BUG065F316 valve does not have TÜV approval. It does not bear the test institute code and is classified under category I of the Directive on Pressure Equipment. This valve can be used with the AVN224SF*** actuator, but not as a safety device. Use stuffing box heater at temperatures below 0 °C; use the relevant adapter (accessory) at temperatures above 130 °C or 180 °C. Down to -10 °C, as per AD code of practice W 10, use water with anti-freeze and brine solution. For use as per DIN EN 14597. When valve is combined with AVN 224S, admissible media temperature is > 0 °C.

For cold water applications below 30 °C, use versions BUG***F3**S with a stuffing box containing silicone (e.g.: BUG015F304S). The valves BUG***F3**S do not comply with the standard for control units as per DIN EN 14597. BUG***F3**S are only available up to DN 125.

Use stuffing box heater at temperatures below 0 °C; use the relevant adapter (accessory) at temperatures above 130 °C or 180 °C. Down to -10 °C, as per AD code of practice W 10, use water with anti-freeze and brine solution.



	7

Overview of types					
Туре	Nominal diameter	K _{vs} value	Valve stroke	Connection	Weight
BUG015F334	DN 15	1 m³/h	20 mm	PN 25/16	3.1 kg
BUG015F324	DN 15	1.6 m ³ /h	20 mm	PN 25/16	3.1 kg
BUG015F314	DN 15	$2.5 \text{ m}^3/\text{h}$	20 mm	PN 25/16	3.1 kg
BUG015F304	DN 15	4 m³/h	20 mm	PN 25/16	3.1 kg
BUG020F304	DN 20	6.3 m ³ /h	20 mm	PN 25/16	4 kg
BUG025F304	DN 25	10 m³/h	20 mm	PN 25/16	4.7 kg
BUG032F304	DN 32	16 m³/h	20 mm	PN 25/16	7.2 kg
BUG040F304	DN 40	25 m³/h	20 mm	PN 25/16	9.2 kg
BUG050F304	DN 50	40 m³/h	20 mm	PN 25/16	11.9 kg
BUG065F316	DN 65	63 m³/h	40 mm	PN 16	26.8 kg
BUG065F304	DN 65	63 m³/h	40 mm	PN 25	27.1 kg
BUG080F304	DN 80	100 m³/h	40 mm	PN 25/16	36.3 kg
BUG100F304	DN 100	160 m³/h	40 mm	PN 25	53 kg
BUG125F304	DN 125	250 m³/h	40 mm	PN 25	79.1 kg
BUG150F304	DN 150	340 m³/h	40 mm	PN 25	108.7 kg

Accessories	
Туре	Description
0372336180	Adapter (required when temperature of the medium is 130150 °C)
0372336240	Adaptor (required when temperature of the medium is 180200 °C)
0378284100	Stuffing box heater 230 V~, 15 W for medium below 0 °C
0378284102	Stuffing box heater 24 V~, 15 W for medium below 0 °C
0378384001	Torsion protection DN 65150
0560260001	Stuffing box for VUG/BUG for cold water application with grease containing silicone

Combination of BUG with electrical actuators

- Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- i Definition of Δp_s : Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- **Definition of \Delta p_{max}:** Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.

Pressure differences

Actuator	AVM322F120 AVM322F122	AVM322SF132	AVM234SF132	AVF234SF132	AVF234SF232	AVN224SF132 AVN224SF232
Page	256	259	267	274	274	277
Actuating power	1000 N	1000 N	2500 N	2000 N	2000 N	1100 N
Control signal	2-/3-point	2-/3-point, 010 V, 420 mA	2-/3- pt., 010 V, 420 mA			
Running time for DN 1550	120/240 s	80/120 s	40/80/120 s	40/80/120 s	40/80/120 s	40/80/120 s
Running time for DN 65150	-	-	80/160/240 s	80/160/240 s	80/160/240 s	80/160/240 s

		Δp [bar]							
As control valve	Δp _{max}	Δp_{max}	Δp _{max}	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp _{max}	Δp_s
BUG015F334 BUG015F324 BUG015F314 BUG015F304 BUG020F304	16.0	16.0	16.0	16.0	25.0	16.0	25.0	16.0	25.0
BUG025F304	15.2	15.2	16.0	16.0	25.0	16.0	25.0	16.0	17.0
BUG032F304	9.4	9.4	16.0	16.0	21.0	16.0	21.0	10.5	10.5

Valves, control valves, dampers, actuators | Regulating valves and valve actuators

Actuator	AVM322F120 AVM322F122	AVM322SF132	AVM234SF132	AVF234SF	132	AVF234SF	232	AVN2245	
Page	256	259	267	274		274		277	
BUG040F304	6.1	6.1	16.0	13.5	13.5	13.5	13.5	6.5	6.5
BUG050F304	4.0	4.0	11.0	8.5	8.5	8.5	8.5	4.0	4.0
BUG065F316	-	-	<i>7</i> .1	5.6	5.6	5.6	5.6	-	-
BUG065F304	-	-	<i>7</i> .1	5.6	5.6	5.6	5.6	3.0	3.0
BUG080F304	-	-	4.7	3.4	3.4	3.4	3.4	2.0	2.0
BUG100F304	-	-	3.0	2.2	2.2	2.2	2.2	1.1	1.1
BUG125F304	-	-	2.0	1.6	1.6	1.6	1.6	0.8	0.8
BUG150F304	-	-	1.5	1.2	1.2	1.2	1.2	0.6	0.6

As distribution valve	Δp _{max}	Δp _{max}	Δp _{max}	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp _{max}	Δp_s
BUG015F334 BUG015F324 BUG015F314 BUG015F304 BUG020F304 BUG025F304 BUG032F304	6.0	6.0	6.0	6.0	25.0	6.0	25.0	6.0	25.0
BUG040F304	5.5	5.5	4.0	6.0	25.0	6.0	25.0	6.0	25.0
BUG050F304	3.5	3.5	6.0	6.0	25.0	6.0	25.0	4.0	25.0
BUG065F316	-	-	4.5	4.5	25.0	4.5	25.0	-	-
BUG065F304	-	-	4.5	4.5	25.0	4.5	25.0	2.6	25.0
BUG080F304	-	-	3.5	3.4	25.0	3.4	25.0	1.7	25.0
BUG100F304	-	-	3.0	2.2	25.0	2.2	25.0	1.1	25.0
BUG125F304	-	-	2.0	1.6	25.0	1.6	25.0	0.8	25.0
BUG150F304	-	-	1.0	1.0	25.0	1.0	25.0	0.6	25.0



^{*} Combination with AVN 224S: with safety function as per DIN EN 14597



VUP: Pressure-relieved 2-way flanged valve, PN 25 (el.)

Features

- Continuous control of cold and hot water in closed circuits, and of steam
- In combination with valve actuators AVM 322(S), AVM 234S, AVF 234S and AVN 224S as a control unit
- Water quality as per VDI 2035
- Not suitable for drinking water
- Valve with flange connection as per EN 1092-2, seal form B
- Regulating valve, free of silicone grease, with pressure compensation, galvanised and painted black
- Equal-percentage characteristic, can be set with SUT (SAUTER Universal Technology) valve actuators to linear or quadratic
- The valve is closed when the spindle is moved in
- Valve body made of ductile cast iron
- Valve seat, plug and spindle made of stainless steel
- Closing procedure only against the pressure
- Maintenance-free stuffing box in brass with spring-loaded PTFE-FKM-PTFE washer



Parameters		
	Nominal pressure	PN 25
	Connection	Flange as per EN 1092-2, form B
	Valve characteristic	Equal-percentage
	Control ratio	> 100:1
	Leakage rate at max. Δp _s	< 0.05% of K _{vs} value
Admissible ambient conditions		
Admissible ambient conditions	Operating temperature ¹⁾	−20200 °C
	Operating pressure	Up to 120 °C, 25 bar
		Up to 200 °C, 20 bar
Standards and directives		
	Test mark	TÜV ID: 6973

Overview of t	ypes			
Туре	Nominal diameter	K _{vs} value	Valve stroke	Weight
VUP040F304	DN 40	25 m³/h	14 mm	10000 g
VUP050F304	DN 50	40 m³/h	25 mm	14000 g
VUP065F304	DN 65	63 m³/h	25 mm	18000 g
VUP080F304	DN 80	100 m³/h	25 mm	25500 g
VUP100F304	DN 100	160 m³/h	40 mm	36500 g
VUP125F304	DN 125	250 m³/h	40 mm	56500 g
VUP150F304	DN 150	350 m³/h	40 mm	84500 g

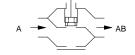
Accessories	
Туре	Description
0372336180	Adaptor (required when temperature of the medium is 130180 °C)
0372336240	Adaptor (required when temperature of the medium is 180200 °C)
0378284100	Stuffing box heater 230V~, 15 W for medium below 0 °C
0378284102	Stuffing box heater 24V~, 15 W for medium below 0 °C

Use stuffing box heater at temperatures below 0 °C; use the relevant adapter (accessory) at temperatures above 130 °C or 180 °C.



VUPO40F304











Valve combined with AVN 224S: For use as per DIN EN 14597, the admissible media temperature is > 0 °C.

Туре	Description
0378356001	Replacement pack for stuffing box DN 4080
0378357001	Replacement pack for stuffing box DN 100150

Combination of VUP with electrical actuators

- i Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **I** Definition of Δp_s : Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- Definition of Δp_{max}: Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.

Pressure differences

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Actuator	AVM322F120 AVM322F122	AVM322SF132	AVM234SF132	AVF234SF132	AVF234SF232	AVN224SF132 AVN224SF232
Page	256	259	267	274	274	277
Actuating power	1000 N	1000 N	2500 N	2000 N	2000 N	1100 N
Control signal	2-/3-point	2-/3-point, 010 V, 420 mA	2-/3- pt., 010 V, 420 mA			
Running time for DN 40	84/168 s	56/84 s	28/56/84 s	28/56/84 s	28/56/84 s	28/56/84 s
Running time for DN 5080	-	-	50/100/150 s	50/100/150 s	50/100/150 s	50/100/150 s
Running time for DN 100150	-	-	80/160/240 s	80/160/240 s	80/160/240 s	80/160/240 s

Δp [bar]								
Δp_{max}	Δp _{max}	Δp _{max}	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp _{max}	Δp_s
25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
-	-	25.0	25.0	25.0	25.0	25.0	20.0	25.0
-	-	25.0	25.0	25.0	25.0	25.0	16.0	17.0
-	-	25.0	25.0	25.0	25.0	25.0	12.0	15.0
-	-	25.0	20.0	22.0	20.0	22.0	9.0	12.0
-	-	19.0	14.0	20.0	14.0	20.0	6.0	6.0
-	_	15.0	10.0	15.0	10.0	15.0	4.0	4.0
	25.0 - - - - -	25.0 25.0	Δp _{max} Δp _{max} Δp _{max} 25.0 25.0 25.0 - - 25.0 - - 25.0 - - 25.0 - - 25.0 - - 25.0 - - 19.0	Δp _{max} Δp _{max} Δp _{max} Δp _{max} 25.0 25.0 25.0 25.0 - - 25.0 25.0 - - 25.0 25.0 - - 25.0 25.0 - - 25.0 20.0 - - 19.0 14.0	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

Cannot be used to close with the pressure

^{*} Combination with AVN 224S: with safety function as per DIN EN 14597

VUS: 2-way flanged valve, PN 40 (el.)

Features

- Continuous control of cold, warm and hot water in closed circuits, and of steam
- In combination with valve actuators AVM 322(S), AVM 234S, AVN 224S and AVF 234S as a control unit
- Water quality as per VDI 2035
- Valve with flange connection as per EN 1092-2, seal form B
- Silicone-free regulating valve, matt black
- Not suitable for drinking water
- Equal-percentage characteristic, can be set with SUT valve actuators to linear or quadratic
- The valve is closed when the spindle is moved in. Closing procedure only against the pressure
- Valve body made of cast steel; spindle, seat and plug of stainless steel
- Maintenance-free stuffing box, made of stainless steel, with spring-loaded PTFE washer up to 220 °C, with graphite seal up to 260 °C



Parameters		
	Nominal pressure	PN 40
	Connection	Flange as per EN 1092-2, form B
	Valve characteristic	Equal-percentage
	Control ratio	> 50 : 1
	Leakage rate	≤ 0.05% of K _{vs} value
Admissible ambient conditions		
	Operating temperature ¹⁾	−10260 °C
	Operating pressure	40 bar at -1050 °C
		36.3 bar at 120 °C
		29.4 bar at 220 °C
		27.8 bar at 260 °C
Standards and directives		
Statidatus atid difectives		
Standards and directives	Pressure and temperature data	EN 764, EN 1333

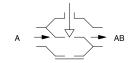
Overview of to	mes			
Туре	Nominal diameter	K _{vs} value	Valve stroke	Weight
VUS015F375	DN 15	0.16 m³/h	20 mm	5.1 kg
VUS015F365	DN 15	0.25 m³/h	20 mm	5.1 kg
VUS015F355	DN 15	0.4 m³/h	20 mm	5.1 kg
VUS015F345	DN 15	0.63 m³/h	20 mm	5.1 kg
VUS015F335	DN 15	1 m³/h	20 mm	5.1 kg
VUS015F325	DN 15	1.6 m³/h	20 mm	5.1 kg
VUS015F315	DN 15	2.5 m³/h	20 mm	5.1 kg
VUS015F305	DN 15	4 m³/h	20 mm	5.1 kg
VUS020F305	DN 20	6.3 m³/h	20 mm	5.9 kg
VUS025F305	DN 25	10 m ³ /h	20 mm	6.8 kg
VUS032F305	DN 32	16 m³/h	20 mm	8.4 kg
VUS040F305	DN 40	25 m³/h	20 mm	10.6 kg
VUS050F305	DN 50	40 m³/h	20 mm	13.2 kg
VUS065F305	DN 65	63 m³/h	30 mm	18.6 kg
VUS080F305	DN 80	100 m ³ /h	30 mm	25.1 kg
VUS100F305	DN 100	160 m³/h	30 mm	36.4 kg

 $^{^{1)}}$ No stuffing box heater required down to -10 °C. Above 130 °C or 180 °C, use the relevant adapter (accessory). Above 200 °C and up to 260 °C, use stuffing box with graphite seal (accessory)



VUS040F305







Туре	Nominal diameter	K _{vs} value	Valve stroke	Weight
VUS125F305	DN 125	220 m³/h	40 mm	56.4 kg
VUS150F305	DN 150	320 m³/h	40 mm	77.9 kg

Accessories	
Туре	Description
0372336180	Adaptor (required when temperature of the medium is 130180 °C)
0372336240	Adaptor (required when temperature of the medium is 180260 °C)
0378373001	Stuffing box with graphite seal for temperatures of 220260 °C; DN 1550
0378373002	Stuffing box with graphite seal for temperatures of 220260 °C; DN 65100
0378373003	Stuffing box with graphite seal for temperatures of 220260 °C; DN 125150

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Combination of VUS with electrical actuators

- *i* Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **1** Definition of $\Delta p_{\vec{s}}$: Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- Pefinition of Δρ max²: Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.

Pressure differences

Actuator	AVM322F120 AVM322F122	AVM322SF132	AVM234SF132	AVF234SF132	AVF234SF232
Page	256	259	267	274	274
Actuating power	1000 N	1000 N	2500 N	2000 N	2000 N
Control signal	2-/3-point	2-/3-point, 010 V, 420 mA			
Running time for DN 1550	120/240 s	80/120 s	40/80/120 s	40/80/120 s	40/80/120 s
Running time for DN 65100	-	-	60/120/180 s	60/120/180 s	60/120/180 s
Running time for DN 125, DN 150	-	-	80/160/240 s	80/160/240 s	80/160/240 s

			Δp [bar]				
Closes against the pressure	Δp _{max}	Δp _{max}	Δp _{max}	Δp _{max}	Δps	Δp _{max}	Δps
VUS015F375 VUS015F365 VUS015F355 VUS015F345 VUS015F335 VUS015F325 VUS015F315 VUS015F305 VUS020F305	35.0	35.0	40.0	40.0	25.0	40.0	25.0
VUS025F305	17.4	17.4	37.8	29.6	25.0	29.6	25.0
VUS032F305	12.2	12.2	28.7	22.5	21.0	22.5	21.0
VUS040F305	6.2	6.2	16.4	12.8	13.5	12.8	13.5
VUS050F305	3.7	3.7	10.5	8.2	8.5	8.2	8.5
VUS065F305	-	-	6.1	4.7	5.6	4.7	5.6
VUS080F305	-	-	3.9	3.0	3.4	3.0	3.4
VUS100F305	-	-	1.5	1.5	2.2	1.5	2.2
VUS125F305	-	-	1.0	1.0	1.6	1.0	1.6

Valves, control valves, dampers, actuators | Regulating valves and valve actuators

Actuator	AVM322F120 AVM322F122	AVM322SF132	AVM234SF132	AVF234SF13	2	AVF234SF23	32
Page	256	259	267	274		274	
VUS150F305	-	-	0.7	0.7	1.2	0.7	1.2

Cannot be used to close with the pressure

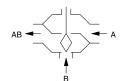


⁻ At temperatures above 130 °C, accessories are required



BUS015F2*5





BUS: 3-way flanged valve, PN 40 (el.)

Features

- Continuous control of cold/warm/hot water in HVAC installations in closed circuits
- In combination with valve actuators AVM 234S and AVF 234S as control unit
- Water quality as per VDI 2035
- Not suitable for drinking water
- Valve with flange connection as per EN 1092-2, seal form B
- Regulating valve, free of silicone grease, matt black
- Control passage, linear characteristic DN 15...100; adjustable with SUT (SAUTER Universal Technology)
 valve actuators to equal-percentage
- Control passage, equal-percentage characteristic, DN 125...150; adjustable with SUT actuators to linear
 or quadratic
- Mixing passage, linear characteristic
- The control passage is closed when the spindle is moved out
- For use only as a control valve
- Valve body made of cast steel
- Stainless-steel seat and plug
- Stainless-steel spindle
- Maintenance-free stuffing box, made of stainless steel, with spring-loaded PTFE washer up to 220 °C, with graphite seal up to 260 °C

Parameters		
	Nominal pressure	PN 40
	Connection	Flange as per EN 1092-2, form B
	Control ratio	> 30 : 1
	Valve characteristic, mixing passage	Linear
	Leakage rate, control passage	\leq 0.05% of K _{vs} value
	Leakage rate, mixing passage	≤ 1.0% of K _{vs} value
Ambient conditions		
	Operating temperature ¹⁾	-10260 °C
	Operating pressure	40 bar at -1050 °C
		36.3 bar at 120 °C
		29.4 bar at 220 °C
		27.8 bar at 260 °C
Standards and directives		
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	EN 60534

Overview of types							
Туре	Nominal diameter	K _{vs} value	Valve characteristic, control passage	Valve stroke	Weight		
BUS015F225	DN 15	1.6 m³/h	Linear	20 mm	7.2 kg		
BUS015F215	DN 15	$2.5 \text{ m}^3/\text{h}$	Linear	20 mm	7.2 kg		
BUS015F205	DN 15	4 m³/h	Linear	20 mm	7.2 kg		
BUS020F205	DN 20	6.3 m³/h	Linear	20 mm	8.4 kg		
BUS025F205	DN 25	10 m³/h	Linear	20 mm	9.4 kg		

No stuffing box heater required down to -10 °C. At temperatures below -10 °C and down to -60 °C, use special version with bellows seal (available on request, only to DN 100). Application: Water with anti-freeze (glycol up to 55% and brine solution), max. operating pressure 30 bar. Above 130 °C or 180 °C, use the relevant adapter (accessory). Above 220 °C and up to 260 °C, use stuffing box with graphite seal (accessory)



Туре	Nominal diameter	K _{vs} value	Valve characteristic, control passage	Valve stroke	Weight
BUS032F205	DN 32	16 m³/h	Linear	20 mm	12.4 kg
BUS040F205	DN 40	25 m³/h	Linear	20 mm	15.5 kg
BUS050F205	DN 50	40 m³/h	Linear	20 mm	19.2 kg
BUS065F205	DN 65	63 m³/h	Linear	30 mm	27.6 kg
BUS080F205	DN 80	100 m ³ /h	Linear	30 mm	36.5 kg
BUS100F205	DN 100	160 m³/h	Linear	30 mm	61.2 kg
BUS125F305	DN 125	220 m³/h	Equal-percentage	40 mm	82.5 kg
BUS150F305	DN 150	320 m³/h	Equal-percentage	40 mm	113.5 kg

Accessories	
Туре	Description
0372336180	Adaptor (required when temperature of the medium is 130180 °C)
0372336240	Adaptor (required when temperature of the medium is 180260 °C)
0378373001	Stuffing box with graphite seal for temperatures of 220260 °C; DN 1550
0378373002	Stuffing box with graphite seal for temperatures of 220260 °C; DN 65100
0378373003	Stuffing box with graphite seal for temperatures of 220260 °C; DN 125150



Combination of BUS with electrical actuators

- i Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- i Definition of $\Delta p_{\vec{s}}$ Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- i Definition of Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the

Pressure differences

Actuator	AVM322F120 AVM322F122	AVM322SF132	AVM234SF132	AVF234SF132	AVF234SF232
Page	256	259	267	274	274
Actuating power	1000 N	1000 N	2500 N	2000 N	2000 N
Control signal	2-/3-point	2-/3-point, 010 V, 420 mA			
Running time for DN 1550	120/240 s	80/120 s	40/80/120 s	40/80/120 s	40/80/120 s
Running time for DN 65100	-	-	60/120/180 s	60/120/180 s	60/120/180 s
Running time for DN 125, DN 150	-	-	80/160/240 s	80/160/240 s	80/160/240 s

			Δp [bar]				
As control valve	Δp_{max}	Δp_{max}	Δp _{max}	Δp _{max}	Δp_s	Δp _{max}	Δp_s
BUS015F225 BUS015F215 BUS015F205	35.0	35.0	40.0	40.0	40.0	40.0	40.0
BUS020F205	35.0	35.0	40.0	34.7	40.0	34.7	40.0
BUS025F205	17.4	17.4	37.8	29.6	37.0	29.6	37.0
BUS032F205	12.2	12.2	27.0	21.1	27.0	21.1	27.0
BUS040F205	6.2	6.2	16.4	12.8	16.0	12.8	16.0
BUS050F205	3.7	3.7	10.5	8.2	10.0	8.2	10.0
BUS065F205	-	-	6.1	4.7	6.1	4.7	6.1
BUS080F205	-	-	3.9	3.0	3.9	3.0	3.9

Valves, control valves, dampers, actuators | Regulating valves and valve actuators

Actuator	AVM322F120 AVM322F122	AVM322SF132	AVM234SF132	AVF234SF132	AVF234SF232
Page	256	259	267	274	274
BUS100F205	-	-	2.5	1.9 2.5	1.9 2.5
BUS125F305	-	-	1.7	1.3 1.7	1.3 1.7
BUS150F305	-	-	1.2	0.9 1.2	0.9 1.2
Cannot be used as distribution valve					

At temperatures above 130 °C, accessories are required



Valve actuators

SAUTER actuators adapt themselves automatically to the valve. Their accurate control provides a high degree of energy efficiency and a low noise level. Furthermore, they can adjust the regulating valves themselves. To save energy, it is possible to include an electric cut-off. SAUTER valve actuators can be used for controllers with a switching or continuous output.

Overview of valve actuators









	Ψ	,		
Type designation	AVM 105, 115	AVM 105S, 115S	AVM 215	AVM 215S
Technical data				
Max. nominal stroke (mm)	8	8	820 mm	1020 mm
Max. pushing force (N)	250, 500	250, 500	500	500
Running time s	30, 120	35, 60, 120	7.5	7.5
Power supply (V)	24/230	24	230 V~	24 V ~/=
Control				
2-point	•	•	•	•
3-point	•	•	•	•
Positioner	-	•	-	•
Spring return	-	-	-	-
Combination options	VUN/BUN, VUD/BUD,	VUN/BUN, VUD/BUD,	VUG/BUG, VUS/BUS to	VUG/BUG, VUS/BUS to
with valve	VUE/BUE	VUE/BUE	DN 025	DN 025
Further information	Page 247	Page 249	Page 251	Page 253





Type designation	AVM 321, 322	AVM 321S, 322S
Technical data		
Max. nominal stroke (mm)	8, 20	8, 20
Max. pushing force (N)	1000	1000
Running time	6, 12 s/mm	4, 12 s/mm
Power supply (V)	24 / 230	24 / (230)
Control		
2-point	•	•
3-point	•	•
Positioner	-	•
Spring return	-	-
Combination options with valve	VUD/BUD/VQD/BQD, VUE/BUE/VQE/BQE, VUG/BUG VUN/BUN, VUS/BUS, VUP, V6R/B6R	VUD/BUD/VQD/BQD, VUE/BUE/VQE/BQE, VUG/BUG, VUN/BUN, VUS/BUS, VUP, V6R/B6R
Further information	Page 255	Page 258

Type designation	AVM 234S	AVF 234S	AVN 224S
Technical data			
Max. nominal stroke (mm)	40	40	40
Max. pushing force (N)	2500	2000	1100
Running time	2, 4, 6, s/mm	2, 4, 6 s/mm	2, 4, 6 s/mm
Power supply (V)	24 / (230)	24 / (230)	24 / (230)
Control			
2-point	•	•	•
3-point	•	•	•
Positioner	•	•	•
Spring return	-	•	•
Combination options with valve	VQD/BQD, VQE/BQE, VUG/BUG, VUS/BUS, VUP, V6R/B6R	VQD/BQD, VQE/BQE, VUG/BUG, VUS/BUS, VUP, V6R/B6R	VQE/BQE, VUG/BUG, VUS/BUS, VUP, V6R/B6R

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Further information

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AVM 105, 115: Valve actuator

Features

- Activation of 2-way and 3-way valves of the VUN/BUN, VUD/BUD and VUE/BUE series
- For controllers with a switching (2-/3-point) output
- Synchronous motor with electronic control unit and time-dependent cut-off
- Direction of operation can be selected directly on the cable
- Maintenance-free gearbox with magnetic coupling
- Gear unit can be disengaged in order to position the valve by hand (hexagon key provided)
- Connection with valve spindle performed automatically
- Cap nut for valve fitting made of brass
- Fitting vertically upright to horizontal, not suspended

Technical data

Power supply		
	Power supply 24 V~	±20%, 5060 Hz
	Power supply 230 V~	±15%, 5060 Hz
Parameters		
	Actuator stroke ¹⁾	08 mm
	Response time	200 ms
Ambient conditions		
	Ambient temperature	-1055 °C
	Temperature of medium	Max. 100 °C
	Ambient humidity	595% rh, no condensation
Function		
	Control	2-/3-point
Construction		
	Weight	0. <i>7</i> kg
	Housing	Lower section black, upper section yellow
	Housing material	Fire-retardant plastic
	Power cable	$1.2 \text{ m long}, 3 \times 0.75 \text{ mm}^2$
Standards and directives		
	Type of protection	IP54 (EN 60529), horizontal
	Protection class 24 V	III (EN 60730)
	Protection class 230 V	II (EN 60730)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1 EN 60730-2-14 Over-voltage category III Degree of contamination II
	Directive 2006/95/EC	EEC (II B)
	Machinery Directive 2006/42/EC (according to Appendix II, 1B)	EN ISO 12100

Overview of types				
Туре	Actuating power (N)	Voltage	Running time (s)	Power consumption
AVM105F100	250	230 V~	30	2.4 W, 4.5 VA
AVM105F120	250	230 V~	120	2.0 W, 4.0 VA

¹⁾ Stroke 10 mm for AVM 1 15F901



AVM1*5F***







Туре	Actuating power (N)	Voltage	Running time (s)	Power consumption
AVM105F122	250	24 V~	120	1.6 W, 1.7 VA
AVM115F120	500	230 V~	120	2.0 W, 4.0 VA
AVM115F122	500	24 V~	120	1.6 W, 1.7 VA
AVM115F901	500	230 V~	160	2.0 W, 4.0 VA

* AVM115F901: For SAUTER Valveco VCL040 and VCL050, inverse scale, inverse connection

Accessories	
Туре	Description
0372145001	Auxiliary change-over contacts, single
0372145002	Auxiliary change-over contacts, double
0372249001	Temperature adapter for AVM 321(S), media temperature > 100130 °C
0372273001	Adapter for Siemens valve VVG/VXG 44, 48
0372286001	Potentiometer, 130 Ω
0372286002	Potentiometer, 1000 Ω
0372286003	Potentiometer, 5000 Ω
0372320001	Hexagon key as visualisation for position indicator
0372459102	External switching, 24 V version for parallel operation with A^*M 1^*4 or actuators with end switch, incl. junction box

- 🛉 Auxiliary change-over contacts: Infinitely variable 0...100%, admissible load 5(2) A, 24...230 V
- Potentiometers: Only one potentiometer or one set of auxiliary contacts can be fitted for each actuator



AVM 105S, 115S: Valve actuator with SAUTER Universal Technology (SUT)

Features

- Activation of 2-way and 3-way valves of the VUN/BUN, VUD/BUD and VUE/BUE series
- For controllers with a switching (2- and 3-point) or continuous (0...10 V) output
- Stepping motor with SAUTER Universal Technology (SUT) electronic control unit and electronic, force-dependent cut-off
- Automatic recognition of applied control signal (continuous or switched)
- Coding switches for selecting characteristic and running time
- Type of characteristic (linear/equal-percentage) can be set on the actuator
- Automatic adaptation to valve stroke
- Maintenance-free gear unit
- Gear unit can be disengaged in order to position the valve by hand (hexagon key provided)
- Connection with valve spindle performed automatically after control voltage is applied
- Brass cap nut for fitting the valve
- Fitting vertically upright to horizontal, not suspended

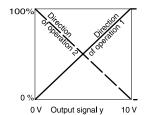
Power supply		
	Power supply 24 V~	±20%, 5060 Hz
	Power supply 24 V=	-1020%
Parameters		
	Actuator stroke ¹⁾	08 mm
	Response time	200 milliseconds
Positioner	Control signal	010 V, R_i > 100 kΩ
	Positional feedback signal	010 V, load > 10 kΩ
	Starting point U ₀	0 or 10 V
	Control span ΔU	10 V
	Switching range X _{sh}	200 mV
Ambient conditions		
	Ambient temperature	-1055 °C
	Ambient humidity	595% rh, no condensation
	Temperature of medium	Max. 100 °C
Construction		
	Weight	0.7 kg
	Housing	Lower section black, upper section yellow
	Housing material	Fire-retardant plastic
	Power cable	1.2 m, 5 × 0.75 mm ²
Standards, directives		
	Type of protection	IP54 (EN 60529), horizontal
	Protection class	III (IEC 60730)
CE conformity	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3, EN 61000-6-4

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¹⁾ Stroke 10 mm for AVM 115SF901

Overview of types				
Туре	Actuating power (N)	Voltage	Running time	Power consumption
AVM105SF132	250	24 V~/=	35/60/120 seconds	4.8 W, 8.5 VA
AVM115SF132	500	24 V~/=	60/120 seconds	4.9 W, 8.7 VA
AVM115SF901	500	24 V~/=	80/160 seconds	4.9 W, 8.7 VA

- 🛉 AVM105SF132, AVM115SF132: Equal-percentage characteristic, can be converted to linear
- * AVM115SF901: For SAUTER Valveco VCL040 and VCL050, inverse scale, inverse connection

Accessories	
Туре	Description
0313529001	Split-range unit for adjusting sequences, fitted in separate junction box
0372145001	Auxiliary change-over contacts, single
0372145002	Auxiliary change-over contacts, double
0372249001	Temperature adapter for AVM 321(S), media temperature > 100130 °C
0372249002	Temperature adapter for AVM 321(S), media temperature > 130150 °C
0372273001	Adapter for Siemens valve VVG/VXG 44, 48
0372286001	Potentiometer, 130 Ω
0372286002	Potentiometer, 1000 Ω
0372286003	Potentiometer, 5000 Ω

- 🛉 Auxiliary change-over contacts: Infinitely variable 0...100%, admissible load 5(2) A, 24...230 V
- * Potentiometers: Only one potentiometer or one set of auxiliary contacts can be fitted for each actuator



AVM 215: Valve actuator

Features

- Actuation of 2- and 3-way valves
- For controllers with a switching (2-/3-point) output
- Synchronous motor with electronic control unit and cut-off
- Maintenance-free gear unit
- Gear unit can be disengaged in order to position the valve by hand with the provided hexagon key
- Connection with valve spindle performed semi-automatically
- Fitting vertically upright to horizontal, not suspended

Technical data

Power supply		
	Power supply	230 V~ ±15%, 5060 Hz
Parameters		
	Actuator stroke	820 mm
	Response time	200 ms
Ambient conditions		
	Ambient temperature	-1055 °C
	Temperature of medium	Max. 100 °C
	Ambient humidity	585% rh, no condensation
Function		
	Control	2-/3-point
Construction		
	Weight	1 kg
	Housing	Lower section black, upper section yellow
	Housing material	Flame-retardant plastic
	Power cable	$1.2 \text{ m long}, 3 \times 0.75 \text{ mm}^2$
Standards and directives		
	Type of protection	IP54 (EN 60529), horizontal
	Protection class	230 V: II (EN 60730)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-14 Over-voltage category III Degree of contamination II
	Machinery Directive 2006/42/EC (according to Appendix II, 1B)	EN ISO 12100

Overview of types				
Туре	Actuating power	Voltage	Running time	Power consumption
AVM215F120R	400 N	230 V~	7.5 s/mm	3.2 W 7.0 VA

Accessories	
Туре	Description
0510390030	Mounting kit for 8 mm stroke
0510390031	Mounting kit for 20 mm stroke
0510480003	Dual auxiliary switch for 8 mm stroke
0510480004	Dual auxiliary switch for 20 mm stroke



AVM215F120R







Туре	Description
0372320001	Hexagon key as visualisation for position indicator
0510390032	Adapter set for V6R/B6R
0510390033	Adapter set for non-SAUTER valve IMI Hydronics TA-Fusion DN 3250
0510390034	Adapter set for non-SAUTER valve IMI Hydronics TA-Fusion DN 6580
0510390035	Adapter set for non-SAUTER valve IMI Hydronics CV DN 1550
0510390036	Adapter set for non-SAUTER valve IMI Hydronics KTM512 DN 1550
0510390037	Adapter set for non-SAUTER valve IMI Hydronics KTM512 DN 65100
0510390038	Adapter set for non-SAUTER valve Frese, stroke 20 mm DN 5080
0510390039	Adapter set for non-SAUTER valve Danfoss VFS VEFS VL VF
0510390040	Adapter set for non-SAUTER valve Danfoss VRB VRG
0510390029	Adapter set for AVM215F***R, stroke 15 mm
0510390060	Adapter set for AVM 2*5 for Schneider V241/V341



^{ightharpoonup} Accessory 0510390029 can also be used for SAUTER Valveco compact DN 40 and DN 50



AVM 215S-R: Valve actuator with SAUTER Universal Technology (SUT)

Features

- Actuation of 2- and 3-way valves
- For controllers with a switching (2- and 3-point) or continuous (0...10 V) output
- Stepping motor with SAUTER Universal Technology (SUT) electronic control unit and electronic, force-dependent cut-off
- Automatic recognition of applied control signal (continuous or switched)
- Coding switches for selecting characteristic and running time
- Type of characteristic (linear/equal-percentage) can be set on the actuator
- Automatic adaptation to valve stroke
- Direction of operation can be selected directly on the cable
- Maintenance-free gear unit
- Gear unit can be disengaged in order to position the valve by hand with the hexagon key provided
- Connection with valve spindle performed semi-automatically after control voltage is applied
- Fitting vertically upright to horizontal, not suspended

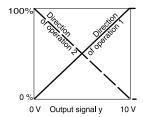
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Power supply		
	Power supply 24 V~	±20%, 5060 Hz
	Power supply 24 V=	-10%+20%
Parameters		
	Actuator stroke	820 mm
	Response time	200 ms
Positioner	Control signal	010 V, Ri > 100 k Ω
	Positional feedback signal	010 V, load > 10 k Ω
	Starting point U ₀	0 or 10 V
	Control span ∆U	10 V
	Switching range X _{sh}	200 mV
Ambient conditions		
	Ambient temperature	-1055 °C
	Ambient humidity	585% rh, no condensation
	Temperature of medium	Max. 100 °C
Construction		
	Weight	1 kg
	Housing	Lower section black, upper section yellow
	Housing material	Flame-retardant plastic
	Power cable	1.2 m, 5 × 0.5 mm ²
Standards and directives		
	Type of protection	IP54 (EN 60529) horizontal
	Protection class	III (IEC 60730)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3, EN 61000-6-4



AVM215SF132









Overview of types				
Туре	Actuating power	Voltage	Running time	Power consumption
AVM215SF132R	500 N	24 V~/=	,	3.5 W, 6.6 VA 2.7 W, 5.3 VA
AVM215SF132-7	500 N	24 V~/=	,	3.5 W, 6.6 VA 2.7 W, 5.3 VA

* AVM215SF132-7 including adapter set for VDL flanged valves DN 50, DN 65 and DN 80

Accessories	
Туре	Description
0510390030	Mounting kit for 8 mm stroke
0510390031	Mounting kit for 20 mm stroke
0510480003	Dual auxiliary switch for 8 mm stroke
0510480004	Dual auxiliary switch for 20 mm stroke
0372320001	Hexagon key as visualisation for position indicator
0510390032	Adapter set for V6R/B6R
0510390033	Adapter set for non-SAUTER valve IMI Hydronics TA-Fusion DN 3250
0510390034	Adapter set for non-SAUTER valve IMI Hydronics TA-Fusion DN 6580
0510390035	Adapter set for non-SAUTER valve IMI Hydronics CV DN 1550
0510390036	Adapter set for non-SAUTER valve IMI Hydronics KTM512 DN 1550
0510390037	Adapter set for non-SAUTER valve IMI Hydronics KTM512 DN 65100
0510390038	Adapter set for non-SAUTER valve Frese, stroke 20 mm DN 5080
0510390039	Adapter set for non-SAUTER valve Danfoss VFS VEFS VL VF
0510390040	Adapter set for non-SAUTER valve Danfoss VRB VRG
0510390029	Adapter set for AVM215F***R, stroke 15 mm
0510390060	Adapter set for AVM 2*5 for Schneider V241/V341

[🕳] Auxiliary change-over contacts: infinitely variable 0...100%, admissible load 3(1.5) A, 24...230 V



^{*} Accessory 0510390029 can also be used for SAUTER Valveco compact DN 40 and DN 50

AVM 321, 322: Valve actuator

Features

- In ventilation air conditioning units¹⁾ for actuation of 2- and 3-way valves of type series AVM 321: VUD, VUE, VUN, BUD, BUE, BUN and AVM 322: V6R, VQD, VQE, VUG, VUP, VUS, B6R, BQD, BQE, BUG,
- For controllers with a switching output (2-point or 3-point control)
- Synchronous motor with electronic control unit and load-dependent cut-off
- Direction of operation and running time can be set using coding switches
- Crank handle for external manual adjustment with motor cut-off
- · Low operating noise
- Simple assembly with valve; spindle is automatically connected after nominal voltage is applied
- Numerous adapters enable the unit to be fitted onto non-SAUTER valves
- Electrical parallel operation of five actuators
- Three-piece housing made of flame-retardant yellow/black plastic and seals with type of protection IP54
- · Maintenance-free gearbox made of plastic; threaded spindle and gearbox base-plates made of steel
- Patented actuator-valve coupling
- Mounting column made of aluminium
- Fixing bracket made of cast light alloy for valve fitting with 20 mm stroke and made of plastic for valve fitting with 8 mm stroke
- Electrical connections (max. 1.5 mm²) with screw terminals
- \bullet Two break-out cable inlets for metric cable gland made of plastic M20 imes 1.5
- Fitting vertically upright to horizontal, not suspended

recinical data		
Power supply		
	Power supply 24 V~	±20%, 5060 Hz
	Power supply 24 V=	-1020%
	Power supply 230 V~	±15%
	Power consumption ²⁾	< 2.4 W, < 4.0 VA
		(at nominal voltage, with movement)
Parameters		
	Nominal force ³⁾	1000 N
	Operating noise ⁴⁾	< 30 dB (A) at nominal force
	Response time	> 200 ms
	Temperature of medium ⁵⁾	0100 °C
Ambient conditions		
	Operating temperature	-1055 °C
	Storage and transport temperature	-4080 °C
	Humidity without condensation	585% rh
Standards and directives		
	Type of protection	IP54 (EN 60529)
	Protection class	II (EN 60730), III (EN 60730)

To be used outside HVAC applications only after consultation with the manufacturer



AVM32*F1**







²⁾ For power consumption in combination with accessory 0500570001, see section "Power consumption at nominal voltaae

³¹ Actuating power 1000 N under nominal conditions (24 V or 230 V, 25 °C ambient temperature, 50 Hz). With boundary conditions (19.2 V~ / 28.8 V~ / 21.6 V= / 28.8 V=, -10 °C / 55 °C, 60 Hz) and running time, the actualing/tensile force is minimised to 800 N

⁴⁾ Operating noise with the slowest running time, measuring distance 1 m

At media temperature > 100 °C appropriate accessory must be used (temperature adapter); at media temperature < 0 °C appropriate accessory must be used (stuffing box heater)

Overview of types						
Туре	Nominal voltage	Nominal stroke	Running time [s/mm]	Power consumption	Dimensions W x H x D	Weight
AVM322F120	230 V~	20 mm	6 (12)	< 2.4 W, < 4.0 VA	160 × 241 × 88 mm	1.6 kg
AVM322F122	24 V~/=	20 mm	6 (12)	< 2.0 W, < 3.0 VA	160 × 241 × 88 mm	1.6 kg
AVM321F110	230 V~	8 mm	12 (6)	< 2.4 W, < 4.0 VA	160 × 187 × 88 mm	1.5 kg
AVM321F112	24 V~/=	8 mm	12 (6)	< 2.0 W, < 3.0 VA	160 × 187 × 88 mm	1.5 kg

- ★ AVM32*F1*2: CSA-certified actuators on request (only for devices with supply voltage 24 V~/=). Accessory is not CSA-certified.
- * Power consumption: at nominal voltage and with movement; for more power consumption data, see table "Power consumption for supply voltage".

Accessories	
AVM 321, 322	
Туре	Description
0500570001	Energy module for reset function
0510600001	Cable module, 1.2 m, 3-wire, PVC
0510600002	Cable module, 1.2 m, 3-wire, halogen-free
0510600003	Cable module, 1.2 m, 6-wire, PVC
0510600004	Cable module, 1.2 m, 6-wire, halogen-free
0510600005	Cable module, 5 m, 3-wire, PVC
0510600006	Cable module, 5 m, 3-wire, halogen-free
0510600007	Cable module, 5 m, 6-wire, PVC
0510600008	Cable module, 5 m, 6-wire, halogen-free
AVM 321	
Туре	Description
0372249001	Adapter required when temperature of the medium is 100130 $^{\circ}$ C (recommended for temperatures < 10 $^{\circ}$ C) DN 1550
0372249002	Adaptor required when temperature of the medium is 130150 °C, DN 1550
0510480003	Dual auxiliary switch for 8 mm stroke
AVM 322	
Туре	Description
0372336180	Temperature adaptor for media temperature > 100150 °C
0372336240	Temperature adaptor for media temperature > 130200 °C
0510240012	Mounting set V6 / B6 up to 20 mm stroke
0510390006	Adapter set for non-SAUTER valves (Siemens) with stroke up to 20 mm and spindle diameter of 10 mm
0510390007	Adapter set for non-SAUTER valves (JCI): VBD-4xx4 DN 1540, VBD-4xx8 DN 1540, VBF-2xx4, VBF-2xx8, VBB-2xxx, VG82xx VG84xx, VG88xx VG89xx
0510390008	Adapter set for non-SAUTER valves (Honeywell): V5025A DN 1580, V5049A or B DN 1565, V5050A DN 1580, V5095A DN 1580, V5328A DN 1580, V5329A DN 1580
0510390009	Adapter set for non-SAUTER valves (LDM): RV113 R/M, DN15-80
0310370007	Adapter serior horromotick valves (LDM). KV 113 K/M, DIV13-60



Туре	Description
0510390010	Adapter set for ITT-Dräger: PSVF DN 1532, PSVD DN 1532, SVF DN 1532, SVD DN 1532
0510390012	Adapter set for non-SAUTER valves (Belimo): H6R DN 1565, H7R DN 1565, H4R DN 1550, H5B DN 1550, H6N DN 1565, H7N DN 1565
0510390028	Adapter set for non-SAUTER valves (Frese), stroke 20 mm
0510480004	Dual auxiliary switch for 20 mm stroke

Accessory is not CSA-certified.





AVM32*SF132



AVM 321S, 322S: Valve actuator

Features

- In ventilation and air conditioning units for actuating 2- and 3-way valves of type series AVM 321S:
 VUD, VUE, VUN, BUD, BUE, BUN and AVM 322S: V6R, VQD, VQE, VUG, VUP, VUS, B6R, BQD, BQE, BUG, BUS
- For controllers with constant output (0...10 V / 4...20 mA) or switching output (2-point or 3-point control)
- BLDC motor (brushless DC) with SUT (SAUTER Universal Technology) electronic control unit of the third generation and electronic load-dependent cut-off
- Automatic detection of applied control signal (continuous or switching), operating indicator using bi-colour LED
- Automatic adaptation to the stroke of the valve, between 8 and 20 mm
- Low operating noise
- With the built-in absolute distance measurement system, the position is always maintained in the case of power failure
- The direction of operation, characteristic (linear/equal percentage), running time and control signal (voltage/current) can be adjusted via coding switches
- Integrated forced operation can be set via coding switches (with selectable direction of operation)
- Easy re-initialisation using a coding switch
- Crank handle for external manual adjustment with motor cut-off
- Simple assembly with valve; spindle is automatically connected after control voltage is applied
- Numerous adapters enable the unit to be fitted onto non-SAUTER valves
- Electrical parallel operation of five actuators
- Parameterisation option via the BUS interface
- Three-piece housing made of flame-retardant yellow/black plastic and seals with type of protection IP54
- Maintenance-free gearbox made of plastic; threaded spindle and gearbox base-plates made of steel
- Patented actuator-valve coupling
- Mounting column made of aluminium
- Fixing bracket made of cast light alloy for valve fitting with 20 mm stroke and made of plastic for valve fitting with 8 mm stroke
- Electrical connections (max. 1.5 mm²) with screw terminals
- Two break-out cable inlets for metric cable glands made of plastic M20 × 1.5
- Fitting vertically upright to horizontal, not suspended
- Nominal actuating power 1000 N

Power supply		
	Power supply 24 V~	±20%, 5060 Hz
	Power supply 24 V=	-1020%
	Power supply 230 V~	±15%
	Power consumption ¹⁾	< 1.7 W, < 3.5 VA
	<u> </u>	(at nominal voltage, with movement)
Parameters		
	Nominal force ²⁾	1000 N
	Operating noise ³⁾	< 30 dB (A) at nominal force
	Response time	> 200 ms

For power consumption in combination with accessory 0500570001, see section "Power consumption at nominal voltage"



^{2]} Actuating power 1000 N under nominal conditions (24 V, 25 °C ambient temperature, 50 Hz). With boundary conditions (19.2 V~ / 28.8 V~ / 21.6 V= / 28.8 V=, -10 °C / 55 °C, 60 Hz) and running time, the actuating/tensile force is minimised to 800 N

Noise level with the slowest running time, measuring distance 1 m



	Temperature of medium ⁴⁾	0100 °C
	Nominal voltage	24 V~/=
	Characteristic	Linear/equal percentage
	Control signal y ⁵⁾	010 V, $R_i \ge 50 \text{ k}\Omega$
		420 mA, $R_i \le 50 \Omega$
	Positional feedback signal y ₀	010 V, load ≥ 5 kΩ
	Starting point U ₀	0 or 10 V
	Starting point I ₀	4 or 20 mA
	Control span ∆U	10 V
	Control span ∆I	16 mA
	Hysteresis X _{sh}	160 mV
		0.22 mA
Ambient conditions		
	Operating temperature	-1055 °C
	Storage and transport temperature	-4080 °C
	Humidity without condensation	585% rh
Standards and directives		
	Type of protection	IP54 (EN 60529)
	Protection class	III (EN 60730-1), EN 60730-2-14
CE conformity according to	EMC Directive 2014/30/EU	EN 610000-6-1, EN 610000-6-2,
		EN 610000-6-3, EN 610000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-14
		(AVM32*F110 and F120)
	Over-voltage categories	III
	Degree of contamination	II

Overview of types					
Туре	Nominal voltage	Nominal stroke	Running time [s/mm]	Dimensions W x H x D	Weight
AVM321SF132	24 V~/=	8 mm	12 (4)	160 × 187 × 88 mm	1.5 kg
AVM322SF132	24 V~/=	20 mm	6 (4)	160 × 241 × 88 mm	1.6 kg

Machinery Directive 2006/42/EC (according to Appendix II, 1B)

Max. altitude

2000 m

EN ISO 12100

CSA-certified actuators on request (only for devices with supply voltage 24 V~/=). Accessory is not CSA-certified.

Accessories	
AVM 321S, 322S	
Туре	Description
0500570003	Constant 230 V module
0500420001	Split-range unit module
0500420002	420 mA feedback module
0500570001	Energy module for reset function
0510600001	Cable module, 1.2 m, 3-wire, PVC
0510600002	Cable module, 1.2 m, 3-wire, halogen-free
0510600003	Cable module, 1.2 m, 6-wire, PVC
0510600004	Cable module, 1.2 m, 6-wire, halogen-free
0510600005	Cable module, 5 m, 3-wire, PVC
0510600006	Cable module, 5 m, 3-wire, halogen-free
0510600007	Cable module, 5 m, 6-wire, PVC
0510600008	Cable module, 5 m, 6-wire, halogen-free

At media temperature > 100 °C appropriate accessory must be used (temperature adapter); at media temperature <0 °C appropriate accessory must be used (stuffing box heater)

⁵⁾ Positional feedback signal: also for 2- or 3-point, depending on type of connection

AVM 321S

Туре	Description
0372249001	Adapter required when temperature of the medium is 100130 °C (recommended for temperatures < 10 °C) DN 1550
0372249002	Adaptor required when temperature of the medium is 130150 °C, DN 1550
0510480003	Dual auxiliary switch for 8 mm stroke
AVM 322S	
Туре	Description
0500240001	Temperature adaptor for media temperature > 100180 °C
0500240002	Temperature adaptor for media temperature > 130240 °C
0510240012	Mounting set V6 / B6 up to 20 mm stroke
0510390006	Adapter set for non-SAUTER valves (Siemens) with stroke up to 20 mm and spindle diameter of 10 mm
0510390007	Adapter set for non-SAUTER valves (JCI): VBD-4xx4 DN 1540, VBD-4xx8 DN 1540, VBF-2xx4, VBF2xx8, VBB-2xxx, VG82xx VG84xx, VG88xx VG89xx
0510390008	Adapter set for non-SAUTER valves (Honeywell): V5025A DN 1580, V5049A or B DN 1565, V5050A DN 1580, V5095A DN 1580, V5328A DN 1580
0510390009	Adapter set for non-SAUTER valves (LDM): RV113 R/M, DN15-80
0510390010	Adapter set for ITT-Dräger: PSVF DN 1532, PSVD DN 1532, SVF DN 1532, SVD DN 1532
0510390012	Adapter set for non-SAUTER valves (Belimo): H6R DN 1565, H7R DN 1565, H4R DN 1550, H5B DN 1550, H6N DN 1565, H7N DN 1565
0510390028	Adapter set for non-SAUTER valves (Frese), stroke 20 mm
0510480004	Dual auxiliary switch for 20 mm stroke

[→] Accessory is not CSA-certified.

^{*} The CASE Components configuration tool can be downloaded from the CASE Suite product page (GZS 100, 150) on the SAUTER homepage.

AVM 322-R: Retrofit actuator

Features

- In ventilation and air conditioning units11 For actuation of 2- and 3-way valves
- For controllers with a switching output (2-point or 3-point control)
- Synchronous motor with electronic control unit and load-dependent cut-off
- Direction of operation and positioning time can be set using coding switches
- Crank handle for external manual adjustment with motor cut-off
- Low operating noise
- Simple assembly onto valve; spindle is automatically connected after nominal voltage is applied
- Numerous adapters enable the unit to be fitted onto non-SAUTER valves
- Electrical parallel operation of five actuators
- Three-piece housing made of flame-retardant yellow/black plastic and seals with type of protection IP54
- Maintenance-free gearbox made of plastic; threaded spindle and gearbox base-plates made of steel
- Patented actuator-valve coupling
- Electrical connections (max. 1.5 mm²) with screw terminals
- ullet Two break-out cable inlets for metric cable gland made of plastic M20 imes 1.5
- Fitting position vertically upright to horizontal, not suspended

Technical data

Technical data		
Power supply		
	Power supply 24 V~	±20%, 5060 Hz
	Power supply 24 V=	-1020%
	Power supply 230 V~	±15%
	Power consumption ²⁾	< 2.4 W, < 4.0 VA
	<u> </u>	(at nominal voltage, with movement)
Parameters		
	Nominal force ³⁾	1000 N
	Operating noise ⁴⁾	< 30 dB (A) at nominal force
	Response time	> 200 ms
	Temperature of medium ⁵⁾	0100 °C max.
Ambient conditions		
	Operating temperature	-1055 °C
	Storage and transport temperature	-4080 °C
	Humidity without condensation	585% rh
Construction		
	Dimensions W x H x D	160 × 114 × 88
	Weight	0.94
Standards and directives		
	Type of protection	IP54 (EN 60529)
	Protection class	II (EN 60730), III (EN 60730)

To be used outside HVAC applications only after consultation with the manufacturer



AVM322F12*R





²⁾ For power consumption in combination with accessory 0500570001, see section "Power consumption at nominal voltaae'

³¹ Actuating power 1000 N under nominal conditions (24 V or 230 V, 25 °C ambient temperature, 50 Hz). With boundary conditions (19.2 V~ / 28.8 V~ / 21.6 V= / 28.8 V=, -10 °C / 55 °C, 60 Hz) and positioning time, the actuating/tensile force is minimised to 800 N

 $^{^{4)}\,}$ Operating noise with the slowest positioning time, measuring distance 1 m

At media temperature > 100 °C appropriate accessory must be used (temperature adapter); at media temperature < 0 °C appropriate accessory must be used (stuffing box heater)

CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2
		EN 61000-6-3, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-14
		(AVM322F120R)
	Over-voltage categories	III
	Degree of contamination	II
	Max. altitude	2,000 m
	Machinery Directive 2006/42/EC (according to Appendix II, 1B)	EN ISO 12100

Overview of types				
Туре	Nominal voltage	Power consumption	Positioning time (s/mm)	Nominal stroke
AVM322F120R	230 V~	< 2.4 W, < 4.0 VA	6 (12)	20 mm
AVM322F122R	24 V~/=	< 2.4 W, < 4.0 VA	6 (12)	20 mm

Power consumption: at nominal voltage and with movement; for more power consumption data, see table "Power consumption for supply voltage"

Accessories	
Туре	Description
0510480004	Dual auxiliary switch for 20 mm stroke
0500570001	Energy module for reset function
0510600001	Cable module, 1.2 m, 3-wire, PVC
0510600002	Cable module, 1.2 m, 3-wire, halogen-free
0510600003	Cable module, 1.2 m, 6-wire, PVC
0510600004	Cable module, 1.2 m, 6-wire, halogen-free
0510600005	Cable module, 5 m, 3-wire, PVC
0510600006	Cable module, 5 m, 3-wire, halogen-free
0510600007	Cable module, 5 m, 6-wire, PVC
0510600008	Cable module, 5 m, 6-wire, halogen-free
0510390020	Mounting kit, SAUTER valves VUD/BUD DN 65-80 VUE/BUE DN 65-80 VUG/BUG DN 15-50, VUP DN 40
0510390021	Mounting kit, SAUTER V6/B6 and Retrofit valves V6R/B6R DN 15-50, V6F/B6F DN 15-50, V6G/B6G DN 15-50, V6S/B6S DN 15-50
0510390022	Adapter set for non-SAUTER valves (Siemens) VVF21 DN 25-80, VXF21 DN 25-80, VVF31 DN 15-80, VXF31 DN 15-80, VVF40 DN 15-80, VXF40 DN 15-80, VVF41 DN 50
0510390023	Adapter set for non-SAUTER valves (JCI) VBD-4xx4 DN 15 40, VBD-4xx8 DN 15 40, VBF-2xx4, VBF2xx8, VBB-2xxx, VG82xx VG84xx, VG88xx VG89xx
0510390024	Adapter set for non-SAUTER valves (Honeywell) V5025A DN 15 80, V5049A or B DN 1565, V5049B DN 1565, V5050A DN 15 80, V5095A DN 1580
0510390025	Adapter set for non-SAUTER valves (LDM) RV113 R/M DN 15-80
0510390026	Adapter set for ITT-Dräger PSVF DN 1532, PSVD DN 1532, SVF DN 1532, SVD DN 1532
0510390027	Adapter set for non-SAUTER valves (Belimo) H6R DN 1565, H7R DN 1565, H4B DN 1550, H5B DN 1550, H6N DN 1565, H7N DN 1565
0510390028	Adapter set for non-SAUTER valves, Frese Optima Compact flanged valves DN 5080, stroke 20 mm
0510390041	Adapter set for Frese Optima Compact PICV valves DN40-50 and SAUTER VDL040-050



AVM 322S-R: Retrofit actuator

Features

- In ventilation and air conditioning units11 For actuation of 2- and 3-way valves
- For controllers with constant output (0...10 V / 4...20 mA) or switching output (2-point or 3-point control)
- BLDC motor (brushless DC) with SUT (SAUTER Universal Technology) electronic control unit of the third generation and electronic load-dependent cut-off
- Automatic detection of applied control signal (continuous or switching), operating indicator using bi-colour IFD
- Automatic adaptation to the stroke of the valve, between 8 and 20 mm
- · Low operating noise
- With the built-in absolute distance measurement system, the position is always maintained in the case of power failure
- The direction of operation, characteristic (linear/equal percentage), positioning time and control signal (voltage/current) can be adjusted via coding switches
- Integrated forced operation can be set via coding switches (with selectable direction of operation)
- · Easy re-initialisation using a coding switch
- Crank handle for external manual adjustment with motor cut-off
- Simple assembly onto valve; spindle is automatically connected after control voltage is applied
- Numerous adapters enable the unit to be fitted onto non-SAUTER valves
- Electrical parallel operation of five actuators
- Parameterisation option via the BUS interface
- Three-piece housing made of flame-retardant yellow/black plastic and seals with type of protection IP54
- Maintenance-free gearbox made of plastic; threaded spindle and gearbox base-plates made of steel
- Patented actuator-valve coupling
- Electrical connections (max. 1.5 mm²) with screw terminals
- Two break-out cable inlets for metric cable glands made of plastic M20 × 1.5
- Fitting position vertically upright to horizontal, not suspended
- Nominal actuating power 1000 N

Technical data

Power supply		
	Power supply 24 V~	±20%, 5060 Hz
	Power supply 24 V=	-1020%
	Power supply 230 V~	±15%
	Power consumption ²⁾	< 1.7 W, < 3.5 VA
		(at nominal voltage, with movement)
arameters		
	Positioning time (s/mm)	6 (4)
	Nominal force ³⁾	1000 N
	Nominal stroke	20 mm
	Operating noise ⁴⁾	< 30 dB (A) at nominal force
	Response time	> 200 ms

¹⁾ To be used outside HVAC applications only after consultation with the manufacturer



AVM322SF132R





²¹ For power consumption in combination with accessory 0500570001, see section "Power consumption at nominal voltage"

³⁾ Actuating power 1000 N under nominal conditions (24 V, 25 °C ambient temperature, 50 Hz); With boundary conditions (19.2 V~ / 28.8 V~ / 21.6 V= / 28.8 V=, -10 °C / 55 °C, 60 Hz) and positioning time, the actuating/tensile force is minimised to 800 N

⁴⁾ Noise level with the slowest positioning time, measuring distance 1 m

⁵⁾ At media temperature > 100 °C appropriate accessory must be used (temperature adapter); at media temperature < 0 °C appropriate accessory must be used (stuffing box heater)</p>



	Nominal voltage	24 V~/=
	Characteristic	Linear/equal percentage
	Control signal y ⁶⁾	010 V, R _i ≥ 50 kΩ
		420 mA, R_i ≤ 50 Ω
	Positional feedback signal y ₀	010 V, load ≥ 5 kΩ
	Starting point U ₀	0 or 10 V
	Starting point I ₀	4 or 20 mA
	Control span ∆U	10 V
	Control span ∆I	16 mA
	Hysteresis X _{sh}	160 mV
		0.22 mA
Ambient conditions		
	Operating temperature	-1055 °C
	Storage and transport temperature	-4080 °C
	Humidity without condensation	585% rh

 Dimensions W x H x D
 160 × 114 × 88

 Weight
 0.94

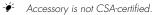
Standards and directives		
	Type of protection	IP54 (EN 60529)
	Protection class	II (EN 60730-1), EN 60730-2-14
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4
	Over-voltage categories	III
	Degree of contamination	II
	Max. altitude	2,000 m
	Machinery Directive 2006/42/EC (according to Appendix II, 1B)	EN ISO 12100

Overview of types Type Description AVM322SF132R Retrofit actuator

Accessories	
Туре	Description
0500420001	Split-range unit module
0500570001	Energy module for reset function
0500420002	420 mA feedback module
0500570003	Constant 230 V module
0510600001	Cable module, 1.2 m, 3-wire, PVC
0510600002	Cable module, 1.2 m, 3-wire, halogen-free
0510600003	Cable module, 1.2 m, 6-wire, PVC
0510600004	Cable module, 1.2 m, 6-wire, halogen-free
0510600005	Cable module, 5 m, 3-wire, PVC
0510600006	Cable module, 5 m, 3-wire, halogen-free
0510600007	Cable module, 5 m, 6-wire, PVC
0510600008	Cable module, 5 m, 6-wire, halogen-free
0372336180	Adapter (required when temperature of the medium is 130150 °C)
0372336240	Adaptor (required when temperature of the medium is 180200 °C)
0510390020	Mounting kit, SAUTER valves VUD/BUD DN 65-80 VUE/BUE DN 65-80 VUG/BUG DN 15-50, VUP DN 40
0510390021	Mounting kit, SAUTER V6/B6 and Retrofit valves V6R/B6R DN 15-50, V6F/B6F DN 15-50, V6G/B6G DN 15-50, V6S/B6S DN 15-50

 $^{^{6)}}$ Positional feedback signal: also for 2- or 3-point, depending on type of connection

Туре	Description
0510390022	Adapter set for non-SAUTER valves (Siemens) VVF21 DN 25-80, VXF21 DN 25-80, VVF31 DN 15-80, VXF31 DN 15-80, VVF40 DN 15-80, VXF40 DN 15-80, VVF41 DN 50
0510390023	Adapter set for non-SAUTER valves (JCI) VBD-4xx4 DN 15 40, VBD-4xx8 DN 15 40, VBF-2xx4, VBF2xx8, VBB-2xxx, VG82xx VG84xx, VG88xx VG89xx
0510390024	Adapter set for non-SAUTER valves (Honeywell) V5025A DN 15 80, V5049A or B DN 1565, V5049B DN 1565, V5050A DN 15 80, V5095A DN 1580
0510390025	Adapter set for non-SAUTER valves (LDM) RV113 R/M DN 15-80
0510390026	Adapter set for ITT-Dräger PSVF DN 1532, PSVD DN 1532, SVF DN 1532, SVD DN 1532
0510390027	Adapter set for non-SAUTER valves (Belimo) H6R DN 1565, H7R DN 1565, H4B DN 1550, H5B DN 1550, H6N DN 1565, H7N DN 1565
0510390028	Adapter set for non-SAUTER valves, Frese Optima Compact flanged valves DN 5080, stroke 20 mm
0510390041	Adapter set for Frese Optima Compact PICV valves DN40-50 and SAUTER VDL040-050



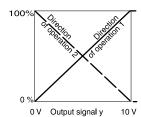
The CASE Components configuration tool can be downloaded from the CASE Suite product page (GZS 100, 150) on the SAUTER homepage.





AVM234SF132





AVM 234S: SUT valve actuator with positioner

- Activation of 2-way and 3-way valves of the VQD/BQD and VQE/BQE series, as well as VUG/BUG, VUS/BUS, VUP, V6R/B6R and VDL
- For controllers with constant output (0...10 V or 4...20 mA) or switching output (2-point or 3-point control)
- Stepping motor with SAUTER Universal Technology (SUT) electronic control unit and electronic, force-dependent cut-off
- Simple assembly with valve; spindle is automatically connected after control voltage is applied (patented
- Automatic detection of applied control signal (constant or switched); indicated by two LEDs
- Coding switches for selecting characteristic and running time
- Type of characteristic (linear/quadratic/equal-percentage) can be set on the actuator
- Automatic adaptation to the stroke of the valve (min. valve stroke 8 mm, max. valve stroke 49 mm). The measured stroke is saved and is not lost even in the event of a power failure
- Direction of operation can be selected via screw terminals when making the electrical connection
- Crank handle for external manual adjustment with motor cut-off and as trigger for a re-initialisation
- Numerous adapters enable the unit to be fitted onto non-SAUTER valves
- Power supply 230 V with module or direct connection for 24 V~ / 24 V=; continuous activation also admissible with 230 V
- Maintenance-free gear unit made of sintered steel; gearbox base-plate made of steel
- · Mounting column made of stainless steel; mounting bracket made of cast light alloy for fitting the valve
- Electrical connections (max. 2.5 mm²) with screw terminals
- Three pre-scored cable inlets for M20 \times 1.5 (2 \times) and M16 \times 1.5
- Fitting vertically upright to horizontal, not suspended

Power supply		
	Power supply 24 V~	±20%, 5060 Hz
	Power supply 24 V=	±15%
	Power supply 230 V~	±15%, 5060 Hz (with accessories)
	Power consumption ¹⁾	24 V~/24 V=
	·	10 W/20 VA
		230 V~ (with accessories)
		13 W/28 VA
Parameters		
Parameters	D	0/4//
	Running time	2/4/6 s/mm
	Actuator stroke	049 mm
	Response time for 3-point	200 ms
Positioner	Control signal 1	010 V, R_i >100 kΩ
	Control signal 2	420 mA, R_i = 50 Ω
	Positional feedback signal	010 V; load > 2.5 kΩ
	Starting point U ₀	0 or 10 V
	Control span ∆U	10 V
	Switching range X _{sh}	300 mV
Ambient conditions		
	Ambient temperature	-1055 °C
	Ambient humidity	< 95% rh, no condensation
	Temperature of medium ²⁾	Max. 130 °C (180 °C or 240 °C with accessories)



For higher temperatures of the medium (180 °C or 240 °C), use an adapter (see accessories)





Construction		
	Weight	4.1 kg
	Housing	Two-part, yellow
	Housing material	Fire-retardant plastic
Standards and directives		
	Type of protection	IP66 (EN 60529)
	Protection class	III (IEC 60730)
	EMC Directive 2014/30/EU ³⁾	EN 61000-6-2, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-14
	Over-voltage categories	III
	Degree of contamination	III

Overview of types

i Actuator for valves: VQD/BQD, VQE/BQE, VUG/BUG, VUP, VUS/BUS

i Actuator with assembly kit (see accessories) for valves: V6R, B6R

Туре	Features	Actuating power
AVM234SF132	Valve actuator with SUT positioner	2500 N
AVM234SF132-5	Valve actuator, positioner 24 V~ for DN 1550, V6*/B6*	2500 N
AVM234SF132-7	Valve actuator, positioner 24 V~ for DN 100200, VDL flange, Siemens VPF44, Frese Optima flange with stroke 40/43 mm	1700 N

Accessories			
Туре	Description		
0313529001	Split-range unit for adjusting sequences, fitted in separate junction box		
Modules can be a	dded for 2-point/3-point and continuous activation; additional power 2 VA		
Туре	Description		
0372332001	230 V ±15%, supply voltage		
0372332002	100 V ±15%, supply voltage		
Auxiliary change-c	over contacts (2 each) 12250 V~		
Туре	Description		
0372333001	Auxiliary change-over contacts (2 each) 12250 $V\sim$, Infinitely variable, min. 100 mA and 12 V permissible load 6(2) A		
0372333002	Auxiliary change-over contacts (2 each) 12250 V~, Gold-plated contacts, from 1 mA, to max. 30 V, wider range 3(1) A		
Potentiometers			
Туре	Description		
0372334001	Potentiometer, 2000 Ω , 1 W; 24 V		
0372334006	Potentiometer, 1000 Ω , 1 W; 24 V		
Adapters for high t	temperatures		
Туре	Description		
0372336180	Adapter (required when temperature of the medium is 130150 °C)		
0372336240	Adaptor (required when temperature of the medium is 180200 °C)		
Mounting set for A	Mounting set for AVM234SF132 on SAUTER valves (no adapter needed for 0372338 002)		
Туре	Description		
0372338001	V/B6 to DN 50, V/BXD, V/BXE, to DN 50, stroke 14 mm		
0372338002	V/B6 DN 65150, V/BXD, V/BXE from DN 65, stroke 40 mm		
0372338003	Conversion kit from AV*2*4SF132-5 to standard actuator AV*2*4SF132		
0372338004	Conversion kit from AV*2*4SF132-6 to standard actuator AV*2*4SF132		



 $^{^{3)}}$ EN 61000-6-2: (HF immunity limitation. Feedback signal between 80 MHz and 1000 MHz criterion B, otherwise criterion A)

Adapter set for non-SAUTER valves

Туре	Description
0372376010	Siemens with 20 mm stroke or Ø 10 mm spindle
0372376014	Siemens with 40 mm stroke or Ø 14 mm spindle
0372377001	Johnson Controls DN 15150, 14, 25, 40 mm stroke, Ø 10, 12, 14 mm spindle
0372378001	Honeywell with 20 mm stroke
0372378002	Honeywell with 38 mm stroke
0372386001	LDM type RY113 R/M
0372389001	ITT-Dräger, DN 1532
0372389002	ITT-Dräger, DN 4050
0378263001	End stop (needed for V/BXD, V/BXE DN 1550, V/B6 DN 15 with kvs \leq 1 m3/h)
0386263001	Cable screw fitting M16 × 1,5
0386263002	Cable screw fitting M20 × 1.5
0372461001	Forced operation for AV×2×4S
0372387001	SAUTER Satchwell VZF1727 mounting set
0510390052	Adapter set for non-SAUTER valves (Frese), stroke 20 mm
0510390053	Adapter set for non-SAUTER valves (Frese), stroke 40/43 mm



^{ightharpoonup} Potentiometer 130 Ω : This potentiometer must only be used as a voltage divider.



AVF 124: Valve actuator with spring return

Features

- Activation of 2- and 3-way valves of the VUN/BUN, VUD/BUD and VUE/BUE series, DN 15 to DN 50.
- For controllers with a switching output (3-point control)
- Spring return moves the unit to the end position in the event of a power failure or when a limit controller is
- Stepping motor with electronic control unit and electronic, force-dependent cut-off
- Maintenance-free gear unit
- LED display
- Coding switch for changing the running time
- Electrical connections (max. 1.5 mm²) with screw terminals
- Cable inlet M20 × 1.5
- Fitting vertically upright to horizontal, not suspended

Power supply		
	Power supply	230 V~, ±15%, 5060 Hz
	Power consumption	4 W, 7.6 VA
	<u> </u>	·
Parameters		
	Running time of motor	60/120 s
	Running time of spring	18 s ±10
	Actuating power	500 N
	Actuator stroke	08 mm
	Response time	200 ms
Ambient conditions		
	Ambient temperature	560 °C
	Temperature of medium	Max. 100 °C
	Ambient humidity	< 95% rh, no condensation
Construction		
	Weight	2.4 kg
	Housing	Lower section black, cover transpare
	Housing material	Fire-retardant plastic
	Materials for gearbox and fitting bracket	Pressure-cast zinc
Standards and directives		
	Type of protection ¹⁾	IP54 as per EN 60529
	Protection class	II (IEC 60730)
	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-14
	Over-voltage categories	III
	Degree of contamination	III
	Software	A (EN 60730)
	Mode of operation	Type 1 AA (200 ms, EN 60730)
	•	

Overview of types	
Туре	Reset function
AVF124F130	Actuator spindle retracted
AVF124F230	Actuator spindle extended

¹⁾ Type of protection IP54 only with cable gland



AVF124F130



AVF124F130



AVF124F230







- * AVF124F130: Valve normally closed (NC) with: VUD, BUD, VUE, BUE, VUN, BUN
- * AVF124F230: Valve normally open (NO) with: VUD, BUD, VUE, BUE, VUN, BUN

Accessories	
Туре	Description
0370881001	Auxiliary change-over contacts, single
0372249001	Temperature adapter for AVM 321(S), media temperature > 100130 °C
0372249002	Temperature adapter for AVM 321(S), media temperature > 130150 °C
0372460001	Cable screw fitting (plastic M20 × 1,5) incl. locking nut and seal

🛊 Auxiliary change-over contacts: Infinitely variable, admissible load 2(1) A, 12...250 V~, min. load 250 mA, 12 V~



AVF 125S: SUT valve actuator with spring return

Features

- Activation of 2-way and 3-way valves of the VUN/BUN, VUD/BUD and VUE/BUE series
- For controllers with switching (2- and 3-point) or continuous output (0...10 V, 4...20 mA)
- Spring return moves the unit to the end position in the event of a power failure or when a limit controller is
- Stepping motor with SAUTER Universal Technology (SUT) electronic control unit and electronic, force-dependent cut-off
- Automatic recognition of applied control signal (continuous or switched)
- Coding switches for selecting characteristic and running time
- Type of characteristic (linear/quadratic/equal-percentage) can be set on the actuator
- Direction of operation can be selected via screw terminals when making the electrical connection
- Maintenance-free gear unit
- LED display
- Electrical connections (max. 1.5 mm²) with screw terminals
- Cable inlet M20 × 1.5
- Fitting vertically upright to horizontal, not suspended

Technical data

Power supply		
	Power supply	24 V~, ±20%, 5060 Hz
	Power consumption	5 W, 8.4 VA
	Power consumption on starting ¹⁾	30 VA (max. 1 s)
Parameters		
	Running time of motor	60/120 s
	Running time of spring	18 s ±10
	Actuating power	500 N
	Actuator stroke	08 mm
Positioner	Control signal 1	010 V, $R_i = 100 \text{ k}\Omega$
	Control signal 2	420 mA, R_i = 50 Ω
	Positional feedback signal	010 V; load > 2.5 kΩ
	Starting point U ₀	0 or 10 V
	Control span ΔU	10 V
	Switching range X _{sh}	200 mV
Ambient conditions		
	Ambient temperature	-1055 °C
	Ambient humidity	< 95% rh, no condensation
	Temperature of medium	Max. 100 °C
Construction		
	Weight	2.4 kg
	Housing	Lower section black, cover transparent
	Housing material	Fire-retardant plastic
	Materials for gearbox and fitting bracket	Pressure-cast zinc
Standards and directives		
Statitual us allu ullectives	Type of protection ²⁾	IP54 as per EN 60529



Type of protection IP54 only with M20 cable gland



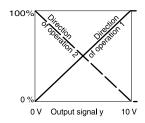
AVF125SF132



AVF125SF132



AVF125SF232







Protection class

III (IEC 60730)

Valves, control valves, dampers, actuators | Regulating valves and valve actuators

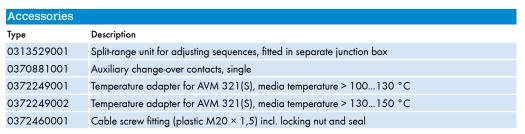
EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4
Software	A (EN 60730)
Mode of operation	Type 1 AA (200 ms, EN 60730)
Machinery Directive 2006/42/EC	EN ISO 12100

Overview of types

 $m{i}$ For valves with equal-percentage characteristic; can be changed to linear

Туре	Reset function
AVF125SF132	Actuator spindle retracted
AVF125SF232	Actuator spindle extended

- AVF125SF132: Actuator spindle normally retracted; valve normally closed (NC) with: VUD, BUD, VUE, BUE, VUN, BUN
- AVF125SF232: Actuator spindle normally extended; valve normally open (NO) with: VUD, BUD, VUE, BUE, VUN, BUN



🛉 Auxiliary change-over contacts: Infinitely variable, admissible load 2(1) A, 12...250 V~, min. load 250 mA, 12 V~



AVF 234S: SUT valve actuator with spring return

Features

- Activation of 2-way and 3-way valves of the VQD/BQD, VQE/BQE, VUG/BUG, VUP, VUS/BUS and V6R/B6R series
- For controllers with switching (2- and 3-point) and continuous output (0...10 V, 4...20 mA)
- Spring return moves to end position in the event of a power failure/interruption or when a limit controller is
- Stepping motor with SAUTER Universal Technology (SUT) electronic control unit and electronic, force-dependent cut-off
- Simple assembly with valve; spindle is automatically connected after control voltage is applied (patented
- Automatic detection of applied control signal (constant or switched); indicated by two LEDs
- Coding switches for selecting characteristic and running time
- Type of characteristic (linear/quadratic/equal-percentage) can be set on the actuator
- Automatic adaptation to the stroke of the valve (min. valve stroke 8 mm, max. valve stroke 49 mm). The measured stroke is saved and is not lost even in the event of a power failure
- Direction of operation can be selected via screw terminals when making the electrical connection
- Crank handle for external manual adjustment with motor cut-off and as trigger for a re-initialisation
- Numerous adapters enable the unit to be fitted onto non-SAUTER valves
- Power supply 230 V with module or direct connection for 24 V~ or 24 V=; continuous activation also admissible with 230 V
- Maintenance-free gear unit made of sintered steel; gearbox base-plate made of steel
- Spring pack and mounting column made of stainless steel; mounting bracket made of cast light alloy for
- Electrical connections (max. 2.5 mm²) with screw terminals
- Three pre-scored cable inlets for M20 \times 1.5 (2 \times) and M16 \times 1.5
- Fitting vertically upright to horizontal, not suspended

Technical data

Power supply		
	Power supply 24 V~	±20%, 5060 Hz
	Power supply 24 V=	±15%
	Power supply 230 V~	±15% (with accessories)
	Power consumption ¹⁾	24 V~/24 V=
		10 W, 20 VA
		230 V~ (with accessory)
		13 W/28 VA
Parameters		
	Running time of motor	2/4/6 s/mm
	Running time of spring ²⁾	1530 s
	Actuating power	2000 N
	Response time for 3-point	200 ms
	Number of spring returns	> 40,000
Positioner	Control signal 1	010 V, $R_i = 100 \text{ k}\Omega$
	Control signal 2	420 mA, R_i = 50 Ω
	Positional feedback 010 V	010 V; load > 2.5 kΩ
	Starting point U ₀	0 V or 10 V
	Control span ΔU	10 V

300 mV

Switching range X_{sh}



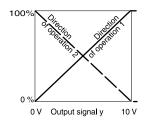
AVF234SF132



AVF234SF132



AVF234SF232









Choose transformers for this value, otherwise malfunctions may occur

Return time equates to a stroke of 14...40 mm and does not depend on the set running time

Ambient conditions

Overview of types			
Туре	Stroke	Weight	Direction of operation of spring
AVF234SF132	1440 mm	5600 g	Spindle retracted
AVF234SF132-5	14 mm	5600 g	Spindle retracted
AVF234SF232	040 mm	5600 g	Spindle extended

- ★ AVF234SF232: Valve normally open (NO) with: VQD/BQD, VQE/BQE, VUG/BUG, BUS; valve normally closed (NC) with: VUS, VUP

Accessories		
Туре	Description	
0313529001	Split-range unit for adjusting sequences, fitted in separate junction box	
Modules can be a	dded for 2-point/3-point and continuous activation; additional power 2 VA	
Туре	Description	
0372332001	230 V ±15%, supply voltage	
0372332002	100 V ±15%, supply voltage	
Auxiliary change-c	over contacts (2 each) 12250 V~	
Туре	Description	
0372333001	Auxiliary change-over contacts (2 each) 12250 $V\sim$, Infinitely variable, min. 100 mA and 12 V permissible load 6(2) A	
0372333002	Auxiliary change-over contacts (2 each) 12250 V~, Gold-plated contacts, from 1 mA, to max. 30 V, wider range 3(1) A	
Potentiometer		
Туре	Description	
0372334001	Potentiometer, 2000 Ω , 1 W; 24 V	
0372334002	Potentiometer, 130 Ω , 1 W; 24 V	
0372334006	Potentiometer, 1000 Ω , 1 W; 24 V	
Adapters for high temperatures		
Туре	Description	
0372336180	Adapter (required when temperature of the medium is 130150 °C)	
0372336240	Adaptor (required when temperature of the medium is 180200 °C)	



 $^{^{3)}}$ Adapter is needed for higher temperatures (180 °C or 240 °C) (see accessories)

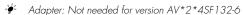
⁴¹ EN 61000-6-2: HF immunity, limitation of feedback signal between 80 MHz and 1000 MHz criterion B, otherwise criterion A

Assembly kit for AVF234SF*32 on SAUTER valves (no adapter needed for 0372338 002)

Туре	Description
0372338001	V/B6 to DN 50, V/BXD, V/BXE, to DN 50, stroke 14 mm
0372338002	V/B6 DN 65150, V/BXD, V/BXE from DN 65, stroke 40 mm
0372338003	Conversion kit from AV*2*4SF132-5 to standard actuator AV*2*4SF132
0372338004	Conversion kit from AV*2*4SF132-6 to standard actuator AV*2*4SF132

Adapter set for non-SAUTER valves

Туре	Description
0372376010	Siemens with 20 mm stroke or Ø 10 mm spindle
0372376014	Siemens with 40 mm stroke or Ø 14 mm spindle
0372377001	Johnson Controls DN 15150, 14, 25, 40 mm stroke, Ø 10, 12, 14 mm spindle
0372378001	Honeywell with 20 mm stroke
0372378002	Honeywell with 38 mm stroke
0372386001	LDM type RY113 R/M
0372389001	ITT-Dräger, DN 1532
0372389002	ITT-Dräger, DN 4050
0378263001	End stop (needed for V/BXD, V/BXE DN 1550, V/B6 DN 15 with kvs \leq 1 m3/h)
0386263001	Cable screw fitting M16 × 1,5
0386263002	Cable screw fitting M20 × 1.5
0372387001	SAUTER Satchwell VZF1727 mounting set
0372461001	Forced operation for AV×2×4S
0510390052	Adapter set for non-SAUTER valves (Frese), stroke 20 mm
0510390053	Adapter set for non-SAUTER valves (Frese), stroke 40/43 mm



^{ightharpoonup} Potentiometer 130 Ω : This potentiometer must only be used as a voltage divider.





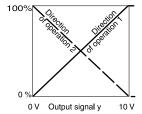
AVN224SF132



AVN224SF132



AVN224SF232





AVN 224S: SUT valve actuator with safety function

Features

- Actuation of 2-way or 3-way valves of type series VUG/BUG and VUP as per DIN EN 14597
- For controllers with constant output (0...10 V or 4...20 mA) and switching output (2-point or 3-point control)
- Valve actuator with safety function (as per DIN EN 14597) and pushing force of 1100 N, in normally closed (NC) or normally open (NO) version
- Stepping motor with SAUTER Universal Technology (SUT) electronic control unit and electronic, force-dependent cut-off
- Simple assembly with valve; spindle is automatically connected after control voltage is applied (patented system)
- Automatic recognition of applied control signal (constant or switched); indicated by two LEDs
- Coding switches for selecting characteristic and running time
- Type of characteristic (linear/quadratic/equal-percentage) can be set on the actuator
- Automatic adaptation to the valve stroke (min. valve stroke 8 mm, max. valve stroke 49 mm); the measured stroke is stored and is not lost in the event of a power failure
- Direction of operation can be selected via screw terminals when making the electrical connection
- Push-buttons on outside of housing for manual adjustment with motor cut-off and as trigger for reinitialisation
- Numerous adapters enable the unit to be fitted onto non-SAUTER valves
- Maintenance-free gear unit made of sintered steel; gearbox base-plate made of steel
- Spring pack and mounting column made of stainless steel; mounting bracket made of cast light alloy for valve fitting
- Electrical connections (max. 2.5 mm²) with screw terminals
- \bullet Three break-out cable inlets for M20 \times 1.5 (2×) and M16 \times 1.5
- Fitting vertically upright to horizontal, not suspended

Technical data

Power supply		
	Power supply 24 V~	±20%, 5060 Hz
	Power supply 24 V=	±15%
	Power supply 230 V~	±15%, 5060 Hz (with accessories)
	Power consumption	24 V~/24 V=
		10 W, 18 VA
		230 V~ (with accessories)
		11 W / 24 VA
Parameters		
	Running time of motor	2/4/6 s/mm
	Running time of spring ¹⁾	1530 s
	Actuating power	1100 N
	Number of spring returns	> 40 000
	Response time for 3-point	200 ms
Positioner	Control signal 1	010 V, $R_i = 100 \text{ k}\Omega$
	Control signal 2	420 mA, R_i = 50 Ω
	Positional feedback signal	010 V, load > 2.5 kΩ
		· ' '

Ambient conditions		
	Ambient temperature	-1055 °C
	Ambient humidity	< 95% rh, no condensation
		·

¹⁾ Spring return time equates to a stroke of 14...40 mm and does not depend on the set running time

Starting point U₀

Control span ΔU

Switching range X_{sh}



0 V or 10 V

10 V

300 mV

	Temperature of medium	Max. 130 °C
Construction		
	Housing	Two-part, yellow
	Housing material	Flame-retardant plastic
Standards and directives		
	Type of protection	IP66 (EN60529)
	Protection class	III (IEC 60730)
	EMC Directive 2014/30/EU ²⁾	EN 61000-6-2, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-14
	Over-voltage categories	III
	Degree of contamination	III
	PED 2014/68/EU, cat. IV ³⁾	Category IV, fluid group II, liquid or steam pressure modules B+D
	Test mark	TÜV ID: 0000018388

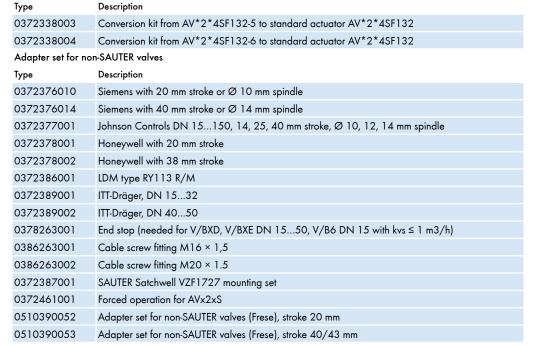
Overview of types			
Туре	Actuator stroke	Weight	Direction of operation of spring
AVN224SF132	040 mm	5600 g	Spindle retracted
AVN224SF232	040 mm	5600 g	Spindle extended

- AVN224SF132: Valve normally closed (NC) with: VUG, BUG (as per DIN EN 14597); valve normally open (NO)
- AVN224SF232: Valve normally open (NO) with: VUG, BUG; valve normally closed (NC) with: VUP (as per DIN EN

Accessories		
Туре	Description	
0313529001	Split-range unit for adjusting sequences, fitted in separate junction box	
Modules can be a	dded for 2-point/3-point and continuous activation; additional power 2 VA	
Туре	Description	
0372332001	230 V ±15%, supply voltage	
0372332002	100 V ±15%, supply voltage	
Auxiliary change-	over contacts (2 each) 12250 V~	
Туре	Description	
0372333001	Auxiliary change-over contacts (2 each) 12250 $V\sim$, Infinitely variable, min. 100 mA and 12 V permissible load 6(2) A	
0372333002	Auxiliary change-over contacts (2 each) 12250 V~, Gold-plated contacts, from 1 mA, to max. 30 V, wider range 3(1) A	
Potentiometer		
Туре	Description	
0372334001	Potentiometer, 2000 Ω , 1 W; 24 V	
0372334002	Potentiometer, 130 Ω , 1 W; 24 V	
0372334006	Potentiometer, 1000 Ω , 1 W; 24 V	
Adapters for high	temperatures	
Туре	Description	
0372336180	Adapter (required when temperature of the medium is 130150 °C)	
0372336240	Adaptor (required when temperature of the medium is 180200 °C)	
Mounting set for AVN224SF*32 onto SAUTER valves (no adapter needed for 0372338 002)		
Туре	Description	
0372338001	V/B6 to DN 50, V/BXD, V/BXE, to DN 50, stroke 14 mm	
0372338002	V/B6 DN 65150, V/BXD, V/BXE from DN 65, stroke 40 mm	

 $^{^{2)}}$ EN 61000-6-2: HF immunity, limitation of feedback signal between 80 MHz and 1000 MHz criterion B, otherwise

³⁾ Only for valves VUP, VUG and BUG. See PDS for the valves.





For Potentiometer 130 Ω : This potentiometer must only be used as a voltage divider.



Dynamic regulating valves

The automatic hydronic balancing of water distribution networks using dynamic SAUTER valves provides correct supply to air-conditioning, cooling and heating devices. These include fan coil units, chilled ceilings, central underfloor heating systems, remote heating, air recirculation devices and plant segments. SAUTER Valveco and eValveco prevent under- or oversupply and the resulting temperature variations caused by pressure changes in the distribution network.

Overview of dynamic regulating valves







Type designation	UVC 106 eValveco	UVC 102, 103 eValveco	UVC102MF065100 eValveco
Application			
Preheater for ventilation / air-conditioning and cooler	-	•	•
Chilled ceiling, underfloor heating	•	-	-
Static heating	-	•	•
District heating	-	-	-
Version			
2-way	-	•	•
3-way	-	•	-
6-way	•	-	-
Female thread	-	•	-
Male thread	•	•	-
Flange	-	-	•
Temperature measurement	•	•	•
Electronic control	•	•	•
Nominal pressure	PN 16	PN 16	PN 16
Communication			
Interfaces	-	-	Bluetooth
Protocols	Modbus RTU, BACnet MSTP	Modbus RTU	Modbus RTU, BACnet MSTP
Combination options with actuator	integrated	integrated	integrated
Further information	Page 281	Page 283	Page 285







Type designation	VDL 010032 Valveco compact	VDL 040, 050 Valveco compact	VDL 050100 Valveco flange
Application			
Preheater for ventilation \slash air-conditioning and cooler	•	•	•
Chilled ceiling, underfloor heating	•	•	-
Static heating	•	•	•
District heating	_	_	•
Version			
2-way	•	•	•
3-way	-	-	-
6-way	-	-	-
Female thread	-	•	-
Male thread	•	-	-
Flange	-	-	•
Temperature measurement	-	-	-
Electronic control	-	-	-
Nominal pressure	PN 25	PN 25	PN 16
Combination options with actuator	AXT 211, AXS 215, AXM 217	AVM 215	AVM 215, AVM 234
Further information	Page 288	Page 288	Page 293

UVC 106: Dynamic flow control system with 6-way ball valve, eValveco

Features

- Patented pressure-independent, variable flow control (EP 2307938)
- Integrated flow measurement with feedback
- Easy integration into every building management system
- Variable flow rate setpoint for heating and cooling modes
- For climate ceilings with changeover (4-pipe)
- Integration into the building management system via BACnet MS/TP or Modbus/RTU with RS-485 interface

Power supply	24 V~, ±20%, 50 Hz
Power consumption during operation	3 W (4 VA)
Power consumption when idle	1.5 W (2 VA)
Peak inrush current	5 A [3 ms]
Input signal	X _s : 010 V= (0.17 mA), split-range
	0.54.5 V= heating
	5.59.5 V= cooling
	Ri ≥ 60 kΩ
Feedback signal ¹⁾	X_i : 010 V= (max. 2 mA)
Feedback signal resolution	Approx. 100 mV

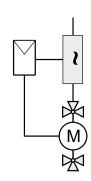
Parameters		
	Setpoint adjustment	Analogue (Y ₁) or via Modbus/RTU or BACnet MS/TP
	Type of sensor	TTM ultrasonic sensor, no moving parts
	Unit of measurement ²⁾	[m³/h], l/s, l/min, gpm (UK), gpm (US)
	Measuring accuracy	±3% of actual value
	Minimum controllable flow ³⁾	3 l/h
	Readiness for operation	35 minutes after switching on
Valve and actuator	Nominal pressure	PN16
	Differential pressure $\Delta p^{4)}$	Max. 2 bar (200 kPa)
	Medium ⁵⁾	Water (glycol-free)
	Temperature of medium	590 °C
	Leakage rate in % of K _{vs}	0.001 %
	Control characteristic	Equal-percentage (factory setting) or linear

Interfaces and communic	ation	
	Interface	STP cable, 1 × 2-core twisted, 1/8 load
BMS integration	Protocol	Modbus/RTU, slave (MF) or BACnet MS/TP (BF)
	Connection ⁶	RS-485, 2-core twisted (with shared lead)
	Cable type	Shielded 2-core cable, STP or FTP
	Baud rate ⁷⁾	9600, 19200, 38400 baud
	Terminating resistor	At both ends 120 Ω

¹⁾ In relation to the measured actual flow











²⁾ Unit in []: Factory setting

³⁾ In relation to the measured actual flow

 $^{^{4)}}$ No minimum differential pressure required

 $^{^{5)}}$ In accordance with VDI 2035 sheet 2

⁶⁾ Not electrically isolated

^{7]} Factory setting: 38400 baud, 8 data bits, even parity, 1 stop bit

Construction		
	Power cable	PVC cable, 7 × 0.5 mm ² (length 1 m)
	Housing material	Flow sensor: ABS Actuator: Flame retardant plastic 6-way ball valve: CW617N Flow meter: CW617N
	Connection	DN 15 ISO228/1: 5 × G½" + 1 × G¾" (male thread) DN 25 ISO228/1: 6 × G1" (male thread)
Ambient conditions		
	Ambient temperature	1045 °C
	Storage temperature	-2050 °C
	Ambient humidity	Max. 85% rh, non-condensing
Standards and directives		
	Type of protection ⁸⁾	IP54 (EN 60529), horizontal
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-3-2 (2014) EN 61000-3-3 (2013) EN 61000-6-1 (2007) EN 61000-6-3 (2007) (A1: 2011 / AC: 2012)
	PED 2014/68/EU	Fluid group II, no CE label

Overview of ty	Overview of types				
Туре	Description	Protocol	Flow range	K_{vs} value	Weight
UVC106MF015	Electronic flow control valve with 6-way ball valve, DN 15	Modbus/RTU	01400 l/h	1.4 m ³	2500 g
UVC106BF015	Electronic flow control valve with 6-way ball valve, DN 15	BACnet MS/TP	01400 l/h	1.4 m ³	2500 g
UVC106MF025	Electronic flow control valve with 6-way ball valve, DN 25	Modbus/RTU	02500 l/h	2.5 m ³	4000 g
UVC106BF025	Electronic flow control valve with 6-way ball valve, DN 25	BACnet MS/TP	02500 l/h	2.5 m ³	4000 g

Accessories	
Туре	Description
0560284015	Screw fitting in brass, flat sealing, female/male thread for DN 15
0560284025	Screw fitting in brass, flat sealing, female/male thread for DN 25
0560332015	Strainer in gun metal, -10150 °C, mesh aperture 0.5 mm, DN 15
0560332025	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 25

⁸⁾ See fitting instructions P1000xxxx

UVC 102, 103: Dynamic flow control system with 2- or 3-way valve and energy data acquisition, eValveco

Features

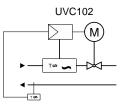
- Pressure-independent variable flow control
- Dynamic hydronic balancing at full and partial load
- Energy monitoring
- Integrated flow measurement with feedback and temperature measurement
- Remote commissioning and troubleshooting
- With integrated LCD and operating panel
- Available as 2-way or 3-way ball valve version, DN15...DN50
- For variable-flow HVAC systems

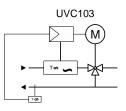
Electronic power supply		
	Power supply	U _v : 24 V~ (±20%) 50 Hz
	Power consumption during operation	2.5 W (3 VA)
	Power consumption when idle	1.0 W (1.5 VA)
	Peak inrush current	6.4 A [3 ms]
	Input signal	Y ₁ : 010 V=
		 Ri ≥ 60 kΩ
	Feedback signal ¹⁾	X ₁ : 010 V= (max. 2 mA)
	Feedback signal resolution	Approx. 100 mV
Volume flow control		
	Setpoint adjustment	Analogue (Y ₁) or via Modbus or oper ating panel
	Type of sensor	TTM ultrasonic sensor, no moving part
	Unit of measurement ²⁾	[m ³ /h], l/s, l/min, gpm (UK), gpm (US)
	Measuring accuracy ³⁾	±3% of actual value
	Minimum controllable flow	1 <i>77</i> 0 l/h
	Readiness for operation	5-10 minutes after switching on
Valve and actuator		
	Nominal pressure	PN 16 (16 bar)
	Differential pressure Δp	Max. 2.4 bar
	Medium ⁴⁾	Water (glycol-free)
	Temperature of medium	5 °C90 °C
	Leakage rate in % of K _{vs}	0.001 %
Temperature sensor		
	Measuring element	Pt500 as per EN 60751, Class B
Interfaces and communication		
	Bus connector	STP cable, 2x double twisted
BMS integration	Protocol	Modbus/RTU, slave
	Connection	RS-485 double twisted cable (with shared lead)
	Cable type	Shielded 2-core cable, STP or FTP
	Baud rate	9600, 19 200 or 38 400
	Terminating resistor	120 Ω both sides



²⁾ Unit in []: Factory setting











³⁾ In relation to the measured actual flow

⁴⁾ In accordance with VDI 2035 sheet 2

Flow meter design		
	Housing material	Polypropylene, steel Water-bearing parts: Pressed brass DN 15 CW617N, DN 20 - 50 CW602N (DZR), bronze, EPDM seal, stainless steel, EN-JM1130 fitting as per EN1562
	LCD	Backlit liquid crystal display, 2x16 characters
Ambient conditions		
	Ambient temperature	1045 °C
	Storage temperature	-2050 °C
	Ambient humidity	Max. 90% rh, no condensation
Standards and directives		
	Type of protection ⁵⁾	IP54 (EN 60529), horizontal
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-3 (2007) EN 61000-3-2 (2006) EN 61000-3-3 (1995) + am1 (2001) EN 61000-6-1 (2005)
	PED 2014/68/EU	Fluid group II, no CE label

Overview of ty	Overview of types			
Туре	Description	Weight		
UVC102MF015	2-way ultrasonic energy regulating valve DN 15	3500 g		
UVC102MF020	2-way ultrasonic energy regulating valve DN 20	5100 g		
UVC102MF025	2-way ultrasonic energy regulating valve DN 25	5200 g		
UVC102MF032	2-way ultrasonic energy regulating valve DN 32	5500 g		
UVC102MF040	2-way ultrasonic energy regulating valve DN 40	6800 g		
UVC102MF050	2-way ultrasonic energy regulating valve DN 50	7500 g		
UVC103MF015	3-way ultrasonic energy regulating valve DN 15	3600 g		
UVC103MF020	3-way ultrasonic energy regulating valve DN 20	5100 g		
UVC103MF025	3-way ultrasonic energy regulating valve DN 25	5400 g		
UVC103MF032	3-way ultrasonic energy regulating valve DN 32	5700 g		
UVC103MF040	3-way ultrasonic energy regulating valve DN 40	7100 g		
UVC103MF050	3-way ultrasonic energy regulating valve DN 50	8000 g		
Additional tech	nical data			

Parameters, fitting notes, control, general information Applicable EN, DIN, AD, TRD and accident prevention regula-

⁵⁾ See fitting instructions P100017043

UVC102MF065...100: Dynamic flow control system with 2-way valve and energy data acquisition, eValveco

Features

- Pressure-independent variable flow control
- Dynamic hydronic balancing at full and partial load
- Energy monitoring
- Integrated flow measurement with feedback and temperature measurement
- Remote commissioning and troubleshooting
- For variable-flow HVAC systems
- Bluetooth interface for commissioning and maintenance via smartphone app
- Available as 2-way globe valve version DN 65...DN 100

Technical data

TCCIIIICAI data		
Power supply		
	Power supply 24 V~	±20%, 50 Hz
	Power supply 24 V=	-10%/+20%
	Power consumption	DN 65 6.5 W / 8 VA
		DN 80 9.5 W / 11 VA
		DN 100 13.5 W / 19 VA
	Input signal	$Y_1: 010 V= (0.17 mA)$
		$Ri \ge 60 \text{ k}\Omega$
	Feedback signal ¹⁾	$X_1: 010 V= (max. 2 mA)$
	Feedback signal resolution	Approx. 100 mV
Volume flow control		
	Setpoint adjustment ²⁾	Analogue (Y ₁) or via Modbus
	Type of sensor	TTM ultrasonic sensor, no moving parts
	Unit of measurement ³⁾	[m ³ /h], l/s, l/min, gpm (UK)
	Minimum controllable flow	DN 65 175 l/h
		DN 80 280 l/h
		DN 100 420 l/h
	Max. controllable flow rate	DN 65 48 000 l/h
		DN 80 70 000 l/h
		DN 100 118 000 l/h
	Readiness for operation	510 min. after switching on
	Control characteristic ⁴⁾	[Equal percentage] or linear
Valve and actuator		
varvo una aotaator	Nominal pressure	PN 16 (16 bar)
	Differential pressure Δp	no minimum Δp required maximum Δp depends on DN
	Medium	Water (glycol-free)
	Medium quality	According to VDI 2035
	Temperature of medium ⁵⁾	5120 °C
	Leakage rate	Class III as per DIN EN 60534-4 (0.001 × k _{vs})
Interfaces, communication		
mieriaces, communication	Wireless	Bluetooth
	Electric wiring (incl. bus connection)	
	License withing times bus confidentially	PVC cable, $7 \times 0.5 \text{ mm}^2$, cable length LC = 2 m

¹⁾ In relation to the measured actual flow



UVC102MF065





 $^{^{2)}}$ In relation to the measured actual flow

³⁾ Unit in [] corresponds to the factory setting

 $^{^{4)}}$ Unit in [] corresponds to the factory setting

⁵⁾ For media temperatures > 100 °C use appropriate accessories (DN 65 and DN 80).

wisted pair cable with shared
2-core cable, STP or FTP
9 200 or 38 400
ends 120 Ω
D on the volume flow sensor
0 as per EN 60751,
upright to horizontal, not up-
onze, EPDM, stainless steel , 1.4122,1.4301), thermo- eramic
lypropylene
tardant plastic (yellow, black)
°C
°C
rh (non-condensing)
ance-free / factory calibrated
d installation with minimal vi-
l 60529), horizontal
0730-1)
, 4-4:200 <i>7</i>
low sensor: 00-3-2 (2014) 00-3-3 (2013) 00-6-1 (2007) 00-6-3 (2007) 11 / AC: 2012) 4: EN 61000-6-2, 00-6-4 2: EN 61000-6-1, 000-6-2
up II, no CE label
2 and AVM 234 30-1, EN 60730-2-14
EN 1333
34
above sea level

Modbus RTU/MSTP, slave

Protocol

Overview of types		
Туре	Description	Weight
UVC102MF065	2-way ultrasonic energy regulating valve DN 65	37.4 kg
UVC102MF080	2-way ultrasonic energy regulating valve DN 80	46.1 kg
UVC102MF100	2-way ultrasonic energy regulating valve DN 100	69.5 kg

⁶⁾ Not electrically isolated

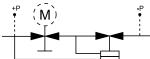
Accessories	Accessories						
UVC102MF065, U	JVC102MF080						
Туре	Description						
0510480004	Dual auxiliary switch for 20 mm stroke						
0500240001	Temperature adaptor for media temperature > 100180 °C						
UVC102MF100							
Туре	Description						
0372333001	Auxiliary change-over contacts (2 each) 12250 V \sim , Infinitely variable, min. 100 mA and 12 V permissible load 6(2) A						
0372333002	Auxiliary change-over contacts (2 each) 12250 $V\sim$, Gold-plated contacts, from 1 mA, to max. 30 V, wider range 3(1) A						
0372334001	Potentiometer, 2000 Ω , 1 W; 24 V						
0372334002	Potentiometer, 130 Ω , 1 W; 24 V						
0372334006	Potentiometer, 1000 Ω , 1 W; 24 V						
0386263001	Cable screw fitting M16 × 1,5						
0386263002	Cable screw fitting M20 × 1.5						





VDL015F210







VDL040F201

VDL 010...050: 2-way regulating valve for dynamic hydronic balancing, PN 25, Valveco compact

Features

- Regulating valve with three functions: Control, preset maximum volume flow, automatic flow regulation
- Range 30...11500 l/h
- Easy to preset the max. required volume flow
- Versions with and without pressure measurement nipple
- The valve is closed when the spindle is moved in
- Closing procedure against the pressure
- Slight adaptation of the proven SAUTER actuator technology
- Regulating valve with male (DN 10...DN 32) or female thread (DN 40 and DN 50) according to DIN EN ISO 228-1
- Flat-sealing regulating valve
- Differential pressure across the control unit is kept constant; valve authority 1
- Valve body and plug made of dezincification-resistant (DZR) brass
- Stainless-steel spindle
- Temperature range of medium 0...120 °C

Technical data

Parameters

	Nominal pressure	25 bar
	Maximum operating pressure	PN 25
	Valve characteristic	Linear
	Leakage rate	0.01%
Ambient conditions		
	Operating temperature for valve	0120 °C
	Admissible operating temperature for valve in combination with AXT 211, AXS 215, AXM 217 (S) and AVM 215 (S)	100 °C at the valve
Standards and directives		
	Pressure and temperature data	EN 764, EN 1333

Flow parameters

Overview of types							
Туре	Nominal di- ameter (DN)	Volume flow range (I/h)	Control range min Δpmax Δp (kPa)		Connection / tolerance class	Pressure measurement nipple	Weight (kg)
VDL010F200	10	65370	14800	5	G½" B	-	0.36
VDL010F201	10	65370	14800	5	G½" B	•	0.45
VDL010F210	10	30200	14800	2.5	G½" B	-	0.36
VDL010F211	10	30200	14800	2.5	G½" B	•	0.45
VDL015F200	15	100575	14800	2.5	G¾" B	-	0.38
VDL015F200H	15	2201330	8800	5	G¾" B	-	0.38
VDL015F201	15	100575	14800	2.5	G3/4" B	•	0.47
VDL015F210	15	65370	14800	5	G¾" B	-	0.38
VDL015F201H	15	2201330	8800	5	G3/4" B	•	0.47
VDL015F211	15	65370	14800	5	G3/4" B	•	0.47
VDL015F220	15	30200	14800	2.5	G3/4" B	-	0.38
VDL015F221	15	30200	14800	2.5	G¾" B	•	0.47
VDL020F200	20	2201330	15800	5	G1" B	-	0.4



EN 60534, page 3

Туре	Nominal di- ameter (DN)	Volume flow range (I/h)	Control range min Δpmax Δp (kPa)		Connection / tolerance class	Pressure measurement nipple	Weight (kg)
VDL020F201	20	2201330	15800	5	G1" B	•	0.5
VDL020F210	20	160990	15800	4	G1" B	-	0.4
VDL020F210H	20	3001800	8800	5.5	G1" B	-	0.4
VDL020F211	20	160990	15800	4	G1" B	•	0.5
VDL020F211H	20	3001800	8800	5.5	G1" B	•	0.5
VDL020F220	20	100575	14800	2.5	G1" B	-	0.4
VDL020F221	20	100575	14800	2.5	G1" B	•	0.5
VDL025F200	25	6003609	8800	5.5	G1¼" B	-	1.02
VDL025F201	25	6003609	8800	5.5	G11/4" B	•	1.12
VDL025F210	25	2801800	8800	5.5	G1¼" B	-	0.51
VDL025F211	25	2801800	8800	5.5	G1¼" B	•	0.62
VDL032F200	32	5504001	8800	5.5	G1½" B	-	1.17
VDL032F201	32	5504001	8800	5.5	G1½" B	•	1.27
VDL040F201	40	1370950 0	8800	15	G1½" B	•	3.28
VDL050F201	50	1400115 00	8800	15	G2" B	•	3.71



Valves DN 10...DN 32 with male thread

Accessories	
Туре	Description
0378133010	1 threaded sleeve, R3%", flat-sealing, with cap nut and flat seal, G1/2 - R3/8
0378133015	1 threaded sleeve, R½", flat-sealing, with cap nut and flat seal, G $^3\!\!4$ - R½
0378133020	1 threaded sleeve, $R\%$ ", flat-sealing, with cap nut and flat seal, G1 - $R\%$
0378134010	1 solder nipple, \emptyset 12, flat-sealing, with cap nut and flat seal, $G1/2$
0378134015	1 solder nipple, Ø 15, flat-sealing, with cap nut and flat seal, G3/4
0378134020	1 solder nipple, Ø 22, flat-sealing, with cap nut and flat seal, G1
0560332015	Strainer in gun metal, -10150 °C, mesh aperture 0.5 mm, DN 15
0560332020	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 20
0510390029	Adapter set for AVM215F***R, stroke 15 mm
0361951015	1 screw fitting for male thread with flat seal, G1 - $Rp1\!\!/\!\!_2$
0361951020	1 screw fitting for male thread with flat seal, G1 $\frac{1}{4}$ - Rp $\frac{3}{4}$
0361951025	1 screw fitting for male thread with flat seal, G1 $\frac{1}{2}$ - Rp1
0360391040	Screw fitting incl. seal, 2 pcs. required, Rp1 $\frac{1}{2}$ - G1 $\frac{1}{2}$
0360391050	Screw fitting incl. seal, 2 pcs. required, Rp2 - G2
0560332025	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 25
0560332032	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 32
0560332040	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 40
0560332050	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 50



Combination of VDL with electrical actuators

- *i* Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **1** Definition of $\Delta p_{\vec{s}}$: Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.
- i Definition of Δp max² Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the

Pressure differences

Actuator	AXM217F200	AXM217F202	AXM2175F402 AXM2175F404
Page	185	185	188
Voltage	230 V~	24 V~/=	24 V~/=
Control signal	3-point	3-point	0/210 V, 05 V, 510 V, 0/420 mA
Running time	13 s/mm	13 s/mm	8 s/mm

			Δр [bar]		
Closes against the pressure	Δp _{max}	Δps	Δp _{max}	Δp_s	Δp_{max}	Δps
VDL010F200 VDL010F201 VDL010F210 VDL010F211 VDL015F200 VDL015F201 VDL015F201 VDL015F201 VDL015F211 VDL015F211 VDL015F220 VDL015F221 VDL020F200 VDL020F201 VDL020F210 VDL020F210 VDL020F211 VDL020F221 VDL025F211	8.0	6.0	8.0	6.0	8.0	6.0
VDL025F200 VDL025F201 VDL032F200	8.0	8.0	8.0	8.0	8.0	8.0



Actuator	AXT211F110 AXT211F110M AXT211F190 AXT211HF110	AXT211F110B	AXT211F112 AXT211F112B AXT211F112M AXT211F192 AXT211HF112
Page	180	180	180
Voltage	230 V~	230 V~	24 V~/=
Control signal	2-point	2-point	2-point
Running time	33 s/mm	33 s/mm	40 s/mm

Δр	[bc	ır]
----	-----	-----

Closes against the pressure	Δp _{max}	Δρς	Δp _{max}	Δρς	Δp _{max}	Δp_s
VDL010F200 VDL010F201 VDL010F210 VDL010F211 VDL015F200 VDL015F201 VDL015F210 VDL015F221 VDL015F221 VDL020F200 VDL020F210 VDL020F211 VDL020F220 VDL020F220 VDL020F220 VDL020F220 VDL020F221	8.0	6.0	4.0	4.0	8.0	6.0
VDL015F200H VDL015F201H VDL020F210H VDL020F211H VDL025F210 VDL025F211	8.0	6.0	-	-	8.0	6.0
VDL025F200 VDL025F201 VDL032F200	8.0	8.0	-	-	8.0	8.0



☀ In combination with VDL010F20*, VDL015F21* and VDL020F20*: The volume flow range is reduced by 10%.

Actuator	AXS215SF122 AXS215SF122B
Page	184
Page Voltage	24 V~
Control signal	010 V
Running time	30 s/mm

	Δp [bar]				
Closes against the pressure	Δp _{max}	Δp_s			
VDL010F200 VDL010F201 VDL010F210 VDL010F211 VDL015F200 VDL015F200 VDL015F201 VDL015F201 VDL015F211 VDL015F211 VDL015F221 VDL020F200 VDL020F210 VDL020F210 VDL020F211	8.0	6.0			
VDL025F200 VDL025F201 VDL032F200	8.0	8.0			

Cannot be used to close with the pressure

☀ In combination with VDL010F20*, VDL015F21* and VDL020F20*: The volume flow range is reduced by 10%.

Actuator	AVM215F120R	AVM215SF132R
Page	251	254
Voltage	230 V~	24 V~/=
Control signal	2-/3-pt.	010 V
Running time	7.5 s/mm	7.5 s/mm

	Δp [bar]						
Closes against the pressure	Δp _{max}	Δp_s	Δp _{max}	Δp_s			
VDL040F201 VDL050F201	8.0	8.0	8.0	8.0			
Cannot be used to a	Cannot be used to close with the pressure						



VDL 050...100: 2-way regulating valve for dynamic hydronic balancing, PN 16, Valveco flange

Features

- Regulating valve with three functions: Control, preset maximum volume flow, automatic flow regulation
- Control of low and mean temperature domestic hot water, cooled water, water with anti-freeze in closed circuits¹⁾
- Volume flow range 2.9...90 m³/h
- Easy to preset the max. required volume flow
- All types with pressure measurement nipple
- The valve is closed when the spindle is moved in
- Closing procedure against the pressure
- Simple connection to SAUTER actuators AVM 215 for DN 50...80 and AVM 234 for DN 100
- Regulating valve with flange connection (DN 50...DN 100) according to EN ISO 7005-2
- Flat-sealing regulating valve
- Differential pressure across the control unit is kept constant; valve authority 1
- Valve body DN 50...80 made of grey cast iron (GJL-250); DN 100 made of ductile cast iron (GJS-400)
- Stainless-steel spindle

Technical data

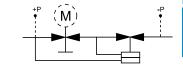
Parameters		
	Nominal pressure	16 bar
	Maximum operating pressure	PN 16 (EN 1333)
	Connection	Flange as per ISO 7005-2
	Valve characteristic	Linear (VDI/VDE 2173)
	Control ratio	1:100
	Leakage rate	0.01% (class IV, EN 1349)
Ambient conditions		
	Operating temperature for valve	1120 °C (DN 50100)
		100 °C on valve in combination with AVM
Standards, directives		
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	EN 60534, page 3
	PED 2014/68/EU ²⁾	Fluid group II
		DN 50: no CE label
		DN 65100: with CE label

Overview of ty	rpes				
Туре	Nominal diameter (DN)	Volume flow range (m ³ /h)	Control range min Δpmax Δp (kPa)	Valve stroke (mm)	Weight (kg)
VDL050F501	50	2.915.9	9.6600	20	15
VDL050F501H	50	4.226.2	22.3600	20	15
VDL065F501	65	4.028.0	25.3600	20	19
VDL065F501H	65	5.135.8	26.9600	20	19
VDL080F501	80	5.536.7	10.2600	20	28
VDL080F501H	80	7.247.9	16.2600	20	28
VDL100F501	100	12.168	19600	40	50
VDL100F501H	100	14.890	29600	40	50

¹⁾ Recommended: Water preparation as per VDI 2035



VDL065F501







²⁾ No special valve test required at operating temperature ≤ 110 °C This also applies to valves with PS x DN < 1000. In both cases the valves do not have a CE label</p>

Туре	Average flow accuracy	
VDL050F501		
VDL050F501H		
VDL065F501	± 10% of Δp _{min}	± 5%
VDL065F501H	up to 70 kPa	at 70600 kPa
VDL080F501		
VDL080F501H		
VDL100F501	± 10% of Δp _{min}	± 5%
VDL100F501H	up to 105 kPa	at 150600 kPa

Combination of VDL with electrical actuators

- *Marranty:* The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **1** Definition of Δp_s : Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve.
- i Definition of Δp max: Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.
- **1** Definition of Δp_{min} : Minimum differential pressure required across the control passage of the valve for the differential pressure controller to operate reliably.

Pressure differences

Actuator	AVM215SF132-7	AVM234SF132-7
Page	254	267
Voltage	24 V~/=	24 V~/=
Control signal	010 V	010 V
Running time	7.5 s/mm 15 s/mm	2/4/6 s/mm

	Δp [bar]					
Closes against the pressure	Δp_{max}	Δp_s	Δp_{max}	Δps		
VDL050F501 VDL050F501H VDL065F501 VDL065F501H VDL080F501 VDL080F501H	6.0	7.0	-	-		
VDL100F501 VDL100F501H	-	-	6.0	6.0		



Ball valves

The body of the ball valves from SAUTER is made of top-quality DZR brass. This enables the continuous control of cold or hot water in closed circuits, such as in domestic hot water systems. The dezincification-resistant, chrome-plated brass ball with its polished surface ensures the best possible control precision.

Overview of regulating ball valves









Type designation	VKR	VKRA	BKR	BKRA
Application				
Single-room control	•	•	•	•
Preheater for ventilation & air-conditioning	•	•	•	•
Preheater, cooler for ventilation & air-conditioning	•	•	•	•
Reheater for ventilation & air-conditioning	•	•	•	•
Chilled ceiling	•	•	•	•
Static heating	•	•	•	•
Multi-boiler system	•	•	•	•
Local heating	•	•	•	•
Version				
2-way	•	•	-	-
3-way	-	-	•	•
Female thread	•	-	•	-
Male thread	-	•	-	•
Nominal diameter (DN)	1550	1550	1550	1550
Nominal pressure	PN 40	PN 40	PN 40	PN 40
Combination options with actuator	AKM 105(S) AKM 115(S), AKF 112, AKF 113(S)	AKM 105(S) AKM 115(S) AKF 112 AKF 113(S)	AKM 105(S) AKM 115(S) AKF 112 AKF 113(S)	AKM 105(S) AKM 115(S) AKF 112 AKF 113(S)
Further information	Page 297	Page 301	Page 305	Page 308

Overview of cut-off and changeover ball valves











Type designation	VKAI	VKAA	BKLI	BKTI	BKTA
Application					
Single-room control	•	•	•	•	•
Preheater for ventilation & air-conditioning	•	•	•	•	•
Preheater, cooler for ventilation & air-conditioning	•	•	•	•	•
Reheater for ventilation & air-conditioning	•	•	•	•	•
Version					
2-way	•	•	-	-	-
3-way	_	-	•	•	•
Female thread	•	-	•	•	-
Male thread	-	•	-	-	•
Nominal diameter (DN)	1550	1550	1550	1550	1550
Nominal pressure	PN 40	PN 40	PN 40	PN 40	PN 40
Combination options with actuator	AKM 105(S) AKM 115(S) AKF 112 AKF 113(S)	AKM 105(S) AKM 115(S) AKF 112 AKF 113(S)	AKM 105(S) AKM 115(S) AKF112 AKF 113(S)	AKM 105(S) AKM 115(S) AKF112 AKF 113(S)	AKM 105(S) AKM 115(S) AKF112 AKF 113(S)
Further information	Page 311	Page 313	Page 315	Page 317	Page 319

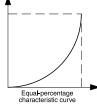
VKR: 2-way regulating ball valve with female thread, PN 40

Features

- 2-way regulating ball valve for continuous control of cold and hot water in closed circuits
- In combination with valve actuators AKM 105(S), 115(S) and AKF 112, 113(S) as a control unit
- Equal-percentage ball valve characteristic; control contour in the ball directly integrated
- Characteristic can be set with SUT rotary actuator (SAUTER Universal Technology) to linear or quadratic
- Spindle with large sliding surface and PTFE glide ring
- Low torque due to collar mounted on O-ring
- Ball valve with female thread as per ISO 7/1 Rp or NPT
- Body made of DZR (dezincification-resistant) cast brass
- Spindle made of DZR brass with PTFE glide ring
- Ball made of DZR brass, chrome-plated and polished surface
- Spindle seal with double O-ring made of EPDM
- Strainer and screw fitting available as accessories
- Water quality as per VDI 2035
- Regulating ball valve with French drinking water approval ACS

\bowtie





Technical data

Parameters		
	Nominal pressure	40 bar
	Valve characteristic	Equal-percentage
	Control ratio of ball valve	500:1
	Control ratio with actuator	> 50:1
	Leakage rate	Waterproof as per EN 60534-4 L/1, better than class 4
	Angle of rotation	90°
Ambient conditions		
	Operating temperature ¹⁾	-10130 °C, no condensation
	Operating pressure	40 bar (–1050 °C) 35 bar (130 °C)
Standards and directives		
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	EN 60534 (page 3)

Overview of types						
Туре	Nominal diameter	Connection ISO 7/1 Rp	K _{vs} value	Weight		
VKR015F350-FF	DN 15	Rp ½"	1 m³/h	0.29 kg		
VKR015F340-FF	DN 15	Rp ½"	1.6 m³/h	0.29 kg		
VKR015F330-FF	DN 15	Rp ½"	$2.5 \text{ m}^3/\text{h}$	0.29 kg		
VKR015F320-FF	DN 15	Rp 1/2"	4 m³/h	0.29 kg		
VKR015F310-FF	DN 15	Rp ½"	6.3 m³/h	0.29 kg		
VKR015F300-FF	DN 15	Rp ½"	10 m³/h	0.29 kg		
VKR020F320-FF	DN 20	Rp 3/4"	4 m³/h	0.32 kg		
VKR020F310-FF	DN 20	Rp 3/4"	6.3 m³/h	0.32 kg		
VKR020F300-FF	DN 20	Rp 3/4"	10 m³/h	0.32 kg		
VKR025F320-FF	DN 25	Rp 1"	6.3 m³/h	0.49 kg		
VKRO25F310-FF	DN 25	Rp 1"	10 m³/h	0.49 kg		
VKR025F300-FF	DN 25	Rp 1"	16 m³/h	0.49 kg		

¹⁾ At operating temperatures <5 °C and >100 °C, the appropriate accessories must be used.



Туре	Nominal diameter	Connection ISO 7/1 Rp	K _{vs} value	Weight
VKR032F320-FF	DN 32	Rp 11/4"	10 m³/h	0.73 kg
VKR032F310-FF	DN 32	Rp 11/4"	16 m³/h	0.73 kg
VKR032F300-FF	DN 32	Rp 11/4"	25 m³/h	0.73 kg
VKR040F320-FF	DN 40	Rp 1½"	16 m³/h	1.1 kg
VKRO40F310-FF	DN 40	Rp 1½"	25 m³/h	1.1 kg
VKR040F300-FF	DN 40	Rp 1½"	40 m³/h	1.1 kg
VKR050F320-FF	DN 50	Rp 2"	25 m³/h	1.76 kg
VKR050F310-FF	DN 50	Rp 2"	40 m³/h	1.76 kg
VKR050F300-FF	DN 50	Rp 2"	63 m³/h	1.76 kg

Aggagariag	
Accessories	
Туре	Description
0510240001	Assembly kit for VK**/BK** ball valves as spare part and as accessory for rotary actuators ASF 112, 113 from index B
0510240011	Adaptor required when temperature of the medium < 5 $^{\circ}$ C
0510420001	Adaptor required when temperature of the medium $> 100 ^{\circ}\text{C}$
0560284015	Screw fitting in brass, flat sealing, female/male thread for DN 15
0560284020	Screw fitting in brass, flat sealing, female/male thread for DN 20
0560284025	Screw fitting in brass, flat sealing, female/male thread for DN 25
0560284032	Screw fitting in brass, flat sealing, female/male thread for DN 32
0560284040	Screw fitting in brass, flat sealing, female/male thread for DN 40
0560284050	Screw fitting in brass, flat sealing, female/male thread for DN 50
0560332015	Strainer in gun metal, -10150 °C, mesh aperture 0.5 mm, DN 15
0560332020	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 20
0560332025	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 25
0560332032	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 32
0560332040	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 40
0560332050	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 50

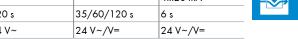


Combination of VKR with electrical actuators

- i Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- i Definition of Δp ς Maximum admissible pressure drop in the event of a malfunction (pipe break after the ball valve) at which the actuator reliably closes the ball valve using the return spring.
- i Definition of Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the ball valve.

Pressure differences

Actuator	AKM105F100 AKM105F120	AKM105F122	AKM105SF132	AKM115F120	AKM115F122	AKM115SF132	AKM115SF152
Page	326	326	329	326	98	98	331
Rotational torque	4 Nm	4 Nm	4 Nm	8 Nm	8 Nm	8 Nm	7 Nm
Control signal	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point, 010 V, 420 mA
Running time	30/120 s	30/120 s	35/60/120 s	120 s	120 s	35/60/120 s	6 s
Operating voltage	230 V~	24 V~	24 V~/V=	230 V~	24 V~	24 V~/V=	24 V~/V=



				Δp [bar]			
Closes against the pressure	Δp_{max}	Δp _{max}	Δp_{max}	Δp_{max}	Δp _{max}	Δp_{max}	Δp_{max}
VKR015F350-FF VKR015F340-FF VKR015F330-FF VKR015F310-FF VKR015F310-FF VKR020F320-FF VKR020F310-FF VKR020F300-FF VKR025F320-FF VKR025F310-FF VKR025F310-FF VKR025F300-FF	1.8	1.8	1.8	3.5	3.5	3.5	3.5
VKR032F320-FF VKR032F310-FF VKR032F300-FF VKR040F320-FF VKR040F310-FF VKR040F300-FF VKR050F320-FF VKR050F310-FF VKR050F300-FF	1.2	1.2	1.2	2.4	2.4	2.4	2.4



Actuator	AKF112F120	AKF112F122	AKF113F122	AKF113SF122
Page	332	332	332	333
Rotational torque	7 Nm	7 Nm	7 Nm	7 Nm
Control signal	2-point	2-point	3-point	010 V
Running time	90 s	90 s	90 s	90 s
Operating voltage	230 V~	24 V~/V=	24 V~/V=	24 V~/V=

		Δp [bar]						
Closes against the pressure	Δp _{max}	Δps	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp _{max}	Δps
VKR015F350-FF VKR015F340-FF VKR015F330-FF VKR015F310-FF VKR015F310-FF VKR020F320-FF VKR020F310-FF VKR020F300-FF VKR025F320-FF VKR025F310-FF VKR025F310-FF VKR025F310-FF	3.5	5.4	3.5	5.4	3.5	5.4	3.5	5.4
VKR032F320-FF VKR032F310-FF VKR032F300-FF VKR040F320-FF VKR040F310-FF VKR040F300-FF VKR050F320-FF VKR050F310-FF VKR050F300-FF	2.4	3.5	2.4	3.5	2.4	3.5	2.4	3.5



VKRA: 2-way regulating ball valve with male thread, PN 40

Features

- 2-way regulating ball valve for continuous control of cold and hot water in closed circuits
- In combination with valve actuators AKM 105(S), 115(S) and AKF 112, 113(S) as a control unit
- Equal-percentage ball valve characteristic; control contour in the ball directly integrated
- Characteristic can be set with SUT rotary actuator (SAUTER Universal Technology) to linear or quadratic
- Spindle with large sliding surface and PTFE glide ring
- Low torque due to collar mounted on O-ring
- Ball valve with male thread as per ISO 228-1 G..B
- Body made of DZR (dezincification-resistant) cast brass
- Spindle made of DZR brass with PTFE glide ring
- Ball made of DZR brass, chrome-plated and polished surface
- Spindle seal with double O-ring made of EPDM
- Strainer and screw fitting available as accessories
- Water quality as per VDI 2035
- French drinking water approval ACS

Technical data

Parameters		
	Nominal pressure	40 bar
	Valve characteristic	Equal-percentage
	Control ratio of ball valve	500:1
	Control ratio with actuator	> 50:1
	Leakage rate	Waterproof as per EN 60534-4 L/1, better than class 5
	Angle of rotation	90°
Ambient conditions		
	Operating temperature ¹⁾	-10130 °C, no condensation
	Operating pressure	Liquids: 40 bar (-1050 °C), 35 bar
		Gases: 20 bar
Standards and directives		
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	EN 60534 (page 3)

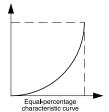
Гуре	Nominal diameter	Connection ISO 228-1	K _{vs} value	Weight
VKRA015F350	DN 15	G 1" B	1 m³/h	360 g
/KRA015F340	DN 15	G 1" B	1.6 m³/h	360 g
/KRA015F330	DN 15	G 1" B	2.5 m³/h	360 g
/KRA015F320	DN 15	G 1" B	4 m³/h	360 g
/KRA015F310	DN 15	G 1" B	6.3 m³/h	360 g
/KRA020F320	DN 20	G 11/4" B	4 m³/h	440 g
KRA020F310	DN 20	G 11/4" B	6.3 m³/h	440 g
KRA020F300	DN 20	G 11/4" B	10 m³/h	440 g
/KRA025F320	DN 25	G 1½" B	6.3 m³/h	<i>57</i> 0 g
/KRA025F310	DN 25	G 1½" B	10 m³/h	<i>57</i> 0 g
/KRA025F300	DN 25	G 1½" B	16 m³/h	570 g
KRA032F320	DN 32	G 2" B	10 m³/h	840 g

¹⁾ At operating temperatures <5 °C and >100 °C, the appropriate accessories must be used.



VKRAO**F300

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Туре	Nominal diameter	Connection ISO 228-1	K _{vs} value	Weight
VKRA032F310	DN 32	G 2" B	16 m³/h	840 g
VKRA032F300	DN 32	G 2" B	25 m³/h	840 g
VKRA040F320	DN 40	G 21/4" B	16 m³/h	1290 g
VKRA040F310	DN 40	G 21/4" B	25 m³/h	1290 g
VKRA040F300	DN 40	G 21/4" B	40 m³/h	1290 g
VKRA050F320	DN 50	G 2¾" B	25 m³/h	1980 g
VKRA050F310	DN 50	G 2¾" B	40 m³/h	1980 g
VKRA050F300	DN 50	G 2¾" B	63 m³/h	1980 g

Accessories	
Туре	Description
0510240001	Assembly kit for VK**/BK** ball valves as spare part and as accessory for rotary actuators ASF 112, 113 from index B
0510240011	Adaptor required when temperature of the medium < 5 $^{\circ}$ C
0510420001	Adaptor required when temperature of the medium $> 100 ^{\circ}\text{C}$
0361951015	1 screw fitting for male thread with flat seal, G1 - $\mbox{Rp1\!\!/}_{\!2}$
0361951020	1 screw fitting for male thread with flat seal, G1 $^{1}\!\!/_{\!\!4}$ - Rp $^{3}\!\!/_{\!\!4}$
0361951025	1 screw fitting for male thread with flat seal, G1 $\frac{1}{2}$ - Rp1
0361951032	1 screw fitting for male thread with flat seal, DN 32
0361951040	1 screw fitting for male thread with flat seal, DN 40
0361951050	1 screw fitting for male thread with flat seal, DN 50
0560332015	Strainer in gun metal, -10150 °C, mesh aperture 0.5 mm, DN 15
0560332020	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 20
0560332025	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 25
0560332032	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 32
0560332040	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 40
0560332050	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 50



Combination of VKRA with electric actuators

- i Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- i Definition of Δp ς Maximum admissible pressure drop in the event of a malfunction (pipe break after the ball valve) at which the actuator reliably closes the ball valve using the return spring.
- i Definition of Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the ball valve.

Pressure differences

Actuator	AKM105F100 AKM105F120	AKM105F122	AKM105SF132	AKM115F120	AKM115F122	AKM115SF132	AKM115SF152
Page	326	326	329	326	98	98	331
Rotational torque	4 Nm	4 Nm	4 Nm	8 Nm	8 Nm	8 Nm	7 Nm
Control signal	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point, 010 V, 420 mA
Running time	30/120 s	30/120 s	35/60/120 s	120 s	120 s	35/60/120 s	6 s
Operating voltage	230 V~	24 V~	24 V~/V=	230 V~	24 V~	24 V~/V=	24 V~/V=

		420 mA	
s	35/60/120 s	6 s	
/~	24 V~/V=	24 V~/V=	

	Δp [bar]							
Closes against the pressure	Δp_{max}	Δp _{max}						
VKRA015F350 VKRA015F340 VKRA015F330 VKRA015F320 VKRA015F310 VKRA020F320 VKRA020F310 VKRA020F300 VKRA025F320 VKRA025F310 VKRA025F310 VKRA025F300	1.8	1.8	1.8	3.5	3.5	3.5	3.5	
VKRA032F320 VKRA032F310 VKRA032F300 VKRA040F320 VKRA040F310 VKRA040F300 VKRA050F320 VKRA050F310 VKRA050F300	1.2	1.2	1.2	2.4	2.4	2.4	2.4	



Actuator	AKF112F120	AKF112F122	AKF113F122	AKF113SF122
Page	332	332	332	333
Rotational torque	7 Nm	7 Nm	7 Nm	7 Nm
Control signal	2-point	2-point	3-point	010 V
Running time	90 s	90 s	90 s	90 s
Operating voltage	230 V~	24 V~/V=	24 V~/V=	24 V~/V=

		Δp [bar]						
Closes against the pressure	Δp _{max}	Δps	Δp _{max}	Δps	Δp_{max}	Δp_s	Δp _{max}	Δps
VKRA015F350 VKRA015F340 VKRA015F330 VKRA015F320 VKRA015F310 VKRA020F320 VKRA020F310 VKRA020F300 VKRA025F320 VKRA025F310 VKRA025F310 VKRA025F310	3.5	5.4	3.5	5.4	3.5	5.4	3.5	5.4
VKRA032F320 VKRA032F310 VKRA032F300 VKRA040F320 VKRA040F310 VKRA040F300 VKRA050F320 VKRA050F310 VKRA050F310	2.4	3.5	2.4	3.5	2.4	3.5	2.4	3.5



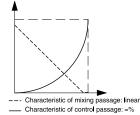
BKR: 3-way regulating ball valve with female thread, PN 40

Features

- 3-way regulating ball valve for continuous control of cold and hot water in closed circuits
- In combination with valve actuators AKM 105(S), 115(S) and AKF 112, 113(S) as a control unit
- Control contour in the ball directly integrated
- Control passage characteristic can be set to linear or quadratic with SUT rotary actuator
- Low torque due to collar mounted on O-ring
- Spindle with large sliding surface and PTFE ring
- Ball valve with female thread as per ISO 7/1 Rp or NPT
- Body made of DZR (dezincification-resistant) cast brass
- Spindle made of DZR brass with PTFE glide ring
- Ball made of DZR brass, chrome-plated and polished surface
- Spindle seal with double O-ring made of EPDM
- Strainer and screw fitting available as accessories
- Water quality as per VDI 2035
- Regulating ball valve with French drinking water approval ACS

BKR025F310







Technical data

Parameters		
	Nominal pressure	40 bar
	K _{vs} value, mixing passage	-1030% through the control pas-
		sage
	Valve characteristic, control passage	Equal-percentage
	Valve characteristic, mixing passage	Linear
	Control ratio of ball valve	500:1
	Control ratio with actuator	Approx. 50:1
	Leakage rate, control passage	Waterproof as per EN 60534-4 L/1,
		better than class 4
	Leakage rate, mixing passage	< 1%
	Angle of rotation	90°
Ambient conditions		
	Operating temperature ¹⁾	-10130 °C, no condensation
	Operating pressure	40 bar (-1050 °C)
		35 bar (130 °C)

Overview of types				
Туре	Nominal diameter	Connection ISO 7/1 Rp	K _{vs} value, control pas- sage	Weight
BKR015F340-FF	DN 15	Rp ½"	$1.6 \text{ m}^3/\text{h}$	0.31 kg
BKR015F330-FF	DN 15	Rp ½"	$2.5 \text{ m}^3/\text{h}$	0.31 kg
BKR015F320-FF	DN 15	Rp ½"	4 m³/h	0.31 kg
BKRO15F310-FF	DN 15	Rp ½"	6.3 m³/h	0.33 kg
BKR020F320-FF	DN 20	Rp 3/4"	4 m³/h	0.4 kg
BKRO20F310-FF	DN 20	Rp 3/4"	6.3 m³/h	0.4 kg
BKRO25F310-FF	DN 25	Rp 1"	10 m ³ /h	0.63 kg
BKR032F310-FF	DN 32	Rp 11/4"	16 m³/h	0.97 kg
BKRO40F310-FF	DN 40	Rp 1½"	25 m³/h	1.4 kg
BKRO50F310-FF	DN 50	Rp 2"	40 m³/h	2.67 kg

¹⁾ At operating temperatures <5 °C and >100 °C, the appropriate accessories must be used.





Accessories	
Туре	Description
0510240001	Assembly kit for VK**/BK** ball valves as spare part and as accessory for rotary actuators ASF 112, 113 from index B
0510240011	Adaptor required when temperature of the medium < 5 $^{\circ}$ C
0510420001	Adaptor required when temperature of the medium $> 100 ^{\circ}\text{C}$
0560284015	Screw fitting in brass, flat sealing, female/male thread for DN 15
0560284020	Screw fitting in brass, flat sealing, female/male thread for DN 20
0560284025	Screw fitting in brass, flat sealing, female/male thread for DN 25
0560284032	Screw fitting in brass, flat sealing, female/male thread for DN 32
0560284040	Screw fitting in brass, flat sealing, female/male thread for DN 40
0560284050	Screw fitting in brass, flat sealing, female/male thread for DN 50
0560332015	Strainer in gun metal, -10150 °C, mesh aperture 0.5 mm, DN 15
0560332020	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 20
0560332025	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 25
0560332032	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 32
0560332040	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 40
0560332050	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 50

Combination of BKR with electrical actuators

- *i* Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- i Definition of Δp max: Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the ball valve.

Pressure differences

Actuator	AKM105F100 AKM105F120	AKM105F122	AKM115F120	AKM115F122	AKM105SF132	AKM115SF132	AKM115SF152
Page	326	326	326	98	329	98	331
Rotational torque	4 Nm	4 Nm	8 Nm	8 Nm	4 Nm	8 Nm	7 Nm
Control signal	2-/3-point	2-/3-point	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point, 010 V	2-/3-point, 010 V, 420 mA
Running time	30/120 s	30/120 s	120 s	120 s	35/60/120 s	35/60/120 s	6 s
Operating voltage	230 V~	24 V~	230 V~	24 V~	24 V~/V=	24 V~/V=	24 V~/V=

				Δp [bar]			
As control valve	Δp_{max}	Δp _{max}	Δp _{max}	Δp _{max}	Δp _{max}	Δp_{max}	Δp_{max}
BKR015F340-FF BKR015F330-FF BKR015F320-FF BKR015F310-FF BKR020F320-FF BKR020F310-FF BKR025F310-FF	1.8	1.8	2.0	2.0	1.8	2.0	2.0
BKR032F310-FF BKR040F310-FF BKR050F310-FF	1.2	1.2	2.0	2.0	1.2	2.0	2.0

Cannot be used as distribution valve

Actuator	AKF112F120	AKF112F122	AKF113F122	AKF113SF122
Page	332	332	332	333
Rotational torque	7 Nm	7 Nm	7 Nm	7 Nm
Control signal	2-point	2-point	3-point	010 V
Running time	90 s	90 s	90 s	90 s
Operating voltage	230 V~	24 V~/V=	24 V~/V=	24 V~/V=

	Δp [bar]							
As control valve	Δp _{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp _{max}	Δp_s
BKR015F340-FF BKR015F330-FF BKR015F320-FF BKR015F310-FF BKR020F320-FF BKR020F310-FF BKR025F310-FF	2.0	5.4	2.0	5.4	2.0	5.4	2.0	5.4
BKR032F310-FF BKR040F310-FF BKR050F310-FF	2.0	3.5	2.0	3.5	2.0	3.5	2.0	3.5

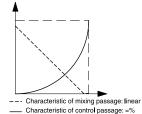
Cannot be used as distribution valve





BKRAO**F3*O





BKRA: 3-way regulating ball valve with male thread, PN 40

- 3-way regulating ball valve for continuous control of cold and hot water in closed circuits
- As a control unit in combination with valve actuators AKM105(S), 115(S) and AKF112, 113(S)
- Control contour integrated directly in the ball
- Control passage characteristic can be set to linear or quadratic with SUT rotary actuator
- Low torque due to collar mounted on O-ring
- Spindle with large sliding surface and PTFE ring
- Ball valve with male thread as per ISO 228-1 G..B
- Body made of DZR (dezincification-resistant) cast brass
- Spindle made of DZR brass with PTFE glide ring
- Ball made of DZR brass, chrome-plated and polished surface
- Spindle seal with double O-ring made of EPDM
- Strainer and screw fitting available as accessories
- Water quality as per VDI 2035
- French drinking water approval ACS

Technical data

Parameters		
	Nominal pressure	40 bar
	K _{vs} value, mixing passage	-1030% through the control passage
	Valve characteristic, control passage	Equal-percentage
	Valve characteristic, mixing passage	Linear
	Control ratio of ball valve	500:1
	Control ratio with actuator	Approx. 50:1
	Leakage rate, control passage	Waterproof as per EN 60534-4 L/1, better than class 4
	Leakage rate, mixing passage	$<$ 1% of the K_{vs} value
	Angle of rotation	90°
Ambient conditions		
	Operating temperature ¹⁾	-10130 °C, no condensation
	Operating pressure	40 bar (-1050 °C) 35 bar (130 °C) Gases: 20 bar

Overview of types				
Туре	Nominal diameter	Connection ISO 228-1	K _{vs} value, control pas-	Weight
			sage	
BKRA015F340	DN 15	G 1" B	1.6 m³/h	0.41 kg
BKRA015F330	DN 15	G 1" B	2.5 m³/h	0.41 kg
BKRA015F320	DN 15	G 1" B	4 m³/h	0.41 kg
BKRA015F310	DN 15	G 1" B	6.3 m³/h	0.45 kg
BKRA020F320	DN 20	G 11/4" B	4 m³/h	0.52 kg
BKRA020F310	DN 20	G 11/4" B	6.3 m³/h	0.4 kg
BKRA025F310	DN 25	G 1½" B	10 m³/h	0.75 kg
BKRA032F310	DN 32	G 2" B	16 m³/h	1.2 kg
BKRAO40F310	DN 40	G 21/4" B	25 m³/h	1.84 kg
BKRA050F310	DN 50	G 2¾" B	40 m³/h	2.83 kg



¹⁾ At operating temperatures <5 °C and >100 °C, the appropriate accessories must be used.

Accessories	
Туре	Description
0510240001	Assembly kit for VK**/BK** ball valves as spare part and as accessory for rotary actuators ASF 112, 113 from index B
0510240011	Adaptor required when temperature of the medium < 5 $^{\circ}$ C
0510420001	Adaptor required when temperature of the medium $> 100 ^{\circ}\text{C}$
0361951015	1 screw fitting for male thread with flat seal, G1 - $\mbox{Rp}\slash_2$
0361951020	1 screw fitting for male thread with flat seal, G1 $^{1}\!\!/_{4}$ - Rp $^{3}\!\!/_{4}$
0361951025	1 screw fitting for male thread with flat seal, G1 $\frac{1}{2}$ - Rp1
0361951032	1 screw fitting for male thread with flat seal, DN 32
0361951040	1 screw fitting for male thread with flat seal, DN 40
0361951050	1 screw fitting for male thread with flat seal, DN 50
0560332015	Strainer in gun metal, -10150 °C, mesh aperture 0.5 mm, DN 15
0560332020	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 20
0560332025	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 25
0560332032	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 32
0560332040	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 40
0560332050	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 50



Combination of BKRA with electric actuators

- i Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER $valve\ actuators.\ The\ warranty\ does\ not\ apply\ if\ used\ with\ valve\ actuators\ from\ other\ manufacturers.$
- **Definition of** Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the

Pressure differences

Actuator	AKM105F100 AKM105F120	AKM105F122	AKM115F120	AKM115F122	AKM105SF132	AKM115SF132	AKM115SF152
Page	326	326	326	98	329	98	331
Rotational torque	4 Nm	4 Nm	8 Nm	8 Nm	4 Nm	8 Nm	7 Nm
Control signal	2-/3-point	2-/3-point	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point, 010 V	2-/3-point, 010 V, 420 mA
Running time	30/120 s	30/120 s	120 s	120 s	35/60/120 s	35/60/120 s	6 s
Operating voltage	230 V~	24 V~	230 V~	24 V~	24 V~/V=	24 V~/V=	24 V~/V=

				Δp [bar]			
As control valve	Δp_{max}	Δp _{max}					
BKRA015F340 BKRA015F330 BKRA015F320 BKRA015F310 BKRA020F320 BKRA020F310 BKRA025F310	1.8	1.8	2.0	2.0	1.8	2.0	2.0
BKRAO32F310 BKRAO40F310 BKRAO50F310	1.2	1.2	2.0	2.0	1.2	2.0	2.0

Cannot be used as distribution valve

Valves, control valves, dampers, actuators | Ball valves and ball valve actuators

Actuator	AKF112F120	AKF112F122	AKF113F122	AKF113SF122
Page	332	332	332	333
Rotational torque	7 Nm	7 Nm	7 Nm	7 Nm
Control signal	2-point	2-point	3-point	010 V
Running time	90 s	90 s	90 s	90 s
Operating voltage	230 V~	24 V~/V=	24 V~/V=	24 V~/V=

				Δр [bar]			
As control valve	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s
BKRA015F340 BKRA015F330 BKRA015F320 BKRA015F310 BKRA020F320 BKRA020F310 BKRA025F310	2.0	5.4	2.0	5.4	2.0	5.4	2.0	5.4
BKRA032F310 BKRA040F310	2.0	3.5	2.0	3.5	2.0	3.5	2.0	3.5
BKRAO50F310	1.0	3.5	2.0	3.5	2.0	3.5	2.0	3.5

Cannot be used as distribution valve



VKAI: 2-way cut-off ball valve with female thread, PN 40

Features

- 2-way cut-off ball valve for use in closed circuits in heating, ventilation and air conditioning systems
- As a cut-off device and control unit for 2-point control in combination with valve actuators AKM 105(S), 115(S) and AKF 112, 113(S)
- Fast cut-off in six seconds with the AKM115SF152 valve actuator
- Low torque due to collar mounted on O-ring
- Ball valve with female thread as per ISO 7/1 Rp
- Body made of dezincification-resistant cast brass
- Ball made of dezincification-resistant brass, chrome-plated and polished surface
- Strainer and screw fitting available as accessories
- Water quality as per VDI 2035
- Cut-off ball valve with French drinking water approval ACS

Technical data

Parameters		
	Nominal pressure	40 bar
	Leakage rate	0.0001 x K _{vs} value
	Angle of rotation	90°
Ambient conditions		
	Operating temperature ¹⁾	-10130 °C, no condensation
	Operating pressure	40 bar (-1050 °C)
		35 bar (130 °C)

Overview of types									
Туре	Nominal diameter (DN)	Connection ISO 7/1 Rp	K _{vs} value	Weight					
VKAI015F300	DN 15	Rp ½"	15 m ³ /h	275 g					
VKAI020F300	DN 20	Rp ¾"	22 m ³ /h	370 g					
VKAI025F300	DN 25	Rp 1"	22 m ³ /h	456 g					
VKAI032F300	DN 32	Rp 11/4"	35 m ³ /h	700 g					
VKAI040F300	DN 40	Rp 1½"	68 m ³ /h	1120 g					
VKAI050F300	DN 50	Rp 2"	96 m³/h	1750 g					

Accessories	
Туре	Description
0510240001	Assembly kit for VK**/BK** ball valves as spare part and as accessory for rotary actuators ASF 112, 113 from index B
0510240011	Adaptor required when temperature of the medium < 5 $^{\circ}$ C
0510420001	Adaptor required when temperature of the medium $> 100 ^{\circ}\text{C}$
0560284015	Screw fitting in brass, flat sealing, female/male thread for DN 15
0560284020	Screw fitting in brass, flat sealing, female/male thread for DN 20
0560284025	Screw fitting in brass, flat sealing, female/male thread for DN 25
0560284032	Screw fitting in brass, flat sealing, female/male thread for DN 32
0560284040	Screw fitting in brass, flat sealing, female/male thread for DN 40
0560284050	Screw fitting in brass, flat sealing, female/male thread for DN 50
0560332015	Strainer in gun metal, -10150 °C, mesh aperture 0.5 mm, DN 15
0560332020	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 20
0560332025	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 25

¹⁾ At operating temperatures <5 °C and >100 °C, the appropriate accessories must be used.



VKAI040F300

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Туре	Description
0560332032	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 32
0560332040	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 40
0560332050	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 50

Combination of VKAI with electric actuators

- Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **1** Definition of Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the ball valve.

Actuator	AKM105F100	AKM105F120	AKM105F122	AKM105SF132	AKM115F120	AKM115F122	AKM115SF132	AKM115SF152
Page	326	326	326	329	326	98	98	331
Rotational torque	4 Nm	4 Nm	4 Nm	4 Nm	8 Nm	8 Nm	8 Nm	7 Nm
Control signal	2-/3-point	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point, 010 V, 420 mA
Running time	30 s	120 s	120 s	35/60/120 s	120 s	120 s	35/60/120 s	6 s
Operating voltage	230 V~	230 V~	24 V~	24 V~/V=	230 V~	24 V~	24 V~/V=	24 V~/V=

	Δp [bar]									
	Δp _{max}	Δp_{max}								
VKAI015F300 VKAI020F300 VKAI025F300	1.8	1.8	1.8	1.8	3.5	3.5	3.5	3.5		
VKAI032F300 VKAI040F300 VKAI050F300	1.2	1.2	1.2	1.2	2.4	2.4	2.4	2.4		

Actuator	AKF112F120	AKF112F122	AKF113F122	AKF113SF122
Page	332	332	332	333
	7 Nm	7 Nm	7 Nm	7 Nm
Control signal	2-point	2-point	3-point	010 V
Running time	90 s	90 s	90 s	90 s
Operating voltage	230 V~	24 V~/V=	24 V~/V=	24 V~/V=

	Δp [bar]									
	Δp _{max}	Δp_s								
VKAI015F300 VKAI020F300 VKAI025F300	3.5	5.4	3.5	5.4	3.5	5.4	3.5	5.4		
VKAI032F300 VKAI040F300 VKAI050F300	2.4	5.4	2.4	5.4	2.4	5.4	2.4	5.4		

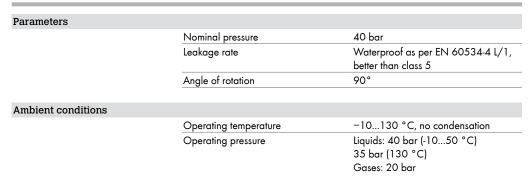


VKAA: 2-way cut-off ball valve with male thread, PN 40

Features

- 2-way cut-off ball valve for use in closed circuits in heating, ventilation and air conditioning systems
- As a cut-off device and control unit for 2-point control in combination with valve actuators AKM 105(S), 115(S) and AKF 112, 113(S)
- Fast changeover in 6 s with valve actuator AKM115SF152
- Low torque due to collar mounted on O-ring
- Ball valve with male thread as per ISO 228-1 G..B
- Body made of dezincification-resistant cast brass
- Ball made of dezincification-resistant brass, chrome-plated and polished surface
- Strainer and screw fitting available as accessories
- Water quality as per VDI 2035
- French drinking water approval ACS

Technical data



Overview of types						
Туре	Nominal diameter (DN)	Connection ISO 228-1	K _{vs} value	Weight		
VKAA015F300	DN 15	G 1" B	9 m^3	360 g		
VKAA020F300	DN 20	G 11/4" B	$17 \mathrm{m}^3$	550 g		
VKAA025F300	DN 25	G 1½" B	22 m ³	570 g		
VKAA032F300	DN 32	G 2" B	35 m^3	840 g		
VKAA040F300	DN 40	G 21/4" B	68 m ³	1290 g		
VKAA050F300	DN 50	G 2¾" B	96 m^3	1980 g		

Accessories	
Туре	Description
0510240001	Assembly kit for VK**/BK** ball valves as spare part and as accessory for rotary actuators ASF 112, 113 from index B
0510240011	Adaptor required when temperature of the medium < 5 °C
0510420001	Adaptor required when temperature of the medium > 100 °C
0361951015	1 screw fitting for male thread with flat seal, G1 - $Rp\slash\hspace{-0.4em}/_2$
0361951020	1 screw fitting for male thread with flat seal, G1 1 /4 - Rp 3 /4
0361951025	1 screw fitting for male thread with flat seal, G1 $\frac{1}{2}$ - Rp1
0361951032	1 screw fitting for male thread with flat seal, DN 32
0361951040	1 screw fitting for male thread with flat seal, DN 40
0361951050	1 screw fitting for male thread with flat seal, DN 50
0560332015	Strainer in gun metal, -10150 °C, mesh aperture 0.5 mm, DN 15
0560332020	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 20
0560332025	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 25
0560332032	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 32



VKAA0**F300

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Туре	Description
0560332040	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 40
0560332050	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 50

Combination of VKAA with electric actuators

- *i* Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **1** Definition of Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the ball valve.
- **1** Definition of Δp_s : Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.

Actuator	AKM105F100	AKM105F120	AKM105F122	AKM105SF132	AKM115F120	AKM115F122	AKM115SF132	AKM115SF152
Page	326	326	326	329	326	98	98	331
Rotational torque	4 Nm	4 Nm	4 Nm	4 Nm	8 Nm	8 Nm	8 Nm	7 Nm
Control signal	2-/3-point	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point, 010 V, 420 mA
Running time	30 s	120 s	120 s	35/60/120 s	120 s	120 s	35/60/120 s	6 s
Operating voltage	230 V~	230 V~	24 V~	24 V~/V=	230 V~	24 V~	24 V~/V=	24 V~/V=

	Δp [bar]							
	Δp _{max}							
VKAA015F300 VKAA020F300 VKAA025F300	1.8	1.8	1.8	1.8	3.5	3.5	3.5	3.5
VKAA032F300 VKAA040F300 VKAA050F300	1.2	1.2	1.2	1.2	2.4	2.4	2.4	2.4

Actuator	AKF112F120	AKF112F122	AKF113F122	AKF113SF122
Page	332	332	332	333
Rotational torque	7 Nm	7 Nm	7 Nm	7 Nm
Control signal	2-point	2-point	3-point	010 V
Running time	90 s	90 s	90 s	90 s
Operating voltage	230 V~	24 V~/V=	24 V~/V=	24 V~/V=

	Δp [bar]							
	Δp _{max}	Δp_s						
VKAA015F300 VKAA020F300 VKAA025F300	3.5	5.4	3.5	5.4	3.5	5.4	3.5	5.4
VKAA032F300 VKAA040F300 VKAA050F300	2.4	5.4	2.4	5.4	2.4	5.4	2.4	5.4



BKLI: 3-way changeover ball valve (L) with female thread, PN 40

Features

- 3-way changeover ball valve with L-bore for use in closed circuits in heating, ventilation and air conditioning systems
- For changing over volume flows in combination with valve actuators AKM 105(S), 115(S) and AKF 112, 113(S).
- Fast changeover in six seconds with the AKM115SF152 valve actuator
- Low torque due to collar mounted on O-ring
- Spindle with friction ring and double O-ring seal
- Ball valve with female thread as per ISO 7/1 Rp
- Body made of dezincification-resistant cast brass
- Ball made of dezincification-resistant brass, chrome-plated and polished surface
- Strainer and screw fitting available as accessories
- Water quality as per VDI 2035
- Changeover ball valve with French drinking water approval ACS

Technical data

Parameters		
	Nominal pressure	40 bar
	Leakage rate, through passage	0.0001 x K _{vs} value
	Leakage rate, bypass	0.0001 x K _{vs} value
	Angle of rotation	90°
Ambient conditions		
	Operating temperature ¹⁾	-10130 °C, no condensation
	Operating pressure	40 bar (–1050 °C) 35 bar (130 °C)

Overview of types							
Туре	Nominal diameter (DN)	Connection ISO 7/1 Rp	K _{vs} value, control pas- sage	Weight			
BKLI015F300	DN 15	Rp ½"	5 m³/h	306 g			
BKLI020F300	DN 20	Rp 3/4"	9 m³/h	3 <i>7</i> 5 g			
BKLI025F300	DN 25	Rp 1"	$9 \text{ m}^3/\text{h}$	604 g			
BKLI032F300	DN 32	Rp 11/4"	13 m³/h	949 g			
BKLIO40F300	DN 40	Rp 1½"	25 m³/h	1364 g			
BKLI050F300	DN 50	Rp 2"	37 m³/h	2215 g			

Accessories	
Туре	Description
0510240001	Assembly kit for VK**/BK** ball valves as spare part and as accessory for rotary actuators ASF 112, 113 from index B
0510240011	Adaptor required when temperature of the medium < 5 °C
0510420001	Adaptor required when temperature of the medium > 100 °C
0560284015	Screw fitting in brass, flat sealing, female/male thread for DN 15
0560284020	Screw fitting in brass, flat sealing, female/male thread for DN 20
0560284025	Screw fitting in brass, flat sealing, female/male thread for DN 25
0560284032	Screw fitting in brass, flat sealing, female/male thread for DN 32
0560284040	Screw fitting in brass, flat sealing, female/male thread for DN 40

¹⁾ At operating temperatures <5 °C and >100 °C, the appropriate accessories must be used.



BKII025F300



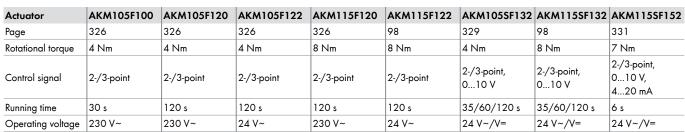




Туре	Description
0560284050	Screw fitting in brass, flat sealing, female/male thread for DN 50
0560332015	Strainer in gun metal, -10150 °C, mesh aperture 0.5 mm, DN 15
0560332020	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 20
0560332025	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 25
0560332032	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 32
0560332040	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 40
0560332050	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 50

Combination of BKLI with electric actuators

- i Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- i Definition of Δρ_{max}: Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the ball valve.



	Δp [bar]							
	Δp _{max}	Δp _{max}	Δp_{max}	Δp _{max}	Δp_{max}	Δp _{max}	Δp _{max}	Δp_{max}
BKLI015F300 BKLI020F300 BKLI025F300	1.8	1.8	1.8	2.0	2.0	1.8	2.0	2.0
BKLI032F300 BKLI040F300 BKLI050F300	1.2	1.2	1.2	2.0	2.0	1.2	2.0	2.0

Actuator	AKF112F120	AKF112F122	AKF113F122	AKF113SF122
Page	332	332	332	333
Rotational torque	7 Nm	7 Nm	7 Nm	7 Nm
Control signal	2-point	2-point	3-point	010 V
Running time	90 s	90 s	90 s	90 s
Operating voltage	230 V~	24 V~/V=	24 V~/V=	24 V~/V=

	Δp [bar]							
	Δp_{max}	Δp_s	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp _{max}	Δp_s
BKLI015F300 BKLI020F300 BKLI025F300 BKLI032F300 BKLI040F300 BKLI050F300	2.0	5.4	2.0	5.4	2.0	5.4	2.0	5.4



BKTI: 3-way changeover ball valve (T) with female thread, PN 40

Features

- 3-way changeover ball valve with T-bore for use in closed circuits in heating, ventilation and air conditioning systems
- For changing over volume flows in combination with valve actuators AKM 105(S), 115(S) and AKF 112, 113(S).
- Fast changeover in six seconds with the AKM115SF152 valve actuator
- Low torque due to collar mounted on O-ring
- Spindle with friction ring and double O-ring seal
- Ball valve with female thread as per ISO 7/1 Rp
- Body made of dezincification-resistant cast brass
- Ball made of dezincification-resistant brass, chrome-plated and polished surface
- Strainer and screw fitting available as accessories
- Water quality as per VDI 2035
- Changeover ball valve with French drinking water approval ACS

Technical data

Parameters		
	Nominal pressure	40 bar
	Leakage rate, through passage	0.0001 x K _{vs} value
	Leakage rate, bypass	< 0.01 x K _{vs} value
	Angle of rotation	90°
Ambient conditions		
	Operating temperature ¹⁾	-10130 °C, no condensation
	Operating pressure	40 bar (–1050 °C) 35 bar (130 °C)

Overview of ty	Overview of types						
Туре	Nominal diameter	Connection ISO 7/1 Rp	K _{vs} value, control pas- sage	Weight			
BKTI015F300	DN 15	Rp 1/2"	12 m³/h	306 g			
BKTI020F300	DN 20	Rp 3/4"	16 m³/h	375 g			
BKTI025F300	DN 25	Rp 1"	16 m³/h	604 g			
BKTI032F300	DN 32	Rp 11/4"	25 m³/h	949 g			
BKTIO40F300	DN 40	Rp 1½"	49 m³/h	1364 g			
BKTI050F300	DN 50	Rp 2"	73 m³/h	2215 g			

Accessories	
Туре	Description
0510240001	Assembly kit for VK**/BK** ball valves as spare part and as accessory for rotary actuators ASF 112, 113 from index B
0510240011	Adaptor required when temperature of the medium < 5 °C
0510420001	Adaptor required when temperature of the medium > 100 °C
0560284015	Screw fitting in brass, flat sealing, female/male thread for DN 15
0560284020	Screw fitting in brass, flat sealing, female/male thread for DN 20
0560284025	Screw fitting in brass, flat sealing, female/male thread for DN 25
0560284032	Screw fitting in brass, flat sealing, female/male thread for DN 32
0560284040	Screw fitting in brass, flat sealing, female/male thread for DN 40

At operating temperatures <5 °C and >100 °C, the appropriate accessories must be used.



BKTI025F300



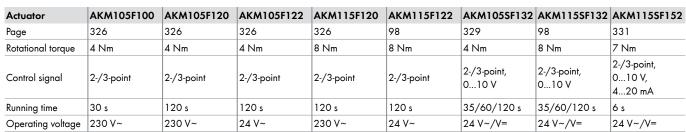




Туре	Description
0560284050	Screw fitting in brass, flat sealing, female/male thread for DN 50
0560332015	Strainer in gun metal, -10150 °C, mesh aperture 0.5 mm, DN 15
0560332020	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 20
0560332025	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 25
0560332032	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 32
0560332040	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 40
0560332050	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 50

Combination of BKTI with electric actuators

- i Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- i Definition of Δρ_{max}: Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the ball valve.



	Δp [bar]							
	Δp _{max}	Δp _{max}	Δp_{max}	Δp_{max}	Δp _{max}	Δp _{max}	Δp _{max}	Δp _{max}
BKTI015F300 BKTI020F300 BKTI025F300	1.8	1.8	1.8	2.0	2.0	1.8	2.0	2.0
BKTI032F300 BKTI040F300 BKTI050F300	1.2	1.2	1.2	2.0	2.0	1.2	2.0	2.0

Actuator	AKF112F120	AKF112F122	AKF113F122	AKF113SF122
Page	332	332	332	333
Rotational torque	7 Nm	7 Nm	7 Nm	7 Nm
Control signal	2-point	2-point	3-point	010 V
Running time	90 s	90 s	90 s	90 s
Operating voltage	230 V~	24 V~/V=	24 V~/V=	24 V~/V=

	Δp [bar]							
	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp_{max}	Δp_s
BKTI015F300 BKTI020F300 BKTI025F300 BKTI032F300 BKTI040F300 BKTI050F300	2.0	5.4	2.0	5.4	2.0	5.4	2.0	5.4



BKTA: 3-way change-over ball valve (T) with male thread, PN 40

Features

- 3-way change-over ball valve with T-bore for use in closed circuits in heating, ventilation and air conditioning systems
- For changing over volume flows in combination with valve actuators AKM 105(S), 115(S) and AKF112, 113(S).
- Fast changeover in 6 s with valve actuator AKM115SF152
- Low torque due to collar mounted on O-ring
- Spindle with friction ring and double O-ring seal
- Ball valve with male thread as per ISO 228-1 G..B
- Body made of dezincification-resistant cast brass
- Ball made of dezincification-resistant brass, chrome-plated and polished surface
- Strainer and screw fitting available as accessories
- Water quality as per VDI2035
- French drinking water approval ACS

Technical data

Parameters		
	Nominal pressure	40 bar
	Leakage rate, through passage	Waterproof as per EN 60534-4 L/1, better than class 4
	Leakage rate, bypass	< 1% of the K _{vs} value
	Angle of rotation	90°
Ambient conditions		
	Operating temperature	-10130 °C, no condensation
	Operating pressure	40 bar (-1050 °C)
		35 bar (130 °C)
		Gases: 20 bar

Overview of ty	Overview of types						
Туре	Nominal diameter	Connection ISO 228-1	K _{vs} value, control pas- sage	Weight			
BKTA015F300	DN 15	G 1" B	8 m³/h	450 g			
BKTA020F300	DN 20	G 11/4" B	13 m³/h	680 g			
BKTA025F300	DN 25	G 1½" B	13 m³/h	750 g			
BKTA032F300	DN 32	G 2" B	25 m³/h	1200 g			
BKTA040F300	DN 40	G 21/4" B	49 m³/h	1840 g			
BKTA050F300	DN 50	G 2¾" B	73 m³/h	2830 g			

Description
Assembly kit for VK**/BK** ball valves as spare part and as accessory for rotary actuators ASF 112, 113 from index B
Adaptor required when temperature of the medium < 5 $^{\circ}$ C
Adaptor required when temperature of the medium $> 100 ^{\circ}\text{C}$
1 screw fitting for male thread with flat seal, G1 - $Rp1/2$
1 screw fitting for male thread with flat seal, G1 $\!\!\!\!/_{\!\!\!4}$ - $Rp^3\!\!\!\!/_{\!\!\!4}$
1 screw fitting for male thread with flat seal, G1 $\frac{1}{2}$ - Rp1
1 screw fitting for male thread with flat seal, DN 32
1 screw fitting for male thread with flat seal, DN 40
1 screw fitting for male thread with flat seal, DN 50



BKTAO**F300







Туре	Description
0560332015	Strainer in gun metal, -10150 °C, mesh aperture 0.5 mm, DN 15
0560332020	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 20
0560332025	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 25
0560332032	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 32
0560332040	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 40
0560332050	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 50

Combination of BKTA with electric actuators

- *I Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- i Definition of Δρ_{max}: Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the hall valve.
- **1** Definition of Δp_s: Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.

Actuator	AKM105F100	AKM105F120	AKM105F122	AKM105SF132	AKM115F120	AKM115F122	AKM115SF132	AKM115SF152
Page	326	326	326	329	326	98	98	331
Rotational torque	4 Nm	4 Nm	4 Nm	4 Nm	8 Nm	8 Nm	8 Nm	7 Nm
Control signal	2-/3-point	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point	2-/3-point	2-/3-point, 0 10 V	2-/3-point, 010 V, 420 mA
Running time	30 s	120 s	120 s	35/60/120 s	120 s	120 s	35/60/120 s	6 s
Operating voltage	230 V~	230 V~	24 V~	24 V~/V=	230 V~	24 V~	24 V~/V=	24 V~/V=

	Δp [bar]							
	Δp _{max}							
BKTA015F300 BKTA020F300 BKTA025F300	1.8	1.8	1.8	1.8	2.0	2.0	2.0	2.0
BKTA032F300 BKTA040F300 BKTA050F300	1.2	1.2	1.2	1.2	2.0	2.0	2.0	2.0

Actuator	AKF112F120	AKF112F122	AKF113F122	AKF113SF122
Page	332	332	332	333
Rotational torque	7 Nm	7 Nm	7 Nm	7 Nm
Control signal	2-point	2-point	3-point	010 V
Running time	90 s	90 s	90 s	90 s
Operating voltage	230 V~	24 V~/V=	24 V~/V=	24 V~/V=

	Δp [bar]							
	Δp _{max}	Δps	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp _{max}	Δp _s
BKTA015F300 BKTA020F300 BKTA025F300 BKTA032F300 BKTA040F300 BKTA050F300	2.0	5.4	2.0	5.4	2.0	5.4	2.0	5.4



6-way ball valves

The 6-way ball valve from SAUTER is a compact and precise alternative for regulating heated/chilled ceilings and fan coils in 4-pipe systems. It doubles as a regulating and changeover ball valve. While conventional solutions operate with up to four 2-way valves, four actuators and two controllers, now only one 6-way ball valve and an actuator are required. Their compact construction enables the devices to be installed in false ceilings without difficulty.

Overview of 6-way ball valves



Type designation	B2KL
Application	
Single-room control	•
Preheater for ventilation & air-conditioning	•
Preheater, cooler for ventilation & air-conditioning	•
Reheater for ventilation & air-conditioning	•
Chilled ceiling	•
Static heating	•
Multi-boiler system	•
Local heating	•
Version	
Nominal pressure	PN 16
Combination options with actuator	AKM 115(S) AKM 112, AKF 113(S)
Further information	Page 322



B2KL015F400



B2KL: 6-way ball valve with male thread, PN 16

Features

- 6-way ball valve for changeover or steady control of heating and cooling circuits in a 4-pipe system
- Body made of moulded brass CW602N (dezincification-resistant) or CW617N
- With male thread as per ISO 228
- K_{vs} selection with exchangeable orifice plates
- In combination with valve actuators AKM 115(S) and AKF 112, 113(S) as a control unit
- Strainer and screw fitting available as accessories
- Water quality as per VDI 2035

Technical data

Parameters		
	Nominal pressure	PN 16
	Valve characteristic	Quasi-linear
	Leakage rate	Class A as per EN 12266-1
	Total angle of rotation	90° (valve closed at 45°)
Ambient conditions		
	Operating temperature	590 °C
Standards and directives		
	Pressure and temperature data	EN 764, EN 1333
	Flow parameters	EN 60534
	PED 2014/68/EU	Fluid group II, liquid No CE label as per article 4.3

Overview of types						
Туре	Nominal diameter	Connection	K _{vs} value without or ifice plate	- Material	Weight	
B2KL015F401	DN 15	G¾"B	1.25 m³/h	Moulded brass CW602N	980 g	
B2KL015F400	DN 15	G¾"B	1.25 m³/h	Moulded brass CW617N	980 g	
B2KL020F411	DN 20	G¾"B	2.8 m³/h	Moulded brass CW602N	1870 g	

 $^{ightharpoonup K_{vs}}$ value without orifice plate. K_{vs} values can be adapted using orifice plates.

Orifice plates for setting the K_{vs} value

Orifice plate set for B2KL DN15	Part number
K _{vs} value	0589540001
0.25 m ³ /h	Supplied with the 6-way ball valve
0.4 m ³ /h	
0.63 m ³ /h	
1 m ³ /h	

Orifice plate set for B2KL DN20	Part number
K _{vs} value	0589540002
$0.7 \text{ m}^3/\text{h}$	Supplied with the 6-way ball valve
1 m ³ /h	
1.6 m ³ /h	
2.1 m ³ /h	



Accessories	
Туре	Description
0378133015	1 threaded sleeve, R½", flat-sealing, with cap nut and flat seal, G $^3\!\!4$ - R½
0378134015	1 solder nipple, Ø 15, flat-sealing, with cap nut and flat seal, $G^{3}\!\!/_{\!4}$
0580240002	Insulation shell for 6-way ball valve DN 15
0580240003	Insulation shell for 6-way ball valve DN 20
0560284015	Screw fitting of brass, flat-sealing, female thread/male thread for DN 15
0560284020	Screw fitting in brass, flat sealing, female/male thread for DN 20
0580090001	Pliers for changing orifice plate on 6-way ball valve DN 15 and DN 20
0580240001	Fitting bracket for 6-way ball valve DN 15 and DN 20
0560332015	Strainer in gun metal, -10150 °C, mesh aperture 0.5 mm, DN 15
0560332020	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 20
0560332025	Strainer in gun metal, -10150 °C, mesh aperture 0.8 mm, DN 25

- Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- i Definition of $\Delta p_{\vec{s}}$ Maximum admissible pressure drop in the event of a malfunction (pipe break after the ball valve) at which the actuator reliably closes the ball valve using the return spring.
- **Definition of \Delta p_{max}:** Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the

Actuator	AKM115F120	AKM115F122	AKM115SF132
Page	326	98	98
Rotational torque	8 Nm	8 Nm	8 Nm
Control signal	2-/3-point	2-/3-point	2-/3-point, 010 V
Running time	120 s	120 s	35/60/120 s
Operating voltage	230 V~	24 V~	24 V~/V=

		Δp [bar]		
	Δp _{max}	Δp _{max}	Δp_{max}	
B2KL015F401 B2KL015F400 B2KL020F411	2.0	2.0	2.0	

Actuator	AKF112F120	AKF112F122	AKF113F122	AKF113SF122
Page	332	332	332	333
Rotational torque	7 Nm	7 Nm	7 Nm	7 Nm
Control signal	2-point	2-point	3-point	010 V
Running time	90 s	90 s	90 s	90 s
Operating voltage	230 V~	24 V~/V=	24 V~/V=	24 V~/V=

		Δp [bar]						
	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp _{max}	Δp_s	Δp_{max}	Δp_s
B2KL015F401 B2KL015F400 B2KL020F411	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0



Actuators for ball valves

SAUTER actuators for ball valves adapt themselves automatically to the ball valves and enable them to be controlled accurately. The actuators are switched off as a function of the torque. These SAUTER actuators are suitable for operating 2- and 3-way ball valves. Furthermore, they can be used for controllers with switching or continuous outputs.

Overview of actuators for ball valves







	▼	₹	
Type designation	AKM 105, 115	AKM105SF132 AKM115SF132	AKM115SF152
Technical data			
Adjustable characteristic	Equal-percentage	Equal-percentage, linear, quadratic	Equal-percentage, linear, quadratic
Running time (s)	30, 120	35, 60, 120	6
Return time (s)	-	-	-
Power supply (V)	24, 230	24	24
Control			
2-point	•	•	•
3-point	•	•	•
Positioner	-	•	•
High-speed	-	-	•
Spring return	-	-	-
Combination options with ball valve	VKR, VKRA, BKR, BKRA, VKAI, VKAA, BKLI, BKTI, BKTA, B2KL	VKR, VKRA, BKR, BKRA, VKAI, VKAA, BKLI, BKTI, BKTA, B2KL	VKR, VKRA, BKR, BKRA, VKAI, VKAA, BKLI, BKTI, BKTA, B2KL
Further information	Page 326	Page 328	Page 330





Type designation	AKF 112, 113	AKF 113S
Technical data		
Adjustable characteristic	-	-
Running time (s)	90	90
Return time (s)	15	15
Power supply (V)	24, 230	24, 230
Control		
2-point	•	•
3-point	•	•
Positioner	-	•
High-speed	-	-
Spring return	•	•
Combination options with ball valve	VKR, VKRA, BKR, BKRA, VKAI, VKAA, BKLI, BKTI, BKTA, B2KL	VKR, VKRA, BKR, BKRA, VKAI, VKAA, BKLI, BKTI, BKTA, B2KL
Further information	Page 332	Page 333



AKM115F12



AKM 105, 115: Rotary actuator for ball valve

- For operating 2- and 3-way ball valves VKR, VKRA, BKR, BKRA, VKAI, VKAA, BKLI, BKTI, BKTA and 6-way ball valve B2KL
- For controllers with a switching output (2-/3-point control)
- Assembly with ball valves without the use of tools
- Synchronous motor with electronic activation and cut-out
- Maintenance-free gear unit
- Gear unit can be disengaged in order to position the ball valve manually (using the lever)
- Bracket and bayonet ring made of glass-fibre-reinforced plastic for fitting onto ball valve
- Fitting vertically upright to horizontal, not suspended

Power supply		
	Power supply 230 V~	±15%, 5060 Hz
	Power supply 24 V~	±20%, 5060 Hz
Parameters		
	Power cable	1.2 m, 3 × 0.75 mm ²
	Response time	Min. 200 ms
	Angle of rotation	90°
Ambient conditions		
	Ambient temperature	-1055 °C
	Ambient humidity	595% rh, no condensation
	Temperature of medium ¹⁾	Max. 100 °C
Function		
	Control	2-/3-point
Construction		
	Weight	0.7 kg
	Housing	Lower section black, upper section yellow
	Housing material	Fire-retardant plastic
Standards and directives		
	Type of protection ²⁾	IP54 (EN 60529), horizontal
	Protection class 24 V	III (EN 60730)
	Protection class 230 V	II (EN 60730)
	Over-voltage categories	III
	Degree of contamination	II.
CE conformity according to	Directive 2006/95/EC	EN 60730-1/EN 60730-2-14
	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4

Overview of types				
Туре	Voltage	Running time	Rotational torque	Power consumption
AKM105F100	230 V~	30 s	4 Nm	2.4 W, 4.5 VA
AKM105F120	230 V~	120 s	4 Nm	2.0 W, 4.0 VA
AKM105F122	24 V~	120 s	4 Nm	1.6 W, 1.7 VA
AKM115F120	230 V~	120 s	8 Nm	2.0 W, 4.0 VA
AKM115F122	24 V~	120 s	8 Nm	1.6 W, 1.7 VA

At media temperatures < 5 °C or > 100 °C, appropriate accessory must be used





See fitting instructions P100001578

Accessories	
Туре	Description
0372459102	External switching, 24 V version for parallel operation with A*M 1*4 or drives with limit switch, incl. junction box
0510420001	Adaptor required when temperature of the medium $> 100 ^{\circ}\text{C}$
0510240011	Adaptor required when temperature of the medium < 5 $^{\circ}$ C
0510480001	Auxiliary change-over contacts, single
0510480002	Auxiliary change-over contacts, double

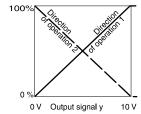
Auxiliary change-over contacts: Infinitely variable 0...100%, admissible load 5(2) A, 24...230 V





AKM115SF132



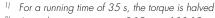


AKM 105S, 115S: Rotary actuator with SAUTER Universal Technology (SUT) for ball valve

Features

- For operating 2- and 3-way ball valves VKR, VKRA, BKR, BKRA, VKAI, VKAA, BKLI, BKTI, BKTA and 6-way ball valve B2KL
- For controllers with constant output (0...10 V) or switching output (2-/3-point control)
- Assembly with ball valve without the use of tools
- Stepping motor with SAUTER Universal Technology (SUT) electronic control unit
- Electronic force-dependent motor cut-off
- Automatic recognition of applied control signal (continuous or switched)
- Coding switch for selection of characteristic and running time (35 s, 60 s, 120 s)
- Type of characteristic (linear/quadratic/equal-percentage) can be set on the actuator
- Direction of operation can be selected directly on the cable
- Maintenance-free gear unit
- Gear unit can be disengaged in order to position the ball valve manually (using the lever)
- Bracket and bayonet ring made of glass-fibre-reinforced plastic for fitting onto ball valve

Power supply		
rower supply	Power supply 24 V~	±20%, 5060 Hz
	Power supply 24 V=	-10%20%
	Power consumption	4.9 W/8.7 VA
	Tower consumption	4.7 11/0.7 1A
Parameters		
	Running time ¹⁾	35/60/120 s
	Angle of rotation	90°
	Response time	200 ms
	Power cable	1.2 m, 5 × 0.5 mm ²
Positioner	Positioning signal y	010 V, R _i > 100 kΩ
	Positional feedback signal	010 V; load > 10 kΩ
	Starting point U ₀	0 V or 10 V
	Control span ΔU	10 V
	Switching range X _{sh}	200 mV
Ambient conditions		
	Temperature of medium ²⁾	Max. 100 °C
	Ambient temperature	-1055 °C
	Ambient humidity	595% rh, no condensation
Construction		
	Fitting	Vertically upright to horizontal, not upside down
	Weight	0.7 kg
	Housing	Lower section black, upper section yellow
	Housing material	Fire-retardant plastic
Standards and directives		
	Type of protection	IP54 as per EN 60529
	Protection class	III as per IEC 60730



At media temperatures < 5 °C or > 100 °C, appropriate accessory must be used



CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3
		EN 61000-6-4
	Directive 2006/95/EC	Machine directive (EN 1050)

Overview of types			
Туре	Rotational torque		
AKM105SF132	4 Nm		
AKM115SF132	8 Nm		

Accessories	
Туре	Description
0313529001	Split-range unit for adjusting sequences, fitted in separate junction box
0510420001	Adaptor required when temperature of the medium $> 100 ^{\circ}\text{C}$
0510240011	Adaptor required when temperature of the medium < 5 $^{\circ}$ C
0510480001	Auxiliary change-over contacts, single
0510480002	Auxiliary change-over contacts, double

Auxiliary change-over contacts: Infinitely variable 0...100%, admissible load 5(2) A, 24...230 V





AKM115SF152



AKM 115S F152: High-speed rotary actuator with SAUTER Universal Technology (SUT) for ball valve

Features

- For operating 2- and 3-way ball valves VKR, VKRA, BKR, BKRA, VKAI, VKAA, BKLI, BKTI, BKTA and 6-way ball valve B2KL
- For controllers with constant output (0...10 V / 4...20 mA) or switching output (2-/3-point control)
- Assembly with ball valve without the use of tools
- Brushless motor with electronic activation and cut-out
- Intelligent adaptation of rotation angle, incl. feedback adjustment
- Electronic force-dependent cut-off
- Direction of rotation selected with DIP switch
- Pulse length correction in 3-point operation, i.e. internal adjustment of start-up time
- Gear unit can be disengaged in order to position the ball valve manually (using the lever)
- Maintenance-free
- Free configuration using the CASE Drive PC tool
- Bracket and bayonet ring made of glass-fibre-reinforced plastic for fitting onto ball valve

Toomnour aata			
Power supply			
	Power supply 24 V~	±20%, 5060 Hz	
	Power supply 24 V=	-10%20%	
	Power consumption	6.5 W, 9 VA (at nominal voltage)	
Parameters			
	Rotational torque	8 Nm	
	Noise during operation (unloaded)	< 49 dB(A)	
	Response time	10 ms	
	Angle of rotation	90°	
	Running time	6 s	
	Characteristic	linear	
Positioner	Positioning signal y	$010 \text{ V} / 210 \text{ V}$, $R_i = 100 \text{ k}\Omega$,	
		020 mA / 420 mA, R_i = 50 Ω	
	Positional feedback signal y ₀	010 V; load > 10 kΩ	
	Starting point U ₀	0 or 10 V / 2 or 10 V	
	Starting point I ₀	0 or 20 mA / 4 or 20 mA	
	Control span ΔU	10 V	
	Switching range X _{sh}	100 mV	
	Control span ΔI	20 mA	
	Switching range X _{sh}	0.1 mA	
	3 3 3 31		
Ambient conditions			
	Operating temperature	−2055 °C	
	Temperature of medium ¹⁾	Max. 100 °C	
	Storage and transport temperature	−3065 °C	
	Ambient humidity	585% rh, no condensation	
Construction			
	Fitting	Vertically upright to horizontal	
	Dimensions W x H x D	70 × 138 × 127 mm	
	Weight	0.7 kg	
	Housing	Lower section black, upper section yel- low	
	Housing material	Fire-retardant plastic	



¹⁾ At media temperature > 100 °C, appropriate accessory must be used

	Power cable	1.2 m, 6 × 0.5 mm ²
Standards and directives		
	Type of protection	IP54 (EN 60529), horizontal
	Protection class	III (EN 60730)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2
•		EN 61000-6-3, EN 61000-6-4

Overview of types				
Туре	Features			
AKM115SF152	High-speed rotary actuator with SAUTER Universal Technology for ball valve			

Accessories	
Туре	Description
0313529001	Split-range unit for adjusting sequences, fitted in separate junction box
0372459102	External switching, 24 V version for parallel operation with A*M 1*4 or drives with limit switch, incl. junction box
0510420001	Adaptor required when temperature of the medium $> 100~^{\circ}\text{C}$
0510240011	Adaptor required when temperature of the medium < 5 °C





AKF112F122



AKF 112, 113: Rotary actuator with spring return for control ball valves

Features

- For operating 2- and 3-way ball valves VKR, VKRA, BKR, BKRA, VKAI, VKAA, BKLI, BKTI, BKTA and 6-way ball valve B2KL
- For controllers with a switching output (2-/3-point control)
- Returns to the starting position in the event of a power failure or the activation of a safety device
- Electronic torque-dependent cut-off
- Direction of rotation can be selected during fitting

recillical data			
Power supply			
	Power supply 230 V~	±10%, 5060 Hz	
	Power supply 24 V~	±20%, 5060 Hz	
	Power supply 2448 V=	±20%	
Parameters			
	Torque and holding torque	7 Nm	
	Angle of rotation	Max. 95°	
	Power cable	0.9 m, 0.75 mm ²	
		(fixed to housing)	
	Running time for 90° motor	90 s	
	Running time for 90° spring	15 s	
Ambient conditions			
	Ambient temperature	-3255 °C	
	Ambient humidity	595% rh	
Construction			
	Weight	1.2 kg	
	Housing	Two-piece	
	Housing material	Cast aluminium	
Standards and directives			
	Type of protection	IP54 as per EN 60529	
		IP42 depending on fitting position	
	Protection class 230 V	II (EN 60730)	
	Protection class 24 V	III (EN 60730)	
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-2, EN 61000-6-3	
Only for AKF120F120	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-14	
•	Over-voltage categories	III	
	Degree of contamination	II	

Overview of types					
Туре	Power consumption	Control function	Voltage		
AKF112F120	4.5 W, 7.0 VA	2-point	230 V~		
AKF112F122	3.5 W, 5.0 VA	2-point	24 V~/2448 V=		
AKF113F122	3.5 W, 5.0 VA	3-point	24 V~/2448 V=		

Accessories	
Туре	Description
0510240001	Assembly kit for VK**/BK** ball valves as spare part and as accessory for rotary actuators ASF 112, 113 from index B



AKF 113S: Rotary actuator with spring return and positioner

Features

- For operating 2- and 3-way ball valves VKR, VKRA, BKR, BKRA, VKAI, VKAA, BKLI, BKTI, BKTA and 6-way ball valve B2KL
- \bullet For controllers with a continuous output (0...10 V)
- Returns to the starting position in the event of a power failure or the activation of a safety device
- Electronic torque-dependent cut-off
- Direction of rotation can be selected during fitting

Technical data

recrimear data			
Power supply			
	Power supply 24 V~	±20%, 5060 Hz	
	Power supply 2448 V=	±20% 3.5 W, 5 VA	
	Power consumption during operation		
	Power consumption when idle	2.5 W, 2.5 VA	
Parameters			
Positioner	Positioning signal y	010 V, $R_i = 100 \text{ k}\Omega$	
	Positional feedback signal	010 V (0100%)	
	Admissible load	> 10 k()	
	Starting point U ₀	0 V	
	Control span ΔU	10 V	
	Switching range X _{sh}	0.2 V	
	Torque and holding torque	7 Nm	
	Angle of rotation	Max. 95°	
	Power cable	0.9 m, 4 × 0.75 mm ² (fixed to housing)	
	Running time for 90° motor	90 s	
	Running time for 90° spring	15 s	
Ambient conditions			
Ambient conditions	Ambient temperature	-3255 °C	
	Ambient humidity	< 95% rh	
Construction			
	Weight	1.3 kg	
	Housing	Two-piece	
	Housing material	Cast aluminium	
Standards and directives			
	Type of protection	IP54 as per EN 60529	
	Protection class	III as per IEC 60730	
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-2, EN 61000-6-3	

Overview of types

overview of types				
Туре	Features			
AKF113SF122	Rotary actuator with spring return and positioner			

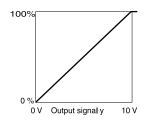
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Туре	Description
0510240001	Assembly kit for VK**/BK** ball valves as spare part and as accessory for rotary actuators ASF
	112, 113 from index B



AKF113SF122









Control valves and butterfly valves

SAUTER control valves are used to control heating and cooling systems. The 3-way version is suitable for controlling and change-over functions, while the 4-way version is employed for higher temperatures in the return circuit. SAUTER butterfly valves are very versatile and are used for control and shut-off functions. Because they close absolutely tightly, they reduce energy consumption.

Overview of control valves and butterfly valves

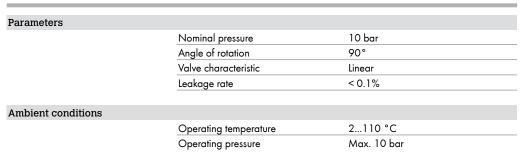
Type designation	M3R, M4R	MH32F, MH42F	DEF
Application			
Preheater for ventilation & air-conditioning	•	•	-
Static heating	•	•	-
Cooling tower	-	-	•
Multi-boiler system	-	-	•
Version			
Control valve	•	•	-
Butterfly valve	-	-	•
Technical data			
Nominal diameter (DN)	1550	20150	25200
Nominal pressure	PN 10	PN 6	PN 16
Combination options with actuator	AR30 W, ASM 105, 115, 124 ADM 322(S)	AR30 W, ASM 105, 115, 124 ADM 322(S)	AR30 W, A44 W, ASF 122, 123 ASM 124(S) ASM 134(S) ADM 322(S)
Further information	Page 335	Page 33 <i>7</i>	Page 340

M3R, M4R: Control valve with threaded connection, PN 10

Features

- M3R: 3-way valves with nominal diameters DN 15...50
- M4R: 4-way valves with nominal diameters DN 20...50
- Used in combination with the ADM 322 and ASM 105, 115, 124 motorised actuators
- Manual adjustment by means of lever and end stops
- Body, cover, front gate and spindle made of brass

Technical data



Overview of ty	Overview of types					
Туре	Nominal diameter	K _{vs} value	Weight			
M3R015F200	DN 15 (Rp½)	2.5 m³/h	0.8 kg			
M3R020F200	DN 20 (Rp3/4)	6 m³/h	0.7 kg			
M3R025F200	DN 25 (Rp1)	12 m³/h	1.2 kg			
M3R032F200	DN 32 (Rp11/4)	18 m³/h	1.2 kg			
M3R040F200	DN 40 (Rp1½)	26 m³/h	2.2 kg			
M3R050F200	DN 50 (Rp2)	40 m³/h	2.3 kg			
M4R020F200	DN 20 (Rp3/4)	6 m³/h	0.8 kg			
M4R025F200	DN 25 (Rp1)	12 m³/h	1.2 kg			
M4R032F200	DN 32 (Rp11/4)	18 m³/h	1.3 kg			
M4R040F200	DN 40 (Rp1½)	26 m³/h	2.3 kg			
M4R050F200	DN 50 (Rp2)	40 m³/h	2.5 kg			

Accessories	
Туре	Description
0510240013	ADM322 mounting kit with M3R, M4R, MH32, MH42
0361977001	Assembly materials for M3R, M4R, MH32F, MH42F with ASM 124
0361977002	Assembly materials for M3R, M4R, MH32R/F, MH42R with ASM 105, 115



M3R015F200



M3R0**F200



M4R0**F200



Combination of M3R/M4R with electric actuators

- I Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **1** Definition of Δp_s : Maximum admissible pressure drop in the event of a malfunction (pipe break after control valve) at which the actuator reliably closes the valve by means of a return spring.
- i Definition of Δp max: Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.

Actuator	ASM105F100	ASM105F120	ASM105F122	ASM105SF132	ASM115F120	ASM115F122	ASM115SF132
Page	354	354	354	356	354	354	356
Rotational torque	5 Nm	5 Nm	5 Nm	5 Nm	10 Nm	10 Nm	10 Nm
Control signal	2-/3-point	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point	2-/3-point	2-/3-point, 010 V
Running time	30 s	120 s	120 s	35/60/120 s	120 s	120 s	60/120 s
Operating voltage	230 V~	230 V~	24 V~	24 V =/~	230 V~	24 V~	24 V =/~

	Δp [bar]						
As control valve	Δp _{max}						
M3R015F200	2.0	2.0	2.0	2.0	_	_	-
M3R020F200 M4R020F200	1.0	1.0	1.0	1.0	-	-	-
M3R025F200 M3R032F200 M3R040F200 M3R050F200 M4R025F200 M4R032F200 M4R040F200 M4R050F200	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Cannot be used as distribution valve

Actuator	ADM322F120 ADM322F122 ADM322HF120 ADM322HF122 ADM322PF120 ADM322PF122	ADM3225F122 ADM3225F152	ASM124F120 ASM124F122	ASM124SF132
Page	346	348	360	365
Rotational torque	15 Nm	15 Nm	18 Nm	15 Nm
Control signal	3-point	2-/3-point, 010 V	2-/3-point	2-/3-point, 010 V
Running time	120 s	30/60/120 s	120 s	60/120 s
Operating voltage	24 V~/= / 230 V	24 V~/=	24 V=/~ / 230 V	24 V=/~ / 230 V

	Δp [bar]				
As control valve	Δp _{max}	Δp _{max}	Δp _{max}	Δp_{max}	
M3R015F200	2.0	2.0	-	-	
M3R020F200 M3R025F200 M4R020F200 M4R025F200	1.0	1.0	-	-	
M3R032F200 M3R040F200 M3R050F200 M4R032F200 M4R040F200 M4R050F200	1.0	1.0	1.0	1.0	

Cannot be used as distribution valve



Accessories required: Assembly materials; see accessories. With ASM 124, it is not possible to fit auxiliary contacts or a potentiometer

MH32F, MH42F: Control valve with flange connection, PN 6

Features

- MH32F: 3-way valves with nominal diameters DN 20...150
- MH42F: 4-way valves with nominal diameters DN 32...50
- Can be combined with the ADM 322 and ASM 105, 115, 124 motorised actuators
- Manual adjustment via lever
- Body made of grey cast iron; brass gate
- Spindle made of brass up to DN 25 and stainless steel from DN 32
- Stuffing box with double O-ring guarantees the tightness of the seal at the spindle



Parameters			
	Nominal pressure	6 bar	
	Angle of rotation	90°	
	Valve characteristic	Linear	
Ambient conditions			
	Operating temperature	2110 °C	
	Operating pressure	Max. 6 bar	

Overview of ty	Overview of types					
Туре	Nominal diameter	K _{vs} value	Leakage rate in % of K _{vs}	Weight		
MH32F20F200	DN 20	12 m ³ /h	1 %	2.7 kg		
MH32F25F200	DN 25	18 m³/h	1 %	3.5 kg		
MH32F32F200	DN 32	28 m³/h	1 %	4.6 kg		
MH32F40F200	DN 40	44 m³/h	1 %	5.6 kg		
MH32F50F200	DN 50	66 m³/h	1 %	7.9 kg		
MH32F65F200	DN 65	100 m³/h	1 %	9.2 kg		
MH32F80F200	DN 80	150 m³/h	1 %	14.2 kg		
MH32F100F200	DN 100	225 m³/h	1 %	19 kg		
MH32F125F200	DN 125	310 m³/h	1 %	25.8 kg		
MH32F150F200	DN 150	420 m³/h	1 %	35.5 kg		
MH42F32F200	DN 32	28 m³/h	1.5 %	5.7 kg		
MH42F40F200	DN 40	44 m³/h	1.5 %	7.1 kg		
MH42F50F200	DN 50	66 m³/h	1.5 %	8.3 kg		

- MH32F20...25: 3-way valve: Zinc cover, brass spindle
- MH32F32...150: 3-way valve: Cover of grey cast iron, spindle of stainless steel
- MH42F32...50: 4-way valve: Cover of grey cast iron, spindle of stainless steel

Accessories	
Туре	Description
0360392020	Welding flange, DN 20, smooth, PN 6, incl. asbestos-free seal
0360392025	Welding flange, DN 25, smooth, PN 6, incl. asbestos-free seal
0360392032	Welding flange, DN 32, smooth, PN 6, incl. asbestos-free seal
0360392040	Welding flange, DN 40, smooth, PN 6, incl. asbestos-free seal
0360392050	Welding flange, DN 50, smooth, PN 6, incl. asbestos-free seal
0360392065	Welding flange, DN 65, smooth, PN 6, incl. asbestos-free seal
0360392080	Welding flange, DN 80, smooth, PN 6, incl. asbestos-free seal
0360392100	Welding flange, DN 100, smooth, PN 6, incl. asbestos-free seal
0360392125	Welding flange, DN 125, smooth, PN 6, incl. asbestos-free seal
0360392150	Welding flange, DN 150, smooth, PN 6, incl. asbestos-free seal



MH32F40F200



MH32F**F200



MH42F**F200



3-way control valve



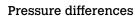
4-way control valve



Туре	Description
0361977001	Assembly materials for M3R, M4R, MH32F, MH42F with ASM 124
0361977002	Assembly materials for M3R, M4R, MH32R/F, MH42R with ASM 105, 115
0510240013	ADM322 mounting kit with M3R, M4R, MH32, MH42

Combination of MH32F/MH42F with electric actuators

- Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- **1** Definition of Δp_{ς} : Max. admissible pressure drop in the event of a malfunction (pipe break after control valve) at which the actuator reliably closes the control valve using the return spring.
- **1** Definition of Δp_{max} : Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.





Actuator	ASM105F100	ASM105F120	ASM105F122	ASM105SF132	ASM115F120	ASM115F122	ASM115SF132
Page	354	354	354	356	354	354	356
Rotational torque	5 Nm	5 Nm	5 Nm	5 Nm	10 Nm	10 Nm	10 Nm
Control signal	2-/3-point	2-/3-point	2-/3-point	2-/3-point, 010 V	2-/3-point	2-/3-point	2-/3-point, 010 V
Running time	30 s	120 s	120 s	35/60/120 s	120 s	120 s	60/120 s
Operating voltage	230 V~	230 V~	24 V~	24 V =/~	230 V~	24 V~	24 V =/~

	Δp [bar]						
As control valve	Δp _{max}	Δp_{max}					
MH32F20F200 MH32F25F200 MH32F32F200 MH32F40F200	1.0	1.0	1.0	1.0	1.0	1.0	1.0
MH32F50F200 MH32F65F200 MH32F80F200	-	-	-	-	0.5	0.5	0.5

Cannot be used as distribution valve

Actuator	ADM322F120 ADM322F122 ADM322HF120 ADM322HF122 ADM322PF120 ADM322PF122	ADM322SF122 ADM322SF152	ASM124F120 ASM124F122	ASM124SF132
Page	346	348	360	365
Rotational torque	15 Nm	15 Nm	18 Nm	15 Nm
Control signal	3-point	2-/3-point, 010 V	2-/3-point	2-/3-point, 010 V
Running time	120 s	30/60/120 s	120 s	60/120 s
Operating voltage	24 V~/= / 230 V	24 V~/=	24 V=/~ / 230 V	24 V=/~ / 230 V

	Δp [bar]						
As control valve	Δp _{max}	Δp _{max}	Δp _{max}	Δp _{max}			
MH32F20F200 MH32F25F200 MH32F32F200 MH32F40F200 MH42F32F200 MH42F40F200	1.0	1.0	1.0	1.0			

Actuator	ADM322F120 ADM322F122 ADM322HF120 ADM322HF122 ADM322PF120 ADM322PF120	ADM322SF122 ADM322SF152	ASM124F120 ASM124F122	ASM124SF132
Page	346	348	360	365
MH32F50F200 MH32F65F200 MH32F80F200 MH32F100F200 MH32F125F200 MH32F150F200 MH42F50F200	0.5	0.5	0.5	0.5

Cannot be used as distribution valve



Accessories required: Assembly materials; see accessories. With ASM 124, it is not possible to fit auxiliary contacts or a potentiometer



DEF100F200



DEF: Tight-sealing butterfly valve, PN 16

Features

- For cutting off and regulating water and low-pressure steam up to 110 °C
- Butterfly valve with 3-way brass bearing bush as spindle bearing
- Fits PN 6, PN 10 and PN 16 flanges
- Can be combined with motorised actuators of the ADM 322 and A44W type or damper actuators with spring return of the ASM 124, 134 and ASF 122, 123 type
- Damper body made of grey cast iron
- Collar made of ethylene-propylene rubber
- Butterfly disc made of stainless steel
- Spindle made of stainless steel with two O-rings

Parameters		
	Nominal pressure	16 bar
	Valve characteristic	Linear
	Angle of rotation	90°
	Leakage rate ¹⁾	$<$ 0,0001% of the K_{vs} value
Ambient conditions		
	Operating temperature	-10130 °C
	Maximum operating pressure	16 bar

Overview of ty	Overview of types						
Туре	Nominal diameter	K _{vs} value	Weight				
DEF025F200	DN 25	36 m³/h	1 kg				
DEF032F200	DN 32	40 m³/h	1.15 kg				
DEF040F200	DN 40	50 m³/h	2.75 kg				
DEF050F200	DN 50	85 m³/h	3.05 kg				
DEF065F200	DN 65	215 m³/h	4.05 kg				
DEF080F200	DN 80	420 m³/h	4.3 kg				
DEF100F200	DN 100	800 m³/h	4.85 kg				
DEF125F200	DN 125	1010 m³/h	7.2 kg				
DEF150F200	DN 150	2100 m ³ /h	9.5 kg				
DEF200F200	DN 200	4000 m³/h	12 kg				

Accessories	
Туре	Description
0361632***	Two welding flanges, complete PN 6 as per EN 1092-1 DN 25, DN 32, DN 40, DN 50, DN 65, DN 80, DN 100, DN 125, DN 150, DN 200
0361633***	Two welding flanges, complete PN 10 (DN 25100) as per EN 1092-1 and PN 16 (DN 25200) as per EN 1092-1 DN 25, DN 32, DN 40, DN 50, DN 65, DN 80, DN 100, DN 125, DN 150, DN 200
0361634200	2 welding flanges complete PN 10 (DN 200) as per EN 1092-1
0378110001	Assembly parts; DEF DN 2565 for A44
0378111001	Assembly parts; DEF DN 80125 for A44
0378112001	Assembly parts; DEF DN 150200 for A44
0378113001	Assembly parts; DEF DN 25100 for ASF122/123
0372455001	Assembly part; DEF DN2565 for ASM 124/134
0372455002	Assembly part; DEF DN80100 for ASM 124; DN125 for ASM 134
0372455003	Assembly part; DEF DN150200 for ASM 134

¹⁾ At **⊿**p 1.5 bar



Туре	Description
0510240014	ADM322 fitting kit with DEF DN2065
0510240015	ADM322 fitting kit with DEF DN80100

Ordering information: DN 25 = /025, DN 100 = /100

Combination of DEF with electric actuators

- Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.
- i Definition of $\Delta p_{\vec{s}}$ Max. admissible pressure drop in the event of a malfunction (pipe break after the damper) at which the actuator reliably closes the damper using the return spring.
- i Definition of Δp_{max} : Max. admissible pressure drop in control mode at which the actuator reliably opens and closes the

Pressure differences

Actuator	ADM322F120 ADM322F122 ADM322HF120 ADM322HF122 ADM322PF120 ADM322PF122	ADM322SF122 ADM322SF152	ASM124F120 ASM124F122	ASM124SF132
Page	346	348	360	365
Rotational torque	15 Nm	15 Nm	18 Nm	15 Nm
Control signal	3-point	2-/3-point, 010 V	2-/3-point	2-/3-point, 010 V
Running time	120 s	30/60/120 s	120 s	60/120 s
Operating voltage	24 V~/= / 230 V	24 V~/=	24 V=/~ / 230 V	24 V=/~ / 230 V

	Δp [bar]						
Closes against the pressure	Δp _{max}	Δp _{max}	Δp _{max}	Δp_{max}			
DEF025F200 DEF032F200 DEF040F200 DEF050F200	10.0	10.0	10.0	10.0			
DEF065F200	7.0	7.0	7.0	7.0			
DEF080F200	4.0	4.0	4.0	4.0			
DEF100F200	2.0	2.0	2.0	2.0			

Cannot be used to close with the pressure

Actuator	ASF122F120 ASF122F220	ASF122F122	ASF122F222	ASF123F122	ASF123SF122
Page	370	370	370	370	372
Rotational torque	18 Nm	18 Nm	18 Nm	18 Nm	18 Nm
Control signal	2-point	2-point	2-point	3-point	010 V
Running time	90 s	90 s	90 s	90 s	90 s
Operating voltage	230 V~	24 V~	24V~	24V~	24V~

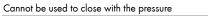
		Δp [bar]								
Closes against the pressure	Δp _{max}	Δp_s								
DEF025F200 DEF032F200 DEF040F200 DEF050F200	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DEF065F200	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
DEF080F200	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
DEF100F200	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

Cannot be used to close with the pressure



Actuator	A44W2F001	A44W2F020	A44W2SF001	ASM134SF132	ASM134F130
Page	350	350	353	365	362
Rotational torque	30 Nm	30 Nm	30 Nm	30 Nm	30 Nm
Control signal	3-point	3-point	010 V; 420 mA	010 V	3-point
Running time	120 s	120 s	120 s	120/240 s	120/240 s
Operating voltage	230 V~	24 V~	24V~	24 V~	230 V~

	Δp [bar]				
Closes against the pressure	Δp_{max}				
DEF025F200 DEF032F200 DEF040F200 DEF050F200	16.0	16.0	16.0	-	-
DEF065F200	16.0	16.0	16.0	7.0	7.0
DEF080F200 DEF100F200	10.0	10.0	10.0	7.0	7.0
DEF125F200	6.0	6.0	6.0	7.0	7.0
DEF150F200	5.0	5.0	5.0	6.0	6.0
DEF200F200	3.0	3.0	3.0	2.0	2.0



^{*} Accessories required: Assembly parts; see accessories



Damper and rotary actuators

SAUTER damper and rotary actuators provide a torque- and time-dependent cut-off facility for efficient energy use. They operate air dampers, shut-off dampers and multi-leaf dampers. The overload protection and the end position detector in the rotary actuators ensures the efficient use of energy. SAUTER rotary actuators can be used for controllers with a switching or continuous output.

Overview of damper and rotary actuators









	() ·	T III	_	_
Type designation	ADM322F12*	ADM322SF1*2	A44, W0W2	A44, W0SW2S
Technical data				
Torque (Nm)	15	15	25, 30	25, 30
Running time for 90°/(s)	120 (240)	30, 60	30, 60, 120	30, 60, 120
Power supply (V~)	24, 230	24	24, 230	24
Control				
3-point	•	•	•	-
Positioner	-	•	-	•
Further information	Page 345	Page 347	Page 350	Page 352









	*	T	•	•
Type designation	ASM 105, 115	ASM 105S, 115S F132	ASM 105S, 115S F152	ASM 124
Technical data				
Torque (Nm)	5, 10	5, 10	5, 10	18
Running time (s)	30, 120	35, 60, 120	3, 6	120
Voltage (V)	24, 230	24	24	24, 230
Control				
2-point	•	•	•	•
3-point	•	•	•	•
Positioner	-	•	•	-
High-speed	_	-	•	-
Spring return	-	-	-	-
Further information	Page 354	Page 356	Page 358	Page 360









Type designation	ASM 134	ASM 124S, 134S	ASF 112, 113	ASF 113S
Technical data				
Torque (Nm)	30	15, 30	7	7
Running time (s)	120, 240	60, 120, 240	90	90
Voltage (V)	230	24, 230	24	24
Control				
2-point	-	•	•	-
3-point	•	•	•	-
Positioner	-	•	-	•
High-speed	-	-	-	-
Spring return	-	-	•	•
Further information	Page 362	Page 364	Page 366	Page 368





	- r	- 7"
Type designation	ASF 122, 123	ASF 123S
Technical data		
Torque (Nm)	18	18
Running time (s)	90	90
Voltage (V)	24, 230	230
Control		
2-point	•	-
3-point	•	-
Positioner	-	•
High-speed	-	-
Spring return	•	•
Further information	Page 370	Page 372

ADM 322: Rotary actuator

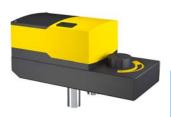
Features

- For operating control units such as control valves, butterfly valves etc.
- For controllers with a switching output (2-point or 3-point control)
- 15 Nm nominal torque and holding torque
- Synchronous motor with electronic control unit and load-dependent cut-off
- Low operating noise
- Direction of operation and running time can be set using coding switches
- Gear unit can be disengaged for manual adjustment
- Electrical parallel operation of up to five actuators possible
- Numerous adapters enable the unit to be fitted onto defined non-SAUTER control valves
- Maintenance-free gearbox made of plastic and steel, and gearbox base-plates made of steel
- Mounting columns made of aluminium

Technical data

Technical data		
Power supply		
	Power supply 24 V~	± 20%, 5060 Hz
	Power supply 24 V=	-10%20%
	Power supply 230 V~	± 15%
	Connections (screw terminals)	Max. 1.5 mm ²
ADM322(H, P)F120	Power consumption	< 2.2 W
ADM322(H, P)F122	Power consumption	< 2.5 W
	·	
Parameters		
	Operating noise ¹⁾	< 30 dB(A) (loaded)
	Running time for 90°	120 (240) s
	Response time	< 200 ms
	Angle of rotation	Max. 95°
	Rotational torque and holding torque	15 Nm
Ambient conditions		
	Operating temperature	−2055 °C
	Storage and transport temperature	−4080 °C
	Humidity without condensation	585% rh
Construction		
	Dimensions W x H x D	194 × 116 × 86 mm
	Weight	1.5
	Fitting position	Vertically upright to horizontal, not fit- ted upside down
	Housing	Three-part
	Housing material	Flame retardant yellow/black plastic
	Cable inlet	With break-outs, for metric screw fittings M20×1.5
Standards and directives		
	Type of protection	IP54 (EN 60529)
	Protection class	II (EN 60730-1), EN 60730-2-14 III (EN 60730-1), EN 60730-2-14
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1
		EN 61000-6-2
		EN 61000-6-3 EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1
	Low-vollage Directive 2014/35/EU	EN 60730-1 EN 60730-2-14
		, 50/ 55 <u>L</u> 1-

¹⁾ Operating noise with the slowest running time



ADM322F12*







Over-voltage categories	III
Degree of contamination	II
Max. altitude	2000 metres
Machinery Directive 2006/42/EC	EN ISO 12100

Overview of ty	Overview of types				
Туре	Nominal voltage	Туре			
ADM322F120	230 V~	-			
ADM322F122	24 V~/=	-			
ADM322HF120	230 V~	Auxiliary contacts			
ADM322HF122	24 V ~/=	Auxiliary contacts			
ADM322PF120	230 V~	Potentiometer			
ADM322PF122	24 V~/=	Potentiometer			

Accessories	
Туре	Description
0510600001	Cable module, 1.2 m, 3-wire, PVC
0510600002	Cable module, 1.2 m, 3-wire, halogen-free
0510600003	Cable module, 1.2 m, 6-wire, PVC
0510600004	Cable module, 1.2 m, 6-wire, halogen-free
0510600005	Cable module, 5 m, 3-wire, PVC
0510600006	Cable module, 5 m, 3-wire, halogen-free
0510600007	Cable module, 5 m, 6-wire, PVC
0510600008	Cable module, 5 m, 6-wire, halogen-free
0510240013	ADM322 mounting kit with M3R, M4R, MH32, MH42
0510240014	ADM322 fitting kit with DEF DN2065
0510240015	ADM322 fitting kit with DEF DN80100
0510390002	Adapter set for control valve, Honeywell, DZ/ZR valves only
0510390003	Adapter set for control valve, Danfoss
0510390004	Adapter set for control valve, Caleffi
0510390005	Adapter set for control valve, Coster



ADM 322S: Rotary actuator with positioner

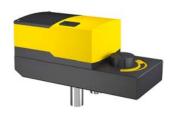
Features

- For operating control units such as control valves, butterfly valves etc.
- For controllers with a continuous output
- 15 Nm nominal torque and holding torque
- ADM322SF122: Synchronous motor with electronic control unit and load-dependent cut-off
- ADM322SF152: Brushless DC motor with SUT (SAUTER Universal Technology) electronic control unit and electronic, load-dependent cut-off
- Low operating noise
- Automatic recognition of applied control signal
- With the built-in absolute distance measurement system, the position is always maintained in the case of power failure
- The direction of operation, running time and control signal (voltage/current) can be adjusted via coding switches
- \bullet High-speed variant ADM322SF152 with 30 s or 60 s for angle of rotation 90°
- Gear unit can be disengaged for manual adjustment
- Easy re-initialisation using a coding switch
- Electrical parallel operation of up to five actuators possible
- Numerous adapters enable the unit to be fitted onto defined non-SAUTER control valves
- ADM322SF152: Integrated forced operation can be set via coding switches (with selectable direction of operation)
- Maintenance-free gearbox made of plastic and steel, and gearbox base-plates made of steel
- Mounting columns made of aluminium

Technical data

Power supply		
	Power supply 24 V~	± 20%, 5060 Hz
	Power supply 24 V=	-10%20%
	Connections (screw terminals)	Max. 1.5 mm ²
ADM322SF122	Power consumption	< 2.5 W
ADM322SF152	Power consumption	< 2.3 W
Parameters		
	Operating noise ¹⁾	< 30 dB(A) (loaded)
	Response time	< 200 ms
	Angle of rotation	Maximum 95°
	Rotational torque and holding torque	15 Nm
ADM322SF122 positioner	Control signal y	010 V, R_i ≥ 50 kΩ, 020 mA,
		$R_i \leq 50 \Omega$
		210 V (420 mA)
	Positional feedback signal y ₀	010 V; load ≥ 5 k Ω
	Starting point U ₀	0 or 10 V
	Starting point I ₀	0 or 20 mA
	Control span ΔU	10 V
	Switching range X _{sh}	130 mV, 0.26 mA
	Control span ∆I	20 mA
	Max. admissible line resistance	3 Ω
ADM332SF152 positioner	Control signal y	010 V, R_i ≥ 50 kΩ, 420 mA,
•		$R_i \leq 50 \Omega$
	Positional feedback signal y ₀	010 V; load ≥ 5 kΩ
	Starting point U ₀	0 or 10 V
	Starting point I ₀	4 or 20 mA

Operating noise with the slowest running time



ADM322SF1*2









	Control span ΔU	10 V
	Switching range X _{sh}	130 mV, 0.26 mA
	Control span ΔI	20 mA
	Max. admissible line resistance	3 Ω
Ambient conditions		
	Operating temperature	−2055 °C
	Storage and transport temperature	-4080 °C
	Humidity without condensation	585 %rh
Construction		
	Dimensions W x H x D	194 × 166 × 86 mm
	Weight	1.5 kg
	Fitting position	Vertically upright to horizontal, not fit- ted upside down
	Housing	Three-part
	Housing material	Flame retardant yellow/black plastic
	Cable inlet	With break-outs, for metric screw fit- tings M20×1.5
Standards and directives		
	Type of protection	IP54 (EN 60529)
	Protection class	III (EN 60730-1), EN 60730-2-14
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1
		EN 61000-6-2
		EN 61000-6-3
		EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1
		EN 60730-2-14
	Over-voltage categories	III
	Degree of contamination	II
	Max. altitude	2000 m
	Machinery Directive 2006/42/EC	EN ISO 12100
	(according to Appendix II, 1B)	

Overview of types		
Туре	Running time for 90°	Nominal voltage
ADM322SF122	120	24 V~/=
ADM322SF152	30 (60)	24 V~/=

Accessories	
Туре	Description
0510600001	Cable module, 1.2 m, 3-wire, PVC
0510600002	Cable module, 1.2 m, 3-wire, halogen-free
0510600003	Cable module, 1.2 m, 6-wire, PVC
0510600004	Cable module, 1.2 m, 6-wire, halogen-free
0510600005	Cable module, 5 m, 3-wire, PVC
0510600006	Cable module, 5 m, 3-wire, halogen-free
0510600007	Cable module, 5 m, 6-wire, PVC
0510600008	Cable module, 5 m, 6-wire, halogen-free
0313529001	Split-range unit for adjusting sequences, fitted in separate junction box
0510240013	ADM322 mounting kit with M3R, M4R, MH32, MH42
0510240014	ADM322 fitting kit with DEF DN2065
0510240015	ADM322 fitting kit with DEF DN80100
0510390002	Adapter set for control valve, Honeywell, DZ/ZR valves only
0510390003	Adapter set for control valve, Danfoss
0510390004	Adapter set for control valve, Caleffi
0510390005	Adapter set for control valve, Coster

ADM322SF152 only

Description

0500420002 4...20 mA feedback module 0500570003 Constant 230 V module





A44W*F0**



A44 W0...W2: Motorised actuator

Features

- Operation of control units such as air dampers, gates, butterfly valves etc.
- For controllers with a switching output (3-point)
- Synchronous motor with limit switch
- Maintenance-free gear unit
- Positions the control unit to any intermediate position
- Cable gland $M20 \times 1.5$
- Crank for manual adjustment

Technical data

Power supply		
	Power supply 230 V~	±15%, 5060 Hz
	Power supply 24 V~	±20%, 5060 Hz
Parameters		
	Angle of rotation ¹⁾	90°
Ambient conditions		
	Ambient temperature ²⁾	-2060 °C
	Ambient humidity	595% rh
	Storage and transport temperature	-3070 °C
Construction		
	Screw terminals	For electric wires up to 1.5 mm ²
	Housing material	Light-metal alloy, cover made of fire-re- tardant plastic
Standards and directives		
	Type of protection ³⁾	IP43 (EN 60529)
CE conformity according to	EMC Directive	for 230 V
	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2
		EN 61000-6-3, EN 61000-6-4

Overview of types

Admissible damper surface area: The recommended admissible damper area applies to equal-sided, smooth-running air dampers

Туре	A44W0F020	A44W1F020	A44W2F001	A44W2F020
Rotational torque (Nm)	25	30	30	30
Holding torque (Nm)	22	30	30	30
Running time for 90° (s)	30	60	120	120
Admissible damper surface area (m ²)	8	10	10	10
Power consumption with 60 Hz	10.4 W	10.4 W	4.8 W	4.8 W
Power consumption at 50 Hz	9.2 W	9.2 W	3.8 W	3.8 W
Voltage	24 V~	24 V~	230 V~	24 V~
Weight (kg)	2.5	2.5	2.2	2.2

Angle of rotation of end shaft is adjustable from min. 30° to max. 320° by means of a switching cam (starting point is freely selectable). If a potentiometer is fitted: Observe angle of rotation of potentiometer

Type of protection IP43 only in conjunction with M20 \times 1.5 cable gland. Type of protection IP55 with steel or aluminium cover (accessory) and M20 \times 1.5 cable gland





At temperatures under 0 °C, use heating resistor (accessory)

Accessories

- *i* Potentiometer with rigid coupling: Obligatory for certain TÜV-approved burner control systems
- $\it i$ Pluggable auxiliary change-over contacts: Switching cam 180° ON or 180° OFF can be positioned at any point over the entire angle of rotation (360°)

Туре	Description
0188614000	Fixing bracket for wall mounting
0274605000	Angled ball joint for clamping lever with M10 nut
0294967000	Pivot pin for clamping lever
0370205001	Heating resistor 5 W, 230 V~
0370205002	Heating resistor 5 W, 24 V~
0370396000	3 insertable auxiliary change-over contacts, 10(2) A 250 V~
0370479000	Steel hood + manual adjuster, hammer enamel finish RAL 1020
0370486000	Clamping lever, complete (including square hub)
0370493000	2 auxiliary contacts Min. load: 100 mA, 24 V~
0370628000	Adaptor plate including 4 M6 countersunk screws for replacing A33 W. with A44 W.
0370638000	Straight ball joint for clamping lever with nut (M10)
0370715001	Cover made of die-cast aluminium with rubber seal, type of protection IP55
0371290001	Cover, black, made of die-cast aluminium with display window, rubber seal, position indicator and scale, type of protection IP55
0372460001	Cable screw fitting (plastic M20 × 1,5) incl. locking nut and seal
0370640002	Potentiometer 130 Ω , 1.0 W with friction coupling
0370640006	Potentiometer 1000 Ω , 1.0 W with friction coupling
0370641006	Dual-operation potentiometer 130/140 Ω , 1.0 W with friction coupling
0370644001	Rotation-angle cog set 90° or 180°, with coupling
0370644002	Rotation-angle cog set 120° or 150°, with coupling
0370645006	Potentiometer 1000 Ω , 1.0 W with rigid coupling
0370645007	Potentiometer 5000 Ω , 1.0 W with rigid coupling
0370646001	Rotation-angle cog set 90°, without coupling
0370646002	Rotation-angle cog set 120°, without coupling
0378110001	Assembly parts; DEF DN 2565 for A44
0378111001	Assembly parts; DEF DN 80125 for A44
0378112001	Assembly parts; DEF DN 150200 for A44

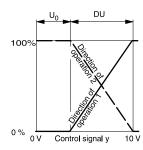
- → 0370396000: (3 auxiliary contacts) Min. load: 100 mA, 24 V~
- 0370479000: (steel hood + manual adjuster) olive yellow, hammer enamel finish RAL 1020
- 0370493000: (2 auxiliary contacts) Min. load: 100 mA, 24 V~





A44W*SF001





A44 W0S...W2S: Motorised actuator with positioner

- Operation of control units such as air dampers, gates, butterfly valves etc.
- For controllers with continuous output (0...10 V/0...20 mA)
- Synchronous motor with limit switch and integrated positioner
- Maintenance-free gear unit
- Moves the control unit to any intermediate position
- Direction of operation can be selected with switch
- Cable gland M20 × 1.5
- Crank for manual adjustment

Power supply		
	Power supply	24 V~, ±20%, 5060 Hz
	Power consumption when idle	3 VA
	Power consumption with 60 Hz	A44WS02, A44W1S \rightarrow 13.4 W A44W2S \rightarrow 7.8 W at standstill \rightarrow 3 VA
Parameters		
Positioner	Control signal 010 V	$R_i = 30 \text{ k}\Omega$
	Control signal 020 mA	$R_i = 50 \text{ k}\Omega$
	Positional feedback 010 V	Permissible load ≥ 2.5 k()
	Positional feedback 0620 mV	Permissible load ≥ 1.00 k()
	Starting point U ₀	0.49.1 V
	Control span ΔU	110 V
	Switching range X _{sh}	4% of ΔU
	Angle of rotation ¹⁾	30°320° (90° nominal)
Ambient conditions		
	Ambient temperature	-550 °C
	Ambient humidity	595% rh
	Storage and transport temperature	-3070 °C
Construction		
	Housing material	Light-metal alloy, cover made of fire-re tardant plastic
	Screw terminals	For electrical cables of up to 1.5 mm ²
Standards and directives		
	Type of protection ²⁾	IP43 (EN 60529)
	EMC Directive 2014/30/EU	EN 61000-6-1/EN 61000-6-3 EN 61000-6-4

Type of protection IP43 only in conjunction with M20 \times 1.5 cable gland. Type of protection IP55 is attained with steel or aluminium cover (accessory) and M20 \times 1.5 cable gland.



Angle of rotation of end shaft is 90° (factory set). Changing the arrangement to 180° is possible by reversing the cogs and readjusting the limit switches. Refer to fitting instruction MV 505228

Overview of types

 $m{i}$ Admissible damper surface area: The recommended admissible damper area applies to equal-sided, smooth-running air dampers

Туре	Rotational tor- que (Nm)	Holding torque (Nm)	Running time for 90° (s)	Admissible damper surface area (m²)	Power consumption (W)	Weight (kg)
A44W0SF001	25	22	30	8	12.2	2.7
A44W1SF001	30	30	60	10	12.2	2.7
A44W2SF001	30	30	120	10	6.8	2.4

Aggagagiag	
Accessories Type	Description
0188614000	Fixing bracket for wall mounting
0274605000	Angled ball joint for clamping lever with M10 nut
0294967000	Pivot pin for clamping lever
0370479000	Steel hood + manual adjuster, hammer enamel finish RAL 1020
0370486000	Clamping lever, complete (including square hub)
0370493000	2 auxiliary contacts Min. load: 100 mA, 24 V~
0370628000	Adaptor plate including 4 M6 countersunk screws for replacing A33 W. with A44 W.
0370638000	Straight ball joint for clamping lever with nut (M10)
0371290001	Cover, black, made of die-cast aluminium with display window, rubber seal, position indicator and scale, type of protection IP55
0372460001	Cable screw fitting (plastic M20 × 1,5) incl. locking nut and seal
0378110001	Assembly parts; DEF DN 2565 for A44
0378111001	Assembly parts; DEF DN 80125 for A44
0378112001	Assembly parts; DEF DN 150200 for A44





ASM105F122



ASM 105, 115: Damper actuator

- For controllers with switching output (2- and 3-point)
- Self-centring spindle adapter
- Gear unit can be disengaged to position the damper and for manual adjustment
- Synchronous motor with electronic activation and cut-out
- Maintenance-free
- Suitable for all fitting positions

Parameters		
	Angle of rotation	Max. 95°
	Admissible damper shaft	Ø 816 mm, 🗆 6,512.5 mm
	Admissible damper shaft (hardness)	Max. 300 HV
	Operating noise	< 30 dB (A)
	Response time	200 ms
Ambient conditions		
	Ambient temperature ¹⁾	-2065 °C
	Ambient humidity	585% rh, no condensation
Function		
	Control	2-/3-point
Construction		
	Weight	0.7 kg
	Housing	Lower section black, upper section yellow
	Housing material	Fire-retardant plastic
	Power cable	$1.2 \text{ m long}, 3 \times 0.75 \text{ mm}^2$
Standards and directives		
	Type of protection	IP54 (EN 60529)
	Protection class 24 V	III (EN 60730)
	Protection class 230 V	II (EN 60730)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2
		EN 61000-6-3, EN 61000-6-4
	Directive 2006/95/EC	EN 1050
	Low-Voltage Directive 2014/35/EU ²⁾	EN 60730-1, EN 60730-2-14 Over-voltage category III Degree of contamination II

Overview of types				
Туре	Rotational torque and holding torque	Running time for 90°	Power supply	Power consumption
ASM105F100	5 Nm	30 s	230 V~	2.4 W, 5.4 VA
ASM105F120	5 Nm	120 s	230 V~	2.0 W, 5.0 VA
ASM105F122	5 Nm	120 s	24 V~	1.6 W, 1.7 VA
ASM115F120	10 Nm	120 s	230 V~	2.0 W, 5.0 VA
ASM115F122	10 Nm	120 s	24 V~	1.6 W, 1.7 VA



Operating time approx. 80% up to 65 °C, 100% up to 55 °C only for ASM1 * 5F1 * 0

Accessories	
Туре	Description
0361977002	Assembly materials for M3R, M4R, MH32R/F, MH42R with ASM 105, 115
0372145001	Auxiliary change-over contacts, single
0372145002	Auxiliary change-over contacts, double
0372286001	Potentiometer, 130 Ω
0372286002	Potentiometer, 1000 Ω
0372286003	Potentiometer, 5000 Ω
0372300001	Torsion protection, long (230 mm)
0372301001	Spindle adaptor for squared end hollow profile (x 15 mm), pack of 10 pcs.
0372320001	Hexagon key as visualisation for position indicator
0372459102	External switching, 24 V version for parallel operation with A*M 1*4 or drives with limit switch, incl. junction box

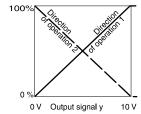
- Auxiliary change-over contacts: Infinitely variable 0...90°, admissible load 5(2) A, 24...230 V
- Potentiometers: Only one potentiometer or one set of auxiliary contacts can be fitted for each actuator





ASM105SF132





ASM 105S, 115S F132: Damper actuator with SAUTER Universal Technology (SUT)

Features

- For controllers with switching (2- and 3-point) or continuous output (0...10 V)
- Self-centring spindle adapter
- Gear unit can be disengaged to position the damper and for manual adjustment
- Stepping motor with electronic activation and cut-out
- Maintenance-free
- Intelligent adaptation of rotation angle, incl. feedback adjustment
- Free configuration using the CASE Drive PC tool
- Suitable for all fitting positions

Power supply		
	Power supply 24 V~	±20%, 5160 Hz
	Power supply 24 V=	±20%
Parameters		
	Angle of rotation	Max. 95°
	Admissible damper shaft	Ø 816 mm, □ 6,512.5 mm
	Admissible damper shaft (hardness)	Max. 300 HV
	Operating noise	< 30 dB (A)
	Response time	200 ms
Positioner	Control signal y	010 V, R_i > 100 kΩ
	Positional feedback signal y ₀	010 V; load > 10 k Ω
	Starting point U ₀	0 or 10 V
	Control span ΔU	10 V
	Switching range X _{sh}	200 mV
Ambient conditions		
	Ambient temperature	-2055 °C
	Ambient humidity	< 95% rh, no condensation
Construction		
	Weight	0.7 kg
	Housing	Lower section black, upper section yellow
	Housing material	Fire-retardant plastic
	Power cable	$1.2 \text{ m long}, 5 \times 0.5 \text{ mm}^2$
Standards and directives		
	Type of protection	IP54 (EN 60529)
	Protection class	III (IEC 60730)
CE conformity	EMC Directive 2014/30/EU	EN 61000-6-1
		EN 61000-6-3
	21 222 (27 (7 2	EN 61000-6-4
	Directive 2006/95/EC	EN 1050

Overview of types				
Туре	Rotational torque and holding torque (Nm)	Running time for 90°	Power consumption	
ASM105SF132	5	35/60/120 s	5.0 W, 9.0 VA	
ASM115SF132	10	60/120 s	4.8 W, 8.7 VA	



Accessories	
Туре	Description
0313529001	Split-range unit for adjusting sequences, fitted in separate junction box
0361977002	Assembly materials for M3R, M4R, MH32R/F, MH42R with ASM 105, 115
0372145001	Auxiliary change-over contacts, single
0372145002	Auxiliary change-over contacts, double
0372286001	Potentiometer, 130 Ω
0372286002	Potentiometer, 1000 Ω
0372286003	Potentiometer, 5000 Ω
0372300001	Torsion protection, long (230 mm)
0372301001	Spindle adaptor for squared end hollow profile (x 15 mm), pack of 10 pcs.
0372320001	Hexagon key as visualisation for position indicator

- Auxiliary change-over contacts: Infinitely variable 0...90°, admissible load 5(2) A, 24...230 V
- Potentiometers: Only one potentiometer or one set of auxiliary contacts can be fitted for each actuator





ASM115SF152



ASM 105S, 115S F152: High-speed damper actuator with SAUTER Universal Technology (SUT)

Features

- For controllers with switching (2- and 3-point) or continuous output (0...10 V)
- Brushless motor with electronic activation and cut-out
- Intelligent adaptation of rotation angle
- Electronic force-dependent cut-off
- Direction of rotation selected with DIP switches \bigcirc and \bigcirc
- Pulse length correction in 3-point operation, i.e. internal adjustment of start-up time
- Self-centring spindle adapter
- Gear unit can be disengaged to position the damper and for manual adjustment
- Free configuration using the CASE Drive PC tool
- Maintenance-free
- Fitting: Vertically upright to horizontal, not suspended

Power supply		
	Power supply 24 V~	±20%, 5060 Hz
	Power supply 24 V=	+20%, -10%
Parameters		
	Angle of rotation	Max. 95°
	Admissible damper shaft	Ø 816 mm, □ 6,512.5 mm
	Admissible damper shaft (hardness)	Max. 300 HV
	Noise during operation (unloaded)	< 49 dB(A)
	Response time	10 ms (electrically compensated)
Positioner	Positioning signal y	010 V / 210 V, R_i = 100 k Ω , 020 mA / 420 mA, R_i = 50 Ω
	Positional feedback signal y ₀	010 V; load > 10 kΩ
	Starting point U ₀	0 or 10 V / 2 or 10 V
	Starting point I ₀	0 or 20 mA / 4 or 20 mA
	Control span ΔU	10 V
	Switching range X _{sh}	100 mV
	Control span ∆I	20 mA
	Switching range X _{sh}	0.1 mA
Ambient conditions		
Alibient Conditions	Operating temperature	-2055 °C
	Storage and transport temperature	-3065 °C
	Ambient humidity	585% rh, no condensation
	7 difficili Hollinging	565 % TH, He condensation
Construction		
	Dimensions W x H x D	70 × 63 × 133 mm
	Weight	0.7 kg
	Housing	Lower section black, upper section yellow
	Housing material	Fire-retardant plastic
	Power cable	1.2 m long, 6 × 0.5 mm ²
Standards and directives		
	Type of protection	IP54 (EN 60529)
	Protection class	III (EN 60730)
CE conformity	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4



Overview of types

 $m{i}$ Torque and holding torque: Holding torque is typically 1.5 Nm when the actuator is without power

Туре	Rotational torque and holding tor-	Running time for 90°	Power consumption
	que		
ASM105SF152	5 Nm	3 s	6.0 W, 8.5 VA
ASM115SF152	10 Nm	6 s	6.5 W, 9.0 VA

Accessories	
Туре	Description
0313529001	Split-range unit for adjusting sequences, fitted in separate junction box
0372459102	External switching, 24 V version for parallel operation with A*M 1*4 or drives with limit switch, incl. junction box
0361977002	Assembly materials for M3R, M4R, MH32R/F, MH42R with ASM 105, 115
0372300001	Torsion protection, long (230 mm)
0372301001	Spindle adaptor for squared end hollow profile (x 15 mm), pack of 10 pcs.





ASM124F12

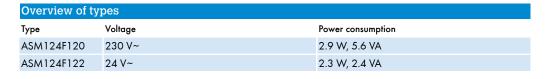


ASM 124: Damper actuator

Features

- For operating air dampers, shut-off dampers, butterfly valves and multi-leaf dampers
- For controllers with switching (2- and 3-point) output
- Synchronous motor with electronic activation and cut-out
- Maintenance-free gear unit
- Electronic end position detector and motor cut-off
- Self-centring spindle adapter for fitting onto damper spindle
- Gear unit can be disengaged to position the damper and for manual adjustment
- Suitable for all fitting positions
- Threaded holes (M5) for fitting to bracket
- Version with halogen-free cable on demand

Power supply		
Tower suppry	Power supply 230 V~	±15%, 5060 Hz
	Power supply 24 V~	±20%, 5060 Hz
	Tower supply 24 v	12070, 3000112
Parameters		
Turumotors	Torque and holding torque	18 Nm
	Running time for 90°	120 s
	Angle of rotation	Max. 95°
	Admissible damper shaft	Ø 1220 mm, 🗆 1016 mm
	Admissible damper shaft (hardness)	max. 300 HV
	Operating noise	< 30 dB (A)
	Response time	200 ms
	Response nine	200 1113
Ambient conditions		
	Ambient temperature	-2055 °C
	Ambient humidity	< 95% rh, no condensation
	·	
Construction		
	Weight	1.2 kg
	Housing	Lower section black, upper section yellow
	Housing material	Fire-retardant plastic
	Power cable	1.2 m long, 3 × 0.75 mm ²
Standards and directives		
	Type of protection	IP40 (EN 60529), IP43 (EN 60529), IP54 (EN 60529), IP55 (EN 60529)
	Protection class 230 V	II (EN 60730)
	Protection class 24 V	III (EN 60730)
	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2
		EN 61000-6-3, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 61000-6-3, EN 61000-6-4 EN 60730-1, EN 60730-2-14
	Low-Voltage Directive 2014/35/EU Over-voltage categories	-
		EN 60730-1, EN 60730-2-14
	Over-voltage categories	EN 60730-1, EN 60730-2-14 III Type 1 AB (EN 60730)
	Over-voltage categories Degree of contamination	EN 60730-1, EN 60730-2-14 III II







- Power consumption when idle:
- ASM124F120: 0.5 W, 5.1 VA
- ASM124F122: 0.03 W, 0.4 VA

Accessories	
Туре	Description
0361977001	Assembly materials for M3R, M4R, MH32F, MH42F with ASM 124
0370059000	Clamping lever for shaft, Ø 818 mm
0370990001	Auxiliary change-over contacts, single
0370990002	Auxiliary change-over contacts, double
0370992001	Potentiometer, 2000 Ω , 1 W
0370992002	Potentiometer, 130 Ω , 1 W
0372200001	Fitting bracket
0372201001	Spindle extension with coupling
0372202001	Lever, fitting strip
0372203001	Driver axle for auxiliary contacts
0372204001	Spindle for clamping lever 0370059
0372455001	Assembly part; DEF DN2565 for ASM 124/134
0372455002	Assembly part; DEF DN80100 for ASM 124; DN125 for ASM 134







ASM134F130



ASM 134: Damper actuator

- For operating air dampers, shut-off dampers, butterfly valves and multi-leaf dampers
- For controllers with a switching (3-point) output
- Self-centring spindle adapter
- Gear unit can be disengaged to position the damper and for manual adjustment
- Stepping motor with electronic activation and cut-out
- Direction of rotation changed by transposing the connections
- Suitable for all fitting positions
- Maintenance-free
- Version with halogen-free cable on demand

Power supply		
	Power supply	230 V~, ±15%, 50 Hz
	Power consumption	3.7 W, 4.7 VA
Parameters		
	Torque and holding torque	30 Nm
	Running time for 90°	120/240 s
	Angle of rotation	Max. 95°
	Admissible damper shaft	Ø 1220 mm, □ 1016 mm
	Admissible damper shaft (hardness)	Max. 300 HV
	Operating noise	< 30 dB (A)
	Response time	200 ms
	<u> </u>	
Ambient conditions		
	Ambient temperature	-2055 °C
	Ambient humidity	< 95% rh, no condensation
Construction		
	Weight	1.8 kg
	Housing	Lower section black, upper section yellow
	Housing material	Fire-retardant plastic
	Power cable	1.2 m long, 3 × 0.75 mm ²
Standards and directives		
	Type of protection	IP40 (EN 60529)
		IP54 (EN 60529)
		IP55 (EN 60529)
	Protection class	II (IEC 60730)
	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2
		EN 61000-6-3, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-14
	Over-voltage categories	III
	Degree of contamination	III
	Mode of operation	Type 2 B (EN 60730)
	Software	A (EN 60730)

Overview of types				
Туре	Power consumption during operation	Power consumption when idle		
ASM134F130	3,7 W, 4,7 VA	1,1 W, 2,7 VA		





Accessories	
Туре	Description
0361977001	Assembly materials for M3R, M4R, MH32F, MH42F with ASM 124
0370990001	Auxiliary change-over contacts, single
0370990002	Auxiliary change-over contacts, double
0370992001	Potentiometer, 2000 Ω , 1 W
0370992002	Potentiometer, 130 Ω , 1 W
0372200001	Fitting bracket
0372201001	Spindle extension with coupling
0372202001	Lever, fitting strip
0372203001	Driver axle for auxiliary contacts
0372204001	Spindle for clamping lever 0370059
0372455001	Assembly part; DEF DN2565 for ASM 124/134
0372455002	Assembly part; DEF DN80100 for ASM 124; DN125 for ASM 134
0372455003	Assembly part; DEF DN150200 for ASM 134

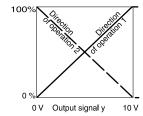
Auxiliary change-over contacts: Infinitely variable 0...90°, admissible load 5(2) A, 24...230 V





ASM1*4SF132





ASM 124S, 134S: Damper actuator with SAUTER Universal Technology (SUT)

Features

- For operating air dampers, shut-off dampers, butterfly valves and multi-leaf dampers
- For controllers with switching (2- and 3-point) or continuous output (0...10 V)
- Self-centring spindle adapter
- Gear unit can be disengaged to position the damper and for manual adjustment
- Stepping motor with electronic activation and cut-out
- Maintenance-free
- Intelligent adaptation of rotation angle, incl. feedback adjustment
- Direction of rotation changed by transposing the connections
- Suitable for all fitting positions
- Version with halogen-free cable on demand

Power supply		
	Power supply 24 V~	±20%, 5060 Hz
	Power supply 24 V=1)	±20%
Parameters		
	Angle of rotation	Max. 95°
	Admissible damper shaft (hardness)	Max. 300 HV
	Operating noise	< 30 dB(A)
	Response time	200 ms
Positioner	Control signal	010 V, R_i > 100 k Ω
	Positional feedback signal	010 V; load > 10 k Ω
	Starting point U ₀	0 or 10 V
	Control span ΔU	10 V
	Switching range X _{sh}	200 mV
Ambient conditions		
	Ambient temperature	-2055 °C
	Ambient humidity	< 95% rh, no condensation
Construction		
	Weight	1.6 kg
	Housing	Lower section black, upper section yellow
	Housing material	Fire-retardant plastic
	Power cable	1.2 m long, 2 × 0.75 mm ²
Chandanda and dinamina		
Standards and directives	T	ID 40 /EN / 0 500) ID 40 /EN / 0 500)
	Type of protection	IP40 (EN 60529), IP43 (EN 60529), IP54 (EN 60529)
	Protection class	III (IEC 60730)
	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4
	Mode of operation	Type 1 AB (EN 60730) Type 1 C (EN 60730)
	Software	A (EN 60730)



^{1) 24} V= only for control signals 0...10 V

Overview of types							
Туре	Rotational torque	Holding torque	Running time for 90°	Power consumption	Admissible damper shaft		
ASM124SF132	15 Nm	15 Nm	60, 120 s	2.4 W, 4.4 VA	Ø 1220 mm, □ 1016 mm		
ASM134SF132	30 Nm	30 Nm	120, 240 s	2.4 W, 4.3 VA	Ø 1220 mm, □ 1016 mm		

Power consumption when idle:

ASM124SF132: 0.25 W, 0.46 VA

ASM134SF132: 0.26 W, 0.48 VA

Accessories	
Туре	Description
0313529001	Split-range unit for adjusting sequences, fitted in separate junction box
0361977001	Assembly materials for M3R, M4R, MH32F, MH42F with ASM 124
0370059000	Clamping lever for shaft, Ø 818 mm
0370990001	Auxiliary change-over contacts, single
0370990002	Auxiliary change-over contacts, double
0370992001	Potentiometer, 2000 Ω , 1 W
0370992002	Potentiometer, 130 Ω , 1 W
0372200001	Fitting bracket
0372201001	Spindle extension with coupling
0372202001	Lever, fitting strip
0372203001	Driver axle for auxiliary contacts
0372204001	Spindle for clamping lever 0370059
0372455001	Assembly part; DEF DN2565 for ASM 124/134
0372455002	Assembly part; DEF DN80100 for ASM 124; DN125 for ASM 134
0372455003	Assembly part; DEF DN150200 for ASM 134

Auxiliary change-over contacts: Infinitely variable 0...90°, admissible load 5(2) A, 24...230 V





ASF112F122



ASF 112, 113: Damper actuator with spring return

Features

- For operating air dampers, shut-off dampers, butterfly valves and multi-leaf dampers
- For controllers with switching (2- and 3-point) output
- Self-centring spindle adapter
- Manual adjustment using hexagon socket, including locking of gear unit
- Maintenance-free
- Suitable for all fitting positions

Technical data

Technical data		
Power supply		
	Power supply 230 V~	±10%, 5060 Hz
	Power supply 24 V~	±20%, 5060 Hz
	Power supply 2448 V=	±20%
Parameters		
	Torque and holding torque	7 Nm
	Angle of rotation	Max. 95°
	Admissible damper shaft	Ø 6.420.5 mm, □ 6.413 mm
	Running time for 90° motor	90 s
	Running time for 90° spring	15 s
Ambient conditions		
	Ambient temperature	-3255 °C
	Ambient humidity	595% rh, no condensation
Construction		
	Housing	Cast aluminium
	Power cable	0.9 m, 0.75 mm ²
Standards and directives		
	Type of protection	IP54 (EN 60529), suspended IP42 (EN 60529), not suspended
	Protection class 24 V	III (EN 60730)
	Protection class 230 V	II (EN 60730)
	EMC Directive 2014/30/EU	EN 61000-6-2, EN 61000-6-3
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-14
	Degree of contamination	II
	Over-voltage categories	III
	• •	

Overview of types				
Туре	Control function	Voltage	Power consumption	Weight
ASF112F120	2-point	230 V~	4.5 W, 7.0 VA	1.2 kg
ASF112F122	2-point	24 V~/2448 V=	3.5 W, 5.0 VA	1.2 kg
ASF112F220	2-point	230 V~	4.5 W, 7.0 VA	1.3 kg
ASF112F222	2-point	24 V~/2448 V=	3.5 W, 5.0 VA	1.3 kg
ASF113F122	3-point	24 V~/2448 V=	3.5 W, 5.0 VA	1.2 kg

★ ASF112F220, ASF112F222: Double auxiliary contacts 6(2) A; 24...250 V~ with cable 0.9 m; 6 × 0.75 mm²



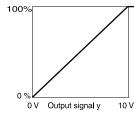
Accessories	
Туре	Description
0372245001	Lever adaptor for converting rotation into stroke
0372245002	Lever adaptor for converting rotation into stroke, with carrier plate for mounting on wall or plinth
0510240001	Assembly kit for VK**/BK** ball valves as spare part and as accessory for rotary actuators ASF 112, 113 from index B





ASF113SF122





ASF 113S: Damper actuator with spring return and positioner

Features

- For operating air dampers, shut-off dampers, butterfly valves and multi-leaf dampers
- For controllers with a continuous output (0...10 V)
- Self-centring spindle adapter
- Manual adjustment using hexagon socket, including locking of gear unit
- Maintenance-free
- Suitable for all fitting positions

Technical data

Power supply		
	Power supply 24 V~	±20%, 5060 Hz
	Power supply 2448 V=	±20%
	Power consumption	3.5 W, 5.0 VA
Parameters		
	Running time for 90° motor	90 s
	Running time for 90° spring	15 s
	Torque	7 Nm
	Holding torque	7 Nm
	Angle of rotation	Max. 95°
	Admissible damper shaft	\varnothing 6.420.5 mm, \square 6.413 mm
	Admissible damper surface area1)	1.5 m ²
Positioner	Control signal	010 V, R _i = 100 kΩ
	Positional feedback signal	010 V (0100%)
	Admissible load	> 10 kΩ
	Switching range X _{sh}	0.2 V
Setting range	Starting point U ₀	0 V
5 5	Control span ΔU	10 V
Ambient conditions		
	Ambient temperature	-3255 °C
	Ambient humidity	< 95% rh
Construction		
	Weight	1.3 kg
	Housing	Cast aluminium
	Power cable	0.9 m, 4 × 0.75 mm ²
Standards and directives		
	Type of protection	IP54 (EN60529), suspended IP 42 (EN 60529), not suspended
	Protection class	III (IEC 60730)
	Degree of contamination	II
	Over-voltage categories	III
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-14
	EMC Directive 2014/30/EU	EN 61000-6-2, EN 61000-6-3

Overview of types

Type Feature

ASF113SF122 Damper actuator with spring return and positioner



¹⁾ Recommended value for smooth-running air dampers

Accessories	
Туре	Description
0372245001	Lever adaptor for converting rotation into stroke
0372245002	Lever adaptor for converting rotation into stroke, with carrier plate for mounting on wall or plinth
0510240001	Assembly kit for VK**/BK** ball valves as spare part and as accessory for rotary actuators ASF 112, 113 from index B





ASF122F122



ASF 122, 123: Damper actuator with spring return

Features

- For operating air dampers, shut-off dampers, butterfly valves and multi-leaf dampers
- For controllers with switching (2- and 3-point) output
- Self-centring spindle adapter
- Manual adjustment using hexagon socket, including locking of gear unit
- Wear-free brushless motor
- Maintenance-free
- Change direction of rotation by simply turning the actuator
- Suitable for all fitting positions

Power supply		
	Power supply 24 V~	±20%, 5060 Hz
	Power supply 230 V~	±10%, 5060 Hz
	Power supply 2448 V=	±20%
Parameters		
	Running time for 90° motor	90 s
	Running time for 90° spring	15 s
	Torque and holding torque	18 Nm
	Angle of rotation	Max. 90°
	Admissible damper shaft	Ø 825 mm, □ 618 mm
Ambient conditions		
	Ambient temperature	−3255 °C
	Ambient humidity	595% rh
Construction		_
	Housing	Cast aluminium
	Power cable	0.9 m, 0.75 mm ²
Standards and directives		
Startauras ana anconvos	Type of protection	IP54 (EN60529), suspended
	Type of profection	IP42 (EN 60529), not suspended
	Protection class 24 V	III (EN 60730)
	Protection class 230 V	II (EN 60730)
	EMC Directive 2014/30/EU	EN 61000-6-2, EN 61000-6-3
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-14
	Over-voltage categories	III
	Degree of contamination	II

Overview of types				
Туре	Control function	Voltage	Power consumption	Weight
ASF122F120	2-point	230 V~	6 W, 8 VA	2 kg
ASF122F122	2-point	24 V~/2448 V=	5 W, 7 VA	2 kg
ASF122F220	2-point	230 V~	6 W, 8 VA	2.1 kg
ASF122F222	2-point	24 V~/2448 V=	5 W, 7 VA	2.1 kg
ASF123F122	3-point	24 V~/2448 V=	5 W, 7 VA	2 kg

 $[\]ref{SF122F220}$, ASF122F222: With double auxiliary contacts 6(2) A; 24...250 V~; with cable 0.9 m; 6 × 0.75 mm²



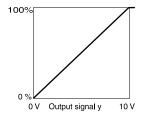
Accessories	
Туре	Description
0370997001	Lever adaptor for converting rotation into stroke
0370998001	Lever adaptor for converting rotation into stroke, with carrier plate for mounting on wall or plinth
0378113001	Assembly parts; DEF DN 25100 for ASF122/123





ASF123SF122





ASF 123S: Damper actuator with spring return and positioner

Features

- For operating air dampers, shut-off dampers, butterfly valves and multi-leaf dampers
- For controllers with a continuous output (0...10 V)
- Self-centring spindle adapter
- Manual adjustment using hexagon socket, including locking of gear unit
- Wear-free brushless motor
- Maintenance-free
- Change direction of rotation by simply turning the actuator
- Suitable for all fitting positions

Technical data

Power supply		
	Power supply 2448 V=	±20%
	Power consumption	5.4 W, 7.5 VA
Parameters		
	Running time for 90° motor	90 s
	Running time for 90° spring	15 s
	Torque and holding torque	18 Nm
	Angle of rotation	Max. 95°
	Admissible damper shaft	Ø 825 mm, □ 618 mm
Positioner	Control signal	010 V, R_i = 100 k Ω
	Positional feedback signal	010 V (0100%)
	Admissible load	> 10 kΩ
	Switching range X _{sh}	0.2 V
Setting range	Starting point U ₀	0 V
	Control span ΔU	10 V
		·
Ambient conditions		
	Ambient temperature	-3255 °C
	Ambient humidity	< 95% rh
Construction		
	Weight	2 kg
	Housing	Cast aluminium
	Power cable	$0.9 \text{ m}, 4 \times 0.75 \text{ mm}^2$
Standards and directives		
	Type of protection ¹⁾	IP54 (EN60529), suspended IP42 (EN 60529), not suspended
	Protection class	III (IEC 60730)
	EMC Directive 2014/30/EU	EN 61000-6-2, EN 61000-6-3
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-14
	Over-voltage categories	III
	Degree of contamination	II
	5	

Overview of types

ASF123SF122 Damper actuator with spring return and positioner



Depending on fitting position, ensure IP54

Accessories	
Туре	Description
0370997001	Lever adaptor for converting rotation into stroke
0370998001	Lever adaptor for converting rotation into stroke, with carrier plate for mounting on wall or plinth
0378113001	Assembly parts; DEF DN 25100 for ASF122/123



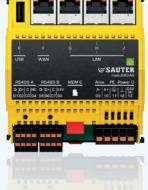
SAUTER modulo 6

modulo 6 provides unequalled performance in terms of data points per automation station, memory space and processing speed – all of this while taking up minimum space in the control panel. modulo 6 can be operated intuitively! It connects via Bluetooth to a smartphone or tablet. As an alternative to smartphone operation, modulo 6 also has a local operating unit (LOI) with a high-resolution graphical colour display. The LOI is compatible with all the available I/O modules and offers priority operation independently of the automation station.

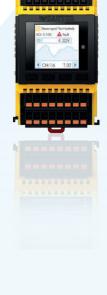
modulo 6 connects with the cloud and with IoTs just as naturally and securely as with the existing plants for heating, ventilation, and air conditioning. BACnet/SC is adding a further security level to product series.

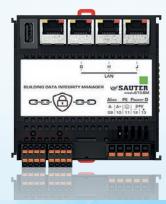
The modulo 6 mobile app with augmented reality function shows real-time values and signal labels. Values can be altered easily on the touchscreen which helps increase service productivity.

The new Building Data Integrity Manager uses block-chain technology. Thus, it represents a local solution for data integrity in the plant.















SAUTER modulo 6

HVAC automation

EY6AS80: Modular BACnet automation station and web server, modu680-AS	377
EY6AS60: Modular BACnet automation station, modu660-AS	381
EY6LC01: Module for separated I/O module supply, modu601-LC	385
EY6LC02: Coupling kit for I/O modules in cabinet, modu602-LC	387
EY6LC12: IP coupler for I/O modules with web server, modu612-LC	389
EY61O30: 16 × DI/Cl inputs I/O module, modu630-IO	392
EY61O31: 8 × UI (DI/CI/AI), 8 × DI/CI I/O module, modu631-10	394
EY61O50: 6 × relay (2A) outputs I/O module, modu650-1O	396
EY61O70: 8 × DI/CI/DO (OC) and 8 × DI/CI I/O module, modu670-1O	398
EY61O71: 8 × AO and 8 × DI/Cl I/O module, modu671-IO	400
EY6IO72: $4 \times AO$, $4 \times DO(OC)$, $4 \times UI (DI/CI/AI) I/O module$, modu672-IO	402
EY6LO00: Operating and indicating unit for I/O modules, modu600-LO	405
EY6CM20: Modbus-RTU (RS-485) communication module, modu620-CM	408
EY6CM30: M-Bus communication module, modu630-CM	410
EY6CM40: KNX-TP communication module, modu640-CM	412
EY6CM50: DALI communication module, modu650-CM	413
EY6CM60: SMI communication module, modu660-CM	415
EY6BM15: Building Data Integrity Manager, modu615-B	417

SAUTER modulo 6 automation stations

SAUTER modulo 6 automation stations regulate, control, monitor and optimise the energy efficiency in HVAC installations. The installation network is based on BACnet/IP – the communication protocol for networked building intelligence.

Overview of automation stations





Type designation	EY6AS80	EY6AS60	
Product name	modu680-AS	modu660-AS	
Parameters			
Power supply	24	V=	
Connection of		ecoUnit room operating units, EnOcean wireless inter- ice	
I/O and COM extension modules	24 with modulo601-LC (5 a	of which are COM modules)	
Interfaces, communication			
Interfaces	RS-485, WAN, Ethernet, REST API, Bluetooth, USB, microSD	RS-485, Ethernet, REST API, Bluetooth, USB, microSD	
Ethernet/LAN	3 × RJ45 (switched)	2 × RJ45 (switched)	
Ethernet/WAN	1 ×	RJ45	
SLC/RS-485 interfaces		1	
Modbus/RS-485 interfaces	1	-	
Protocols	BACnet/IP, SLC, Modbus RTU, HTTP(S), NTP, SMTP, SMPP	BACnet/IP, SLC, HTTP(S), NTP	
BACnet profile	B-	BC	
AMEV profile	A	S-B	
Objects			
Data points (BACnet objects)	Max. 1600 I/O	Max. 800 I/O	
Control (loop)	96	48	
Sequences, scenes (Command)		16	
Calendars (Calendar)	32		
Time programmes (Schedule)	e de la companya de	64	
Historical data (Trend Log)	1600	800	
Alarms (Notification Class)	32		
Further information	Page 377	Page 381	

EY6AS80: Modular BACnet automation station and web server, modu680-AS

Features

- Part of the SAUTER modulo 6 system family
- Modular automation station, expandable with I/O modules and communication modules
- Regulation, control, monitoring and optimisation of operational systems in HVAC
- Locally expandable with up to 24 modules via the SAUTER Extension Bus
- Can be locally equipped with ecoLink I/O modules and ASV actuators via SLC interface
- RS-485 interface for field bus integration (Modbus RTU/ASCII)
- Four RJ45 connections for two separate IP networks (OT/IT; Operational/Information Technology). Three connections switched for daisy chain
- BACnet/IP communication (EN ISO 16484-5)
- REST API interface
- BACnet profile B-BC
- AMEV profile AS-B
- Integrated web server for local commissioning, visualisation and operation
- User administration for identification, authentication and access control
- Encryption of communication with TLS 1.2
- Bluetooth interface for mobile commissioning and maintenance
- Programming/parameterisation via PC using CASE Suite (based on IEC 61131-3)
- Control libraries
- Time and calendar function
- Predictive control based on meteorological forecast data
- Data recording on removable media (microSD card)
- User administration and user identification (web server)
- Alive signal output pulsed

Technical data

Power supply		
	Power supply	24 V= ± 10%
	Power consumption ¹⁾	≤ 2 W without load
		≤ 24 W at maximum load
	Dissipated power	≤ 2 W without load
		≤ 4 W at maximum load
	Peak inrush current ²⁾	≤ 2 A, ≤ 10 ms
Parameters		
	Connection	5-pin spring-type terminal, pluggable,
		0.51.5 mm ² (rigid)
		0.52.5 mm ² , min. 8 mm wire stripped
	Battery (buffer: RTC)	CR2032, pluggable
	Earth connector	Spring contact against DIN rail and PE terminal
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2070 °C
	Ambient humidity	1090% rh, no condensation

Maximum load with 12 I/O modules



EY6AS80F021







²⁾ Measured value with EY-PSO21FO21 power supply unit

Function		
BACnet	BACnet data point objects	Up to 1600 DP
	BACnet client links	600 (Peer-to-Peer)
	Control	96 (Loop)
	Active COV subscription	4800
	Structured view	128 (Structured View)
Dynamic objects	Sequences, scenes	16 (Command)
	Time programmes	64 (Schedule)
	Calendar	32 (Calendar)
	Alarms	32 (Notification Class) intrinsically or extrinsically with Event Enrolment
	Historical data	1600 (Trend Log) up to 60,000 entries
	BBMD in BDT	32
	FD in FDT	32
	Time synchronisation	Master or client, local or UTC
Services	Embedded web server	moduWeb Unity HTTP(S)
	Notification (client)	SMTP, SMPP
	Time synchronisation (client)	BACnet or NTP
	Data integrity (client)	With modu615-BM
Architecture		
	Processor	ARM Cortex A8, 32 bit, 1 GHz
	RAM (memory)	512 MB (DDR3)
	Flash	512 MB
	Operating system	Embedded Linux
	Application data	Via CASE Engine
	Processes	Supports separated processes with dif- ferent cycle times and independent booting
	Cycle time	Adjustable for each process, min. 50 ms (50, 100, 500, 1000)
Interfaces and communication		
Ethernet network #1	Communication must cal	LITTD/C) NITD CAATD CAADD
Einerner neiwork # I	Communication protocols Ethernet network	HTTP(S), NTP, SMTP, SMPP
		1 × RJ45 connector
	10/100 BASE-T(X)	10/100 Mbit/s
Ethernet network #2	Communication protocols	BACnet/IP (DIX), HTTP(S), NTP, SMTP, SMPP
	Ethernet network	3 × RJ45 connector
	10/100 BASE-T(X) switched	10/100 Mbit/s
Connection of I/O / COM modules	Use ³⁾	1 × integrated iSEB interface for max. 12 modules, expandable with modu601-LC for max. 24 modules in total
RS-485 A connection	Communication protocol	Modbus RTU/ASCII Modbus master according to V1.02
	Bus physics	1 unit load (UL), electrically isolated
	Bus speed	600115,200 bit/s
		Parity bit, stop bit, Rx/Tx bus timing
	Connection	Spring-type terminal, pluggable 0.21.5 mm ² stiff/flexible
	Line ⁴⁾	3-/4-wire (D+/D-/COM reference), twisted, shielded, up to 1000 m
	Use	Integration of Modbus slaves in an RS-485 segment (line)
	Participant	Up to 31 RS-485 unit loads (UL)
	120 Ω bus termination and pull- up/pull-down	Switchable via software (CASE Engine)
RS-485 B connection	Communication protocol	SLC master
	Use	ecoLink, ASV, ecoUnit, FCCP200

Performance-dependent
Performance-dependent

	Participant	Max. 8 ecoLink modules and 4 eco- Unit modules, max. 12 ASV units
	Power supply	2026 V=, max. 1.5 W, protected against short circuit, can be switched on/off (CASE Sun)
	Connection	Spring-type terminal, pluggable 0.21.5 mm ² stiff/flexible
	Line	4-wire, twisted, shielded
	Line length	Max. 100 m (30 m) with ecoUnit or ASV, up to 500 m, bus termination necessary (120 Ω)
	120 Ω bus termination and pull-up/pull-down	Switchable via software (CASE Sun)
Bluetooth	Version	BLE 4.0
	Range	< 10 m
	Radiation	6 mW
USB	Version	2.0, type A
	Current limitation	400 to max. 500 mA
SD memory expansion	Туре	microSD, suitable for industrial use
Construction		
	Fitting	On metallic DIN rail 35 × 7.5/15 as per EN 60715. Rail housing as per DIN 43880
	Dimensions W x H x D	92.6 (5 HP) × 100.9 × 58.3 mm
	Weight	260 g
Standards and directives		
	Type of protection	Connections:IP00 Front in DIN cut-out:IP30 (EN 60730-1)
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
	Software class ⁵⁾	A (EN 60730-1, Appendix H)
	Energy class	I to VIII = up to 5% as per EU 811/2013, 2010/30/EU, 2009/125/EC
	BACnet profile	B-BC (ISO 16484-5)
	AMEV profile	AS-B
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 50491-5-1, EN 50491-5-2, EN 50491-5-3
		LIN JU47 1-J-J
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-9, EN 62479
	Low-Voltage Directive 2014/35/EU RoHS Directive 2011/65/EU	

Overview of types

Features

EY6AS80F021 Modular BACnet automation station and web server

Accessories

Plug-in I/O modules

Туре	Description
EY6IO30F001	modu630-IO 16 × DI/CI inputs I/O module
EY6IO70F001	modu670-IO 8 × DI/CI/DO(OC), 8 × DI/CI I/O module
EY6IO31F001	modu631-IO 8 × UI(DI/CI/AI), 8 × DI/CI I/O module
EY6IO71F001	modu671-IO 8 × AO, 8 × DI/CI I/O module

 $^{^{5)}\,\,}$ The product is not suitable for safety functions

EY6IO50F001 $modu650-IO 6 \times relay (2A)$ outputs I/O module

 $\begin{tabular}{ll} EY6IO72F001 & modu672-IO~4 \times AO,~4 \times DO(OC),~4 \times UI~(DI/CI/AI)~I/O~module~(expected~to~be~available~in~the control of the control of$

mid-2021)

Connection modules

Type Description

EY6LC01F001 Module for separate I/O module supply

EY6LC02F001 Coupling kit for I/O modules in cabinet (P100017761 and P100017762)

Function expansions

Type Description

Y6WS80F009 Data point extension activation code for moduWeb Unity on modu680-AS

Y6WS80F031 Network option activation code for modu680-AS (expected to be available in mid-2021)

Manuals

Document number	Language	Title	
D100397589	de	Systembeschreibung SAUTER modulo	
D100408512	de	EY-modulo 6 - Best Practice I	
D100402674	en	SAUTER modulo system description	
D100410201	en	EY-modulo 6 - Best Practice I	
D100402676	fr	Description du système SAUTER modulo	
D100410203	fr	EY-modulo 6 - Meilleures pratiques I	



EY6AS60: Modular BACnet automation station, modu660-AS

Features

- Part of the SAUTER modulo 6 system family
- Modular automation station, expandable with I/O modules and communication modules
- Regulation, control, monitoring and optimisation of operational systems in HVAC
- Locally expandable with up to 24 modules via the SAUTER Extension Bus
- Can be locally equipped with ecoLink I/O modules and ASV actuators via SLC interface
- Two connections switched for daisy chain
- BACnet/IP communication (EN ISO 16484-5)
- REST API interface
- BACnet profile B-BC
- AMEV profile AS-B
- Integrated web server for local commissioning, expandable with visualisation and operation
- User administration for identification, authentication and access control
- Encryption of communication with TLS 1.2
- Bluetooth interface for mobile commissioning and maintenance
- Programming/parameterisation via PC using CASE Suite (based on IEC 61131-3)
- Control libraries
- Time and calendar function
- Predictive control based on meteorological forecast data
- Data recording on removable media (microSD card)
- User administration and user identification (web server)
- Alive signal output pulsed

Technical data

Power supply		
	Power supply	24 V= ± 10%
	Power consumption ¹	≤ 2 W without load ≤ 24 W at maximum load
	Dissipated power	≤ 2 W without load ≤ 4 W at maximum load
	Peak inrush current ²⁾	≤ 2 A, ≤ 10 milliseconds
Parameters		
	Connection	5-pin spring-type terminal, pluggable, 0.51.5 mm ² (rigid) 0.52.5 mm ² , min. 8 mm wire stripped
	Battery (buffer: RTC)	CR2032, pluggable
	Earth connector	Spring contact against DIN rail and PE terminal
Ambient conditions		- 4
	Operating temperature	045 °C
	Storage and transport temperature	−2570 °C
	Ambient humidity	1090% rh, no condensation
Function		
	BACnet data point objects	Up to 800 DP
	BACnet client links	200 (Peer-to-Peer)

¹⁾ Maximum load with 12 I/O modules



EY6AS60F011





²⁾ Measured value with EY-PSO21FO21 power supply unit

	Control	48 (Loop)
	Active COV subscription	1500
	Structured view	128 (Structured View)
Dynamic objects	Sequences, scenes	16 (Command)
,	Time programmes	64 (Schedule)
	Calendar	32 (Calendar)
	Historical data	800 (Trend Log) up to 60,000 entries
	Alarms	32 (Notification Class) intrinsically or extrinsically with Event Enrolment
Services	BBMD in BDT	32
	FD in FDT	32
	Embedded web server	moduWeb Unity
	Time synchronisation	BACnet time synchronisation or NTP cli
		ent
Architecture	_	404.01.04
	Processor	ARM 8.1 GHz
	RAM (memory)	512 MB (DDR3)
	Flash	512 MB
	Application data	Via CASE Engine
	Operating system	Embedded Linux
	Processes	Supports separated processes with dif- ferent cycle times and independent booting
	Cycle time	Adjustable via process, min. 50 milli- seconds (50, 100, 500, 1000)
Interfaces, communication		
Ethernet network	Ethernet network	2 × RJ45 connector
Elliether herwork	10/100 BASE-T(X) switched	10/100 Mbit/s
	Communication protocols	BACnet/IP (DIX), HTTP(S), NTP
Connection of I/O / COM modules	Use ³	1 × integrated iSEB interface for max. 12 modules, expandable with modu601-LC for max. 24 modules in total
RS-485 connection	Communication protocol	SLC master
NO 400 COMMODICIN	Use	ecoLink, ASV, ecoUnit, FCCP200
	Participant	Max. 8 ecoLink modules and 4 ecoUnit modules, max. 8 ASV units
	Power supply	24 V= ± 5%, max. 1.5 W, protected against short circuit, can be switched on/off (CASE Sun)
	Connection	Spring-type terminal, pluggable 0.21.5 mm ² stiff/flexible
	Line	4-wire, twisted, shielded
	Line length	Max. 100 m (30 m) with ecoUnit or ASV, up to 500 m,
		up to 500 m, bus termination necessary (120 Ω)
	120 Ω bus termination and pull-up/pull-down	Switchable via software (CASE Sun)
Bluetooth	Version	BLE 4.0
	Range	< 10 m
	Radiation	6 mW
USB	Version	2.0, type A
	Current limitation	400 to max. 500 mA
SD memory expansion	Туре	microSD, suitable for industrial use
Construction		
	Fitting	On DIN rail 35 × 7.5/15 as per EN 60715
	Dimension M. H. D	Rail housing as per DIN 43880
	Dimensions W x H x D	92.6 (5 HP) x 100.9 x 58.3 mm

³⁾ Performance-dependent

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$\overline{}$	

	Weight	260 g
Standards, directives		
	Type of protection	Connections:IP00 Front in DIN cut-out:IP30 (EN 60730-1)
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
	Software class ⁴⁾	A (EN 60730-1, Appendix H)
	Energy class	I to VIII = up to 5% as per EU 811/2013, 2010/30/EU, 2009/125/EC
	BACnet profile	B-BC (ISO 16484-5)
	AMEV profile	AS-B
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 50491-5-1, EN 50491-5-2, EN 50491-5-3
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-9, EN 62479
	RoHS Directive 2011/65/EU	EN 50581
	RED Directive 2014/53/EU	EN 300328 (V2.1.1)

Overview of types

Туре Description

EY6AS60F011 Modular BACnet automation station and web server

Accessories

Plug-in I/O modules

Туре	Description
EY6IO30F001	modu630-IO 16 × DI/CI inputs I/O module
EY6IO31F001	modu631-IO 8 × UI(DI/CI/AI), 8 × DI/CI I/O module
EY6IO50F001	modu650-10 6 × relay (2A) outputs I/O module
EY6IO70F001	modu670-IO 8 × DI/CI/DO(OC), 8 × DI/CI I/O module
EY6IO71F001	modu671-IO 8 × AO, 8 × DI/CI I/O module
EY6IO72F001	modu672-IO $4 \times$ AO, $4 \times$ DO(OC), $4 \times$ UI (DI/CI/AI) I/O module (expected to be available in mid-2021)

Connection modules

Туре	Description

EY6LC01F001 Module for separate I/O module supply

EY6LC02F001 Coupling kit for I/O modules in cabinet (P100017761 and P100017762)

Function expansions

Туре Description

Y6WS60F009 Data point extension activation code for moduWeb Unity on modu660 AS

Y6WS60F021 Activation code for visualisation on modu660-AS (expected to be available in mid-2021)

Manuals

Document number	Language	Title	
D100397589	de	Systembeschreibung SAUTER modulo	
D100408512	de	EY-modulo 6 - Best Practice I	
D100402674	en	SAUTER modulo system description	
D100410201	en	EY-modulo 6 - Best Practice I	
D100402676	fr	Description du système SAUTER modulo	
D100410203	fr	EY-modulo 6 - Meilleures pratiques I	

 $^{^{4)}}$ The product is not suitable for safety functions

SAUTER modulo 6 connection modules

The SAUTER modulo 6 connection modules offer more flexibility in the cabinet installation (modu602-LC) and more freedom for a decentralised topology (modu612-LC). The modu601-LC ensures the functionality of the I/O modules if the operation of the automation station is interrupted.

Overview of connection modules







		The state of the s	
Type designation	EY6LC01F001	EY6LC02F001	EY6LC12F011
Product name	modu601-LC	modu602-LC	modu612-LC
Power supply	24 V=	-	24 V=
IP network interfaces	-	-	2 (switch)
I/O and COM extension modules	-	-	Max. 24 (of which 6 are COM modules)
Cloud Connector	-	-	MQTT
Further information	Page 385	Page 387	Page 389

EY6LC01: Module for separated I/O module supply, modu601-LC

Features

- Part of the SAUTER modulo 6 system family
- Enables separate supply between automation station and I/O modules
- Power supply of I/O modules and connected LOI units (Local Override and Indication Device)
- Allows extension to up to 24 I/O modules
- Enables simple wiring tests of the I/O modules without the station, together with modu600-LO on the



EY6LC01

Technical data

Technical data		
Power supply		
	Power supply	24 V= ± 10%
	Dissipated power	< 0.5 W
	Power consumption	< 19 W at max. load
	Peak inrush current ¹⁾	≤ 2 A, ≤ 10 ms
Parameters		
raiameters	Connection	3-pin spring-type terminal, pluggable, 0.51.5 mm ² (rigid)
		0.52.5 mm ² , min. 8 mm wire stripped
Ambient conditions		
Ambient conditions	Operating temperature	045 °C
	Operating temperature	-2570 °C
	Storage and transport temperature	
	Ambient humidity	1090% rh, no condensation
Interfaces and communication		
	Connection, I/O bus	6-pin spring contacts left and 7-pin right
	Earth connector	Spring contact against DIN rail and PE feed connection
Construction		
	Fitting	On metallic DIN rail 35 × 7.5/15 as per EN 60715 Rail housing as per DIN 43880
	Dimensions W x H x D	56 × 97 × 59 mm
	Weight	98 g
Standards and directives		
	Protection type (as per EN 60730)	Connections and terminals: IPOO Front in DIN cut-out: IP30
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 50491-5-1, EN 50491-5-2, EN 50491-5-3

Overview of types

Description

EY6LC01F001 Module for separate I/O module supply



¹⁾ Measured value with EY-PS021F021 power supply unit

Manuals

Document number	Language	Title	
D100397589	de	Systembeschreibung SAUTER modulo	
D100408512	de	EY-modulo 6 - Best Practice I	
D100402674	en	SAUTER modulo system description	
D100410201	en	EY-modulo 6 - Best Practice I	
D100402676	fr	Description du système SAUTER modulo	
D100410203	fr	EY-modulo 6 - Meilleures pratiques I	



EY6LC02: Coupling kit for I/O modules in cabinet, modu602-LC

Features

- Part of the SAUTER modulo 6 system family
- Arrangement of I/O modules in up to three rows for space-optimised cabinet installation
- Minimum space requirement of the transmitter and receiver modules (1.5 HP)
- Up to two modu602-LC per station

Technical data

Technical data		
Power supply		
	Power supply	From AS or LC via I/O bus
	Dissipated power	< 0.3 W incl. 3 m cable
Parameters		
	Max. number per station	2
	Max. cable length per station	3 m
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	−2570 °C
	Ambient humidity	1090% rh, no condensation
	·	
Interfaces and communication	n	
	Connection	RJ45 connector
	Cable type	RJ45 type S/FTP, not crossed, at least AWG 24
	Connection, I/O bus	P100017761:7-pin spring contacts, only left P100017762:7-pin spring contacts, only right
	Earth connector	Spring contact against DIN rail
Construction		
	Fitting	On metallic DIN rail 35 × 7.5/15 as per EN 60715 Rail housing as per DIN 43880
	Dimensions W x H x D	27 × 97 × 59 mm
	Weight ¹⁾	95 g
		-
Standards and directives		
	Protection type (as per EN 60730)	Connections and terminals: IP00 Front in DIN cut-out: IP30
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 50491-5-1, EN 50491-5-2,

Overview of types

Туре	Description
EY6LC02F001	Coupling kit for I/O modules in cabinet (P100017761 and P100017762)

Manuals

7, Idilodio			
Document number Language Title		Title	
D100397589	de	Systembeschreibung SAUTER modulo	
D100408512	de	EY-modulo 6 - Best Practice I	

EN 50491-5-3



EY6LC02





¹⁾ Total weight

SAUTER modulo 6 | HVAC automation

Document number	Language	Title	
D100402674	SAUTER modulo system description		
D100410201	en	EY-modulo 6 - Best Practice I	
D100402676	fr	Description du système SAUTER modulo	
D100410203	fr	EY-modulo 6 - Meilleures pratiques I	



EY6LC12: IP coupler for I/O modules with web server, modu612-LC

Features

- Part of the SAUTER modulo 6 system family
- Remote operation of COM and I/O modules for modulo 6 automation stations via IP network
- Locally expandable with up to 24 modules via iSEB interface
- Two RJ45 connections switched for daisy chain
- MQTT communication
- Integrated web server for local commissioning
- Bluetooth interface for mobile commissioning and maintenance
- User administration and user identification (web server)

Technical data

Power supply		
	Power supply	24 V= ± 10%
Parameters		
	Connection	5-pin spring terminal, pluggable, 0.52.5 mm ² , at least 8 mm
	Battery (buffer: RTC/SRAM)	CR2032, pluggable
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1090% rh, no condensation
Architecture		
	Processor	ARM 8, 1 GHz
	Embedded web server	moduWeb Unity
	Operating system	Embedded Linux
Interfaces and communication		
Ethernet network	Ethernet network	2 × RJ45 socket, switched
	10/100 BASE-T(X) switched	10/100 Mbit/s
Construction		
	Dimensions W x H x D	87.5 × 97 × 54 mm
	Fitting	On DIN rail 35 × 7.5/15 as per EN 60715
		Rail housing as per DIN 43880
Standards and directives		
	Type of protection	Connections and terminals: IP00 (EN 60730)
		Front in DIN cut-out: IP30 (EN 60730
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
	Software class	A (EN 60730-1, Appendix H)
	Energy class	I to VIII = up to 5%
		as per EU 811/2013, 2010/30/EU, 2009/125/EC
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-9, EN 60950-1
	RoHS Directive 2011/65/EU	EN 50581
	= = = = , = = , = 0	· - ·



EY6LC12





Accessories

Plug-in I/O modules

Туре	Description
EY6IO30F001	modu630-IO 16 × DI/CI inputs I/O module
EY6IO31F001	modu631-IO 8 × UI(DI/CI/AI), 8 × DI/CI I/O module
EY6IO50F001	modu650-IO 6 × relay (2A) outputs I/O module
EY6IO70F001	modu670-IO 8 × DI/CI/DO(OC), 8 × DI/CI I/O module
EY6IO71F001	modu671-IO 8 × AO, 8 × DI/CI I/O module
EY6IO72F001	modu672-IO $4 \times$ AO, $4 \times$ DO(OC), $4 \times$ UI (DI/CI/AI) I/O module (expected to be available in mid-2021)

Plug-in communication modules (COM)

Туре	Description
EY6CM20F011	modu620-CM Modbus-RTU (RS-485) communication module
EY6CM20F021	modu620-CM BACnet / MS/TP (RS-485) communication module
EY6CM30F031	modu630-CM M-Bus communication module
EY6CM40F041	modu640-CM KNX-TP communication module
EY6CM50F051	modu650-CM DALI communication module
EY6CM60F061	modu660-CM SMI communication module

Connection modules

Туре	Description
EY6LC01F001	Module for separate I/O module supply
EY6LC02F001	Coupling kit for I/O modules in cabinet (P100017761 and P100017762)

SAUTER modulo 6 I/O modules

SAUTER I/O modules are compatible with the modulo 6 series and are used to capture digital and analogue signals in HVAC installations. They control devices such as contactors, relays and valve actuators.

Overview of I/O modules







Type designation	EY6IO30F001	EY6IO31F001	EY6IO50F001
Product name	modu630	modu631	modu650
Power supply	From AS modulo 6	From AS modulo 6	From AS modulo 6
Control panel optional	modu600-LO	modu600-LO	modu600-LO
Inputs/outputs			
Digital inputs	16	8	-
Universal inputs	_	8	-
Digital outputs	-	-	6
Analogue outputs	-	-	-
Digital inputs/outputs	_	-	-
Further information	Page 392	Page 394	Page 396







Type designation	EY6IO70F001	EY6IO71F001	EY6IO72F001
Product name	modu670	modu671	modu672
Power supply	From AS modulo 6	From AS modulo 6	From AS modulo 6
Control panel optional	modu600-LO	modu600-LO	modu600-LO
Inputs/outputs			
Digital inputs	8	8	-
Universal inputs	-	-	4
Digital outputs	-	-	4
Analogue outputs	_	8	4
Digital inputs/outputs	8	-	-
Further information	Page 398	Page 400	Page 402



EY6IO30F001

EY6IO30: 16 × DI/CI inputs I/O module, modu630-IO

Features

- Part of the SAUTER modulo 6 system family
- Plug-in element for extending the modu660-AS and modu680-AS automation stations and modu6*2-LC
- Receiving digital inputs (alarm, status or pulse counter) in operational systems, e.g. in HVAC engineering
- 16 digital inputs
- Power supply from automation station (modu6**-AS), link coupler (modu6*2-LC) or supply module
- Can be equipped with a local operating and indicating unit (modu600-LO)

Technical data

Technical data		
Power supply		
Tower suppry	Power supply	From AS or LC via I/O bus
	Dissipated power ¹⁾	≤ 0.8 W
	Dissipated power	
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	−2570 °C
	Ambient humidity	1090% rh, no condensation
Inputs/outputs		
Digital inputs (DI/CI)	Number of inputs	16
	Power supply for DI	Internal, ~13 V=
	Pulse counter ²⁾	≤ 50 Hz
Interfaces and communication	n	
	Connection, LOI	4-pin
	Connection, I/O bus	7-pin, spring contact
	Connection terminals	4 x 8-pin spring-loaded plug-in connectors
	Earth connector	Spring contact against DIN rail
		· •
Construction		
	Fitting	On metallic DIN rail 35 x 7.5/15 as per EN 60715
	Dimensions W x H x D	55.7 (3 HP) x 100 x 59 mm
	Weight	130 g
Standards and directives		
	Protection type (as per EN 60730)	Connections and terminals:IP00 Front in DIN cut-out:IP30
	Environment class	3K3 (IEC 60721)
	Software class ³⁾	A (EN 60730-1, Appendix H)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 50491-5-1, EN 50491-5-2, EN 50491-5-3

Overview of types

EY6IO30F001 16 x DI/CI inputs I/O module





Measured value without accessories

⁵⁰ Hz only with PC module, otherwise 5 Hz

The product is not suitable for safety functions

Accessories

Description

EY6LO00F001 Local operating and indicating unit for I/O modules

Manuals

Document number	Language	Title	
D100397589	de	Systembeschreibung SAUTER modulo	
D100408512	de	EY-modulo 6 - Best Practice I	
D100402674	en	SAUTER modulo system description	
D100410201	en	EY-modulo 6 - Best Practice I	
D100402676	fr	Description du système SAUTER modulo	
D100410203	fr	EY-modulo 6 - Meilleures pratiques I	





EY6IO31F001

EY6IO31: 8 × UI (DI/CI/AI), 8 × DI/CI I/O module, modu631-IO

Features

- Part of the SAUTER modulo 6 system family
- Plug-in element for extending the modu660-AS and modu680-AS automation stations and modu6*2-LC link coupler
- Receiving digital inputs (alarm, status or pulse counter) and analogue inputs (Ni/Pt1000, R, U) in operational systems, e.g. in HVAC
- Eight digital inputs and eight universal inputs
- Power supply from automation station (modu6**-AS), link coupler (modu6*2-LC) or supply module (modu601-LC)
- Can be equipped with a local operating and indicating unit (modu600-LO)

recrifical data		
Power supply		
I ower supply	Power supply	From AS or LC via I/O bus
	Dissipated power ¹⁾	≤ 0.8 W
	Dissipated power	
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	−2570 °C
	Ambient humidity	1090% rh, no condensation
		·
Inputs/outputs		
Digital inputs (DI/CI)	Number of inputs	8
	Power supply for DI	Internal, ~13 V=
	Pulse counter	≤ 50 Hz
Universal inputs (UI)	Number of inputs	8
	Analogue	010 V, Ni1000, Pt1000, R
	Digital ²⁾	DI/CI: ≤ 50 Hz
Interfaces and communication		
	Connection, LOI	4-pin
	Connection, I/O bus	7-pin, spring contact
	Connection terminals	4 x 8-pin spring-loaded plug-in connec-
		tors
	Earth connector	Spring contact against DIN rail
Construction		a lle son d
	Fitting	On metallic DIN rail
	Dimensions W x H x D	35 x 7.5/15 as per EN 60715 55.7 (3 HP) x 100 x 59 mm
	Weight	131 g
	vveigiii	131 g
Standards and directives		
	Protection type (as per EN 60730)	Connections and terminals:IPOO
	Troicement type (as per 21 t ser es)	Front in DIN cut-out:IP30
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
	Software class ³⁾	A (EN 60730-1, Appendix H)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2,
		EN 61000-6-3, EN 61000-6-4,
		EN 50491-5-1, EN 50491-5-2,
		EN 50491-5-3

¹⁾ Measured value without accessories





 $^{^{2)}\,}$ DI: 50 Hz only with PC module, otherwise 5 Hz

³⁾ The product is not suitable for safety functions

EY6IO31F001 $8 \times UI(DI/CI/AI)$ and $8 \times DI/CII/O$ module

Accessories

Туре Description

EY6LO00F001 Local operating and indicating unit for I/O modules

Manuals

Document number	Language	Title
D100397589	de	Systembeschreibung SAUTER modulo
D100408512	de	EY-modulo 6 - Best Practice I
D100402674	en	SAUTER modulo system description
D100410201	en	EY-modulo 6 - Best Practice I
D100402676	fr	Description du système SAUTER modulo
D100410203	fr	EY-modulo 6 - Meilleures pratiques I





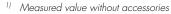
EY6IO50F001

EY6IO50: 6 × relay (2A) outputs I/O module, modu650-IO

Features

- Part of the SAUTER modulo 6 system family
- Plug-in element for extending the modu660-AS and modu680-AS automation stations and modu6*2-LC link coupler
- Activation of displays in operational systems, such as HVAC engineering
- Activation of actuators such as contactors or valve actuators, in operational systems
- Six digital outputs (relay)
- Power supply from automation station (modu6**-AS), link coupler (modu6*2-LC) or supply module (modu601-LC)
- Can be equipped with a local operating and indicating unit (modu600-LO)

Technical data		
Power supply		
	Power supply	From AS or LC via I/O bus
	Dissipated power ¹⁾	≤ 1,3 W
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1090% rh, no condensation
Inputs/outputs		
Digital outputs (DO)	Number of outputs	6
	Type of outputs	Relay (O-I), normally-open contact, ga vanically isolated
	Load	24 V=, 24250 V~ Resistive load: 2 A Inductive load: ≤ 1 A, cos ф ≥ 0.8 Start-up current: ≤ 5 A
	Switching frequency, mechanical	300,000 cycles for 2 A
		•
Interfaces and communication	1	
	Connection, LOI	4-pin
	Connection, I/O bus	7-pin, spring contact
	Connection terminals	6 x 2-pin spring-loaded plug-in connectors
	Earth connector	Spring contact against DIN rail
Construction		
	Fitting	On metallic DIN rail 35 x 7.5/15 as per EN 60715
	Dimensions W x H x D	55.7 (3 HP) x 100 x 59 mm
	Weight	124 g
		<u>_</u>
Standards and directives		
	Protection type (as per EN 60730)	Connections and terminals:IP00 Front in DIN cut-out:IP30
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
	Software class ²⁾	A (EN 60730-1, Appendix H)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 50491-5-1, EN 50491-5-2, EN 50491-5-3
	Low-Voltage Directive 2014/35/EU	EN 60730-1



The product is not suitable for safety functions





EY6IO50F001 6 x relay (2A) outputs I/O module

Accessories

Туре Description

EY6LO00F001 Local operating and indicating unit for I/O modules

Manuals

Document number	Language	Title
D100397589	de	Systembeschreibung SAUTER modulo
D100408512	de	EY-modulo 6 - Best Practice I
D100402674	en	SAUTER modulo system description
D100410201	en	EY-modulo 6 - Best Practice I
D100402676	fr	Description du système SAUTER modulo
D100410203	fr	EY-modulo 6 - Meilleures pratiques I





EY6IO70F001

EY6IO70: $8 \times DI/CI/DO$ (OC) and $8 \times DI/CI$ I/O module, modu670-IO

Features

- Part of the SAUTER modulo 6 system family
- Plug-in element for extending the modu660-AS and modu680-AS automation stations and modu6*2-LC link coupler
- Activation of actuators such as relays and displays of operational systems, e.g. in HVAC engineering
- Activation of displays in operational systems
- Receiving digital inputs (alarm, status or pulse counter) in operational systems
- Eight digital inputs and eight digital inputs/outputs
- Power supply from automation station (modu6**-AS), link coupler (modu6*2-LC) or supply module
- Can be equipped with a local operating and indicating unit (modu600-LO)

	Power supply Dissipated power ¹⁾	From AS or LC via I/O bus ≤ 0,8 W
	,	· · · · · · · · · · · · · · · · · · ·
	Dissipated power ¹⁾	≤ 0,8 W
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1090% rh, no condensation
Inputs/outputs		
	Number of inputs	8
	Pulse counter ²⁾	≤ 50 Hz
	Number of inputs/outputs	8
	Type of inputs/outputs	Open collector, normally-open contacts (0-1),
		outputs switched with respect to ground (any arrangement)
	Power supply for DO	External, positive ≤ 28 V=
	Load	0100 mA (max. 2 V voltage drop)
	Power supply for DI	Internal, ~13 V=
	Pulse counter ³⁾	≤ 50 Hz
Interfaces and communication		
	Connection, LOI	4-pin
	Connection, I/O bus	
	Connection terminals	7-pin, spring contact
	Connection terminals	4×8 -pin spring-loaded plug-in connectors
	Earth connector	Spring contact against DIN rail
Construction		
	Fitting	On metallic DIN rail
	· ······g	35 x 7.5/15 as per EN 60715
	Dimensions W x H x D	55.7 (3 HP) x 100 x 59 mm
	Weight	131 g
Standards and directives		
	Protection type (as per EN 60730)	Connections and terminals: IPOO
	riolection type (as per EIN 00/30)	Front in DIN cut-out:IP30
	Protection class	I (EN 60730-1)

Measured value without accessories





⁵⁰ Hz only with PC module, otherwise 5 Hz

⁵⁰ Hz only with PC module, otherwise 5 Hz

	Environment class	3K3 (IEC 60721)
	Software class ⁴⁾	A (EN 60730-1, Appendix H)
CE conformity according to	EMC Directive 2014/30/EU ⁵⁾	EN 61000-6-1, EN 61000-6-2,
,		EN 61000-6-3, EN 61000-6-4,
		EN 50491-5-1, EN 50491-5-2,
		FN 50491-5-3

8 x DI/CI/DO(OC) and 8 x DI/CI I/O module EY6IO70F001

Accessories

Туре Description

EY6LO00F001 Local operating and indicating unit for I/O modules

Manuals

Document number	Language	Title
D100397589	de	Systembeschreibung SAUTER modulo
D100408512	de	EY-modulo 6 - Best Practice I
D100402674	en	SAUTER modulo system description
D100410201	en	EY-modulo 6 - Best Practice I
D100402676	fr	Description du système SAUTER modulo
D100410203	fr	EY-modulo 6 - Meilleures pratiques I



EN 61000-6-2: To comply with the standard, the connecting cables for the digital open collector outputs (DO-OC) may not be longer than 30 m





EY6IO71F001

EY6IO71: 8 × AO and 8 × DI/CI I/O module, modu671-IO

Features

- Part of the SAUTER modulo 6 system family
- Plug-in element for extending the modu660-AS and modu680-AS automation stations and modu6*2-LC link coupler
- Activation with a standard signal (O(2)...10 V) in operational systems, such as HVAC engineering
- Receiving digital inputs (alarm, status or pulse counter) in operational systems
- Eight digital inputs and eight analogue outputs
- Power supply from automation station (modu6**-AS), link coupler (modu6*2-LC) or supply module (modu601-LC)
- Can be equipped with a local operating and indicating unit (modu600-LO)

Technical data		
Power supply ¹⁾		
	Power supply	From AS or LC via I/O bus
	Power consumption	≤ 1 W
	Dissipated power	≤ 0,8 W
	<u> </u>	
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	−2570 °C
	Ambient humidity	1090% rh, no condensation
Inputs/outputs		
Digital inputs (DI/CI)	Number of inputs	8
	Power supply for DI	Internal, ~13 V=
	Pulse counter ²⁾	≤ 50 Hz
Analogue outputs (AO)	Number of outputs	8
	Analogue	0(2)10 V=
	Load	≤ 2 mA
Interfaces and communication		
	Connection, LOI	4-pin
	Connection, I/O bus	7-pin, spring contact
	Connection terminals	4 x 8-pin spring-loaded plug-in connectors
	Earth connector	Spring contact against DIN rail
Construction		
	Fitting	On metallic DIN rail 35 x 7.5/15 as per EN 60715
	Dimensions W x H x D	55.7 (3 HP) x 100 x 59 mm
	Weight	130 g
Standards and directives		
	Protection type (as per EN 60730)	Connections and terminals:IP00 Front in DIN cut-out:IP30
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
	Software class ³⁾	A (EN 60730-1, Appendix H)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 50491-5-1, EN 50491-5-2, EN 50491-5-3

¹⁾ Measured values without accessories





 $^{^{2)}}$ 50 Hz only with PC module, otherwise 5 Hz

The product is not suitable for safety functions

EY6IO71F001 8 x AO and 8 x DI/CI I/O module

Accessories

Туре Description

EY6LO00F001 Local operating and indicating unit for I/O modules

Manuals

Document number	Language	Title
D100397589	de	Systembeschreibung SAUTER modulo
D100408512	de	EY-modulo 6 - Best Practice I
D100402674	en	SAUTER modulo system description
D100410201	en	EY-modulo 6 - Best Practice I
D100402676	fr	Description du système SAUTER modulo
D100410203	fr	EY-modulo 6 - Meilleures pratiques I





EY6IO72F001

EY6IO72: $4 \times AO$, $4 \times DO(OC)$, $4 \times UI$ (DI/CI/AI) I/O module, modu672-IO

Features

- Part of the SAUTER modulo 6 system family
- Plug-in element for extending the modu660-AS and modu680-AS automation stations and modu612-LC link coupler
- Activation with a standard signal (0(2)...10 V, 0(4)...20 mA) in operational systems, such as HVAC engineering
- Receiving digital inputs (alarm/status) and analogue inputs (Ni/Pt1000, U/I/R/Pot) in operational systems
- Four universal inputs, four analogue outputs and four digital outputs
- Power supply from automation station (modu6**-AS), link coupler (modu612-LC) or supply module (modu601-LC)
- Can be equipped with a local operating and indicating unit (modu600-LO)

Technical data		
Power supply		
	Power supply	From AS or LC via I/O bus
	Power consumption	
	Dissipated power	
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	−2570 °C
	Ambient humidity	1090% rh, no condensation
Inputs/outputs		
Universal inputs (UI)	Number of inputs	4
, , ,	Analogue	0(2)10 V, 0(4)20 mA, R, Ni1000, Pt1000, Pot
	Digital ¹⁾	DI/CI (≤ 50 Hz)
Analogue outputs (AO)	Number of outputs	4
	Analogue	0(2)10 V, 0(4)20 mA
	Load	≤ 20 mA
	Load \geq 5 Ω	Output 010 V / 210 V
	Load ≤ 400 Ω	Output 020 mA / 420 mA
	Load voltage	< 2 V (0(4)20 mA)
Digital outputs (DO)	Number of outputs	4
	Type of outputs	Open collector, normally-open contacts (O-I), outputs switched with respect to ground (any arrangement)
	Power supply for DO	External, positive ≤ 28 V=
	Load	0100 mA (max. 2 V voltage drop)
Interfaces and communication		
	Connection, LOI	4-pin
	Connection, I/O bus	7-pin, spring contact
	Connection terminals	4 × 8-pin spring-loaded plug-in connec- tors
	Earth connector	Spring contact against DIN rail
Construction		
	Fitting	On DIN rail 35 × 7.5/15 as per EN 60715
	Dimensions W x H x D	55.7 (3 HP) × 100 × 59 mm
	Weight	



¹⁾ 50 Hz only with PC module, otherwise 5 Hz



Standards and directives		
	Type of protection	Connections and terminals:IP00 Front in DIN cut-out:IP30
	Protection class	As per 60730-1 I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4,
		EN 50491-5-1, EN 50491-5-2,
		EN 50491-5-3

EY6IO72F001 $4 \times AO$, $4 \times DO(OC)$, $4 \times UI$ (DI/CI/AI) I/O module (expected to be available in mid-2021)

Accessories

Туре Description EY6LO00F001 Local operating and indicating unit for I/O modules

Manuals

Document number	Language	Title	
D100397589	de	Systembeschreibung SAUTER modulo	
D100408512	de	EY-modulo 6 - Best Practice I	
D100402674	en	SAUTER modulo system description	
D100410201	en	EY-modulo 6 - Best Practice I	
D100402676	fr	Description du système SAUTER modulo	
D100410203	fr	EY-modulo 6 - Meilleures pratiques I	



SAUTER modulo 6 operating unit

The SAUTER modulo 6 operating unit allows you to display the current status of the inputs and to directly override the outputs of the automation station (AS) and the I/O modules – local priority operation as per EN ISO 16484-2.

Overview of operating unit



Type designation	EY6LO00F001
Product name	modu600-LO
Power supply	From I/O module
Device	Operating device with 4 push-buttons
Function	Visualisation, operation
Display	Display of analogue, digital and multi-state signals
Use	Universally for I/O modules
Further information	Page 405

EY6LO00: Operating and indicating unit for I/O modules, modu600-LO

Features

- Part of the SAUTER modulo 6 system family
- Pluggable element for direct operation and visualisation of displays for the modu6** I/O modules
- Automatic detection of the current I/O module configuration
- Display of values and statuses of the inputs and outputs on an LCD colour display
- Detailed display of the individual inputs and outputs including labelling, type, status and graphics
- Simple 4-button operation
- LED indicator of I/O module modu6**-IO
- Manual operation of outputs
- Ready for use without parameterising

Technical data

Power supply		
	Power supply	From I/O module modu6**-IO
	Current consumption	≤ 12.5 mA
	Dissipated power	≤ 0,3 W
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	−2560 °C
	Ambient humidity	1090% rh, no condensation
	·	
Indicators, display, operation		
	Resolution	240 × 240 pixels, colour LCD
	Operation	Four buttons: Back/reject,
		Reverse/reduce,
		Forward/increase, Confirm
Interfaces and communication	1	
	Connection	4-pin, spring contacts
	Protocol	Proprietary
Standards and directives		
	Type of protection	Connections: IPOO
		front, plugged in: IP30
		(EN 60730-1)
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2
		EN 61000-6-3, EN 61000-6-4
		EN 50491-5-1, EN 50491-5-2

Overview of types

Туре	Features
EY6LO00F001	modu600-LO, operating and indicating unit for I/O modules

EN 50491-5-3

Manuals

. ,		
Document number	Language	Title
D100386646	de	modu600-LO Bedienungsanleitung
D100397589	de	Systembeschreibung SAUTER modulo
D100408512	de	EY-modulo 6 - Best Practice I
D100408262	en	modu600-LO Operating instructions
D100402674	en	SAUTER modulo system description



EY6LO00F001





SAUTER modulo 6 | HVAC automation

Document number	Language	Title
D100410201	en	EY-modulo 6 - Best Practice I
D100408261	fr	modu600-LO Notice d'emploi
D100402676	fr	Description du système SAUTER modulo
D100410203	fr	EY-modulo 6 - Meilleures pratiques I



SAUTER modulo 6 communication modules

SAUTER communication modules enable third-party systems to be integrated on the automation level. Field-bus protocols, based on EIA-232 or EIA-485, such as Modbus/RTU and M-Bus, can be integrated directly on the automation station. The data is mapped in BACnet objects and is visible on the BACnet/IP network.

Overview of communication modules





Type designation	EY6CM20F011	EY6CM20F021	EY6CM30F031
Product name	modu6	20-CM	modu630-CM
Interfaces	RS-4	485	RS-232, M-Bus
Protocol	Modbus RTU / ASCII	BACnet / MS/TP	M-Bus
Further information	Page	408	Page 410







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Type designation	EY6CM40F041	EY6CM50F051	EY6CM60F061
Product name	modu640-CM	modu650-CM	modu660-CM
Interfaces	KNX-TP1	DALI	SMI / SMI LoVo
Protocol	KNX	DALI	SMI
Further information	Page 412	Page 413	Page 415



EY6CM20F011

EY6CM20: Modbus-RTU (RS-485) communication module, modu620-CM

Features

- Part of the SAUTER modulo 6 system family
- Plug-in element for extending the modu680-AS and modu660-AS automation stations or modu612-LC link coupler
- \bullet Up to six COM modules per automation station
- Connection to non-SAUTER systems (PLC, chillers, meters etc.)
- RS-485 half duplex, electrically isolated interface for Modbus/RTU, Modbus/ASCII
- Galvanic isolation up to 300 V
- Configurable RS-485 network resistors (software)
- Baud rate 600...115200 bit/s
- Modbus master with up to four Modbus communication profiles
- Integrated tunnelling function for commissioning and monitoring with serial Modbus master tools

Power supply		
	Power supply	From AS or LC via I/O bus
	Power consumption	≤ 200 mA
	Dissipated power	≤ 0.66 W
	Bus power supply	No
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1090% rh, no condensation
Architecture		
	Number of data points	Up to 600 Modbus data points
Interfaces and communication		
	Communication protocol	Modbus/RTU and Modbus/ASCII Master as per V1.02 2-wire (2W)
	Bus physics	1/2 unit load; electrically isolated up to 300 V; integrated RS-485 network re- sistors (LT, PU, PD) configurable via software
	Bus speed	600115,200 bit/s Parity bit, stop bit, Rx/Tx bus timing
	Connection	Pluggable spring-type terminals 2 × 5-pin 0.21.5 mm ² rigid/flexible
	Line	3-/4-wire (D+/D-/COM reference), shielded, up to 1000 m
	Use	Modbus master, integration of Modbus slaves in an RS-485 segment (line)
	Participant	Up to 31 unit loads
	Functions	600 Modbus channels for BACnet I/O/V objects for up to 247 Modbus devices; FC01-06, 15, 16, 22; unicast and broadcast; access optimisation
Construction		
	Fitting	On DIN rail 35 × 7.5/15 as per EN 60715 Rail housing as per DIN 43880
	Dimensions W x H x D	52.5 × 97 × 54 mm
	DIIIIGIISIOIIS VV X I I X D	52.5 ° // ° 54 IIIII



Standards and directives		
	Type of protection	Connections and terminals: IPOO (EN 60730)
		Front in DIN cut-out: IP30 (EN 60730)
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
	Software class	A (EN 60730-1, Appendix H)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2,
		EN 61000-6-3, EN 61000-6-4

Туре	Features
EY6CM20F011	modu620-CM Modbus-RTU (RS-485) communication module
EY6CM20F021	modu620-CM BACnet / MS/TP (RS-485) communication module





EY6CM30F031

EY6CM30: M-Bus communication module, modu630-CM

Features

- Part of the SAUTER modulo 6 system family
- Plug-in element for extending the modu680-AS and modu660-AS automation stations or modu612-LC link coupler
- Up to six COM modules per automation station
- M-Bus master
- Connection to M-Bus meter networks for the integration of heat meters, electricity meters etc.
- 2-wire M-Bus network electrically isolated
- 2-wire RS-232 connection for point-to-point communication
- Up to 80 meters and 256 values
- Modbus master with up to four Modbus communication profiles
- Integrated tunnelling function for commissioning and monitoring on the modulo 6 stations

recillical data		
Power supply		
	Power supply	From AS or LC via I/O bus
	Power consumption	≤ 200 mA
	Dissipated power	≤ 0.66 W
	Bus power supply	24 V=, 0.56 A, 10 W
		· · · · · · · · · · · · · · · · · · ·
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1090% rh, no condensation
Architecture		
	Protocol processor	NXP microcontroller LPC11U67
	COM port	UART
	Memory	No
	Number of data points	256 M-Bus data points
Interfaces and communication		
	Communication protocol	M-Bus (EN 13757)
	Power consumption	10 W
	Bus physics	Electrically isolated up to 300 V
	Bus speed	30038400 bit/s
	Connection	Pluggable spring-type terminals 5-pin
		M-Bus: M+, M-, COM
		RS-232: RS-232+, RS-232-
	Line	J-Y(ST)Y 4 × 0.5 mm ²
		LiYY 2 × 1.5 mm ²
	Use	M-Bus master, integration of meters (slaves)
	Participant	Up to 80 meters on M-Bus 1 level converter on RS-232
	Functions	I/O up to 256 data points
Construction		
	Fitting	On DIN rail 35 × 7.5/15 as per EN 60715
		Rail housing as per DIN 43880
	Dimensions W x H x D	52.5 × 97 × 54 mm



Standards and directives		
	Type of protection	Connections and terminals: IP00 (EN 60730)
		Front in DIN cut-out: IP30 (EN 60730)
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
	Software class	A (EN 60730-1, Appendix H)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2,
, -		EN 61000-6-3, EN 61000-6-4

Туре

EY6CM30F031 M-Bus communication module





EY6CM40F041

EY6CM40: KNX-TP communication module, modu640-CM

Features

- Part of the SAUTER modulo 6 system family
- Plug-in element for extending the modu680-AS and modu660-AS automation stations or modu612-LC link coupler
- Up to six COM modules per automation station
- Connection of KNX operating devices, e.g. sensors and actuators
- Integrated KNX tunnelling function (KNX/IP) for the commissioning of KNX with ETS

Technical data

Power supply		
	Power supply	From AS or LC via I/O bus
	Power consumption	≤ 200 mA
	Dissipated power	≤ 0.66 W
	Bus power supply	24 V=, 0.56 A, 10 W
		· · ·
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1090% rh, no condensation
Interfaces and communication	L	
	Communication protocol	KNX/TP1 (ISO/IEC 14543)
	Power consumption	KNX bus max. 6 mA
	Bus speed	9600 bit/s
	Connection	KNX bus terminal x4
		0.60.8 mm rigid lines
	Line	KNX cable, 2-wire, twisted
	Use	KNX actuators and KNX sensors
	Participant	Up to 64 KNX devices, depending on the external KNX power supply
	Functions	256 KNX group addresses for BACnet I/O objects (256 channels)
Construction		
	Fitting	On DIN rail 35 × 7.5/15 as per EN 60715
		Rail housing as per DIN 43880
	Dimensions W x H x D	52.5 × 97 × 54 mm
Standards and directives		
	Type of protection	Connections and terminals: IP00 (EN 60730)
		Front in DIN cut-out: IP30 (EN 60730)
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
	Software class	A (EN 60730-1, Appendix H)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4

Overview of types

Type Features

EY6CM40F041 KNX-TP communication module





EY6CM50: DALI communication module, modu650-CM

Features

- Part of the SAUTER modulo 6 system family
- Plug-in element for extending the modu680-AS and modu660-AS automation stations or modu612-LC link coupler
- Up to six COM modules per automation station
- DALI interface with DALI bus power supply for connecting DALI ballasts (EB) and DALI sensors
- Web-based commissioning tool for DALI networks on the modulo 6 stations
- DALI single application master (and multi-master) functionality
- Integrated DALI bus power supply as per IEC 62386-101 and -103



EY6CM50F051

Technical data

Power supply	D 1	5 AC 10 : 1/0 l
	Power supply	From AS or LC via I/O bus
	Power consumption	≤ 200 mA
	Dissipated power	≤ 0.66 W
	Bus power supply	24 V=, 2.7 W
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1090% rh, no condensation
nterfaces and communication	n	
	Communication protocol	DALI (IEC 62386101/-103)
	Power consumption	DALI bus max. 2 mA (only when operating with external power supply)
	Bus speed	9600 bit/s
	Connection	Pluggable spring-type terminals 4-pin 2 × DA+, 2 × DA-
		0.22.5 mm ² rigid/flexible
	Line	2-wire, NYM, up to 300 m
	Use	DALI ballasts (IEC 62386-102) DALI sensors (see list)
	Participant	Up to 64 DALI ballasts and 64 DALI sensors (depending on type and bus power supply)
	Functions	256 DALI functions for BACnet I/O objects (256 channels) with ad- dressable 64 DALI short addresses and 16 group addresses
Construction		
	Fitting	On DIN rail 35 × 7.5/15 as per EN 60715 Rail housing as per DIN 43880
	Dimensions W x H x D	52.5 × 97 × 54 mm
Standards and directives		
	Type of protection	Connections and terminals: IPOO (EN 60730)
		Front in DIN cut-out: IP30 (EN 60730
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
	Software class	A (EN 60730-1, Appendix H)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2,



EN 61000-6-3, EN 61000-6-4



Type Feature:

EY6CM50F051 DALI communication module



EY6CM60: SMI communication module, modu660-CM

Features

- Part of the SAUTER modulo 6 system family
- Plug-in element for extending the modu680-AS and modu660-AS automation stations or modu612-LC link coupler
- Up to six COM modules per automation station
- SMI interface (SMI/SMI LoVo) for activating SMI motors for sunshading (window blinds, roller shutters)
- Integrated tunnelling function for commissioning with SMI-easyMonitor on the modulo 6 stations

Technical data

Power supply		
	Power supply	From AS or LC via I/O bus
	Power consumption	≤ 200 mA
	Dissipated power	≤ 0.66 W
	Bus power supply	24 V=, 0.7 W
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1090% rh, no condensation
nterfaces and communication		SAM (SAM) / 2 2 2 2
	Communication protocol	SMI master (SMI standard V2.3.2)
	Bus speed	1200 bit/s
	Connection	Pluggable spring-type terminals
		4-pin 2 × I+, 2 × I−
		0.22.5 mm ² rigid/flexible
	Line	
		2-wire, NYM, up to 350 m
	Use	SMI actuators, SMI (230 V) or SMI Lo Vo (see list)
	Participant	Up to 16 SMI motors
	Functions	128 SMI functions for BACnet
		I/O objects (128 channels) for up to
		16 single and group addresses each
Construction		
	Fitting	On DIN rail 35 × 7.5/15 as per
	C	EN 60715
		Rail housing as per DIN 43880
	Dimensions W x H x D	52.5 × 97 × 54 mm
Standards and directives		
Junuarus ana antecnives	Type of protection	Connections and terminals: IPOO
	Type of profection	(EN 60730)
		Front in DIN cut-out: IP30 (EN 60730
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
	Software class	A (EN 60730-1, Appendix H)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2,
ce comorniny according to	21110 211001110 2014/ 00/ 20	EN 61000-6-3, EN 61000-6-4

Overview of types

Type Features

EY6CM60F061 SMI communication module



EY6CM60F061





Building Network Security

The IoT represents one of the most incredible opportunities for building automation thanks to its openness, ubiquity and multiplicity of solutions. On the downside, it can represent a threat for the very same reasons. Therefore, new devices shall be secure by design.

Under these premises, the development of modulo 6 has followed IEC 62443-3-3 recommendations. With modulo 6, the latest generation of building automation systems, SAUTER offers a security-oriented solution. The security concept is based on the international standard on cyber security for industrial automation, IEC 62443, which defines system security requirements and security levels. With BACnet Secure Connect (BACnet/SC), modulo 6 has become even more secure. The new BACnet data link supports encrypted communication exclusively and relies on the latest version of the standard encryption solution, TLS 1.3.

Furthermore, the underlying technologies used (TCP, WebSocket, TLS, IPv4, IPv6) make BACnet/SC perfectly suitable for corporate IT. Seamless integration of existing infrastructure is made easy with BACnet/SC - BACnet/IP routers.

The latest addition to the modulo 6 product family is making use of blockchain technology (patented). The modu615-BM, or Building Data integrity Manager, provides a local solution for data integrity supervision in the plant. It has an integrated web server for local commissioning, visualisation, operation and notification. A guided configuration process (wizard) creates the blockchain and starts the integrity check. Data from the automation stations is linked in the building network to form a blockchain ring. The current process and the state of the blockchain can be accessed at any time in the dashboard. An e-mail notification is sent in case of integrity violation. The affected automation station is firstly isolated, then automatically restored, and finally reintegrated into the building automation network. Proven security technologies provide encryption, authentication and access protection. This means that the system is already well protected against cyber attacks at the automation level.

EY6BM15: Building Data Integrity Manager, modu615-BM

Features

- Part of the SAUTER modulo 6 system family
- Blockchain-based solution for monitoring the data integrity of automation stations
- Encrypted communication in the building automation network
- Integrated web server for local commissioning, visualisation, operation and user administration
- Notification and device isolation or self-healing in the event of data integrity breach
- NTP client for time synchronization and certificate protection
- Audit trail



Technical data		
Power supply		
	Power supply	24 V= ± 10%
	Power consumption	≤ 2 W without load
	Dissipated power	≤ 2 W without load
	Peak inrush current ¹⁾	≤ 2 A, ≤ 10 ms
Parameters		
	Connection	5-pin spring-type terminal, pluggable,
		0.51.5 mm ² (rigid)
		0.52.5 mm ² , at least 8 mm wire strip
	Battery (buffer: RTC)	CR2032, pluggable
	Earth connector	Spring contact against DIN rail and PE terminal
Ambient conditions	_	
	Operating temperature	045 °C
	Storage and transport temperature	−2070 °C
	Ambient humidity	1090% rh, no condensation
Function		
	Number of slaves	Max. 100
	Hash function	SHA-256 (for TLS)
Architecture		
1.1.01.11.00.11.11	Processor	ARM 8, 1 GHz
	RAM (memory)	512 MB (DDR3)
	Flash	512 MB (DDR3)
	Embedded web server	moduWeb Unity
	Operating system	Embedded Linux
Interfaces and communication		
	Communication	Via SMTP, NTP, HTTPS, MQTT
Ethernet network	Ethernet network	3 × RJ45 connector
	10/100 BASE-T(X) switched	10/100 Mbit/s
	Use	Blockchain network
Construction		
	Fitting	On metallic DIN rail
	3	35 × 7.5/15 as per EN 60715. Rail housing as per DIN 43880
	Dimensions W x H x D	92.6 (5 HP) × 100.9 × 58.3 mm
	Weight	260 g

¹⁾ Measured value with EY-PS021F021 power supply unit





Standards and directives		
	Type of protection	Connections and terminals: IPOO (EN 60730)
		Front in DIN cut-out: IP30 (EN 60730)
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
	Software class	A (EN 60730-1, Appendix H)
	Energy class	I to VIII = up to 5% as per EU 811/2013, 2010/30/EU, 2009/125/EC
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 50491-5-1, EN 50491-5-2, EN 50491-5-3
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-9, EN 62479
	RoHS Directive 2011/65/EU	EN 50581
	RED Directive 2014/53/EU	EN 300328 (V2.1.1)

Overview of types				
Туре	Features			
EY6BM15F011	Building D	ata Integrity Man	ager and web server	
Manuals				
Document number		Language	Title	
D100207500		ال ا	Contambasahusihuma CALITED maadula	

Document number	Language	Title	
D100397589	de	Systembeschreibung SAUTER modulo	
D100408512	de	EY-modulo 6 - Best Practice I	
D100402674	en	SAUTER modulo system description	
D100410201	en	EY-modulo 6 - Best Practice I	
D100402676	fr	Description du système SAUTER modulo	
D100410203	fr	EY-modulo 6 - Meilleures pratiques I	

SAUTER modulo 5

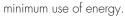
The SAUTER modulo 5 automation technology fulfils the most complex requirements in a convenient, efficient building management system. With intelligent functions and modules that are completely forwards- and backwards-compatible – even with third-party systems – SAUTER meets all the challenges in open, modular, cross-platform building automation. The pioneering technology is based throughout on the open BACnet/IP communication protocol.

SAUTER ecos

Integrated room automation:

high-performance, modular, communicative and ready for IoT.SAUTER ecos guarantees both seamless integration in the building

management system and in the automation system of the primary plants, while also providing maximum flexibility with











23st



SAUTER ecos Room Automation / modulo 5

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SAUTER ecos room automation stations

The areas of use for the SAUTER ecos room automation stations range from precise room control with heating and cooling to integrated room automation with demand-controlled ventilation, lighting and sunshading. The scalable solutions for controlling and regulating the rooms are individually adjusted to the required functional scope and the usage profile. You thus reduce your energy consumption, your costs and the $\rm CO_2$ emissions while providing maximum comfort and well-being. The ecos devices enable the area usage to be adjusted flexibly during operation by dividing the area on each floor into room segments.

Overview of room automation stations







Type designation	EY-RC504F***	EY-RC505F0**	EY-RC311F001
Product name	ecos504	ecos505	ecos311
Parameters			
Power supply	24	V=/~	230 V~
Room segments		8	1
Room operating units	2 × 4		1
I/O extension modules	2	× 8	2
Inputs/outputs			
Universal inputs		_	5
Digital inputs		_	_
Analogue outputs		_	3
Digital outputs		-	4
Relay outputs (2 A / 10 A)		-	3/1
Interfaces, communication			
Interfaces	RS-485	, Ethernet	RS-485
Protocols	BACnet/IP, MQTT, Modbus RT	TU, M-Bus, SLC, KNX, DALI, SMI	BACnet MS/TP, SLC
BACnet profile	В	-BC	B-ASC
Objects			
Data points (value objects)	6	00	50
Control (Loop)	;	32	6
Calendars (Calendar)		16	3
Time programmes (Schedule)	;	32	4
Historical data (Trend Log)	2	56	-
Alarms (Notification Class)		16	-
Further information	Page 423	Page 423	Page 428

EY-RC 504/505: Room automation station, ecos504/505

Features

- Part of the SAUTER modulo 5 system family
- Modular room automation station (AS) for up to eight rooms or eight flexible room segments
- BACnet/IP communication (EN ISO 164845) as BACnet Building Controller (B-BC)
- The ecoUnit 3 and ecoUnit 1 room operating units enable individual adjustment of the room climate
- Optimises energy consumption thanks to presence function, window contact monitoring, demand-controlled ventilation, control of lighting and window blinds, and time-dependent setpoint specification
- Function libraries for climate, lighting and sunshading
- Expansion bus for remote ecoLink modules, ecoUnit room operating units and EnOcean wireless interface
- KNX interface to connect KNX operating units, sensors and actuators
- Integrated KNX tunnelling function (KNX/IP) for the commissioning of KNX with ETS
- DALI interface with DALI bus power supply for the connection of DALI electronic ballasts (EB) and DALI
- Web-based commissioning tool for DALI network
- SMI interface (SMI/SMI LoVo) for activating SMI motors for sunshading (window blinds, roller shutters)
- Integrated tunnelling function for commissioning with SMI-easyMonitor
- RS-485 half duplex, electrically isolated interface for Modbus/RTU, Modbus/ASCII
- Baud rate 600 to 115,200 bit/s with configurable RS-485 network resistors
- Modbus master with up to four simultaneous communication profiles
- Integrated tunnelling function for commissioning and monitoring with serial Modbus master tools
- Physical M-Bus interface and RS-232 interface for external M-Bus level converters
- Supports M-Bus baud rates of 300 to 38,400 bit/s
- M-Bus master function with up to four simultaneous communication profiles
- Integrated tunnelling function for commissioning and monitoring with M-Bus tools
- Time programme and calendar function; data recording
- Integrated moduWeb web server (EY-RC504F101 only)
- Integrated (EY-RC504F202 only) or licensable MQTT functionality (MQTT Broker / Client)
- Engineering/programming using SAUTER CASE Suite (based on IEC 61131-3)
- Integration into the building management system via BACnet/IP with Ethernet interface

Power supply		
	Power supply	24 V= ±10% 24 V~ +25%/-15%, 4863 Hz
	Max. peak inrush current	23 A (10 milliseconds)
	Connection	Spring-type terminals
		0.22.5 mm ² rigid/flexible Ampacity max. 5 A
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	−2570 °C
	Ambient humidity	1085% rh, no condensation
Function		
BACnet	BACnet profile	B-BC (EN ISO 16484-5)
	BACnet data point objects	600 (incl. HW)
	Control	32 (Loop)
	Active COV subscription	1500
	BACnet client links	200 (Peer-to-Peer)



EY-RC 504



EY-RC 505









Dynamic objects	Time programmes	32 (Schedule)
•	Calendar	16 (Calendar)
	Alarms	16 (Notification Class)
	Historical data	256 (Trend Log)
		up to 60,000 entries
	Chart	32 (Log View), only moduWeb (F101
	Command object	16 (Command)
Services	Number of BBMDs in BDT	32
33.11333	Number of FDs in FDT	32
Gateway	Field bus protocols	KNX, DALI, SMI, Modbus, M-Bus, SLC SLC/EnOcean
	IP protocols	BACnet/IP as per ISO 16484-5, HTTP for moduWeb (F101 only), MQTT protocol V3.1.1/V5 as per ISO/IEC 20922 via TCP or TCP/TLS 1.2 (F202 only / licence)
MQTT	MQTT Client	Number of topics / alias topics for max. number of BACnet objects (600)
	MQTT Broker	Number of topics, depending on CPU/memory resources (> 1000)
Architecture		
	Processor	32-bit, 600 MHz (ARM)
	SDRAM (synchronous dynamic RAM)	128 MB
	SRAM (static RAM)	64 kB
	Flash	128 MB
	Operating system	Embedded Linux
	Cycle time	100 milliseconds
	Application data	Via CASE Engine
	Embedded web server	<u> </u>
	Embedded web server	moduWeb (EY-RC504F101 only)
Interfaces and communication		
Ethernet network	Communication protocol	BACnet/IP, HTTP (F101 only), MQTT (F202 only or with licence)
	Connection	2 × RJ-45 connector
	Type	10/100 BASE-TX switched
RS-485 A, RS-485 B	Communication protocol	2 × RS-485, SLC
ко-465 А, ко-465 В	<u> </u>	· · · · · · · · · · · · · · · · · · ·
	Use	ecoLink I/O modules;
		acal Init I acal Init 2 anarating units:
		ecoUnit 1, ecoUnit 3 operating units;
	Participant	ASV 2 VAV actuators
	Participant	ASV 2 VAV actuators Max. 2 × 8 ecoLink modules
	Participant	ASV 2 VAV actuators Max. 2 × 8 ecolink modules Max. 2 × 4 ecoUnit 1, 3 or FCCP 2
	Participant Power supply	ASV 2 VAV actuators Max. 2 × 8 ecoLink modules Max. 2 × 4 ecoUnit 1, 3 or FCCP 2 Max. 2 × 12 ASV 2 5 V ±5% < 200 mA (sum of both
		ASV 2 VAV actuators Max. 2 × 8 ecoLink modules Max. 2 × 4 ecoUnit 1, 3 or FCCP 2 Max. 2 × 12 ASV 2 5 V ±5% < 200 mA (sum of both
	Power supply	ASV 2 VAV actuators Max. 2 × 8 ecoLink modules Max. 2 × 4 ecoUnit 1, 3 or FCCP 2 Max. 2 × 12 ASV 2 5 V ±5% < 200 mA (sum of both RS-485), protected against short circu
	Power supply	ASV 2 VAV actuators Max. 2 × 8 ecoLink modules Max. 2 × 4 ecoUnit 1, 3 or FCCP 2 Max. 2 × 12 ASV 2 5 V ±5% < 200 mA (sum of both RS-485), protected against short circu Pluggable spring-type terminals 2 × 4-pin 0.21.5 mm² rigid/flexible
	Power supply Connection	ASV 2 VAV actuators Max. 2 × 8 ecoLink modules Max. 2 × 4 ecoUnit 1, 3 or FCCP 2 Max. 2 × 12 ASV 2 5 V ±5% < 200 mA (sum of both RS-485), protected against short circu Pluggable spring-type terminals 2 × 4-pin 0.21.5 mm² rigid/flexible 4-wire, twisted, shielded Max. 100 m (30 m) with ecoUnit,
	Power supply Connection Line ¹⁾	ASV 2 VAV actuators Max. 2 × 8 ecoLink modules Max. 2 × 4 ecoUnit 1, 3 or FCCP 2 Max. 2 × 12 ASV 2 5 V ±5% < 200 mA (sum of both RS-485), protected against short circu Pluggable spring-type terminals 2 × 4-pin 0.21.5 mm² rigid/flexible 4-wire, twisted, shielded Max. 100 m (30 m) with ecoUnit,
KNX	Power supply Connection Line ¹⁾	ASV 2 VAV actuators Max. 2 × 8 ecolink modules Max. 2 × 4 ecoUnit 1, 3 or FCCP 2 Max. 2 × 12 ASV 2 5 V ±5% < 200 mA (sum of both RS-485), protected against short circu Pluggable spring-type terminals 2 × 4-pin 0.21.5 mm² rigid/flexible 4-wire, twisted, shielded Max. 100 m (30 m) with ecoUnit, up to 500 m, bus termination necessa
KNX	Power supply Connection Line ¹⁾ Line length ²⁾	ASV 2 VAV actuators Max. 2 × 8 ecoLink modules Max. 2 × 4 ecoUnit 1, 3 or FCCP 2 Max. 2 × 12 ASV 2 5 V ±5% < 200 mA (sum of both RS-485), protected against short circu Pluggable spring-type terminals 2 × 4-pin 0.21.5 mm² rigid/flexible 4-wire, twisted, shielded Max. 100 m (30 m) with ecoUnit, up to 500 m, bus termination necessary
KNX	Power supply Connection Line ¹⁾ Line length ²⁾ Communication protocol	ASV 2 VAV actuators Max. 2 × 8 ecolink modules Max. 2 × 4 ecoUnit 1, 3 or FCCP 2 Max. 2 × 12 ASV 2 5 V ±5% < 200 mA (sum of both RS-485), protected against short circu Pluggable spring-type terminals 2 × 4-pin 0.21.5 mm² rigid/flexible 4-wire, twisted, shielded Max. 100 m (30 m) with ecoUnit, up to 500 m, bus termination necessary KNX TP1 (ISO/IEC 14543-3)
KNX	Power supply Connection Line ¹⁾ Line length ²⁾ Communication protocol Power consumption	ASV 2 VAV actuators Max. 2 × 8 ecolink modules Max. 2 × 4 ecoUnit 1, 3 or FCCP 2 Max. 2 × 12 ASV 2 5 V ±5% < 200 mA (sum of both RS-485), protected against short circu Pluggable spring-type terminals 2 × 4-pin 0.21.5 mm² rigid/flexible 4-wire, twisted, shielded Max. 100 m (30 m) with ecoUnit, up to 500 m, bus termination necessary KNX TP1 (ISO/IEC 14543-3) KNX bus max. 6 mA
KNX	Power supply Connection Line ¹⁾ Line length ²⁾ Communication protocol Power consumption Bus power supply	ASV 2 VAV actuators Max. 2 × 8 ecolink modules Max. 2 × 4 ecoUnit 1, 3 or FCCP 2 Max. 2 × 12 ASV 2 5 V ±5% < 200 mA (sum of both RS-485), protected against short circu Pluggable spring-type terminals 2 × 4-pin 0.21.5 mm² rigid/flexible 4-wire, twisted, shielded Max. 100 m (30 m) with ecoUnit, up to 500 m, bus termination necessary KNX TP1 (ISO/IEC 14543-3) KNX bus max. 6 mA Via external KNX power supply
KNX	Power supply Connection Line ¹⁾ Line length ²⁾ Communication protocol Power consumption Bus power supply	ASV 2 VAV actuators Max. 2 × 8 ecolink modules Max. 2 × 4 ecoUnit 1, 3 or FCCP 2 Max. 2 × 12 ASV 2 5 V ±5% < 200 mA (sum of both RS-485), protected against short circu Pluggable spring-type terminals 2 × 4-pin 0.21.5 mm² rigid/flexible 4-wire, twisted, shielded Max. 100 m (30 m) with ecoUnit, up to 500 m, bus termination necessary KNX TP1 (ISO/IEC 14543-3) KNX bus max. 6 mA Via external KNX power supply KNX bus terminal x4

Example cable CAT-5, J-Y(ST)Y, RS-485 bus cable (e.g. Belden 9842)

With the cable length and the conductor cross-section, the supply voltage (+5 V) for the ecoUnit 3 must not fall below the minimum required voltage due to the voltage drop.

		SAUTER ecos Room Automation
	Participant	Up to 64 KNX devices, depending on the external KNX power supply
	Functions	256 KNX group addresses for BACnet I/O objects (256 channels)
DALI (per COM module)	Communication protocol	DALI (IEC 62386-101/-103)
	Power consumption	DALI bus max. 2 mA (only when operating with external power supply)
	Bus power supply	Typ. 16 V, max. 116 mA (can be switched off for external bus power supply)
	Connection	Spring-type terminals 0.22.5 mm ² rigid/flexible
	Line	2-wire, NYM, up to 300 m
	Use	DALI ballasts (IEC 62386-102) DALI sensors (see list)
	Participant	Up to 64 DALI ballasts and 64 DALI sensors (depending on type and bus power supply)
	Functions	256 DALI functions for BACnet I/O objects (256 channels) with ad- dressable 64 DALI short addresses and 16 group addresses
SMI (per COM module)	Communication protocol	SMI master (SMI standard V2.3.2)
	Bus power supply	Typ. 17 V, max. 20 mA, for 16 motors typ. 12.8 mA (0.8 mA/motor), protected against short circuit (30 mA)
	Connection	Spring-type terminals 0.22.5 mm ² rigid/flexible
	Line	2-wire, NYM, up to 350 m
	Use	SMI actuators, SMI (230 V) or SMI Lo- Vo (see list)
	Participant	Up to 16 SMI motors
	Functions	128 SMI functions for BACnet I/O objects (128 channels) for up to 16 single and group addresses each
RS-485 (COM module)	Communication protocol	Modbus/RTU and Modbus/ASCII Master as per V1.02 2-wire (2W)
	Bus physics	1 unit load (unit load = UL); electrically isolated; integrated RS-485 network re- sistors (LT, PU, PD) configurable via software
	Bus speed	600115,200 bit/s Parity bit, stop bit, Rx/Tx bus timing
	Connection	Pluggable spring-type terminals 2 × 5-pin 0.21.5 mm ² rigid/flexible
	Line ³⁾	3-/4-wire (D+/D-/COM reference), twisted, shielded, up to 1000 m
	Use	Integration of Modbus slaves in an RS-485 segment (line)
	Participant	Up to 31 RS-485 unit loads (UL)
	Functions	600 Modbus channels for BACnet
		I/O/V objects for up to 247 Modbus devices; FC01-06, 15, 16, 22; unicast
M-Bus/RS-232 (COM modula)	Communication protocol	devices; FC01-06, 15, 16, 22; unicast and broadcast; access optimisation
M-Bus/RS-232 (COM module)	Communication protocol Bus physics	devices; FC01-06, 15, 16, 22; unicast

³⁾ Example cable CAT-5, J-Y(ST)Y, RS-485 bus cable (e.g. Belden 9842)

	Connection	Pluggable spring-type terminals 2 × 5-pin
		0.21.5 mm² rigid/flexible
	Line ⁴⁾	2-wire (M+/M-) up to 1000 m; RS-232 (D+/D-/GND) up to 15 m
	Use	Integration of M-Bus meters
	Participant	Up to 40 M-Bus unit loads (UL of 1.5 mA); up to 256 M-Bus devices (with external M-Bus level converter via RS-232)
	Functions	400 M-Bus channels for BACnet I/O/V objects for up to 256 M-Bus devices; REQ_UD2, SND_NKE, SND_UD, primary/secondary addressing, readout (triggered, by offset or filter)
Construction		
	Fitting	DIN rail 35 × 7.5/15 EN 50022 Rail housing DIN 43880
	Dimensions W x H x D	EY-RC 504:105 (6 HP) × 90 × 58 mm EY-RC 505:210 (12 HP) × 90 × 58 mm
Standards and directives		
	Type of protection	Connections and terminals: IPOO (EN 60730) Front in DIN cut-out: IP30 (EN 60730) IP30 (EN 60529), with accessory ter-
		minal cover
	Energy class ⁵⁾	I to VIII = up to 5% as per EU 811/2013, 2010/30/EU, 2009/125/EC
	Environment class	3K3 (IEC 60721)
	Protection class	I (EN 61140)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1 EN 61000-6-2 EN 61000-6-3 EN 61000-6-4
eu.bac certificate	Energy Performance of Buildings Directive 2010/31/EU	EN 15500
	eu.bac licence	No. 2166

Overview of types						
Туре	COM1	COM2	COM3	Weight	Current consumption (max.)	Power consumption
EY-RC504F001	-	-	-	220 g	0.33 A	4 W / 8 VA
EY-RC504F101	-	-	-	220 g	0.33 A	4 W / 8 VA
EY-RC504F202	-	-	-	220 g	0.33 A	4 W / 8 VA
EY-RC504F011	KNX	-	-	240 g	0.33 A	4 W / 8 VA
EY-RC504F021	DALI	-	-	245 g	0.43 A	6 W / 10 VA
EY-RC504F041	SMI	-	-	240 g	0.33 A	4 W / 8 VA
EY-RC504F0C1	RS-485	-	-	243 g	0.33 A	5 W / 9.5 VA
EY-RC504F0D1	M-Bus	-	-	253 g	0.48 A	6.9 W / 10 VA
EY-RC505F031	KNX	DALI	-	385 g	0.61 A	7 W / 10 VA
EY-RC505F051	SMI	DALI	-	410 g	0.61 A	7W/11VA
EY-RC505F061	KNX	SMI	-	385 g	0.33 A	4 W / 8 VA

MBus cable lengths depend on the cable type (J-Y(ST)Y 4×0.5 mm 2 up to 1000 m, LiYY 2×1.5 mm 2 up to 4000 m), the number of bus segments and the baud rate; see engineering notes

When the room automation station is being used as a temperature controller, most temperature controller classes can be fulfilled according to EU Directive 2010/30 / EU Regulation 811/2013. For information on the exact temperature class reached, please refer to the system integrator's user program

Туре	COM1	COM2	COM3	Weight	Current consumption (max.)	Power consump- tion
EY-RC505F071	KNX	SMI	DALI	420 g	0.61 A	7 W / 11 VA
EY-RC505F081	-	DALI	DALI	410 g	0.61 A	9 W / 14 VA
EY-RC505F091	SMI	SMI	DALI	430 g	0.61 A	8 W / 12 VA
EY-RC505F0A1	KNX	DALI	DALI	420 g	0.61 A	9 W / 14 VA
EY-RC505F0B1	SMI	SMI	-	400 g	0.33 A	4 W / 8 VA
EY-RC505F0E1	RS-485	M-Bus	-	405 g	0.48 A	7.1 W / 10.6 VA
EY-RC505F0F1	RS-485	DALI	-	405 g	0.61 A	6 W / 10 VA
EY-RC505F0G1	RS-485	SMI	DALI	430 g	0.61 A	7 W / 10 VA
EY-RC505F0H1	KNX	RS-485	DALI	420 g	0.61 A	9 W / 14 VA
EY-RC505F0J1	RS-485	DALI	DALI	440 g	0.61 A	9 W / 14 VA

- $ilde{ ilde{y}}$ EY-RC 504, 505: Room automation station, 8 rooms/segments, 2 \times SLC/RS-485
- F*O*: EY-RC504F001 (ecos504, standard), EY-RC504F101 (ecos504, moduWeb), EY-RC504F202 (ecos504-loT, BACnet-MQTT gateway)
- → DALI: DALI interface with bus power supply (1 16 mA)
- RS-485: RS-485 interface for Modbus/RTU and Modbus/ASCII
- SMI: SMI interface for SMI or SMI/LoVo

Accessories	
Туре	Description
0940240001	ecos504/505 terminal covers (2 pcs)
0450573001	Transformer 230 V~ / 24 V=, 42 VA; for DIN rail 35 mm, dimensions: $78 \times 74 \times 52$ mm (W×H×D)
EY-PS021F011	Power supply module 230 V~ / 24 V=, 1 A; 3 HP DIN rail mounting
EY-PS021F021	Power supply module 230 V~ / 24 V=, 2 A; 4 HP DIN rail mounting
EY-PS021F041	Power supply module 230 V~ / 24 V=, 4 A; 5 HP DIN rail mounting
EY-CM581F081	ecosCom581 EnOcean wireless interface
EY-RU 1 * *	ecoUnit 1 room operating units with EnOcean wireless technology (via EY-CM581F081)
EY-RU 3**	ecoUnit 3 room operating units (apart from EY-RU 38*)
EY-EM 51*	Remote ecoLink I/O modules (24 V)
EY-EM 52*	Remote ecoLink I/O modules (230 V)
YY-FX502F001	ecos-IoT: MQTT Client, licence for ecos504/505
YY-FX502F002	ecos-IoT: MQTT Client + Broker, licence for ecos504/505

^{→ 1} HP = one horizontal pitch with 17.5 mm





EY-RC311F001

EY-RC 311: Room controller, ecos311

Features

- Part of the SAUTER EY-modulo 3 system family (BACnet MS/TP)
- BACnet MS/TP communication (EN ISO 16484-5)
- BACnet room controller (B-ASC) for fan coil unit, chilled beam, chilled ceiling, radiator heater, light, control of window blinds, variable volume flow control (VAV) etc.
- Individual adjustment of the setpoints via ecoUnit 3 room operating units (EY-RU 3**)
- Optimisation of energy consumption using presence function, monitoring of window contacts, demandcontrolled switching of fan speeds and time-dependent setpoint specification
- Freely configurable time programme (BACnet Schedule objects)
- Freely programmable with CASE Suite software (based on IEC 61131-3)
- Expandable with ecoLink I/O modules for lighting and control of window blinds

recinicai data		
Power supply		
	Power supply	230 V, 200 V min., 253 V max., 5060 Hz
	Power consumption	Max. 14 VA
	Dissipated power	5 W / 8 VA
		,
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	−2070 °C
	Humidity	1085% rh, no condensation
Inputs / outputs		
Relay outputs	Туре	0-I relays, normally-open contacts with
		shared power supply
	Load	230 V~/30 V= 2 A resistive load, total max. 5 A 230 V~; 10 A resistive load
	Switching frequency	> 3 × 10 ⁵ cycles (2 A)
		> 2 × 10 ⁵ cycles (10 A)
Semiconductor outputs (MOS-FET)	Туре	0-1, 24 V~/=, switched to ground
, , ,	Load	0.5 A Max. peak current 1 A (< 20 ms)
Analogue outputs	Туре	010 V / 2 mA
Universal inputs	Analogue	010 V
p	Digital	0-I, max. 2 Hz
	Potentiometer	110 kΩ (for potentiometer)
	Resistance	1002500 Ω
	Ni1000/Pt1000	-20100 °C
		-
Interfaces and communication		
	Interface	1 imes RS-485 electrically isolated, $1/2$ load
	Protocol	BACnet MS/TP
	Line	2-wire, twisted with reference, shielded
	Line length	1000 m with bus termination
SAUTER Local Communication in	torfogog	
SAUTER LOCAL COMMUNICATION II	Interface	1 DC 405
		1 x RS-485
	Protocol	SLC
	Cable	2x2-wire, twisted, shielded
	Cable length	< 100 m with bus termination (with ROU) < 500 m with bus termination (without
		ROU)



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		SAUTER ecos Room Automation
	Room operating units	Max. 1; EY-RU 31*, 34*, 1** (via 580)
	I/O modules	Max. 2; EY-EM 51*, 52*
Construction		
	Dimensions W x H x D	178 × 103 × 53 mm
	Weight	674 g
	Fitting	DIN rail; TH35x7.5/15 EN 50022
Standards and directives		
	Type of protection	IPOO (EN 60529) IP20 (cover with front aperture)
	Protection class	II (EN 60730-1)
	Energy class ¹⁾	I to VIII = up to 5% as per EU 811/2013, 2010/30/EU, 2009/125/EC
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1 EN 61000-6-3
	Low-Voltage Directive 2014/35/EU	EN 60730-1 EN 60730-2-9

Description

EY-RC311F001 ecos311 - room controller B-ASC, MS/TP, 16IO, 230 V

Overview of I/O mix	
Universal inputs	5
Relay outputs	3 (2 A)
	1 (10 A)
Digital outputs	4
Analogue outputs	3

When the automation station is being used as a temperature controller, most temperature controller classes can be fulfilled according to EU Directive 2010/30/EU, Regulation 811/2013. For information on the exact temperature class, please refer to the system integrator's user program.

SAUTER ecos room operating units

SAUTER ecoUnit 3 and ecoUnit 1 room operating units combine technology with design. The buttons can be freely assigned with various functions. Due to the standard internal dimensions of 55×55 mm, these devices fit both SAUTER frames and common frames of third-party manufacturers of light switches

Overview of room operating units









Type designation	EY-RU310F001	EY-RU311F001 EY-RU314F001		EY-RU316F001	
Product name	ecoUnit310	ecoUnit311	ecoUnit314	ecoUnit316	
Function	Temperature sensor	Temperature sensor, set- point correction	Temperature sensor, set- point correction, occupan- cy, fan	Temperature sensor, set- point correction, occupan- cy, fan, and control of lighting and window blinds	
Use	ecos 5, ecos311				
Interface		RS-	-485		
Display	-			-	
Temperature sensor	•	•	•	•	
Button functions	-	-	2	4	
Fan speeds	-	- AUTO-0-1-2-3			
Setpoint correction	-	Rotary knob			
Room occupancy	-	- 3 modes			
Further information	Page 432	Page 432	Page 432	Page 432	







Type designation	EY-RU365F0**	EY-RU355F***	EY-SU358F081
Product name	ecoUnit365	ecoUnit355	ecoUnit358
Function	Temperature sensor, 12 setpoints with 4 functions (temperature, lights, blinds and fans)	Temperature sensor, setpoint cor- rection, occupancy, fan	Push-button unit
Use	modulo 6, ecos 5	modulo 6, ecos 5, ecos 311	Connection to ecoUnit355
Interface	SLC/F	SLC/RS-485	
Display	TFT colour display	LCD display	-
Temperature sensor	•	•	-
Button functions	12 on 6 × 6 tiles	5	2, 4, 8
Fan speeds	•	AUTO-0-1-2-3	-
Setpoint correction	Digitally adjustab	Digitally adjustable via push-buttons	
Room occupancy	•	3 modes	-
Further information	Page 434	Page 437	Page 440







Type designation	EY-RU110F201	EY-RU146F201	EY-SU106F100
Product name	ecoUnit110	ecoUnit146	ecoUnit106
Function	Temperature sensor	Temperature sensor, setpoint cor- rection, occupancy, fan, and con- trol of lighting and window blinds	Solar panel supply, control of lighting and window blinds
Use		1/ecoMod580 for: 311, modulo 6	Connection to ecoUnit1**
Interface	EnOcea	n wireless	-
Display	_	LCD display	-
Temperature sensor	•	•	-
Button functions	-	6	6
Fan speeds	-	AUTO-0-1-2-3	-
Setpoint correction	-	Digitally adjustable via push-but- tons	-
Room occupancy	-	3 modes	-
Further information	Page 442	Page 444	Page 446



EY-RU316F001



EY-RU310F001

EY-RU 310...316: Room operating unit, ecoUnit310...316

Features

- Part of the SAUTER EY-modulo 5 system family
- Room operating unit for eco500, 502, 504, 505
- Can be extended with EY-SU 306 push-button unit
- Operating unit to control and guarantee the highest possible room comfort
- Temperature measurement and setpoint adjustment
- Device insert with transparent front, fits into frame with 55×55 mm aperture
- Frame can be ordered as an accessory
- Room climate can be adapted individually
- Operating mode can be set for room occupancy and actuation of a 3-speed fan
- Control of window blinds, windows and lighting (ON/OFF/dim)
- Multicolour LED indicators for visualisation of local energy consumption
- Room operating unit with a wide range of functions, designs and colours

Power supply		
	Power supply	From automation station
	Current consumption	≤ 25 mA
	·	\leq 38 mA with 2 \times EY-SU306
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
Parameters		
Sensors	Measuring range	040 °C
	Resolution	0.1 K
	Time constant	Approx. 7 minutes
Functionality	Setpoint correction	Variable
	Room occupancy (presence)	3 modes, LED indicator
	Fan speeds	5 functions, LED indicator
	Position LED	Switchable: green/red/OFF
Interfaces and communication		
Connection to automation station	Activation	ecos 5, modu521
	Interface	RS-485
	Protocol	SLC
	Line	4-wire, twisted, shielded
	Line length ¹⁾	≤ 100 m (30 m) with bus termination
	Connection terminals	Pluggable; for wire of 0.120.5 mm ² (Ø 0.40.8 mm)
Construction		
	Fitting	Recessed/surface-mounted (see accessories)
	Dimensions W x H x D	59.5 × 59.5 × 25 mm
	Weight	0.1 kg
	Housing	Pure white (similar to RAL 9010)
	Labelling insert	Silver (similar to Pantone 877 C)
Standards and directives		
	Type of protection	IP30 (EN 60529)
	17 PC OF PROTECTION	11 00 (214 00027)



¹⁾ Max. 30 m for industrial applications as per EN 61000-6-2



	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3

Overview of types			
Туре	Features	Buttons	
EY-RU310F001	NTC sensor	-	
EY-RU311F001	Operating unit, NTC sensor, dXs setpoint correction (rotary knob)	-	
EY-RU314F001	Operating unit, NTC sensor, dXs setpoint correction (rotary knob), fan, occupancy	2	
EY-RU316F001	Operating unit, NTC sensor, dXs setpoint correction (rotary knob), fan, occupancy, window blinds / light	4	

Accessories	
Operating unit	
Туре	Description
EY-SU306F001	Push-button unit, without frame
Fitting	
Туре	Description
Type 0940240***	Description For frames, mounting plates and adapters for third-party frames, see product data sheet 94.055
7.	
0940240***	For frames, mounting plates and adapters for third-party frames, see product data sheet 94.055





EY-RU365F001

EY-RU 365: Touch room operating unit, ecoUnit365

Features

- Part of the SAUTER EY-modulo 5 system family
- High quality room operating unit with touch operation and tile display
- 3.5" TFT colour display, 320x240 pixels
- Scratch-resistant, capacitive touch interface
- Navigation of up to 6 pages with up to 6 functions (tiles) each
- Intuitive operation for 4 predefined functions (temperature, lights, blinds and fans)
- Up to 12 setpoints can be defined as a reference for BACnet objects
- Display of the energy efficiency function ("ECO 10")
- Mode and symbol displays, e.g. heating/cooling
- Audio feedback when pressed
- 24 V~/= power supply
- SLC/RS-485 communicative interface for ecos 5
- Can be located up to 500 m from the automation station
- 6 digital inputs for connecting presence detector, door/window contacts, digital contact directly
- Configuration with CASE Suite (CASE Engine "EY-RU365 module configuration", RU_TOUCH module)
- Optional: Bluetooth 4.0 LE for using a BT app on a smartphone

TCCIIIICAI GAIA		
Power supply		
	Power supply	24 V~/=, ±20% - SELV 0 / 50/60 Hz or from EY-PS 021 of the ecos
	Power consumption during operation	< 2.6 W
Ambient conditions		
Operation	Operating temperature	045 °C
Operation	Ambient humidity	1085% rh, no condensation
Transport	Ambient humidity	< 85% rh, no condensation
nansport	Storage and transport temperature	-2570 °C
Parameters		
	Setpoint	Up to 12 setpoint entries, configurable
	Symbol	Up to 6 symbols:room mode - com- fort/reduced/set-back; ECO mode - green-yellow-red; heating/cooling; win- dows; humidity; wind; alarm; block
	Number of functions	Up to 6 pages Up to 6 tiles per page
	Tile function	Temperature, fan, light dimming, light switching, control of window blinds (position/angle)
	Special functions	°C/°F changeover for temperature function; Home button; Navigation display; (Title) labelling for pages, tiles and functions
	Screensaver display	None, Time or Actual Temperature
Temperature sensors	Type of sensor	NTC 10k Ω
	Measuring range	040 °C
	Resolution	0.1 K
	Updating interval	1 s
	Drift	< 0.1 °C/year
	Position	Bottom left

Inputs	Number of inputs	6
	Type of inputs	For potential-free switching contacts
	Polling voltage	24 V= unregulated
	Polling current	>3 mA (closed contact)
	Internal resistance	> 4.7 kOhm
	Refresh interval input	20 ms
	Switching thresholds	<10 V (voltage "rising") > 6 V (voltage "falling")
	Control to an house and to	>1 V
A 1:1 1 C 11 1	Switching hysteresis	
Audible feedback	Type	Piezoelectric signal
	Application	Audio feedback when touch function executed
Display with backlight	Screen diagonal	3.5 inches (8.9 cm)
	Resolution	320 x 240 pixels
	Refresh interval display	60 Hz
	Туре	TFT
	Number of colours	262,000
	Brightness	500 cd/m ²
	Contrast ratio	300
	Perspective	From above:15°
	i erspective	From below:35°
		From left/right:45°
Touchpad	Touchnad type	
Toochpad	Touchpad type Refresh rate	Capacitive with gesture recognition 10 ms
Light sensor	Type of sensor	Phototransistor with integrated filter
	Measuring range	05000 lux
	Resolution	Typ.10 lux
	Position sensor	In the middle above the display
	Refresh rate	100 ms
	Refresh rate	100 ms
Interfaces and communication	Refresh rate	100 ms
	Refresh rate SLC/RS-485, DI, power supply	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5
Connection terminals	SLC/RS-485, DI, power supply	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm ² (grid dimension 5 mm)
Connection terminals	SLC/RS-485, DI, power supply Activation	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm ² (grid dimension 5 mm) From ecos 5
Connection terminals	SLC/RS-485, DI, power supply	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm ² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated
Connection terminals	SLC/RS-485, DI, power supply Activation Interface	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor)
Connection terminals	SLC/RS-485, DI, power supply Activation	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC
Connection terminals	SLC/RS-485, DI, power supply Activation Interface Protocol	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication)
Connection terminals	SLC/RS-485, DI, power supply Activation Interface	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MN
Connection terminals	SLC/RS-485, DI, power supply Activation Interface Protocol	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MN terminal is reference for RS-485; shiel
Connection terminals	SLC/RS-485, DI, power supply Activation Interface Protocol Line	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MM terminal is reference for RS-485; shielded at controller
Connection terminals	SLC/RS-485, DI, power supply Activation Interface Protocol Line Line length	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MM terminal is reference for RS-485; shielded at controller ≤ 500 m with bus termination
Connection terminals	SLC/RS-485, DI, power supply Activation Interface Protocol Line	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MN terminal is reference for RS-485; shielded at controller ≤ 500 m with bus termination Protected against excess voltage and
Connection terminals Communication	SLC/RS-485, DI, power supply Activation Interface Protocol Line Line length Protection circuit	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded {D+, D-}; MN terminal is reference for RS-485; shielded at controller ≤ 500 m with bus termination Protected against excess voltage and reversed polarity
Connection terminals Communication	SLC/RS-485, DI, power supply Activation Interface Protocol Line Line length Protection circuit Bluetooth specification	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MN terminal is reference for RS-485; shielded at controller ≤ 500 m with bus termination Protected against excess voltage and reversed polarity 4.0 Low Energy Class 2
Connection terminals Communication	SLC/RS-485, DI, power supply Activation Interface Protocol Line Line length Protection circuit Bluetooth specification Module	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MN terminal is reference for RS-485; shielded at controller ≤ 500 m with bus termination Protected against excess voltage and reversed polarity 4.0 Low Energy Class 2 Panasonic PAN1740
Connection terminals Communication	SLC/RS-485, DI, power supply Activation Interface Protocol Line Line length Protection circuit Bluetooth specification	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MN terminal is reference for RS-485; shielded at controller ≤ 500 m with bus termination Protected against excess voltage and reversed polarity 4.0 Low Energy Class 2 Panasonic PAN 1740 1 simultaneously
Connection terminals Communication	SLC/RS-485, DI, power supply Activation Interface Protocol Line Line length Protection circuit Bluetooth specification Module Number of app participants	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MN terminal is reference for RS-485; shielded at controller ≤ 500 m with bus termination Protected against excess voltage and reversed polarity 4.0 Low Energy Class 2 Panasonic PAN 1740 1 simultaneously 256 registered
Connection terminals Communication	SLC/RS-485, DI, power supply Activation Interface Protocol Line Line length Protection circuit Bluetooth specification Module	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MN terminal is reference for RS-485; shielded at controller ≤ 500 m with bus termination Protected against excess voltage and reversed polarity 4.0 Low Energy Class 2 Panasonic PAN 1740 1 simultaneously 256 registered iOS 8.0 or higher
Connection terminals Communication	SLC/RS-485, DI, power supply Activation Interface Protocol Line Line length Protection circuit Bluetooth specification Module Number of app participants	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MN terminal is reference for RS-485; shielded at controller ≤ 500 m with bus termination Protected against excess voltage and reversed polarity 4.0 Low Energy Class 2 Panasonic PAN 1740 1 simultaneously 256 registered
Connection terminals Communication Wireless	SLC/RS-485, DI, power supply Activation Interface Protocol Line Line length Protection circuit Bluetooth specification Module Number of app participants	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MN terminal is reference for RS-485; shielded at controller ≤ 500 m with bus termination Protected against excess voltage and reversed polarity 4.0 Low Energy Class 2 Panasonic PAN 1740 1 simultaneously 256 registered iOS 8.0 or higher
Connection terminals Communication Wireless Construction	SLC/RS-485, DI, power supply Activation Interface Protocol Line Line length Protection circuit Bluetooth specification Module Number of app participants	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MN terminal is reference for RS-485; shielded at controller ≤ 500 m with bus termination Protected against excess voltage and reversed polarity 4.0 Low Energy Class 2 Panasonic PAN 1740 1 simultaneously 256 registered iOS 8.0 or higher
Connection terminals Communication Wireless Construction	SLC/RS-485, DI, power supply Activation Interface Protocol Line Line length Protection circuit Bluetooth specification Module Number of app participants Supported OS Bluetooth app	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MN terminal is reference for RS-485; shielded at controller ≤ 500 m with bus termination Protected against excess voltage and reversed polarity 4.0 Low Energy Class 2 Panasonic PAN1740 1 simultaneously 256 registered iOS 8.0 or higher Android 4.1 (Jelly Bean) or higher
Connection terminals Communication Wireless Construction	SLC/RS-485, DI, power supply Activation Interface Protocol Line Line length Protection circuit Bluetooth specification Module Number of app participants Supported OS Bluetooth app	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MN terminal is reference for RS-485; shielded at controller ≤ 500 m with bus termination Protected against excess voltage and reversed polarity 4.0 Low Energy Class 2 Panasonic PAN 1740 1 simultaneously 256 registered iOS 8.0 or higher Android 4.1 (Jelly Bean) or higher
Connection terminals Communication Wireless Construction	SLC/RS-485, DI, power supply Activation Interface Protocol Line Line length Protection circuit Bluetooth specification Module Number of app participants Supported OS Bluetooth app Fitting Dimensions W x H	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MN terminal is reference for RS-485; shielded at controller ≤ 500 m with bus termination Protected against excess voltage and reversed polarity 4.0 Low Energy Class 2 Panasonic PAN 1740 1 simultaneously 256 registered iOS 8.0 or higher Android 4.1 (Jelly Bean) or higher Recessed mounting Glass front:86 x 86 mm²
Connection terminals Communication Wireless Construction	SLC/RS-485, DI, power supply Activation Interface Protocol Line Line length Protection circuit Bluetooth specification Module Number of app participants Supported OS Bluetooth app Fitting Dimensions W x H Surface depth T	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MN terminal is reference for RS-485; shielded at controller ≤ 500 m with bus termination Protected against excess voltage and reversed polarity 4.0 Low Energy Class 2 Panasonic PAN 1740 1 simultaneously 256 registered iOS 8.0 or higher Android 4.1 (Jelly Bean) or higher Recessed mounting Glass front:86 x 86 mm² Plastic housing:85 x 85 mm² Max. 15 mm
Interfaces and communication Connection terminals Communication Wireless Construction Device dimensions	SLC/RS-485, DI, power supply Activation Interface Protocol Line Line length Protection circuit Bluetooth specification Module Number of app participants Supported OS Bluetooth app Fitting Dimensions W x H Surface depth T Recessed depth T (recessed junction	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MN terminal is reference for RS-485; shielded at controller ≤ 500 m with bus termination Protected against excess voltage and reversed polarity 4.0 Low Energy Class 2 Panasonic PAN 1740 1 simultaneously 256 registered iOS 8.0 or higher Android 4.1 (Jelly Bean) or higher Recessed mounting Glass front:86 x 86 mm² Plastic housing:85 x 85 mm²
Connection terminals Communication Wireless Construction	SLC/RS-485, DI, power supply Activation Interface Protocol Line Line length Protection circuit Bluetooth specification Module Number of app participants Supported OS Bluetooth app Fitting Dimensions W x H Surface depth T	2 x 6-pin screw terminals, pluggable, for solid or braided wires, max. 1.5 mm² (grid dimension 5 mm) From ecos 5 RS-485 with 115kbit/s (no integrated terminating resistor) SLC (SAUTER Local Communication) 2-wire twisted, shielded (D+, D-); MN terminal is reference for RS-485; shielded at controller ≤ 500 m with bus termination Protected against excess voltage and reversed polarity 4.0 Low Energy Class 2 Panasonic PAN 1740 1 simultaneously 256 registered iOS 8.0 or higher Android 4.1 (Jelly Bean) or higher Recessed mounting Glass front:86 x 86 mm² Plastic housing:85 x 85 mm² Max. 15 mm

Housing	Colour	FO*1:White (similar to RAL 9010)
riousing	Coloui	FO*2:Black (similar to RAL 9005)
Weight	Weight	F0*1:0.190 kg
G	Ŭ	F0*2:0.200 kg
Glass front	Glass type	Float glass, chemically hardened sodalime glass
	Glass thickness	2.9 mm
	Surface hardness	6 H
Standards and directives		
	Software class	A (EN60730)
	Plastic fire classification	UL94V2
	Type of protection	IP30 (EN 60529)
	Protection class	III (EN 60730)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 50491-5-2, EN 50491-5-3
	Wireless (Bluetooth)	ETSI EN 300 328 v1.8.1
	RED Directive as per 2014/53/EU	ETSI EN 301 489-1 v1.9.2
		ETSI EN 301 489-17 v2.1.1
	RoHS Directive 2011/65/EU	EN 50581
EU regulation	Reach conformity	1907/2006
	WEEE	2012/19/EU

Overview of types		
Туре	Title	
EY-RU365F001	ecoUnit365, white, touch, NTC, 6DI	
EY-RU365F002	ecoUnit365, white, touch, NTC, 6DI, Bluetooth	
EY-RU365F0A1	ecoUnit365, black, touch, NTC, 6DI	
EY-RU365F0A2	ecoUnit365, black, touch, NTC, 6DI, Bluetooth	

Accessories	
Туре	Description
EY-PS021F***	Power supply EY-PS 021

EY-RU 355: Room operating unit, ecoUnit355

Features

- Part of the SAUTER EY-modulo system family
- Room operating unit for ecos311, 500, 502, 504, 505 and ASV2
- Local, intuitive operation for temperature, fan and occupancy
- Large backlit (BL) display for status information on the room condition
- Ergonomic push-buttons with mechanical, tactile feedback
- Individual adjustment of the room climate via temperature detection and setpoint adjustment
- Operating mode can be set for room occupancy and actuation of a 3-speed fan
- ECO button for resetting to automatic mode
- Multicolour LED indicator for visualisation of energy consumption or as position LED
- Sturdy surface of front cover
- \bullet Fits into standard frame with 55 x 55 mm aperture
- Individually labelled buttons as accessories
- Expandable with EY-SU 358 switching unit for operating lights, window blinds etc.
- Frame can be ordered as an accessory
- Room operating unit with various functions, designs and colours

Technical data

Power supply		
	Power supply	1224 V=, ± 20% (with BL) 5 V=, ± 20% (without BL) from ecos 5/ecos311/ASV2: 5 V= from ecos311: 15 V= from EY-PS021: 24 V=
	Current consumption	5 V= < 10 mA (without active LCD lighting) 24 V= < 25 mA (with active LCD lighting)
Ambient conditions		
	Operating temperature Storage and transport temperature Ambient humidity	045 °C -2570 °C 1085% rh, no condensation
Parameters		
Sensors	Measuring range	040 °C 0.1 K
	Time constant	14 min.
	Measuring accuracy	Typ. 1 K in the 1535°C range
Functionality	Setpoint correction	Can be set and reset; LCD
,	Room occupancy (presence)	3 modes; LCD
	Fan speeds	3 levels, off, automatic; LCD
	Position/energy LED	1; green, red, orange, off; switchable
	Symbols in LCD	Time/date, air quality, heating/cooling, ECO, different units, state symbols (window, dew point, locked), SAUTER logo (can be hidden)
Interfaces and communication	A 22 24	5 011
Connection to automation station, controller	Activation	ecos 5, ecos311
	Interface	RS-485
	Protocol	SLC
	Line	4-wire, twisted, shielded



EY-RU355F051





	Line length ¹⁾	≤ 100 m with bus termination
	Connection terminals	Pluggable for wire of 0.120.5 mm ² (Ø 0.40.8 mm)
Construction		
	Fitting	Recessed/surface-mounted (see accessories)
	Dimensions W x H x D	55 × 55 mm
	Weight	0.05 kg
	Housing	FOxx: traffic white (similar to RAL 9016)
		FAxx: jet black (similar to RAL 9005)
	Button printing	FOxx: black (similar to RAL 9005) FAxx: white (similar to RAL 9016)
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4

Overview of types		
Features	Buttons _=dummy button, PRA=presence	Colour
Operating device, LCD, NTC, OT	No buttons supplied	x=0, traffic white x=A, jet black
Operating device, LCD, NTC, 2T	+ - _ _ _	x=0, traffic white
Operating device, LCD, NTC, 3T	+ - _ _ PRA	x=0, traffic white
Operating device, LCD, NTC, 3T	+ - _ FAN _	x=0, traffic white
Operating device, LCD, NTC, 4T	+ - _ FAN PRA	x=0, traffic white
Operating device, LCD, NTC, 4T	+ - ECO _ PRA	x=A, jet black
Operating device, LCD, NTC, 5T	+ - ECO FAN PRA	x=0, traffic white x=A, jet black
Operating device, LCD, NTC, 5T	+ - UP DOWN PRA	x=0, traffic white
Operating device, LCD, NTC, 5T	+ - UP DOWN LIGHT	x=0, traffic white
Operating device, LCD, NTC, 5T	+ - ECO FAN °C/°F	x=0, traffic white
	Peatures Operating device, LCD, NTC, OT Operating device, LCD, NTC, 2T Operating device, LCD, NTC, 3T Operating device, LCD, NTC, 3T Operating device, LCD, NTC, 4T Operating device, LCD, NTC, 4T Operating device, LCD, NTC, 5T Operating device, LCD, NTC, 5T	Buttons _=dummy button, PRA=presence Operating device, LCD, NTC, OT Operating device, LCD, NTC, 2T Operating device, LCD, NTC, 3T Operating device, LCD, NTC, 4T Operating device, LCD, NTC, 5T Operating device, LCD, NTC, 5T

Accessories			
Туре	Description	Buttons	Colour
EY-SU358Fx21	Push-button unit, ecoUnit358, 2T	2 (dual buttons, dual dummy buttons)	x=0, traffic white x=A, jet black
EY-SU358Fx41	Push-button unit, ecoUnit358, 4T	4 (dual buttons)	x=0, traffic white x=A, jet black
EY-SU358Fx81	Push-button unit, ecoUnit358, 8T	8 (single buttons)	x=0, traffic white x=A, jet black
Fitting accessories,	spare parts		
Туре	Description		
0940240***	For frames, mounting plates and	adapters for third-party frames, se	ee product data sheet 94.055
0940240103	Frame, single, recessed, white (RAL9016), 10 pcs.		

SLC/RS-485 permits a line length of up to 500 m (decentralised supply)

0940240104 Frame, single, recessed, black (RAL9005), 10 pcs.

A /	

Туре	Description
0940240703	Mounting plate, single, for recessed fitting (10 pcs.)
0940240203	Frame, double, recessed, white (RAL9016), 10 pcs.
0940240204	Frame, double, recessed, black (RAL9005), 10 pcs.
0940240802	Mounting plate, double, for recessed fitting (10 pcs.)
0940240302	Frame, single, surface-mounted, white (RAL9016), 10 pcs.
0940240303	Frame, single, surface-mounted, black (RAL9005), 10 pcs.
0940240402	Frame, double, surface-mounted, white (RAL9016), 10 pcs.
0940240403	Frame, double, surface-mounted, black (RAL9005), 10 pcs.
094013****	Buttons as accessories/spares, 10 pcs. (see product data sheet PDS 94.056)
0949360004	Push-in terminal RU/SU (for wire), 2 × 10 pcs. 2-pin (01/02, 03/04)
0940360005	Terminal RU-SU, push-in, @3P (V,C,DQ), 10 pcs. (accessory for EY-SU 358)
0940360007	Terminal RU-SU, screw, @3P (V,C,DQ), 10 pcs. (optional accessory for EY-SU 358)
0940360006	Terminal and cable RU-SU, @3P (V,C,DQ), 15 cm, 10 pcs. (optional accessory for EY-SU 358)
0940360012	Terminal RU, screw, 2x10pcs. @2P (01/02, 03/04) (optional accessory for stranded cable)



EY-SU358F081

EY-SU 358: Push-button unit for room operating unit, ecoUnit358

Features

- Part of the SAUTER EY-modulo system family
- Push-button unit to supplement the ecoUnit355 (EY-RU 355)
- Various designs and colour versions in black and white
- For controlling window blinds and lighting (on/off, dim)
- 2, 4 or 8 button functions
- Labelling insert for individual labelling
- \bullet Fits into frame with 55 x 55 mm aperture
- Frame can be ordered as an accessory

recillical data		
Power supply		
	Power supply	From ecoUnit355
	Current consumption	≤ 2.5 mA (at 24 V= for ROU) ≤ 3 mA (at 15 V= for ROU) ≤ 8.5 mA (at 5 V= for ROU)
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
Parameters		
Functionality	Position LED	2; green, red, orange, off; can be connected parallel to EY-RU 355 LED
Connection	Line	3-wire (V, C, DQ)
	Length	≤ 30 m (can be installed remotely from ecoUnit355)
Labelling	Labelling insert	1 to 3, depending on type; Colour: silver (similar to Pantone 8 <i>77</i> C)
Construction		
Construction	Fitting	Recessed/surface-mounted (see list of accessories)
	Dimensions W x H x D	55 × 55 × 23 mm
	Weight	0.04 kg
	Buttons	FO21: two (dual buttons, dummy but- tons) FO41: four (dual buttons) FO81: eight (single buttons)
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4





Overview of types		
Туре	Description	Colour
EY-SU358Fx21	Push-button unit, ecoUnit358, 2T	x=0, traffic white x=A, jet black
EY-SU358Fx41	Push-button unit, ecoUnit358, 4T	x=0, traffic white x=A, jet black
EY-SU358Fx81	Push-button unit, ecoUnit358, 8T	x=0, traffic white x=A, jet black

Accessories	
Туре	Description
0940360005	Terminal RU-SU, push-in, @3P (V,C,DQ), 10 pcs. (accessory for EY-SU 358)
0940360007	Terminal RU-SU, screw, @3P (V,C,DQ), 10 pcs. (optional accessory for EY-SU 358)
0940360006	Terminal and cable RU-SU, @3P (V,C,DQ), 15 cm, 10 pcs. (optional accessory for EY-SU 358)
0940240***	For frames, mounting plates and adapters for third-party frames, see product data sheet 94.055
0940240103	Frame, single, recessed, white (RAL9016), 10 pcs.
0940240104	Frame, single, recessed, black (RAL9005), 10 pcs.
0940240703	Single mounting plate (10 pcs.)
0940240203	Frame, double, recessed, white (RAL9016), 10 pcs.
0940240204	Frame, double, recessed, black (RAL9005), 10 pcs.
0940240802	Mounting plate, double, for recessed fitting (10 pcs.)
0940240302	Frame, single, surface-mounted, white (RAL9016), 10 pcs.
0940240303	Frame, single, surface-mounted, black (RAL9005), 10 pcs.
0940240402	Frame, double, surface-mounted, white (RAL9016), 10 pcs.
0940240403	Frame, double, surface-mounted, black (RAL9005), 10 pcs.
0940001501	Blank foil for EY-SU 358, silver, (10 pcs.)
094013****	Buttons as accessories/spares, 10 pcs. (see product data sheet PDS 94.056)





EY-RU110F201



EY-RU 110: Room sensor, EnOcean, ecoUnit110

Features

- Part of the SAUTER modulo system family
- Room sensor with integrated digital temperature sensor
- Compatible with ecosCom581 and EnOcean interfaces from third-party manufacturers
- Battery-free with integrated solar panel
- Expandable with ecoUnit106 as additional solar panel supply
- \bullet Device insert with transparent front, fits into frame with 55 x 55 mm aperture
- Frame can be ordered as an accessory
- Frames and foils in many colours and designs possible

Technical data		
Power supply		
	Power supply	3 V, from integrated solar panel (external battery operation optional)
	Illuminance	Min. 250 lux, min. 5 hours daily in 5 of 7 days
	Dark period ¹⁾	60 h of full operation, additional 7 days at least in low power mode
Parameters		
	Technology	EnOcean, STM 300
	Frequency	868 MHz band (868.3 MHz)
	Range	Up to 30 m, depending on building structure (planning recommendation: 10 m)
Sensor (temperature)	Measuring range	040 °C
	Resolution ²⁾	0.2 K (hysteresis)
	Time constant	Approx. 7 min.
	Measuring accuracy, temperature	Typ. 0.5 K in the 1535 °C range
Ambient conditions ³⁾		
	Operating temperature	045 °C
	Storage and transport temperature	−2570 °C
	Ambient humidity	585% rh, no condensation
Interfaces and communicatio	n	
	Connection ⁴⁾	No wiring necessary, teach-in (pairing) with ecosCom581 or ecoMod580 wireless interface via SLC/RS-485
	EnOcean Equipment Profile ⁵⁾	EEP: A5-10-01 (unidirectional)
Construction		
	Weight	0.05 kg
	Dimensions W x H x D	59.5 × 59.5 × 27.8 mm
	Housing	Pure white (similar to RAL 9010)
	Labelling insert	Silver (similar to Pantone 877 C)



²⁾ Measurement value hysteresis for spontaneous transmission (EnOcean telegram)





³⁾ The device may be active during transport. The device is equipped with a permanently installed lithium cell (energy storage/battery)

⁴⁾ See quick reference for ecosCom581/ecoMod580

⁵⁾ EEP V2.6.8 or higher

The ecoUnit 110 room sensor currently only supports the temperature value of EEP A5-10-01 and no other EEP as a temperature sensor, such as A5-02-05 (temp. sensor 0...40 °C)

	Fitting	Recessed/surface-mounted (see accessories)
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3
	Low-Voltage Directive 2014/35/EU	EN 60730-1
	RED Directive 2014/53/EU	ETSI EN 300220-2 (V3.1.1)
	RoHS Directive 2011/65/EU	EN 50581

Overview of types

Туре	Description
EY-RU110F201	Room sensor, EnOcean, temperature sensor, solar panel

- The device is supplied with a silver-coloured labelling insert. Spare inserts: 0940001510 (10 pcs.)
- Order frame and mounting plate separately (see accessories)

Accessories	
Туре	Description
EY-SU106F100	Push-button unit with solar panel, 6 push-buttons, without frame
0940240***	For frames, mounting plates and adapters for third-party frames, see product data sheet 94.055
0949241301	Transparent cover for EY-RU and EY-SU, 10 pcs.
0949360004	Push-in terminal RU/SU (for wire), 2×10 pcs. 2-pin (01/02, 03/04)
0940360012	Screw terminal RU/SU (optional for braid), 2 × 10 pcs. 2-pin (01/02, 03/04)
0949570001	Battery pack, 10 pcs.
0940001510	Labelling insert, foil, silver, without button symbols, 10 pcs.

- EY-SU106F100: Can be used as an extended solar panel for the EY-RU110F201 room sensor, but not as a pushbutton unit.
- 0949570001: Suitable as energy supply in permanently darkened rooms.





EY-RU146F201



EY-RU 146: Room operating unit, EnOcean, ecoUnit146

Features

- Part of the SAUTER modulo system family
- Room operating unit with integrated digital temperature sensor
- Bidirectional and compatible with ecosCom581 (EnOcean SMART ACK)
- Compatible with EnOcean interfaces of third-party manufacturers
- Battery-free with LCD, ecoUnit106 push-button unit can be added
- Display with extensive status information on room conditions
- Device insert with transparent front, fits into frame with 55×55 mm aperture
- Room climate can be adapted individually
- Selection of three operating modes for room occupancy
- Control of a fan with three speed levels
- Control of window blinds, windows and lights (on/off/dim)
- Frame can be ordered as an accessory
- Frames and foils in many colours and designs possible

Power supply		
	Power supply	3 V, from integrated solar panel (external battery operation optional)
	Illuminance	Min. 250 lux, min. 5 hours daily in 5 of 7 days
	Dark period ¹⁾	50 h of full operation, 60 h all of most important functions, additional 7 days at least in low power mode
Parameters		
Turumotors	Technology	EnOcean, STM 300
	Frequency	868 MHz band (868.3 MHz)
	Range	Up to 30 m, depending on building structure (planning recommendation: 10 m)
Sensor (temperature)	Measuring range	040 °C
	Resolution ²⁾	0.1 K (display), 0.2 K (hysteresis)
	Time constant	Approx. 7 min.
	Measuring accuracy, temperature	Typ. 0.5 K in the 1535 °C range
Ambient conditions ³⁾		
	Operating temperature	045 °C
	Storage and transport temperature	−2570 °C
	Ambient humidity	585% rh, no condensation
Function	_	
	Setpoint correction	Adjustable and resettable
	Room occupancy (presence)	3 modes, LCD
	Fan speeds	5 functions, LCD





Bridging time without lighting when the internal energy storage/battery is fully charged

^{0.2} K (hysteresis): Measurement value hysteresis for spontaneous transmission (EnOcean telegram)

The device may be active during transport. The device is equipped with a permanently installed lithium cell (energy storage/battery)

17	_	
Ы	5/-	

Interfaces and communication		
	Connection ⁴⁾	No wiring necessary, teach-in (pairing) with ecosCom581 or ecoMod580 wireless interface via SLC/RS-485
	EnOcean Equipment Profile ⁵⁾	EEP: D2-00-01 (bidirectional, SMART ACK) EEP: A5-10-01 (unidirectional) EEP: F6-03-01 (buttons 3, 4, [712 with ecoUnit106])
Construction		
Construction	Weight	0.055 kg
	Dimensions W x H x D	59.5 × 59.5 × 27.8 mm
	Housing	Pure white (similar to RAL 9010)
	Labelling insert	Silver (similar to Pantone 877 C)
	Fitting	Recessed/surface-mounted (see accessories)
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3
· · · · · · ·	Low-Voltage Directive 2014/35/EU	EN 60730-1
	RED Directive 2014/53/EU	ETSI EN 300220-2 (V3.1.1)
	RoHS Directive 2011/65/EU	EN 50581

A	rview	

Туре	Description
EY-RU146F201	Room operating unit, EnOcean, LCD, temperature sensor, solar panel, 6 buttons: dXs setpoint correction (+/-), fan, presence, 2 free buttons (window blind/light)

- The device is supplied with a silver-coloured labelling insert. Spare inserts: 0940001533 (10 pcs.)
- Order frame and mounting plate separately (see accessories)

Accessories	
Туре	Description
EY-SU106F100	Push-button unit with solar panel, 6 push-buttons, without frame
0940240***	For frames, mounting plates and adapters for third-party frames, see product data sheet 94.055
0949241301	Transparent cover for EY-RU and EY-SU, 10 pcs.
0949360004	Push-in terminal RU/SU (for wire), 2×10 pcs. 2-pin (01/02, 03/04)
0940360012	Screw terminal RU/SU (optional for braid), 2×10 pcs. 2-pin (01/02, 03/04)
0949570001	Battery pack, 10 pcs.
0940001511	Labelling insert, foil, silver, (symbols: +, -), 10 pcs.
0940001521	Labelling insert, foil, silver, (symbols: +, -, presence), 10 pcs.
0940001522	Labelling insert, foil, silver, (symbols: +, -, fan), 10 pcs.
0940001523	Labelling insert, foil, silver, (symbols: +, -, presence, fan), 10 pcs.
0940001531	Labelling insert, foil, silver, (symbols: +, -, presence, two lights), 10 pcs.
0940001532	Labelling insert, foil, silver, (symbols: +, -, fan, two lights), 10 pcs.
0940001533	Labelling insert, foil, silver, (symbols: +, -, presence, fan, two lights), 10 pcs.

See quick reference for ecosCom581/ecoMod580
5) EnOcean Equipment Profile (EEP) V2.6.8 or higher



EY-SU106F100

EY-SU 106: Push-button unit for EnOcean room operating unit, ecoUnit106

Features

- Part of the SAUTER modulo system family
- Integrated solar cell for additional solar panel supply of ecoUnit 1 EnOcean devices
- Push-button unit to supplement the ecoUnit 14* room operating unit
- Control of window blinds and lighting (on/off, dim)
- Up to six button functions
- \bullet Device insert with transparent front, fits into frame with 55 x 55 mm aperture
- Frame can be ordered as an accessory
- Frames and foils in many colours and designs possible

Technical data

Power supply		
	Power supply ¹⁾	Not required
Parameters		
Connection	Line	4-wire
	Length ²⁾	≤ 1 m
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	−2570 °C
	Ambient humidity	1085% rh, no condensation
Construction		
	Fitting	Recessed/surface-mounted (see accessories)
	Dimensions W x H x D	59.5 × 59.5 × 27.8 mm
	Weight	0.047 kg
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3
	RoHS Directive 2011/65/EU	EN 50581

Overview of types

Туре	Features
EY-SU106F100	Push-button unit with up to 6 button functions, integrated solar cell

Accessories	
Туре	Description
0940240***	For frames, mounting plates and adapters for third-party frames, see product data sheet 94.055
0949241301	Transparent cover for EY-RU and EY-SU, 10 pcs.
0949360004	Push-in terminal RU/SU (for wire), 2 × 10 pcs. 2-pin (01/02, 03/04)
0940360012	Screw terminal RU/SU (optional for braid), 2 × 10 pcs. 2-pin (01/02, 03/04)
0940001541	Labelling insert, foil, silver, (symbols: two lights, two window blinds), 10 pcs.
0940001542	Labelling insert, foil, silver, (symbols: two lights), 10 pcs.
0940001543	Labelling insert, foil, silver, (symbols: two window blinds), 10 pcs.

The power supply is provided by the connected device (ecoUnit14* or ecoUnit110)





²⁾ See connection diagram

EY-CM 581: Wireless interface, EnOcean, ecosCom581

Features

- Part of the SAUTER modulo system family
- Bidirectional wireless communication according to EnOcean (ISO/IEC 14543-3-10)
- Internal, optimised wireless antenna (no BNC antenna necessary)
- Integration of EnOcean devices: SAUTER ecoUnit110 room sensor and ecoUnit146 room operating unit and other EnOcean devices from third-party manufacturers
- Wide-range supply voltage for compatibility with ecos 5 and ecos311 room controllers and modulo 6 automation stations
- RS-485 interface for remote, optimum positioning of the wireless interface in the room
- Firmware update via SLC/RS-485
- \bullet Device insert with transparent front, fits into frame with 55 x 55 mm aperture
- Frame and white cover front can be ordered as accessories
- Frames and foils in many colours and designs possible

SAUTER

EY-CM581F081



Power supply		
,	Power supply	524 V DC ±20% ecos 5:+5 V, ecos311:+15 V/+5 V, modulo 6:+24 V
	Current consumption	5 V: typ. 36 mA, 68 mA peak 15 V: typ. 14 mA, 24 mA peak 24 V: typ. 10 mA, 17 mA peak
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	−2570 °C
	Ambient humidity	585% rh, no condensation
Interfaces and communication	N6 1	5.0. 7011.000
	Wireless technology	EnOcean, TCM 300
	Frequency	868 MHz band (868.3 MHz)
	Protocol	EnOcean EEP (see EEP list)
	Range	Up to 30 m, depending on building structure (planning recommendation: 10 m)
Connection to automation station	Interface	RS-485, 115.2 kbit/s
	Protocol	SLC (SAUTER Local Communication)
	Activation	ecos 5, ecos311, modulo 6
	Line	4-wire twisted (shielding, RS-485:line end resistance recommen ded)
	Line length	≤ 100 m
Construction		
	Weight	0.07 kg
	Dimensions W x H x D	59.5 × 59.5 × 27.8 mm
	Housing	Pure white (similar to RAL 9010)
	Labelling insert	Silver (similar to Pantone 877 C)
	Fitting	Recessed/surface-mounted (see acce sories)
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	III (EN 60730-1)
	i i diecilori ciuss	III (LIN 607 30-1)



Overview of types

Type Description

EY-CM581F081 COM module EnOcean, SLC/RS-485, 5...24 V DC, 868 MHz

Accessories	
Туре	Description
0940240***	For frames, mounting plates and adapters for third-party frames, see product data sheet 94.055
0949241301	Transparent cover for EY-RU and EY-SU, 10 pcs.
0949241302	RAL 9010 white cover for EY-CM581, EY-RU and EY-SU (10 pcs.)
0949360004	Push-in terminal RU/SU (for wire), 2×10 pcs. 2-pin (01/02, 03/04)
0940360012	Screw terminal RU/SU (optional for braid), 2 × 10 pcs. 2-pin (01/02, 03/04)



Frame for device inserts with 55×55 mm fitting dimensions

Features

- ullet Accessory components for SAUTER device inserts with 55 imes 55 mm aperture
- Suitable for ecoUnit 1 room operating units EY-RU 1** and EY-SU 106
- Suitable for ecoUnit 2 room operating units EY-RU2**
- Suitable for ecoUnit 3 room operating units EY-RU 3** and EY-SU 306
- Suitable for EGT 33* room sensors
- Suitable for viaSens room sensors
- Adhesive plate for smooth surfaces
- Surface and recessed mounting
- Adaptation to the GIRA series: Standard55, E2, Event, Esprit
- Adaptation to the Jung series: LS990, A500, A plus, A Creation, CD500
- Adaptation to the MERTEN series: M-smart, ARTEC, M-Plan, M-ARC
- Adaptation to the Busch-Jaeger series: Future, Future linear
- Adaptation to the Berker series: B.1
- Adaptation to the Feller series: EDIZIOdue



EY-RU 346, EY-SU 306



Mounting plate Type Description 0940240703 Mounting plate, single, for recessed fitting (10 pcs.) 0940240704 Mounting plate, single, type 2, for recessed fitting (10 pcs.) 0940240802 Mounting plate, double, for recessed fitting (10 pcs.)

	0 1
Frames for recessed	d mounting
Туре	Description

Accessories

0940240102	Frame, single, pure white, RAL 9010 (10 pcs.)
0940240202	Frame, double, pure white, RAL 9010 (10 pcs.)

Frames for surface mounting

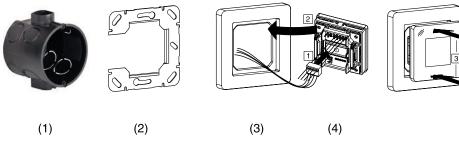
Туре	Description
0940240301	Baseplate, single (for wall mounting), 10 pcs.
0940240401	Baseplate, double (for wall mounting), 10 pcs.
0940240501	Cable plate, single (for surface-mounted wiring), 10 pcs.
0940240601	Cable plate, double (for surface-mounted wiring), 10 pcs.
0940240710	Adhesive plate, single, black, 83 × 83 mm, 10 pcs.
0940240711	Adhesive plate, double, black, 83 × 143 mm, 10 pcs.

Spacer frames for adapting non-SAUTER frames

•	
Туре	Description
0940240751	Spacer frame, 0.5 mm (10 pcs.)
0940240752	Spacer frame, 1.0 mm (10 pcs.)
0940240753	Spacer frame, 1.5 mm (10 pcs.)
0940240755	Spacer frame, F1 (10 pcs.)

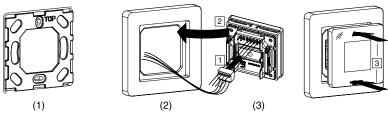


Recessed mounting with SAUTER frame



- (1) Recessed junction box
- (2) Mounting plate
- (3) Frame
- (4) Device insert

Surface mounting with SAUTER frame



- (1) Optional cable cover plate
- (2) Baseplate including surface mounting plate
- (3) Device insert



SAUTER smart sensors

Smart multi-sensors in a mesh network for precise detection of presence/motion, brightness, temperature, humidity, air quality (VOC) and noise levels in rooms or room zones for optimum indoor air and indoor environment quality.

Overview of smart sensors







Type designation	FMS116F111	FMS116F121	FMS196F111
Sensors			
Temperature sensor (digital / FIR)	• / -	• / •	• / -
Humidity sensor (digital)	•	•	•
VOC sensor (air quality, digital)	•	•	•
PIR sensor (presence and motion detector)	•	•	•
Light sensor	•	•	•
Noise level sensor	•	•	•
Display and operation			
LED ring	12 LED, 24-bit RGB colours		
Push-button, capacitive	•		
Interfaces, communication			
Interfaces	Bluetooth Mesh, Bluetooth Beacon, NFC, UART Ethernet, Bluetooth Mesh, Bluetooth Mesh, Bluetooth Beacon, NFC, UART		
Ethernet protocols	-	-	MQTT client, MQTT TCP/TLS
Bluetooth Mesh profile/model	Sensor server and client		
Further information	Page 452 Available from end of 2021		



FMS116F111

FMS 116, 196: Smart Fusion Mesh multi-sensor, viaSens

Features

- Multi-sensor for detection of temperature, humidity and air quality (VOC) for the indoor air quality (IAQ)
- Multi-sensor for detecting the indoor environment quality (IEQ) such as presence/motion, light intensity and noise level
- Several measuring sensors can be linked together for more precise information on the state of the room (sensor fusion)
- For ceiling fitting (recessed/surface-mounted)
- Flexible positioning of the sensor possible thanks to mesh network
- Freely controllable, coloured LED ring to indicate the room status for room users (room reserved/free, room air quality good/bad, ready for room cleaning, etc.)
- Bluetooth Beacon technology for locating the room user with a smartphone and optimised use of SAUTER Mobile Building Services (Mobile Room Control app)
- Simple integration into the SAUTER automation system with viaSens196
- Commissioning of up to 16 sensors for one ecos504/505 room controller with CASE Suite
- Networking of the sensors via Bluetooth Mesh technology
- Bluetooth Mesh Sensors viaSens116 combined in the viaSens196 sensor/gateway
- "IoT ready" thanks to open interface in viaSens196 (MQTT via IP/Ethernet)
- Ideal for room climate automation according to the WELL Building Standard and the IAQ guidelines of AMEV, ASHRAE, BSRIA, REHVA, VDI
- Option to integrate other Bluetooth Mesh devices

Power supply		
	Power supply	1234 V=, typ. 24 V=
	Current consumption	Typ.125 mA at 24 V=
	Power consumption	Typ.3 W
	·	· ·
Parameters		
Temperature sensor (digital)	Measuring range	040 °C (-40125 °C)
	Resolution	0.1 K
	Time constant	> 2 seconds
Temperature sensor (FIR) (FMS116F121)	Measuring range	1540 °C
	Resolution	0.1 K
Humidity sensor (digital)	Measuring range	0100%
	Resolution	0.08%
	Time constant	Approx. 8 seconds
VOC sensor (digital)	Method of measurement	Ethanol, hydrogen >br> Calculated TVOC, CO ₂ eq
	Measuring range	01000 ppm, typ. for IAQ: 0.330 ppm (ethanol), 0.53 ppm (H ₂)
	Resolution	0.2% of the measured value
	Time constant	min.15 seconds
	Measuring accuracy	Typ.15% (ethanol), 10% (H ₂) of the measured value
	Mixed gas (TVOC)	060 ppm (calculated)
	CO ₂ equivalent (CO ₂ eq)	40060 000 ppm (calculated)
PIR sensor (presence, movement)	Detection range	ø 9 m and approx. 8 × 8 m area at 2.5 m fitting height
	Angle of detection	110°
Light sensor	Measuring range	0120 000 lux
	Resolution	0.0036 lux





Noise level sensor	Signal-to-noise ratio (SNR) ¹⁾	65 dB(A)
	Sensitivity	-26 dB(A) on the measuring range, ±1 dB tolerance
	Frequency spectrum	50 Hz 20 kHz
	Noise level (SPL) ²⁾	0116 dB
Technology	Processor	Dual-core ARM Cortex, 32 bit, 240 MHz
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
Display and operation		
	Indicator/display ³	LED ring with 12 LEDs, 24-bit RGB (red, green, blue)
	Push-button, capacitive	For pairing, identification, reset (fronta
Interfaces, communication		
Bluetooth Mesh	Network	Bluetooth mesh node (2.4 GHz), up to 8 TTL hops
	Radio frequency	2.4 GHz
	Range ⁴⁾	Up to 15 m
	Bluetooth mesh profile	V1.0, Sensor Server Model (FMS 116 Sensor Server and Client Model (FMS 196)
	Localisation	iBeacon standard, indoor positioning
Ethernet (FMS 196)	Ethernet network	1 × RJ-45 connector
	10/100 BASE-T(X)	10/100 Mbit/s
	Communication protocol	MQTT client V3.1.1/V5, MQTT/TLS V1.2 (ISO/IEC 20922)
	NFC (near field communication)	For configuration parameters
	Slide switch	Noise level measurement on/off (rear
	Serial port	UART for firmware update (point to point)
Construction		
	Dimensions	Surface ø × D:102 × 23 mm Recessed ø × D:56 × 20 mm
	Housing	Traffic white (similar to RAL 9016),
	Housing material	Thermoplastic (ABS)
	Fitting	Recessed (recessed box min. 45 mm deep) surface-mounted with accessories
	Fitting height	2.55 m (ceiling)
Standards, directives		
	Type of protection	IP30 (EN 60529)
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
	Plastic fire classification	UL94 V-2
CE conformity according to	Low-Voltage Directive 2014/35/EU	EN 60730-1
. •	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4
	RED Directive 2014/53/EU	ETSI EN 300 328 (V2.2.2), 2.4 GHz band
	RoHS Directive 2011/65/EU	EN 50581
	RoHS delegated directive (EU) 2015/863	EN 50581

SNR: Signal-to-Noise Ratio

²⁾ SPL: Sound Pressure Level

Example application: Presence: LED ring off / blue, room climate / air quality: LED ring green / red
 Depending on building and room structure; planning recommendation: max. 10 m between two Bluetooth Mesh nodes

Overview of types		
Туре	Description	Weight
FMS116F111	Smart Mesh multi-sensor (T, rh, VOC, PIR, LUX, MIC), BT-Mesh	0.2 kg
FMS116F121	Smart Mesh multi-sensor (T+FIR, rh, VOC, PIR, LUX, MIC), BT-Mesh	0.2 kg
FMS196F111	Smart Mesh multi-sensor with Gateway, BT-Mesh, MQTT/Ethernet	0.3 kg

^{*} FMS196F111 has the same sensor properties as FMS116F111. The additional Ethernet interface is a gateway of the Bluetooth mesh network and for integration into the automation with MQTT via TCP/TLS

Abbreviations (sensor types)

T	Temperature measurement with digital sensor element	
T+FIR	Temperature measurement with digital sensor element and remote infrared temperature element	
rh	Measurement of relative humidity with digital sensor element	
VOC	Volatile Organic Compounds - measurement of volatile organic compounds (measuring element for TVOC and CO2eq)	
PIR	Passive infrared sensor for presence and motion detection	
LUX	Sensor for measuring illuminance	
MIC	Sensor for measuring the noise level	

SAUTER modulo power supply units

Efficient switched-mode power supply units for supplying power to automation stations, I/O modules and field devices in building automation. Optimal for use with the SAUTER ecos and modulo 6 system families.

- Variable input voltage
- Output short-circuit-proof
- Flat DIN rail housing for small distribution boxes

Overview of power supply units







Type designation	EY-PS021F011	EY-PS021F041	EY-PS021F041
Output current with vertical/random fitting position	1.3 / 0.9 A	2.5 / 1.6 A	4.0 / 2.4 A
Current consumption (110/230 V~)	0.7 / 0.4 A	1.4 / 0.6 A	1.6 / 0.9 A
Efficiency	Тур. 82%	Тур. 88%	Тур. 88%
Dimensions W \times H \times D	54 × 89 × 59 mm	72 × 89 × 59 mm	90 × 89 × 59 mm
Weight	0.1 <i>7</i> kg	0.24 kg	0.3 kg
Further information	Page 456	Page 456	Page 456



EY-PS021F011



EY-PS021F021



EY-PS021F041

EY-PS 021: Power supply unit

Feautures

- \bullet Optimal for use with SAUTER EY-modulo 5 system family
- Variable input voltage
- Output short-circuit-proof
- Flat DIN rail housing fo small distribution boxes

-		
Power supply		
	Power supply	85264 V~; 4466 Hz
	Start-up current limitation	< 30 A, NTC
	Internal input fuse	2 A (slow-blow)
	Recommended pre-fuses,	6 A, 10 A, 16 A,
	LS switch	characteristic B, C
	Connection	Spring-type terminals
		0.52.5 mm ² stiff/flexible
Ambient conditions		
	Operating temperature	−2555 °C
	Derating	-3% / K > 45 °C
	Storage and transport temperature	-2585 °C

	ororage and namepon temperators	2000
	Ambient humidity	1085 % rh, no condensation
Output		
	Output voltage	24 V=, ±2%
	Setting range	22.826.4 V=
	Resistance to reverse feed	30 V=
	Overload behaviour	Stabilized current
	Ripple factor (nominal load)	Typ.100 mVss
	LED indicator	Green, device ready for operation
	Connection	Spring-type terminals
		0.52.5 mm ² stiff/flexible

Construction		
	Fitting	DIN rail as per EN 60715, type TH 35 x 7.5/15 DIN rail housing DIN 43880
Standards and directives		
	Type of protection	Connections and terminals: IP00 (EN 60730)
		Front in DIN cut-out: IP30 (EN 60730)
	Protection class	II (EN 60730-1)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60950

Overview of types			
Туре	EY-PS021F011	EY-PS021F021	EY-PS021F041
Output current with vertical/any fitting position	1.3 / 0.9 A	2.5 / 1.6 A	4.0 / 2.4 A
Current consumption (110/230 V~)	0.7 / 0.4 A	1.4 / 0.6 A	1.6 / 0.9 A
Efficiency	Тур. 82%	Тур. 88%	Тур. 88%
Dimensions W x H x D	54 × 89 × 59 mm	72 × 89 × 59 mm	90 × 89 × 59 mm
Weight	170 g	240 g	300 g



SAUTER ecos remote I/O modules

The SAUTER ecoLink modules are remote modules for flexibly expanding the I/O mix of the ecos500/504/505 room automation stations. The modules are used to capture digital and analogue signals from sensors and HVAC plants. They control valve actuators, dampers, fans, dimmable lamps or sunshade actuators. The remote fitting reduces the wiring needed for the sensors and actuators.

Overview of remote I/O modules







Type designation	EY-EM510F001	EY-EM511F001	EY-EM512F001
Product name	ecoLink510	ecoLink511	ecoLink512
Power supply	24 V~	24 V~	24 V~
Inputs/outputs			
Universal inputs	-	-	-
0-10 V / digital inputs	4	4	4
Ni1000/Pt1000 inputs	2	2	_
DIM-10 V outputs	-	-	-
Normally-open relay contacts	3	-	_
Changeover relay contacts	-	-	_
Triac	3	3	2
Analogue outputs	3	3	3
Further information	Page 459	Page 459	Page 459





Type designation	EY-EM514F001	EY-EM515F001
Product name	ecoLink514	ecoLink515
Power supply	24 V~/=	24 V~/=
Inputs/outputs		
Universal inputs	4	4
0-10 V/digital inputs	-	-
Ni 1000/Pt 1000 inputs	-	-
DIM-10 V outputs	-	-
Normally-open relay contacts	4	-
Changeover relay contacts	-	-
Triac 24 V=	-	-
MOS-FET 24 V~/=	6	6
Analogue outputs	4	4
Further information	Page 461	Page 461







Type designation	EY-EM522F001	EY-EM523F001	EY-EM527F001
Product name	ecoLink522	ecoLink523	ecoLink527
Power supply	230 V~	230 V~	230 V~
Inputs/outputs			
Universal inputs	4	4	4
0-10 V/digital inputs	-	-	-
Ni1000/Pt1000 inputs	-	-	-
Digital/meter inputs	-	-	4
DIM-10 V outputs	4	4	-
Normally-open relay contacts	4	-	4
Changeover relay contacts	-	-	-
Triac	-	-	-
Analogue outputs	4	4	-
Further information	Page 465	Page 465	Page 463

EY-EM 510...512: Remote I/O module, ecoLink510...512

Features

- Part of the SAUTER EY-modulo 5 system family
- Regulation, control, monitoring and optimisation of operational systems, e.g. room automation or HVAC engineering
- Remote I/O module for ecos500, 504, 505
- Communicative connection of actuators to automation stations
- Can be located up to 500 m from automation stations



EY-EM510F001

Technical data		
Power supply		
	Power supply	24 V~, ±20%, 5060 Hz
	Current consumption	≤ 0.2 A, without load current from Tri- ac and relay outputs
	Power consumption	≤ 6.6 VA Triac outputs not under load ≤ 48 VA Triac outputs with rated load
	Dissipated power	≤ 5 W (typically approx. 0.5 W)
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
Inputs/outputs		
Analogue/digital inputs	Туре	010 V/O-I
Ni1000/Pt1000-Eingänge	Туре	-20100 °C
Relay outputs	Туре	0-I, normally-open contacts
iciay corpora	Load ¹⁾	230 V~, 5 A
	Lodd	(total max. 10 A)
	Switching frequency	> 3 × 10 ⁵ cycles
Triac outputs	Туре	0-l, 24 V~/0.5 A
Analogue outputs	Туре	010 V, 2 mA
. manages expens	_7/F2	· · · · · · · · · · · · · · · · · · ·
Interfaces and communication	n	
	Activation	From ecos 500, 504, 505
	Interface	RS-485
	Protocol	SLC
	Line	4-wire, twisted, shielded
	Line length ²⁾	Up to 500 m with bus termination
		·
Construction		
	Dimensions W x H x D	105 × 95 × 60 mm
	Weight	0.22 kg
Standards and directives		
	Type of protection ³⁾	IP00 (EN 60529)
	Protection class	II (EN 60730-1) for EY-EM 510, III (EN 60730-1) for EY-EM 511, EY-EM 512
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU ⁴⁾	EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1

¹⁾ See the section "Digital outputs (relays)"

⁴⁾ EN 61000-6-2: In order to meet the European Standard, the power cables for the inputs and outputs must not exceed 30 metres in length



²⁾ See the section "Engineering notes"

IP20 with terminal cover (accessory 0900240020); IP40 at front when fitted

Type Description

EY-EM510F001 Remote I/O module, 24 V~, 3 relays, 3 Triacs

EY-EM511F001 Remote I/O module, $24 \, V^{\sim}$, $3 \, Triacs$ EY-EM512F001 Remote I/O module, $24 \, V^{\sim}$, $2 \, Triacs$

Overview of I/O mix	EY-EM 510	EY-EM 511	EY-EM 512
Relay	3	0	0
Triac	3	3	2
010 V Out	3	3	2
Ni1000/Pt1000	2	2	0
O10 V In, Digital In	4	4	4

Α	r	c	Δ	C	C	0	r	i	Δ	C
_	v	v	v	N	v	v	н	-	v	N

 Type
 Description

 0949360003
 Plug-in connector for ecoLink RS-485, 10 pcs.

 0900240020
 Terminal cover

 0450573001
 Transformer 230 V~ / 24 V=, 42 VA; for DIN rail 35 mm, dimensions: 78 × 74 × 52 mm

(W×H×D)



EY-EM 514, 515: Remote I/O module, ecoLink514, 515

Features

- Part of the SAUTER EY-modulo 5 system family
- Remote I/O module for ecos500, 504, 505
- Communicative, digital connection of actuators and sensors to automation stations
- Activation of actuators for heated/chilled ceilings, recirculated air and fan coil units, and window blinds
- Inputs for presence detectors, temperature sensors, analogue sensors and window contacts
- Can be located up to 500 m from automation stations

Technical data

Power supply		
	Power supply	24 V~, ±20%, 5060 Hz 24 V=, ±10%
	Current consumption	Max. 150 mA Without load current of DO (relay, FET) Plus up to 0.5 A / FET
	Dissipated power	Max. 2 W (typically 1.2 W)
	Dissipated power	Max. 2 W (typically 1.2 W)

Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
	•	

Inputs/outputs		
Relay outputs	Туре	0-l relay, normally-open contacts
	Load	24250 V
		5 A resistive load
		Total max. 10 A
	Switching frequency	> 3 × 10 ⁵ cycles
Semiconductor outputs (FET)	Туре	0-l, 24 V~/=, 0.5 A,
		connected to ground
		max. peak current 1 A at 20 ms
Analogue outputs	Туре	010 V/2 mA
Universal inputs	Analogue	010 V/01 V
	Digital	O-I
	Resistance	1002500 Ω
	Potentiometer	110 kΩ
	Ni1000/Pt1000	-20100 °C

Connection to automation station	Activation	From ecos 500, 504, 505
	Interface	RS-485
	Protocol	SLC
	Line	4-wire, twisted, shielded
	Line length ¹⁾	Up to 500 m with bus termination

Dimensions W x H x D	105 × 95 × 60 mm
5	

Standards and directives		
	Type of protection ²⁾	IPOO (EN 60529)
	Protection class	II (EN 60730-1) for EY-EM 514 III (EN 60730-1) for EY-EM 515
	Environment class	3K3 (IEC 60721)

¹⁾ See the section "Engineering notes"

Construction



EY-EM514F001



EY-EM515F001





²⁾ IP20 with terminal cover (accessory 0900240020); IP40 at front when fitted

CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2
		EN 61000-6-3, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1 (EY-EM 514 only)

Overview of types		
Туре	Description	Weight
EY-EM514F001	Remote I/O module, 24 V~/=, 4 relays, 6 DO FET, 4 AO, 4 UI	270 g
EY-EM515F001	Remote I/O module, 24 V \sim /=, 6 DO FET, 4 AO, 4 UI	220 g

Overview of I/O mix	EY-EM 514	EY-EM 515
Normally-open relay contacts	4	-
Semiconductor FET switch (connected to ground)	6	6
Analogue outputs	4	4
Universal inputs	4	4

Accessories	
Туре	Description
0949360003	Plug-in connector for ecoLink RS-485, 10 pcs.
0900240020	Terminal cover
0450573001	Transformer 230 V~ / 24 V=, 42 VA; for DIN rail 35 mm, dimensions: $78 \times 74 \times 52$ mm (W×H×D)
EY-PS021F0**	Power supply, 85264 V~, 24 V=, ±2% (F011: 1.3 A; F021: 2.5 A; F041: 4.0 A)



EY-EM 527: Remote I/O module, ecoLink527

Features

- Part of the SAUTER EY-modulo 5 system family
- Remote I/O module for ecos500, 504, 505
- Communicative, digital connection of actuators and sensors to automation stations
- Controlling ventilation dampers, motorised windows and blinds
- Inputs for positional feedback, presence detectors, window contacts
- Universal inputs for temperature measurement, 0-10 V signals, potentiometer
- Meter inputs for recording energy pulses up to 10 Hz
- Can be located up to 500 m from automation stations

Technical data

Technical data		
Power supply		
	Power supply	230 V~, ±10%, 5060 Hz
	Current consumption	Max. 15 mA Without load current of relays
	Dissipated power	Max. 2.5 W (typically 1.5 W)
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
Inputs/outputs		
Relay outputs	Туре	O-I relay, normally-open contacts
iciay outputs	Load	24 250 V~
	Lodd	5 A resistive load
		Total max. 10 A
	Switching frequency	> 3 × 10 ⁵ cycles
Universal inputs	Analogue	010 V / 01 V
•	Digital	O-I
	Resistance	1002500 Ω
	Potentiometer	110 kΩ
	Ni1000/Pt1000	-20100 °C
Digital inputs	Digital	0-l
5 • • • • • • • • • • • • • • • • • • •	Meter	10 Hz (pulse duration 50 ms)
Tukanfa a a a a a d a a a a a a a a a a a a a		
Interfaces and communication	A	500 504 505
Connection to automation station	Activation	From ecos 500, 504, 505
	Interface	RS-485
	Protocol	SLC
	Line	4-wire, twisted, shielded
	Line length ¹⁾	Up to 500 m with bus termination
Construction		
	Dimensions W x H x D	105 × 95 × 60 mm
	Weight	0.35 kg
Standards and directives		
	Type of protection ²⁾	IP00 (EN 60529)
	Protection class	II (EN 60730-1)
	Environment class	3K3 (IEC 60721)
		(

¹⁾ See the section "Engineering notes"



EY-EM527F001





²⁾ IP20 with terminal cover (accessory 0900240020); IP40 at front when fitted

Low-Voltage Directive 2014/35/EU EN 60730-1

Overview of types

0900240020

Terminal cover

Type Description

EY-EM527F001 Remote I/O module, 230 $V\sim$, 4 normally-open relay contacts, 4 universal and 4 digital inputs

Overview of I/O mix	EY-EM 527
Normally-open relay contacts	4
Universal inputs	4
Digital inputs / meter inputs (10 Hz)	4

Accessories	
Туре	Description
0949360003	Plug-in connector for ecoLink RS-485, 10 pcs.



EY-EM 522, 523: Remote I/O module, ecoLink522, 523

Features

- Part of the SAUTER EY-modulo 5 system family
- Remote I/O module for ecos500, 504, 505
- Switching and dimming of up to 4 lamps
- Can be located up to 500 m from the automation station

Power supply		
	Power supply	230 V~, ±10%, 5060 Hz
	Current consumption	Max. 20 mA (typically 14 mA) Without load current of relays
	Dissipated power	Max. 2.5 W (typically 1.5 W)
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
Inputs/outputs		
Relay outputs	Туре	O-l relay, normally-open contacts 230 V~ with voltage applied
	Load	230 V~/5 A resistive load Total max. 10 A
	Switching frequency	> 3 × 10 ⁵ cycles
DIM-10V outputs	Туре	110 V passive output for electronic ballasts as per EN 60929
A 1	T	Electrically isolated
Analogue outputs	Type	010 V / 2 mA
Universal inputs	Analogue	010 V / 01 V
	Digital Resistance	O-I 1002500 Ω
	Potentiometer	110 kΩ -20100 °C
	Ni1000/Pt1000	-20100 C
Interfaces and communication		
Connection to automation station	Activation	From ecos 500, 504, 505
	Interface	RS-485
	Protocol	SLC
	Line	4-wire, twisted, shielded
	Line length ¹⁾	Up to 500 m with bus termination
Construction		
	Dimensions W x H x D	105 × 95 × 60 mm
	Weight	0.32 kg
Standards and directives		
	Type of protection ²⁾	IPOO (EN 60529)
	Protection class	II (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU ³⁾	EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1

See the section "Engineering notes"



EY-EM522F001



EY-EM523F001





²⁾ IP20 with terminal cover (accessory 0900240020); IP40 at front when fitted

³⁾ EN 61000-6-2: In order to meet the European Standard, the power cables for the inputs and outputs must not exceed 30 m in length

Type Descriptio

EY-EM522F001 Remote I/O module, 230 V_{\sim} , 4 normally-open relay contacts, 4 DIM outputs

EY-EM523F001 Remote I/O module, 230 V~, 4 DIM outputs

Overview of I/O mix	EY-EM 522	EY-EM 523
Normally-open relay contacts (with voltage applied)	4	-
DIM-10V	4	4
Analogue outputs	4	4
Universal inputs	4	4

Accessories

Туре	Description
0949360003	Plug-in connector for ecoLink RS-485, 10 pcs.
0900240020	Terminal cover



SAUTER modulo 5 automation stations

SAUTER modulo 5 automation stations regulate, control, monitor and improve energy efficiency in HVAC installations. The installation network is based on BACnet/IP – the communication protocol for networked building intelligence.

Overview of automation stations





Type designation	EY-AS525F001	ES-AS525F005
Product name	modu525	modu525
Power supply	230 V~	24 V~/=
Inputs/outputs		
Universal inputs	8	8
Digital inputs	8	8
Analogue outputs	4	4
Digital outputs	6	6
Further information	Page 468	Page 468



EY-AS525F00* EY-AS524F001



EY-AS 524, 525: Modular automation station, modu524/525

Features

- Part of the SAUTER EY-modulo 5 system family
- Modular automation station (AS)
- Regulation, control, monitoring and optimisation of operational systems, e.g. in HVAC engineering
- 26 inputs/outputs
- Expandable with up to 3 modules (modu524) or 8 modules (modu525)
- BACnet/IP communication (EN ISO 16484-5)
- BACnet profile B-BC
- AMEV profile AS-B (modu525 only)
- Integrated web server
- Programming/parameterisation via PC using CASE Suite (based on IEC 61131-3)
- Control libraries
- Time and calendar function
- Predictive control based on meteorological forecast data
- Data recording
- Can be equipped with local operating and indicating units, located up to 10 m away
- Alive signal output pulsed

Technical data

Power supply		
	Power supply	See list of types
	Power consumption	See list of types
	Dissipated power	≤ 5 W (without accessories)
	Peak inrush current	See list of types
Parameters		
	Battery (buffer: RTC/SRAM)	CR2032, insertable
	·	
Inputs/outputs		
	Digital inputs	8 (alarm/status)
	Digital outputs	6 (relays, 24250 V~, 2 A)
	Universal inputs	8 (Ni1000/Pt1000, U/I/R, DI)
	Analogue outputs	4 (010 V)
	Watchdog output pulsed	1 (5 Hz)
Function		
	BACnet data point objects	512 (incl. HW)
	BACnet client links	200 (Peer-to-Peer)
	Control	32 (Loop)
	Active COV subscription	1500
	Structured view	128 (Structured View)
	BBMD in BDT	32
	FD in FDT	32
Dynamic objects	Time programmes	64 (Schedule)
	Calendar	16 (Calendar)
	Historical data	100 (Trend Log) up to 30000 entries
	Alarms	16 (Notification Class)
	Chart	32 (Log View), only via moduWeb
	Command object	16
	<u> </u>	
Architecture		
	Processor	32-bit, 400 MHz
	Flash	16 MB





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	Embedded web server	moduWeb
	Application data	Via CASE Engine
	SDRAM (synchronous dynamic RAM)	32 MB
	SRAM (static RAM)	1 MB
Interfaces and communication		
	Ethernet network	1 × RJ-45 connector
	10/100 BASE-T(X)	10/100 Mbit/s
	Communication protocols	BACnet/IP (DIX)
	Connection, I/O and COM modules	1 × integrated I/O bus plug for up to 3 or 8 modules (max. load 1100 mA)
Operating and indicating units	Local operating unit, modu840 (LOP)	1 × integrated interface
	Connection, LOI	1 × integrated interface
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
	·	
Construction		
	Fitting	On DIN rail
	Dimensions W x H x D	160 × 170 × 115 mm
	Weight	0.8 kg
Standards and directives		
	Type of protection ¹⁾	IP20 (EN 60529)
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
	Software class	A (EN 60730-1 Appendix H)
	Energy class ²	I to VIII = up to 5% as per EU 811/2013, 2010/30/EU, 2009/125/EC
	BACnet profile	B-BC (ISO 16484-5)
	AMEV profile	modu525: certified to AS-B modu524: functions like AS-B, but without certification
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-9 EN 60950-1

Overview of ty	Overview of types				
Туре	Power supply	Power consumption	Peak inrush current	Maximum number of modules	Maximum number of modules
EY-AS524F001	230 V~, ±10%, 5060 Hz	≤ 13 VA/5 W (without accesso- ries)	At 230 V~: 8 A (5 ms)	3	Max. 3 modules, of which max. 2 are I/O modules max. 2 are modu- Com modules
EY-AS525F001	230 V~, ±10%, 5060 Hz	≤ 13 VA/5 W (without accessories)	At 230 V~: 8 A (5 ms)	8	Max. 8 modules, of which max. 2 are modu- Com modules
EY-AS525F005	24 V=, ±10%, 24 V~, ±20%, 5060 Hz	≤ 11 VA/4 W (without accessories)	At 24 V=: 35 A (5 ms) At 24 V~: 39 A (5 ms)	8	Max. 8 modules, of which max. 2 are modu- Com modules

 $^{^{1)}\,\,}$ Only on front with terminal cover, blanking piece for LOI and transparent cover

When the automation station is being used as a temperature controller, most temperature controller classes can be fulfilled according to EU Directive 2010/30/EU, Regulation 811/2013. For information on the exact temperature class, please refer to the system integrator's user program.

Manuals Type

7010050001

7010050002

7010050003

Description

Operating manual for moduWeb, German

Operating manual for moduWeb, French

Operating manual for moduWeb, English

Accessories Plug-in I/O modules Туре Description EY-IO530F001 Digital and universal inputs (8 DI/8 UI) EY-IO531F001 Digital inputs (16 DI) EY-IO532F001 Universal inputs (16 UI) Universal and digital inputs (8 UI/4 DI/4 SO) EY-IO533F001 EY-IO534F001 Analogue inputs with galvanic isolation (8 AI current/voltage) EY-IO550F001 Digital outputs (6 DO, relay) EY-IO551F001 Digital outputs (16 DO, open collector) EY-IO570F001 Analogue outputs and universal inputs (4 AO/8 UI) EY-IO571F001 Digital inputs/outputs (16 DI/DO, open collector) EY-IO572F001 Analogue outputs, universal and digital inputs (4 AO/8 UI/3 DI) EY-LM590F001 novaLink module (8 channels) Plug-in communication modules (COM) Туре Description EY-CM721F010 Integration of non-SAUTER systems via EIA-232 and EIA-485 for Modbus/RTU master EY-CM721F020 Integration of non-SAUTER systems via EIA-232 and EIA-485 for M-Bus EY-CM731F020 M-Bus and EIA-232 integration of non-SAUTER systems for M-Bus Local operation and indication Description Туре EY-LO625F001 Operation/indication, 6 switches Auto-0-1, 4 LEDs alarm/status, 4 setpoint transmitters (A-0... 100%), 8 LEDs alarm/status EY-LO630F001 16-LED indication, bi-colour EY-LO650F001 6 switches, Auto-O-I, 4 LEDs operation/indication EY-LO650F002 3 switches, Auto-O-I-II, 4 LEDs operation/indication EY-LO670F001 4 setpoint transmitters (A-0...100%), 8 LEDs operation/indication EY-OP840F001 Local operating and display unit, modu840 0930240511 Front frame for 4 operating/indicating units 0930240540 Connection adaptor for RJ-45 operating/indicating units for front frame 0930240541 Connection adaptor for RJ-45 operating panel for front frame Replacement relay Туре 0929360005 PCB relays (2 × pluggable electronic PCB with 3 relays, including connection terminals)

SAUTER modulo 5 I/O modules

SAUTER I/O modules are compatible with the modulo 5 series and are used to capture digital and analogue signals in HVAC installations. They control devices such as contactors, relays and valve actuators.

Overview of I/O modules











Type designation	EY-IO530F001	EY-IO531F001	EY-IO532F001	EY-IO533F001	EY-IO534F001
Product name	modu530	modu531	modu532	modu533	modu534
Power supply	From modu525 AS				
Inputs/outputs					
Digital inputs	8	16	-	8 (4 × SO)	-
Universal inputs	8	-	16	8	-
Analogue inputs (with power applied)	-	-	-	-	8
Optional operating elements	modu630	modu630	modu630	modu630	modu630
Digital outputs	-	-	-	-	-
Analogue outputs	-	-	-	-	-
Digital inputs/outputs	-	-	-	-	-
Further information	Page 472	Page 474	Page 475	Page 476	Page 478











Type designation	EY-IO550F001	EY-IO551F001	EY-IO570F001	EY-IO571F001	EY-IO572F001
Product name	modu550	modu551	modu570	modu571	modu572
Power supply	From modu525 AS				
Inputs/outputs					
Digital inputs	_	_	-	-	3
Universal inputs	-	-	8	-	8
Optional operating elements	modu630, modu650	modu630, modu650	modu630, modu670	modu630, modu650	modu630, modu670
Digital outputs	6	16	-	-	-
Analogue outputs	_	_	4	-	4
Digital inputs/outputs	_	_	-	16	-
Further information	Page 480	Page 482	Page 484	Page 486	Page 488



EY-IO530F001

EY-IO 530: I/O module, digital and universal inputs, modu530

Features

- Part of the SAUTER EY-modulo 5 system family
- Plug-in element for extending the modu524/525 automation station (AS)
- Receiving digital (alarm/status) and analogue inputs (Ni/Pt1000, U/I/R) in operational systems, e.g. in HVAC engineering
- 16 inputs
- Power supply of automation station (AS)
- Direct labelling on the front
- Can be equipped with a local indicating unit

Technical data

100mmour data		
Power supply		
	Power supply	From AS via I/O bus
	Power consumption ¹⁾	≤ 1.6 VA/0.65 W
	Dissipated power	≤ 0.65 W
	Current consumption ²⁾	40 mA
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
Inputs/outputs		
	Digital inputs	8 fixed assignment (alarm/status)
	Pulse counter	≤ 50 Hz
	Universal inputs	8
	Analogue	Ni1000/Pt1000, U/I/R, Pot
	Digital	DI (approx. 3 Hz)
Construction		
	Fitting	On DIN rail
	Dimensions W x H x D	42 × 170 × 115 mm
	Weight	0.29 kg
Interfaces and communication		
	Connection, LOI	6-pin, integrated
	Connection, I/O bus	12-pin, integrated
	Connection terminals	24 (0.52.5 mm²)
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4

Overview of types

Туре	Features
EY-IO530F001	I/O module, digital and universal inputs, modu530

Primary side of base station





Supply via base station

Accessories

Local operating and indicating units (LOI)

Description





EY-IO531F001

EY-IO 531: I/O module, digital inputs, modu531

Features

- Part of the SAUTER EY-modulo 5 system family
- Plug-in element for extending the modu524/525 automation station (AS)
- Receiving digital inputs (alarm/status) in operational systems, e.g. in HVAC engineering
- 16 digital inputs
- Power supply of automation stations
- Direct labelling on the front
- Can be equipped with a local indicating unit

Technical data

Power supply		
	Power supply	From AS via I/O bus
	Power consumption ¹⁾	≤ 1 VA/0.4 W
	Dissipated power	≤ 0.4 W
	Current consumption ²⁾	25 mA
	·	
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Humidity	1085% rh, no condensation
Inputs/outputs		
	Digital inputs	16
	Pulse counter	≤ 50 Hz
Interfaces and communication		
	Connection, LOI	6-pin, integrated
	Connection, I/O bus	12-pin, integrated
	Connection terminals	24 (0.52.5 mm ²)
Construction		
	Fitting	On DIN rail
	Dimensions W x H x D	42 × 170 × 115 mm
	Weight	0.29 kg
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4

Overview of types

EY-IO531F001 I/O module, digital inputs, modu531

Accessories

Local operating and indicating units (LOI)





Primary side of base station

Supply via base station

EY-IO 532: I/O module, universal inputs, modu532

Features

- Part of the SAUTER EY-modulo 5 system family
- Plug-in element for extending the modu524/525 automation station (AS)
- Receiving digital (alarm/status) and analogue inputs (Ni/Pt1000, U/I/R) in operational systems, e.g. in HVAC engineering
- 16 universal inputs
- Power supply of the automation station
- Direct labelling on the front
- Can be equipped with a local indicating unit



EY+1O532F001

Technical data

Power supply		
	Power supply	From AS via I/O bus
	Power consumption ¹⁾	≤ 1.2 VA/0.5 W
	Dissipated power	≤ 0.5 W
	Current consumption ²⁾	35 mA
mbient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
inputs/outputs		
	Universal inputs	16
	Analogue	Ni1000/Pt1000, U/I/R, Pot
	Digital	DI (≤ 3 Hz)
nterfaces and communication		
	Connection, LOI	6-pin, integrated
	Connection, I/O bus	12-pin, integrated
	Connection terminals	24 (0.52.5 mm²)
Construction		
	Fitting	On DIN rail
	Dimensions W x H x D	42 × 170 × 115 mm
	Weight	0.29 kg
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6- EN 61000-6-3, EN 61000-6-

Overview of types

Type Features

EY-IO532F001 I/O module, universal inputs, modu532

Accessories

Local operating and indicating units (LOI)

Type Description

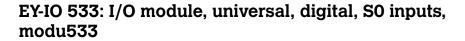




¹⁾ Primary side of base station

²⁾ Supply via base station





Features

- Part of the SAUTER EY-modulo 5 system family
- Plug-in element for extending the modu524/525 automation station (AS)
- Receiving digital (alarm/status), analogue inputs (Ni/Pt1000, U/I/R) and meter signal S0 in operational systems, e.g. in HVAC engineering
- 16 inputs
- Power supply of the automation station
- Direct labelling on the front
- Can be equipped with a local indicating unit

Technical data

Power supply		
	Power supply	From AS via I/O bus
	Power consumption ¹⁾	≤ 2.9 VA/1.5 W
	Dissipated power	≤ 1.5 W
	Current consumption ²⁾	100 mA
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
Inputs/outputs		
	Universal inputs	8
	Analogue	Ni1000/Pt1000, U/I(2x)/R, Pot
	Digital	DI (≤ 3 Hz)
	Digital inputs	8 (≤ 50 Hz)
	Fixed assignment	4
	Meter inputs SO	4 (as per IEC 62053-31)
Interfaces and communication		
	Connection, LOI	6-pin, integrated
	Connection, I/O bus	12-pin, integrated
	Connection terminals	24 (0.52.5 mm²)
Construction		
	Fitting	On DIN rail
	Dimensions W x H x D	42 × 170 × 115 mm
	Weight	0.29 kg
		-
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4

Overview of types

EY-IO533F001 I/O module, universal, digital, S0 inputs, modu533





Primary side of base station

Supply via base station

Accessories

Local operating and indicating units (LOI)

Description





EY-IO534F001

EY-IO 534: I/O module, analogue inputs with galvanic isolation, modu534

Features

- Part of the SAUTER EY-modulo 5 system family
- Plug-in element for extending the modu524/525 automation station (AS)
- Receiving analogue inputs in operational systems, such as HVAC engineering
- 8 analogue inputs (U/I) with electrical isolation for non-isolated sensors with external power supply
- Power supply for I/O module of the automation station
- Direct labelling on the front
- Can be equipped with a local indicating unit

Technical data

Technical data		
Parameters		
	Power supply	From AS via I/O bus
	Power consumption ¹⁾	≤ 3.5 VA / 1.3 W
	Dissipated power	≤ 1.1 W
	Current consumption ²⁾	80 mA
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Humidity without condensation	1085% rh
Version		
VOISIOII	Analogue inputs	8 (with power applied)
	Voltage	0(2)10 V
	Current	0(4)20 mA
	Max. external voltage	Common-mode voltage 80 V=/50 V~
Interfaces and communication		
interfaces and communication	Commenter I/O hour	10
	Connection, I/O bus Connection terminals	12-pin, integrated 24, 0.52.5 mm ²
		6-pin, integrated
	Connection, LOI	o-pin, inlegrated
Construction		
	Fitting	On DIN rail
	Weight	0.285 kg
	Dimensions W x H x D	42 × 170 × 115 mm
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-4

Overview of types

Туре	Description
EY-IO534F001	I/O module, analogue inputs



Primary side of base station

Supply via base station

Accessories

Local operating and indicating units (LOI)

Description





EY-IO550F001

EY-IO 550: I/O module, digital outputs (relays), modu550

Features

- Part of the SAUTER EY-modulo 5 system family
- Plug-in element for extending the modu524/525 automation station (AS)
- Activation of actuators such as contactors, valve actuators or displays of operational systems, e.g. in HVAC engineering
- 6 digital outputs
- Power supply of the automation station
- Direct labelling on the front
- Can be equipped with a local operating and indicating unit

Technical data

recinical data		
Power supply		
	Power supply	From AS via I/O bus
	Power consumption ¹⁾	≤ 2.9 VA/1.6 W
	Dissipated power	≤ 1.6 W
	Current consumption ²⁾	≤ 100 mA
	<u> </u>	
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
Inputs/outputs		
	Digital outputs	6
	Type of outputs	Relay (0-1), NO contact, galvanically isolated
	Load	24250 V~/2 A
	Switching frequency, mechanical	10 ⁶ cycles
		7
Interfaces and communication	1	
	Connection, LOI	6-pin, integrated
	Connection, I/O bus	12-pin, integrated
	Connection terminals	12 (0.52.5 mm²)
Construction		
	Fitting	On DIN rail
	Dimensions W x H x D	42 × 170 × 115 mm
	Weight	0.3 kg
Standards and directives		
	Type of protection	IP20 (EN 60529)
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
	Software class	EN 60730-1
CE conformity according to	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60730-2-9
, -	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4

Overview of types

Type Features

EY-IO550F001 I/O module, digital outputs (relays), modu550





¹⁾ Primary side of base station

Supply via base station

Accessories Local operating and indicating units (LOI) Description Туре EY-LO630F001 16-LED indication, bi-colour 6 switches, Auto-O-I, 4 LEDs operation/indication EY-LO650F001 3 switches, Auto-O-I-II, 4 LEDs operation/indication EY-LO650F002 Components Туре Description

PCB relays (2 × pluggable electronic PCB with 3 relays, including connection terminals)

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EY-IO551F001

EY-IO 551: I/O module, digital outputs (open collector), modu551

Features

- Part of the SAUTER EY-modulo 5 system family
- Plug-in element for extending the modu524/525 automation station (AS)
- Activation of actuators such as relays or displays of operational systems, e.g. in HVAC engineering
- 16 digital outputs
- Power supply of the automation station
- Direct labelling on the front
- Can be equipped with a local operating and indicating unit

Technical data

Power supply		
	Power supply	From AS via I/O bus
	Power consumption ¹⁾	≤ 0.7 VA/0.35 W
	Dissipated power	≤ 0.35 W
	Current consumption ²⁾	≤ 30 mA
	<u>.</u>	
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
	,	·
Inputs/outputs		
	Digital outputs	16
	Type of outputs	Open collector, NO contacts (0-1) outputs switched with respect to
		ground
	Power supply for DO	External, positive ≤ 24 V=
	Load	0.5 mA up to 100 mA
Interfaces and communication	n	
	Connection, modu6**	6-pin, integrated
	Connection, I/O bus	12-pin, integrated
	Connection terminals	24 (0.52.5 mm²)
Construction		
	Fitting	On DIN rail
	Dimensions W x H x D	42 × 170 × 115 mm
	Weight	0.29 kg
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU ³⁾	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4

Overview of types

Туре	Features
EY-IO551F001	I/O module, digital outputs (open collector), modu551

Primary side of base station





Supply via base station

EN 61000-6-2: In order to meet the European Standard, the power cables must not exceed 30 metres in length.

Local operating and indicating units (LOI)

Accessories

Description EY-LO630F001 16-LED indication, bi-colour

EY-LO650F001 6 switches, Auto-0-I, 4 LEDs operation/indication EY-LO650F002 3 switches, Auto-O-I-II, 4 LEDs operation/indication







EY-IO570F001

EY-IO 570: I/O module, analogue outputs and universal inputs, modu570

Features

- Part of the SAUTER EY-modulo 5 system family
- Plug-in element for extending the modu524/525 automation station (AS)
- Actuation with a standard signal (0...10 V), receiving digital (alarm/status) and analogue inputs (Ni/Pt1000, U/I/Pot) in operational systems, e.g. in HVAC engineering
- 12 inputs/outputs
- Power supply of the automation station
- Direct labelling on the front
- Can be equipped with a local operating and indicating unit

Technical data

100mmour data		
Power supply		
	Power supply	From AS via I/O bus
	Power consumption ¹⁾	≤ 1.5 VA/0.8 W
	Dissipated power	≤ 0.8 W
	Current consumption ²⁾	≤ 50 mA
	·	
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
Inputs/outputs		
	Analogue outputs	4 (push-pull)
	Load	≤ 2 mA
	Universal inputs	8
	Analogue	Ni1000/Pt1000, U/I/R, Pot
	Digital	DI (approx. 3 Hz)
Interfaces and communication	2	
interfaces and communication	Connection, LOI	6-pin, integrated
	Connection, I/O bus	12-pin, integrated
	Connection terminals	24 (0.52.5 mm²)
	Connection ferminals	24 (0.52.5 mm-)
Construction		
	Fitting	On DIN rail
	Dimensions W x H x D	42 × 170 × 115 mm
	Weight	0.29 kg
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4

Overview of types

Туре	Features
EY-IO570F001	I/O module, analogue outputs and universal inputs, modu570

²⁾ Supply via base station



¹⁾ Primary side of base station

Accessories

Local operating and indicating units (LOI)

Description

EY-LO630F001 16-LED indication, bi-colour

EY-LO670F001 4 setpoint transmitters (A-0...100%), 8 LEDs operation/indication





EY-IO571F001

EY-IO 571: I/O module, digital inputs/outputs (open collector), modu571

Features

- Part of the SAUTER EY-modulo 5 system family
- Plug-in element for extending the modu524/525 automation station (AS)
- Receiving digital inputs (alarm/status) and activation of actuators such as relays or displays of operational systems, e.g. in HVAC engineering
- 16 digital inputs/outputs
- Power supply of the automation station
- Direct labelling on the front
- Can be equipped with a local operating and indicating unit

Technical data

Technical data		
Power supply		
	Power supply	From AS via I/O bus
	Power consumption ¹⁾	≤ 1 VA/0.4 W
	Dissipated power	≤ 0.4 W
	Current consumption ²⁾	≤ 25 mA
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
Inputs/outputs		
	Digital inputs/outputs	16
	Type of inputs/outputs	Open collector, NO contacts (0-1), out- puts switched with respect to ground (any arrangement)
	Power supply for DO	External, positive ≤ 24 V=
	Load	0 mA up to 100 mA
	Power supply for DI	Internal, 13.5 V
	Pulse counter	(DI) ≤ 50 Hz
T		
Interfaces and communication		4 min into annotal
	Connection, modu6**	6-pin, integrated
	Connection, I/O bus	12-pin, integrated
	Connection terminals	24 (0.52.5 mm²)
Construction		
	Fitting	On DIN rail
	Dimensions W x H x D	42 × 170 × 115 mm
	Weight	0.29 kg
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU ³⁾	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4

Primary side of base station

Supply via base station

EN 61000-6-2: In order to meet the European Standard, the power cables must not exceed 30 metres in length.

Overview of types

EY-IO571F001 I/O module, digital inputs/outputs (open collector), modu571

Accessories

Local operating and indicating units (LOI)

Туре	Description
iype	Description

EY-LO630F001 16-LED indication, bi-colour

EY-LO650F001 6 switches, Auto-O-I, 4 LEDs operation/indication EY-LO650F002 3 switches, Auto-O-I-II, 4 LEDs operation/indication







EY-IO572F001

EY-IO 572: I/O module, analogue outputs, universal and digital inputs, modu572

Features

- Part of the SAUTER EY-modulo 5 system family
- Plug-in element for extending the modu524/525 automation station (AS)
- Actuation with a standard signal (0...10 V), receiving digital (alarm/status) and analogue inputs (Ni/Pt1000, U/I/Pot) in operational systems, e.g. in HVAC engineering.
- 15 inputs/outputs
- Power supply of the automation station
- Direct labelling on the front
- Can be equipped with a local operating and indicating unit

Technical data

Technical data		
Power supply		
	Power supply	From AS via I/O bus
	Power consumption ¹⁾	≤ 1.8 VA/0.8 W
	Dissipated power	≤ 0.8 W
	Current consumption ²⁾	≤ 110 mA
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
Inputs/outputs		
	Analogue outputs	4× 010 V/020 mA (source)
	Load	≤ 20 mA
	Load ≥ 5 Ω	Output 010 V / 210 V
	Load ≤ 400 Ω	Output 020 mA / 420 mA
	Load voltage	< 2 V (0(4)20 mA)
	Universal inputs	8
	Analogue	Ni1000/Pt1000, U/I/R, Pot
	Digital	DI (≤ 3 Hz)
	Digital inputs	3 fixed assignment
	Pulse counter	≤ 50 Hz
Interfaces and communication		
	Connection, LOI	6-pin, integrated
	Connection, I/O bus	12-pin, integrated
	Connection terminals	24 (0.52.5 mm²)
Construction		
	Fitting	On DIN rail
	Dimensions W x H x D	42 × 170 × 115 mm
	Weight	0.29 kg
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	I (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4

¹⁾ Primary side of base station

²⁾ Supply via base station



Overview of types

EY-IO572F001 I/O module, analogue outputs, universal and digital inputs, modu572

Accessories

Local operating and indicating units (LOI)

Description

EY-LO630F001 16-LED indication, bi-colour

EY-LO670F001 4 setpoint transmitters (A-0...100%), 8 LEDs operation/indication





EY-LM590F001

EY-LM 590: novaLink module, modu590

Features

- Part of the SAUTER EY-modulo 5 system family
- Plug-in element for extending the modu524/525 automation station (AS)
- Suitable for connecting EY-FM 1 ** and EYY 1 ** remote units
- 24 V ~/= external power supply
- Up to eight field modules per novaLink module with DC power supply; six modules with AC power supply
- I/O bus and novaLink electrically isolated from each other
- Direct labelling on the front
- Can be equipped with a local operating and indicating unit

Technical data

Technical data			
Power supply			
	Power supply	24 V=, ±10% 24 V~, +20%/-15%, 5060 Hz	
	Power consumption	Max. 20 W	
	Dissipated power	Max. 1 W	
	Current consumption	Max. 1.2 A	
	Max. peak inrush current	Max. 20 A (2 ms)	
Ambient conditions			
	Operating temperature	045 °C	
	Storage and transport temperature	−2570 °C	
	Ambient humidity	1085% rh, no condensation	
Interfaces and communication			
	Connection, LOI	6-pin, integrated in electronics module	
	Connection, I/O bus	12-pin, integrated in base	
	Connection terminals	24 (0.52.5 mm ²)	
Construction			
	Fitting	On DIN rail	
	Dimensions W x H x D	42 × 170 × 115 mm	
	Weight	0.315 kg	
Standards and directives			
	Type of protection	IP30 (EN 60529)	
	Protection class	III (EN 60730-1)	
	Environment class	3K3 (IEC 60721)	
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4	

Overview of types

Туре **Features**

EY-LM590F001 novaLink module, 8 novaLink channels, modu590

Accessories

Local operating and indicating units (LOI)

Description Туре

EY-LO630F001 16-LED indication, bi-colour

Field modules

Description Туре

moduLink164 digital output 4× 0-I (change-over relay) EY-FM164F001 EY-FM165F001 moduLink 165 digital output 2× 0-1-11 (change-over relay)



Description Туре

 $EY-FM170F001 \qquad moduLink170 \ analogue \ output \ 4\times \ 0...10 \ V \ (2\times \ 0...20 \ mA)$

EY-FM174F001 moduLink174 digital input 16×



SAUTER modulo 5 operating units

SAUTER operating units allow you to display the current status of the inputs and to directly override the outputs of the automation station (AS) and the I/O modules.

Overview of operating units







Type designation	EY-OP840F001	EY-LO625F001	EY-LO630F001
Product name	modu840	modu625	modu630
Power supply	From AS	From AS	From AS or I/O module
Device	Operating unit	Operating unit with LED	Operating unit with LED
Function	Visualisation, operation	6 manual/auto switches, 4 slide switches	Status/alarm
Display	Structured installations	6 DO (A-0-I), 4 LEDs, 4 AO (A-0100%), 8 LEDs	16 LEDs
For stations	modu525	modu525	modu525
For I/O modules	-	-	modu530533, modu550, modu551, modu571, modu570, modu572
Interfaces	I/O bus	I/O bus	I/O bus
Further information	Page 493	Page 495	Page 495







Type designation	EY-LO650F001	EY-LO650F002	EY-LO670F001
Product name	modu650	modu650	modu670
Power supply	From AS or I/O module	From AS or I/O module	From AS or I/O module
Device	Operating unit with LED	Operating unit with LED	Operating unit with LED
Function	6 manual/auto switches	3 manual/auto switches	4 slide switches
Display	6 DO (A-0-I), 4 LEDs	3 DO (A-0-I), 4 LEDs	4 AO (A-0100%), 8 LEDs
For stations	modu525	modu525	modu525
For I/O modules	modu550, modu551, modu571	modu550, modu551, modu571	modu570, modu572
Interfaces	I/O bus	I/O bus	I/O bus
Further information	Page 495	Page 495	Page 495

EY-OP 840: Local operating unit, modu840

Features

- Part of the SAUTER EY-modulo 5 system family
- Plug-in element for extending the modu524/modu525 automation stations (AS)
- Local operating and display unit for direct local and manual operation of the AS
- Intuitive single-button operation (using the "turn and press" method)
- Graphic display with various font sets and types
- Menu-led navigation with user login for operation rights
- Visualisation of information with structured installation display
- Two LED indicators for installation alarm and function status
- Displays objects, alarms and other information
- Choice of four languages
- Can be fitted remotely (using accessories) in cabinet

Technical data

Power supply		
	Power supply	From AS
	Power consumption	≤ 50 mA
	Dissipated power	≤ 0.1 W
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
Indicators, display, operation		
	Resolution	160 × 100 pixels, monochrome (LCD)
	Operation	Turn and press
	Rotary knob	+/-, down/up
	Acknowledgement	OK (short), start (long > 3 s)
Interfaces and communication		
	Internal connection	5-pin pogo pins for supply and data communication
Construction		
	Weight	0.11 kg
	Dimensions W x H x D	85 × 94 × 25 mm
Standards and directives		
	Type of protection	IP20 (EN 60529)
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 55024

Overview of types

EY-OP840F001 Local operating unit, modu840



EY-OP840F001





Accessories	
Туре	Description
7010035001	modu840 user manual, German
7010035002	modu840 user manual, French
7010035003	modu840 user manual, English
0930240511	Front frame for 4 operating/indicating units
0930240541	Connection adaptor for RJ-45 operating panel for front frame

EY-LO 625...670: Local operating and indicating units, modu625...670

Features

- Part of the SAUTER EY-modulo 5 system family
- Pluggable elements for direct operation/indication of modu524/525 automation station (AS) and novaLink and I/O modules
- Direct operation via switches/sliders (as per EN ISO 16484-2:2004 "Local override and indication devices")
- Separate indicator for manual operation
- Ready for use without parameterising

Technical data

Power supply		
	Power supply	From AS, novaLink and modu5** I/O module
Parameters		
	Factory setting	All switches set to "A" (Auto)
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
Interfaces and communication		
	Connection for novaLink or I/O module, AS or lowering frame	Spring contacts, 9-pin
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	III (EN 60730-1) PELV
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4

Overview of types

i Power consumption: On primary side of base station (230 V~)

i Current consumption: Supply via base station

Туре	EY-LO625F001	EY-LO630F001	EY-LO650F001	EY-LO650F002	EY-LO670F001
Use	modu521, modu524, modu525 (from hardware index C)	modu524/525, modu530590	modu524/525, modu550, 551, 571	modu524/525, modu550, 551, 571	modu524/525, modu570, 572
Power consumption	≤ 2 VA/0.7 W	≤ 1 VA/0.35 W	≤ 1 VA/0.35 W	≤ 1 VA/0.35 W	≤ 1 VA/0.35 W
Dissipated power	≤ 0.7 W	≤ 0.35 W	≤ 0.35 W	≤ 0.35 W	≤ 0.35 W
Current consumption	≤ 40 mA	≤ 20 mA	≤ 20 mA	≤ 20 mA	≤ 20 mA
Operation	6 switches (A-0-1), 4 sliders (A-0100%)	-	6 switches (A-0-I)	3 switches (A-0-I-II)	4 sliding switches (A-0100%)
Indicator/display	4 LEDs (bi-colour), analogue: 8 LEDs (bi-colour)	•	4 LEDs (bi-colour)	4 LEDs (bi-colour)	8 LEDs (bi-colour)
Dimensions W x H x D	84 × 92 × 13 mm	42 × 92 × 13 mm	42 × 92 × 13 mm	42 × 92 × 13 mm	42 × 92 × 13 mm
Weight	0.07 kg	0.03 kg	0.03 kg	0.03 kg	0.03 kg



EY-LO625F001



EY-LO630F001



EY-LO650F001



EY-LO650F002



EY-LO670F001





Accessories	
Туре	Description
0930240511	Front frame for 4 operating/indicating units
0930240540	Connection adaptor for RJ-45 operating/indicating units for front frame

EY-WS 500: Web server for moduWeb Vision and moduWeb500 BACnet networks

Features

- Part of the SAUTER EY-modulo 5 system family
- Visualisation and operation of facilities
- Facilities operated via internet using a standard web browser
- Online notification via e-mail and text message
- Recording of historical values and alarms
- Time and calendar functions (BACnet Schedule Client)
- Visualisation either in lists, dynamic images or diagrams
- Engineering/parametrising via PC using CASE Suite
- Communication with web client via standard HTTP protocol
- Secure communication with web client via encrypted HTTPS protocol
- Communication with mail server and SMS gateway via standard SMTP
- Communication with automation devices via BACnet/IP and BACnet web services (EN ISO 16484-5)
- Integrated firewall

Technical data

Power supply		
2010. Supply	Power supply	24 V~/=, ±20%, 5060 Hz= (EY-W\$500F005, moduWeb500 hardware)
	Low-voltage connector	1035 V= Ø 5.5 mm external, Ø 2.5 mm internal
	Power consumption	≤ 6.5 VA/5.5 W
	Battery (buffer: RTC)	Lithium button-cell (CR2032), insertable
	Serviceable life of battery	10 a
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2565 °C
	Ambient humidity	585% rh, no condensation
Architecture		
	D.	ADA4 C
Watchdog	Processor	ARM Cortex A8, 600 MHz
	RAM memory	RAM, 256 MB
		120 MD (
	Flash	128 MB (permanent memory)
	Flash Memory expansion Back-up medium	SD-HC card slot ≤ 32 GB USB mass storage device, ≤ 250 mA
Interfaces and communication	Memory expansion	SD-HC card slot ≤ 32 GB
Interfaces and communication	Memory expansion Back-up medium	SD-HC card slot ≤ 32 GB USB mass storage device, ≤ 250 mA USB 2.0, type A connection
Interfaces and communication	Memory expansion Back-up medium Ethernet network	SD-HC card slot ≤ 32 GB USB mass storage device, ≤ 250 mA USB 2.0, type A connection 1 × RJ-45 connector
Interfaces and communication	Memory expansion Back-up medium Ethernet network 10/100 BASE-T(X)	SD-HC card slot ≤ 32 GB USB mass storage device, ≤ 250 mA USB 2.0, type A connection 1 × RJ-45 connector 10/100 Mbit/s
Interfaces and communication	Memory expansion Back-up medium Ethernet network	SD-HC card slot ≤ 32 GB USB mass storage device, ≤ 250 mA USB 2.0, type A connection 1 × RJ-45 connector
Interfaces and communication	Memory expansion Back-up medium Ethernet network 10/100 BASE-T(X) Communication protocols	SD-HC card slot ≤ 32 GB USB mass storage device, ≤ 250 mA USB 2.0, type A connection 1 × RJ-45 connector 10/100 Mbit/s BACnet/IP (DIX)
Interfaces and communication Construction	Memory expansion Back-up medium Ethernet network 10/100 BASE-T(X) Communication protocols	SD-HC card slot ≤ 32 GB USB mass storage device, ≤ 250 mA USB 2.0, type A connection 1 × RJ-45 connector 10/100 Mbit/s BACnet/IP (DIX)
	Memory expansion Back-up medium Ethernet network 10/100 BASE-T(X) Communication protocols	SD-HC card slot ≤ 32 GB USB mass storage device, ≤ 250 mA USB 2.0, type A connection 1 × RJ-45 connector 10/100 Mbit/s BACnet/IP (DIX)
	Memory expansion Back-up medium Ethernet network 10/100 BASE-T(X) Communication protocols Max. load	SD-HC card slot ≤ 32 GB USB mass storage device, ≤ 250 mA USB 2.0, type A connection 1 × RJ-45 connector 10/100 Mbit/s BACnet/IP (DIX) 15 V, 10 mA



EY-WS500F005





Accessories

Standards and directives		
	Type of protection ¹⁾	IP20 (EN 60529)
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
	Low-Voltage Directive 2014/35/EU	EN 60730-1, EN 60950-1
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2,
		EN 61000-6-3, EN 61000-6-4
	Software class	EN 60730-1 Appendix H

Overview of types		
Туре	Description	
EY-WS500F005	moduWeb500 hardware	
EY-WS505F010	moduWeb Vision software for 800 DP, 75 diagrams, 25 users	
EY-WS505F011	Upgrade from EY-WS505F010 to 2500 DP, 250 diagrams, 100 users	
EY-WS505F020	moduWeb Vision software for 2500 DP, 250 diagrams, 100 users	
EY-WS506F100	moduWeb Vision Touch, optional, incl. various resolutions	
EY-TC505F110	Touch Client software for Windows 7	

Manuals	
Туре	Description
7010083001	Operating manual for moduWeb Vision, German
7010083002	Operating manual for moduWeb Vision, French
7010083003	Operating manual for moduWeb Vision, English

Only on front with terminal cover

SAUTER modulo 5 communication modules

SAUTER communication modules enable third-party systems to be integrated on the automation level. Field-bus protocols, based on EIA-232 or EIA-485, such as Modbus RTU and M-Bus, can be integrated directly on the automation station. The data is mapped in BACnet objects and is visible on the BACnet/IP network.

The devices of the moduNet series enable the SAUTER novaNet bus system to be integrated into parent IT networks. A direct Ethernet interface and BACnet gateway functionality are provided for this purpose.

Overview of communication modules





Type designation	EY-CM 721	EY-CM 731
Product name	modu721	modu731
Interfaces	EIA-232 EIA-485	EIA-232 M-Bus
Protocol	Modbus M-Bus	M-Bus
Further information	Page 500	Page 502





Type designation	EY-BU292F001	EYZ291F001
Product name	moduNet292	novaNet291
Property	Connection of novaNet to Ethernet/IP	Router
Fitting	Cabinet model	Cabinet model
Further information	Page 504	Page 506



EY-CM721F010

EY-CM 721: Communication module with EIA-232 and EIA-485 interfaces, modu721

Features

- Part of the SAUTER EY-modulo 5 system family
- Plug-in element for extending the modu524/525 automation station (AS)
- One or two COM modules per AS
- Connection to non-SAUTER systems (PLC, chillers, meters etc.)
- Connection for point-to-point protocols with EIA-232 interface
- Connection for field bus protocols based on EIA-485
- 2-wire EIA-485 (half-duplex)
- Galvanic isolation up to 300 V
- Jumper for EIA-485 bus voltage, bus termination and connection for galvanic isolation
- M-Bus and further integration of third-party products with the AS for integrated control and optimised regulation and the option to use BACnet/IP communication with the management level.
- Direct labelling on the front

Technical data

rechnical data		
Power supply		
	Power supply	From AS via I/O bus
	Per AS at location 1 or 2	≤ 2 COM modules
	Current consumption	≤ 150 mA
	Dissipated power	≤ 1.2 W
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
Architecture		
	Protocol processor	FPGA
	COM port	UART
	Memory	Flash memory (user and protocol data)
	Number of data points	≤ 200
Interfaces and communication		
	COM port, EIA-232 (DTE)	D-Sub plug (9-pin, male)
	COM port, EIA-485	6 screw terminals (2 × C, 2 × D+, 2 × D-)
	Baud rate	0.357.6 kbit/s
	Data bits	5, 6, 7, 8
	Stop bits	1, 1.5, 2
	Parity	None, even, odd
	Connection, I/O bus	12-pin, integrated in base
Construction		
	Fitting	On DIN rail
	Dimensions W x H x D	42 × 170 × 115 mm
	Weight	0.8 kg
Standards and directives		
	Type of protection	IP20 (EN 60529)
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)



	Software class	EN 60730-1 Appendix H
CE conformity according to	EMC Directive 2014/30/EU ¹⁾	EN 61000-6-1, EN 61000-6-2,
		EN 61000-6-3, EN 61000-6-4

Overview of types		
Туре	Protocol	
EY-CM721F010	Communication module for Modbus/RTU (master, EIA-232 or EIA-485)	
EY-CM721F020	Communication module for M-Bus (master, EIA-232 or EIA-485)	

Accessories	
Туре	Description
7010037001	Manual for moduCom communication modules, German
7010037002	Manual for moduCom communication modules, French
7010037003 Manual for moduCom communication modules, English	
0386301001	Connection cable COM DB9(f)-DB9(f), 3 m (null modem)

EN 61000-6-1: EIA-232 cable max. 15 m in length; EIA-485: Shielded cable 2×2 twisted pair



EY-CM731F020

EY-CM 731: Communication module with M-Bus and EIA-232 interfaces, modu731

Features

- Part of the SAUTER EY-modulo system family
- Plug-in element for extending the modu524/525 automation station (AS)
- One or two COM modules per AS
- EIA-232 interface for point-to-point connection with an M-Bus level converter
- Two-wire M-Bus network (as per EN 1434-3)
- Connection to M-Bus meter networks for up to 200 meters (heat meter, electricity meter, etc.)
- Recording counting values at automation level allows optimum control and regulation of systems and offers
 the option of using BACnet/IP communication at the management level.
- Without external power supply: up to 10 M-Bus meters
- With external power supply: up to 50 M-Bus meters
- D-Sub plugs (9-pin, male, DTE) for connecting to external M-Bus level converter
- Direct labelling on the front

Technical data

Power supply		
	Power supply	From AS via I/O bus
	Current consumption	≤ 200 mA
	Dissipated power	≤ 3.28 W
External power supply	For 150 meters on the M-Bus network	24 V~ (±20%)/24 V= (±20%)
	Power consumption	5 W, 6 VA (for 1150 meters on the M-Bus net- work)
	Screw terminals	2 (MM, LS)
Ambient conditions		
	Operating temperature	045 °C
	Storage and transport temperature	-2570 °C
	Ambient humidity	1085% rh, no condensation
Architecture		
	Protocol processor	FPGA
	COM port	UART
	Memory	Flash memory (user and protocol dat
	Number of data points	≤ 200
Interfaces and communicat	ion	
	COM port, EIA-232 (DTE)	D-Sub plug (9-pin, male)
	COM port, M-Bus (EN 1434-3)	4 screw terminals (2 × M+, 2 × M-)
	Baud rate	0.39.6 (38.4) kbit/s
	Connection, I/O bus	12-pin, integrated in base
	Protocol	M-Bus (master)
Construction		
	Fitting	On DIN rail
	Dimensions W x H x D	42 × 170 × 115 mm
	Weight	0.8 kg
Standards and directives		
	Type of protection	IP20 (EN 60529)
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)





	Software class	EN 60730-1 Appendix H
CE conformity according to	EMC Directive 2014/30/EU ¹⁾	EN 61000-6-1, EN 61000-6-3,
		EN 61000-6-4

Overview of types		
Туре	Features	
EY-CM731F020	Communication module with M-Bus and EIA-232 interface, modu731	

Accessories	
Туре	Description
7010037001	Manual for moduCom communication modules, German
7010037002	Manual for moduCom communication modules, French
7010037003	Manual for moduCom communication modules, English
0386301001	Connection cable COM DB9(f)-DB9(f), 3 m (null modem)

EN 61000-6-1: EIA-232 cable max. 15 m in length. M-Bus cable: Two-core, twisted pair



EY-BU292F001



EY-BU292F002

EY-BU 292: novaNet-Ethernet interface, moduNet292

Features

- Part of the SAUTER EY-modulo 2 system family
- Bus access device for novaNet system bus with Ethernet interface
- To integrate novaNet stations (EY3600, EY-modulo 2) into IP networks based on Ethernet (LAN/WAN)
- For SAUTER CASE Suite applications
- To download programmes onto the stations
- For SAUTER novaPro visualisations
- For remote monitoring via the internet
- TCP/IP communication
- Communication with two-wire novaNet system bus
- RJ-45 plug for Ethernet 10 Base-T (10 Mbit/s)
- Fixed IP addressing
- RS-232 interface for parameterisation and updating
- Five LEDs for Error, novaNet Send, Power, Activity, Link

Technical data

Overview of types

EY-BU292F001

EY-BU292F002

Description

panel-fitted model

desktop model

Туре

Power supply		
	Power supply	230 V~, +10%, -15% 115 V~, +10%, -15% (5060 Hz)
	Power consumption	6 VA, < 7 W
Ambient conditions	_	
	Operating temperature	045 °C (32113 °F)
	Storage and transport temperature	-2570 °C (-13158 °F)
	Ambient humidity	1085% rh, no condensation
Interfaces and communication		
	Ethernet	1 × RJ-45 socket 10 Mbit/s (10 Base-T)
	RS-232 serial port	1 × DB-9 (male) as per DTE (57k6, 8n1)
Standard settings	TCP/IP address	192.168.10.20
•	Subnet mask	255.255.255.0
	TCP port (App 1)	51806 (nova292-Server)
	TCP port (App 2)	51807 (nova291-Emulation)
Construction		
	Fitting	EY-BU292F001: DIN rail Installation EY-BU292F002: desktop model
Standards and directives		
	Type of protection	IPOO (EN 60529); IP20 (EN 60529)
	Protection class	I (EN 60730-1)
	Software class	EN 60730-1 Appendix H
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN61000-6-2, EN 61000-6-4
	Low-Voltage Directive 2014/35/EU	EN 60950-1

Dimensions W x H x D

193 × 131 × 41 mm

228 × 131 × 41 mm

novaNet

1 × a/b terminal

1× RJ-11 socket



Weight

650 g

700 g

Accessories Software Description Type GZS100F599 CASE Tools CD, latest version (CASE TPC, CASE HWC, CASE Sun, novaNet292 SW etc.) Connecting cables Туре Description 0367862001 novaNet RJ-11 to RJ-11: 1.5 m 0367862002 novaNet RJ-11 to RJ-11: 2.9 m 0367862003 novaNet RJ-11 to RJ-11: 6.0 m 0367842002 Ethernet RJ-45 to RJ-45: 1.5 m 0367842003 Ethernet RJ-45 to RJ-45: 2.9 m 0367842004 Ethernet RJ-45 to RJ-45: 6.0 m 0386507001 Ethernet crossover RJ-45 to RJ-45: 3.0 m General information Туре Description 0374509001 Connector, 3-pin, packaged 0010240105 Cable housing for 0374509 001, cable cord grip

Installation kit for 2-DIN rail mounting (for F001)

0374677001



EYZ291F001

EYZ 291: Router, novaNet291

Features

- Part of the EY-modulo 2 and EY3600 system family
- Bus access device for novaNet system bus with RS-232 interface
- For configuring EY-modulo 2 and EY3600 stations with SAUTER CASE applications
- For management-level software and all SAUTER novaPro visualisations and novaNet OPC servers
- Direct communication from novaNet stations to PC with a serial connection
- Remote access with router function via RS-232 modem
- Remote monitoring in routel mode via RS-232 modem (i.e. automatic uploading of events)
- Communication using two-wire novaNet system bus
- Communication with RS-232-compatible pairs of devices (dial-up modem, ISDN adapter, electronic surge protector, OWG converter, wireless modem etc.)
- 1 MB buffer for separating the time characteristics of novaNet and RS-232 interface

Technical data

Power supply		
	Power supply	230 V~, 50/60 Hz
	Max. current consumption	10 VA
Ambient conditions		
	Operating temperature	045 °C (32113 °F)
	Storage and transport temperature	-2570 °C (-13158 °F)
	Humidity	1090% rh, no condensation
Interfaces and communication		
	COM port (DTE)	DB9 plug
	novaNet	1 × a/b terminal, 1 × RJ-11 socket
	DIP switch	4 (baud rate, router/routel function
Construction		
	Weight	0.99 kg (2.2 lb)
Standards and directives		
	Type of protection	
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4

Overview of types

Туре	Description
EYZ291F001	novaNet router

Α	С	С	е	S	S	O	r	1	е	S

Туре	Description
0367862001	Connecting cable to novaNet291 or moduNet292 automation station 1.5 m (4.9 ft)
0367862002	Connecting cable to novaNet291 or moduNet292 automation station 2.9 m (9.5 ft)
0367862003	Connecting cable to novaNet291 or moduNet292 automation station 6.0 m (19.7 ft)





Management level

Building and energy management from anywhere at all times.

SAUTER Vision Center, the latest generation of web-based building management software guarantees optimum system monitoring and continuous operation. Energy management and monitoring modules provide additional benefits for the facility management to ensure optimum, energy-efficient operation of the systems, buildings and premises. SAUTER Vision Center 7 integrates both Advanced Energy Management and innovative, user-oriented operation.

SAUTER Mobile Building Services (MBS) is a SAUTER cloud application that is offered for various applications for buildings and premises. In combination with the Mobile Room Control (MRC) app available for smartphones and tablets, it can control room conditions in apartment, hotel and office buildings. The easy-to-use app – even from outside the room or building – and the related user comfort help fulfil the requirements of planners and builders for a state-of-the-art building.





Management level

Software

YZP 480495: SAUTER Vision Center	510
YCS 200210: Mobile Building Services (MBS)	512
EMS 100, 200: SAUTER EMS and EMS Mobile	513





YZP 480...495: SAUTER Vision Center

Central building management and visualisation of decentralised installations

SAUTER Vision Center (SVC) is a web-based building management solution in the HTML5 standard for running and visualising the building operation. SVC is suitable for both larger single buildings and entire real estate parks or distributed premises. Typical areas of use are office complexes, business parks, college and industrial campuses, airports, railway stations, hospitals or internationally distributed branch networks. The modular concept allows the software to be extended precisely to meet the customer requirements of every installation. Therefore, SVC gathers all of the data for the entire building and energy management and makes it available to the user from anywhere at all times.

Thanks to SVC's simple and intuitive operation, starting, planning and changing predefined building automation procedures is easy with the scenario manager. This allows users with PC skills to set rooms, for example, to Comfort or ECO mode at precise times and control them via calendar views.

The energy monitoring module integrates energy meters and other data from the buildings to create a comprehensive energy consumption display. Thus, daily, weekly, monthly and annual consumption can be automatically calculated and represented in diagrams. The maintenance module for SVC is also used for optimum planning and efficient performance of servicing and facility management tasks. Here support is also provided by plant device data capture, the definition of maintenance intervals and the automatic triggering of maintenance cycles based on building management information. This enables complete concentration on the monitoring and evaluation of the installations, as well as their continuous and optimum operation, and therefore contributes to efficient, sustainable building and energy management.

For the integration of different equipment systems, SVC supports the manufacturer-independent BACnet standard, as well as connection to OPC servers, for integrating different protocols in the building automation. Thus, SVC is the first building and energy management system (BEMS) certified with a crossplatform profile B-XAWS 1.18. SVC supports device profiles B-AWS, B-ALWS, B-ACCWS and thus profile B-XAVVS.

In addition to the OPC UA client, operation as an OPC UA server is also implemented. An IoT client is also integrated that supports the connection of room controllers and automation stations via MQTT.

TLS encryption ensures secure communication from decentralised automation stations, e.g. to connect SAUTER ecos or modulo 6 stations via the internet with an SVC located in the cloud.

In order to fully support the integration options, it is also possible to directly connect

SAUTER moduWeb Vision via web services and SAUTER novaNet installations. This makes it possible to connect existing systems when converting to the new generation of building management software without having to replace the existing automation level.

SVC sends alarms directly via e-mail or SMS to mobile phones according to the responsibilities assigned. With its many user-defined settings and customisable dashboards, SVC guarantees maximum user convenience.

SVC can be deployed in virtual IT environments and uses Microsoft SQL databases. These modern architectures and infrastructures enable topics such as high availability, redundancy via cluster systems and corresponding load assignments (provisioning) to be implemented and used.¹⁾ For optimum integration of the user structures of a company, it is possible to connect SVC to an existing LDAP server that additionally supports the latest communication types (LDAP signing & channel binding).

Overview of types

i SVC licences and options

Туре	Description
YZP480F000	Provision of all codes in a single ticket
YZP480F200	Basic licence for 500 addresses with maintenance
YZP480F098	Latest SVC version on a USB stick
YZP481F200	Additional 100 objects with maintenance

Scalable via MS SQL Express up to SQL Enterprise depending on the specified properties, virtual IT environments and high-availability VMware & SQL Enterprise.

Туре	Description
YZP481F210	Additional 1000 objects with maintenance
YZP481F220	Additional 10000 objects with maintenance
YZP481F230	Additional 25000 objects with maintenance
YZP485F201	Basic energy monitoring with maintenance
YZP485F210	Maintenance module with software maintenance
YZP485F220	Scenario manager with software maintenance
YZP484F200	Licence key for VM
0900360001	Hardlock (dongle) for VM
YZP484F310	Migration Manager for SVC from nP32 and nPO
YZP487F201	OPC UA client for SVC with maintenance
YZP487F203	OPC UA server with maintenance
YZP487F205	SVC MQTT client with maintenance (price per MQTT broker connection)
YZP483F300	novaNet connection (YZP487F201 is a prerequisite)
YZP484F400	Vision Center Studio
YZP482F101	Termination of the software maintenance
YZP482F210	Resumption of the software maintenance





YCS 200...210: Mobile Building Services (MBS)

Features

- Connects the local building management, including the integral room automation, with the room operation via smartphone or tablet
- Control of lighting, temperature, window blinds and ventilation (depending on the building equipment)
- Access can be configured with different rights and validity periods
- Through the integration of "Indoor Localisation" or "Geofencing", automatic allocation to the respective available options
- The perfect solution for apartment buildings, bed and breakfast accommodations, luxury apartments, hotels and office buildings
- High level of security and up-to-date functionality thanks to Microsoft Azure technology
- MRC app available free of charge in the Google Play Store and the Apple App Store

Overview of t	•
Туре	Description
YCS200F300	MRC app subscription per apartment based on the total number of apartments (1-5 apps per apartment) – price per apartment per year / invoice of apartments with at least one badge created; invoice based on report with number of used apartments; issue date after one year of the first basic subscription
YCS200F310	MRC app subscription for hotel rooms, price per room per year / invoice of rooms defined in the MBS cloud; invoice based on report with number of rooms; issue date after one year of the first basic subscription
YCS200F320	MRC app subscription (w/o indoor localisation), price per subscription (device) / invoice of used badges defined in the MBS cloud; invoice based on report with number of badges per month; issue date after one year (first basic subscription)
YCS210F300	MRC app subscription (with indoor localisation), price per subscription (device) / invoice of used badges defined in the MBS cloud; invoice based on report with number of badges per month; issue date after one year (first basic subscription)
YCS200F200	MBS Cloud Basic subscription $<$ 50 app subscriptions, first & following year (investor / operator) – automatically renewed every year
YCS200F210	MBS Cloud Basic subscription < 150 app subscriptions, first & following years (investor / operation) – automatically renewed every year
YCS200F220	MBS Cloud Basic subscription < 300 app subscriptions, first & following years (investor / operation) – automatically renewed every year
YCS200F230	MBS Cloud Basic subscription > 300 app subscriptions, first & following year (investor / operator) – automatically renewed every year
YCS210F200	MBS Cloud Basic subscription Office with indoor localisation < 50 app subscriptions / first & following year (investor / operator) including iBeacon / indoor localisation option) – automatically renewed every year
YCS210F210	MBS Cloud Basic subscription Office with indoor localisation < 150 app subscriptions / first & following year (investor / operator) including iBeacon / indoor localisation option) – automatically renewed every year
YCS210F220	MBS Cloud Basic subscription Office with indoor localisation < 300 app subscriptions / first & following year (investor / operator) including iBeacon / indoor localisation option) – automatically renewed every year
YCS210F230	MBS Cloud Basic subscription Office with indoor localisation > 300 app subscriptions / first & following year (investor / operator) including iBeacon / indoor localisation option) – automatically renewed every year

EMS 100, 200: SAUTER EMS and EMS Mobile

SAUTER EMS has proven its effectiveness for more than a decade as a professional solution for visualizing and exploiting all data related to energy consumption and carbon emissions in organizations. SAUTER EMS provides vital information to act more effectively around energy, cost, facility efficiency and

therefore the competitiveness of the organization. SAUTER EMS is the solution when it comes to complying with the requirements of ISO 50001, ISO 50002 (EN 16247) standards or to apply the concepts of the IPMVP.

Advantages

Modern and flexible

SAUTER EMS offers all the advantages of a modern solution by being available in a Cloud version. Opting for the Cloud mode means that users benefit from a high level of security, benefit from the latest innovations and ensure a quick and worry-free production launch of the necessary IT equipment.

For large projects, SAUTER EMS' InHouse mode integrates perfectly into an existing IT infrastructure. Based on modern technologies such as HTML5 or NoSQL databases for raw values (optional), SAUTER EMS allows you to consult online, at any time, from a client workstation or mobile equipment, information relating to the organization's energy management.

Accessibility and communication

Automatically sending reports in different formats, consulting collected or defined alerts, accessing document management or learning about the actions taken by people involved in the improvement process are all easy operations to perform thanks to the solution's intuitive interface.

The interface has been designed so that a person without specific IT skills can work quickly and efficiently so that finally the actual time of analysis of the collected data is really available.

Data centralization and accuracy

Data can come from one or more sites, one or more sources. SAUTER EMS responds to the immense necessity of flexibility in the measurement concept with its many automatic or manual connectors. SAUTER EMS is not limited to the data from the meters since the operating status, setpoint values, temperature values, valve opening rate, number of users, number of parts produced, amounts invoiced are some examples that allow the essential correlation of the energy value to its use in practice.

Data quality

The most experienced know that reality does not always allow to have a reliable physical measurement point on all equipment. That is why SAUTER EMS provides functions for analysing the received data to inform about data behaviour errors. Missing values, faulty counters, extreme or inconsistent values are detected, reported and can be configured. An automatic or manual correction is then possible and reversible.

Calculation capacity

One of the great strengths of SAUTER EMS is its computing capacity. Thanks to the formulas, setting up as many virtual points as you need is easy. Beyond the consumption chain, calculating the HDDs according to known standards, calculating CO₂ emission equivalences or comparing the invoiced values with the estimated amounts are all operations that an energy manager can easily perform in SAUTER EMS. We know that the calculation rules evolve over time and that is why SAUTER EMS has a time management of formulas. In addition to the formulas, specific modules are available. CM objects are used, for example, to calculate instant power from counter readings. The forecast module allows to set up calculation algorithms to give a future visibility based on past data.

Clear and configurable visualization

The numerous visualization elements, from the value table to maps, graphs and custom elements, highlight not the data but the analysis that needs to be done. Users with permissions are completely autonomous in setting up the visuals they want to deliver to their users directly from the interface. For the most ambitious projects, SAUTER EMS uses the BIRT report engine to generate specific reports on a large scale.



High-performance engineering

With the pressing nature of the situation, one of the great strengths of SAUTER EMS is its dynamic templates. Once an approach for a building, equipment or organization is confirmed, operators will be able to create one or more templates, dynamizing them so that they can be easily deployed. A time and efficiency saving for a tremendous efficiency.

Delivery content of the license version

The SAUTER EMS solution is supplied ready to use. It is not necessary to purchase additional licenses to run SAUTER EMS on a server. The deployment of the standard solution therefore only requires about a few

SAUTER EMS is supplied in the form of a VMWare virtual machine (Hyper-V on request) with the following technical characteristics:

Technical data

n ¹⁾	
Processor	1 × Dual-Core CPU 64 bits
RAM memory	4 GB
Storage capacity	80 GB HDD
Network	1 card – bridge mode
	Processor RAM memory Storage capacity

Virtual machine SW configu	ıration		
	Operating system ²⁾	Linux openSUSE	
	Database ³⁾	PostgreSQL	
	Web server	Apache Tomcat	
	Application available	SAUTER EMS	
		BIRT engine	

GUI access

- Through browser (Firefox, Chrome, Edge) on any computer
- Through browser on mobile devices
- Through Mobile app (Android and iOS)

Data sources

Automatic

- Files attached in email
- EDL boxes
 - Protocols supported as standard: BACnet/IP, MBus, Modbus/TCP, KNXnet/IP (EIB), EDL2EDL
 - Optional protocols: Wurm TCP/IP, Danfoss, SNMP, SQL, SAIA SBus/IP, Siemens S5/S7, CS IEC 61107
- SQL database
- Files available on FTP servers
- Specific software connectors (SDC)
 - SAUTER Software (nPO, Vision Center)
 - External database
 - Custom-made with the SDC-X
- SNMP protocol
- Weather data
- SOAP Web Service
- Invoices

³⁾ Modifications may be furnished on request, as an option and subject to technical validity.



These characteristics are those of the virtual machine as delivered. The benefit of virtualization technology is that they can be adapted as the needs of the project increase.

²⁾ Modifications may be furnished on request, as an option and subject to technical validity.

Manual

- CSV file
 - Uploaded from the interface or copied to a server directory
- Manual input
 - From the interface with value consistency check
 - \bullet From mobile with value consistency check and search by QR code

Product references

EMS140F001

EMS basic packages and user licences

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EMS100F011	EMS Sys Basic package 10DP/1CUL/1PCL/1SDC nPO (1 Mandant)
EMS100F012	EMS Sys Basic package 10DP/1CUL/1PCL/1SDC EDL (1 Mandant)
EMS100F013	EMS Sys Basic package 10DP/1CUL/1PCL/1SDC nP (1 Mandant)
EMS100F014	EMS Sys Basic package 10DP/1CUL/1PCL/1SDC nP32 (1 Mandant)
EMS100F015	EMS Sys Basic package 10DP/1CUL/1PCL/1SDC nPWeb (1 Mandant)
EMS100F016	EMS Sys Basic package 10DP/1CUL/1PCL/1SDC nPE (1 Mandant)
EMS100F017	EMS Sys Basic package 10DP/1CUL/1PCL/1SDC SVC (1 Mandant)
EMS110F001	(Sys) 10 EMS Datapoints from 11 to 30 DP
EMS110F002	(Sys) 10 EMS Datapoints from 31 to 100 DP
EMS110F003	(Sys) 10 EMS Datapoints from 101 to 200 DP
EMS110F004	(Sys) 100 EMS Datapoints from 201 to 1.000 DP
EMS110F005	(Sys) 200 EMS Datapoints from 1.001 to 2.000 DP
EMS110F006	(Sys) 500 EMS Datapoints from 2.001 to 6.000 DP
EMS110F007	(Sys) 1000 EMS Datapoints from 6.001 to 10.000 DP
EMS110F008	(Sys) 5000 EMS Datapoints from 10.001 to 100.000 DP
EMS120F011	(Sys) 1 additional concurrent User
EMS120F012	(Sys) 5 additional registered Portal User
EMS120F013	(Sys) automatic Export of up to 20 portal elements from a portal
EMS420F001	(Sys) Software maintenance per year from delivery
EMS420F004	(Sys) Software maintenance reinstatement per month since the phase-out

Software Data Connector (SDC) options for data acquisition for various BMS, email, FTP, SQL and SNMP systems licences

(Sys) SDC to novaPro Open per SDC with up to 5.000 DP

EMS140F002	(Sys) SDC to novaPro Web pro SDC with up to 5.000 DP
EMS140F003	(Sys) SDC to novaPro32 pro SDC with up to 5.000 DP
EMS140F004	(Sys) SDC to novaPro pro SDC with up to 5.000 DP
EMS140F005	(Sys) SDC to novaPro Entreprise SDC with up to 5.000 DP
EMS140F006	(Sys) SDC to SVC per SDC with up to 5.000 DP
EMS140F009	(Sys) SDC to Sauter EDL
EMS140F020	(Sys) SDC for generic SQL connections and 10 data points
EMS140F031	(Sys) 10 SDC-SQL data points from 11 to 100 DP
EMS140F032	(Sys) 100 SDC-SQL data points from 101 to 1.000 DP
EMS140F033	(Sys) 1.000 SDC-SQL data points from 1.001 to 50.000 DP
EMS140F021	(Sys) SDC for generic SNMP connections and 10 data points
EMS140F028	(Sys) 10 SDC-SNMP data points from 11 to 100 DP
EMS140F029	(Sys) 100 SDC-SNMP data points from 101 to 1.000 DP
EMS140F030	(Sys) 1.000 SDC-SNMP data points from 1.001 to 50.000 DP
EMS140F022	(Sys) SDC for Email (csv*/XML*/MSCONS*/LPEX*) and 10 data points
EMS140F025	(Sys) 10 SDC-Email data points from 11 to 100 DP
EMS140F026	(Sys) 100 SDC-Email data points from 101 to 1.000 DP
EMS140F027	(Sys) 1.000 SDC-Email data points from 1.001 to 50.000 DP
EMS140F023	(Sys) SDC for FTP (csv*/XML*/MSCONS*/LPEX*) and 10 data points
EMS140F034	(Sys) 10 SDC-FTP data points from 11 to 100 DP
EMS140F035	(Sys) 100 SDC-FTP data points from 101 to 1.000 DP
EMS140F036	(Sys) 1000 SDC-FTP data points from 1.001 to 50.000 DP
EMS140F040	(Sys) SDC for Web Services and 10 data points
EMS140F041	(Sys) Update per 10 SDC-Web Service data points 11 to 100 DP



Software Data Connector (SDC) options for data acquisition for various BMS, email, FTP, SQL and SNMP systems licences

EMS140F042 (Sys) Update per 100 SDC-Web Service data points 101 to 1.000 DP
EMS140F043 (Sys) Update per 1.000 SDC-Web Service data points 1.001 to 50.000 DP

EMS basic hosting packages and user access fee

EMS200F001	Basic package Hosting 10DP/1CUL/1SDC nPO (1 Mandant)
EMS200F002	Basic package Hosting 10DP/1CUL/1SDC EDL (1 Mandant)
EMS200F003	Basic package Hosting 10DP/1CUL/1SDC nP (1 Mandant)
EMS200F004	Basic package Hosting 10DP/1CUL/1SDC nP32 (1 Mandant)
EMS200F005	Basic package Hosting 10DP/1CUL/1SDC nPWeb (1 Mandant)
EMS200F006	Basic package Hosting 10DP/1CUL/1SDC nPE (1 Mandant)
EMS200F007	Basic package Hosting 10DP/1CUL/1SDC SVC (1 Mandant)
EMS210F001	(Host) 10 EMS Datapoints from 11 to 30 DP
EMS210F002	(Host) 10 EMS Datapoints from 31 to 100 DP
EMS210F003	(Host) 10 EMS Datapoints from 101 to 200 DP
EMS210F004	(Host) 100 EMS Datapoints from 201 to 1.000 DP
EMS210F005	(Host) 200 EMS Datapoints from 1.001 to 2.000 DP
EMS210F006	(Host) 500 EMS Datapoints from 2.001 to 6.000 DP
EMS210F007	(Host) 1.000 EMS Datapoints from 6.001 DP to 20.000 DP
EMS210F008	(Host) 5.000 EMS Datapoints from 20.001 DP to 100.000 DP
EMS220F001	(Host) 1 additional concurrent User access on EMS Hosting (CUL)
EMS220F002	(Host) 5 additional registered Portal User on EMS Hosting (PCL)
EMS220F013	(Host) automatic Export of up to 20 portal elements from a portal

Software Data Connector (SDC) options for hosting for data acquisition for various BMS, e-mail, FTP and SQL systems

EMS240F001	(Host) SDC to novaPro Open per SDC with up to 5.000 DP
EMS240F002	(Host) SDC to novaPro Web per SDC with up to 5.000 DP
EMS240F003	(Host) SDC to novaPro32 per SDC with up to 5.000 DP
EMS240F004	(Host) SDC to novaPro per SDC with up to 5.000 DP
EMS240F005	(Host) SDC to novaPro Entreprise per SDC with up to 5.000 DP
EMS240F006	(Host) SDC to SVC per SDC with up to 5.000 DP
EMS240F009	(Host) SDC to EDL
EMS240F020	(Host) SDC for generic SQL connections and 10 data points
EMS240F031	(Host) 10 SDC-SQL data points from 11 to 100 DP
EMS240F032	(Host) 100 SDC-SQL data points from 101 to 1.000 DP
EMS240F033	(Host) 1.000 SDC-SQL data points from 1.001 to 50.000 DP
EMS240F022	(Host) SDC for Email (csv*/XML*/MSCONS*/LPEX*) and 10 data points
EMS240F025	(Host) 10 SDC-Email data points from 11 to 100 DP
EMS240F026	(Host) 100 SDC-Email data points from 101 to 1.000 DP
EMS240F027	(Host) 1.000 SDC-Email data points from 1.001 to 50.000 DP
EMS240F023	(Host) SDC for FTP (csv*/XML*/MSCONS*/LPEX*) and 10 data points
EMS240F034	(Host) 10 SDC-FTP data points from 11 to 100 DP
EMS240F035	(Host) 100 SDC-FTP data points from 101 to 1.000 DP
EMS240F036	(Host) 1000 SDC-FTP data points from 1.001 to 50.000 DP
EMS240F040	(Host) SDC for Web Services and 10 data points
EMS240F041	(Host) Update per 10 SDC-Web Services data points 11 to 100 DP
EMS240F042	(Host) Update per 100 SDC-Web Services data points 101 to 1.000 DP
EMS240F043	(Host) Update per 1.000 SDC-Web Services data points 1.001 to 50.000 DP

SAUTER CASE Suite

Project engineering made easy.

SAUTER CASE Suite is used to carry out the technical project processing for both building management systems and conventional control systems. Energy-efficient strategies and methods are already incorporated in the extensive and proven library. Furthermore, SAUTER CASE Suite possesses great flexibility to match the solutions to special circumstances, in order to be able to operate even the most unusual of installations with a great degree of energy efficiency.



SAUTER CASE Suite

Engineering

GZS 100, 150: CASE Suite

520





GZS 100, 150

GZS 100, 150: CASE Suite

Features

- Supports the whole process of a project, from the planning stage to the engineering, commissioning and servicing phases
- 'Nerve centre' for the project data and software programs
- Seamless integration of the solution libraries
- Safeguards the workflow between the specialist sub-programs (CASE Builder, CASE Engine, CASE Vision)
- Planning and documentation of the system technology
- Commercial and technical project processing
- Creates the regulation, control and optimisation functions
- Puts the automation stations into service
- Based on the Microsoft Windows operating system
- Multi-lingual program (German, English and French)
- Licence is required for full use of the program

Technical data

~ .		
System requirements		
Hardware	Processor	Intel 17 (recommended)
	Clock rate	2.4 GHz or higher
	RAM memory	Min. 4 GB RAM – recommended 8 GB RAM
	Storage capacity	Min. 20 GB free memory space
	Connections	USB (operating the VM licence dongle, SW installation from USB stick) Network
Software	Operating system	MS Windows 7, 8.1, 10 Professional + Ultimate each (x64) MS Internet Explorer 9.0 or higher MS IIS (Internet Information Services) installed
	Additional software ¹⁾	MS Office 2010 (32-bit) Graphics program [CorelDRAW GraphicSuite: 32-bit: X4, X5, X6, X7; 32/64-bit: X8, 2017, 2018, 2019]

Overview of types

i All licences delivered without CASE Suite application software

Туре	Description
GZ\$150F010	CASE Suite Enterprise licence with maintenance [annual fees]
GZS150F011	CASE Suite Enterprise licence, excluding maintenance
GZ\$150F020	CASE Suite Enterprise time licence
GZ\$150F021	CASE Suite Partner time licence
GZ\$150F022	CASE Suite Designer time licence
GZ\$100F699	CASE Suite, current software version on data carrier

Accessories

Туре	Description
0000260001	Hardlack V/AA





 $^{^{1)}}$ To be able to use all the functions of CASE Suite Enterprise, we recommend installing the following software.

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