

TUP 214...262 F001: Stem-type temperature transducer

How energy efficiency is improved

Accurate recording of temperature in pneumatic installations for optimal control of HVAC systems.

Areas of application

Pneumatic temperature measurement and/or control of liquid or gaseous media in tanks, boilers or pipelines in combination with pneumatic control equipment (Centair).

Features

- Part of the Centair family of systems
- Immersion stem made of nickel filled with expansion fluid
- Conversion of temperature into a standard 0.2 to 1.0 bar pneumatic signal
- Compressed-air connections with Rp 1/8" female thread

Technical description

- Supply pressure 1.3 bar \pm 0.1
- Nozzle/ball system
- Linearity of output signal < 2%

Type	Measuring range °C	Length of stem total mm	active mm	Temp. range of sensor °C	Weight kg
TUP 214 F001	-20...40	304	201	-25...70	0,16
TUP 224 F001	5...35	304	201	-25...70	0,16
TUP 242 F001	0...120	214	112	-25...150	0,15
TUP 262 F001	80...200	214	112	-25...210	0,15

Supply pressure ¹⁾ via external restrictor \varnothing 0,2 mm	1,3 \pm 0,1 bar	Time constant in air 0,5 m/s 3,2 min 3,0 m/s 1,6 min
Output pressure	0,2...1,0 bar	Influence of temp. at head TUP 214, TUP 224 0,07 K/K TUP 242, TUP 262 0,12 K/K
Air consumption	33 l _n /h	Permissible ambient temp. 0...70 °C
Linearity	< 2%	Connection diagram A02781
Time constant in water without sheath	12 s	Dimension drawing M297632
with sheath	70 s	Fitting instructions MV 23210
sheath and heat-conducting paste	25 s	

Accessories

- 0364439 300*** LW7 sheath of brass, 300 mm, for TUP 214/224 with R $\frac{1}{2}$ thread; max. 16 bar ²⁾.
- 0364439 225*** LW7 sheath of brass, 225 mm, for TUP 242/262 with R $\frac{1}{2}$ thread; LW7 max. 16 bar ²⁾.
- 0226811 300*** LW7 sheath of stainless-steel, 300 mm, for TUP 214/224 with G $\frac{1}{2}$ A; max. 25 bar ²⁾.
- 0226811 225*** LW7 sheath of stainless-steel, 225 mm, for TUP 242/262 with G $\frac{1}{2}$ A; max. 25 bar ²⁾.
- 0364263 000*** Welding bushing of steel, with G $\frac{1}{2}$ female thread; flat seal of copper ²⁾.
- 0364264 000*** Welding bushing of stainless-steel, with G $\frac{1}{2}$ female thread; flat seal of copper and Teflon (for aggressive media) ²⁾.
- 0297631 000*** Fixing flange of thermoplastic for direct fitting onto air duct.

*) Dimension drawing for accessory is available under the same number.

- 1) In the RCP and RPP 20 controllers, the restrictors \varnothing 0,2 mm are fitted at inputs 3 and 4.
See Section 60 on regulations concerning the quality of supply air, especially at low ambient temperatures.
- 2) See page 29.01 or 29.001 for further technical details.

Operation

The expansion fluid in the immersion stem expands when heated and exerts a proportional pressure on the diaphragm box. This is converted by spring converter into a force acting on the force-comparison lever. The bleed-off nozzle-ball system converts this force into a pressure change. When the pressure is rising, the output pressure also rises.

Engineering and fitting instructions

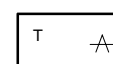
The positional effect can be negated by making the necessary adjustment of the screw in the centre of the diaphragm box. The tension of the spring converter should not be altered, because the measuring span is unaffected by either fitting or use.

Technical information

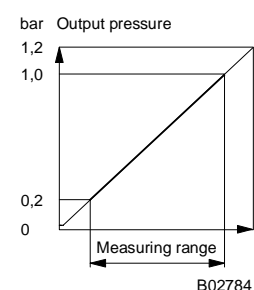
Technical manual: centair system 304991 003



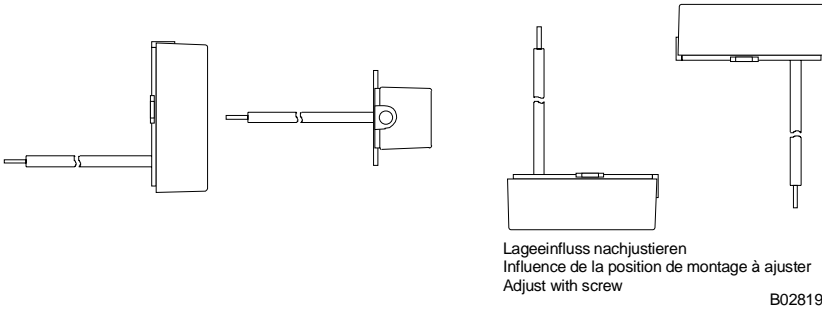
T03235



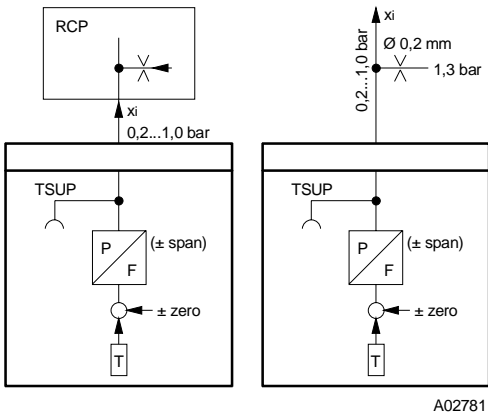
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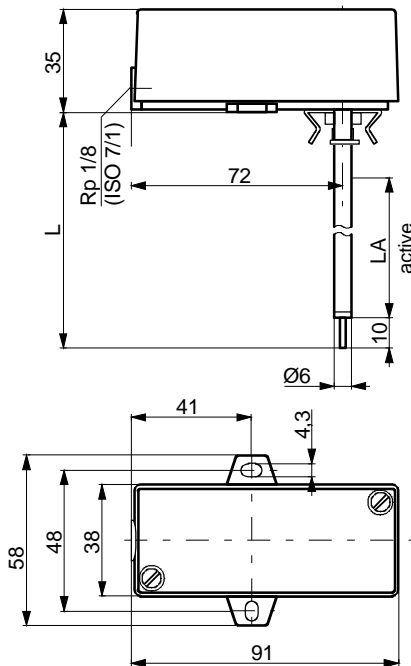
Permissible fitting positions



Connection diagram



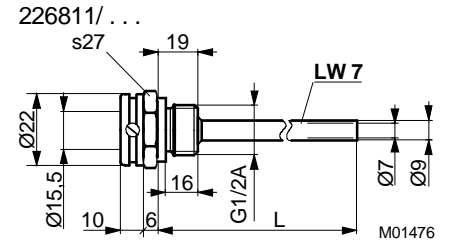
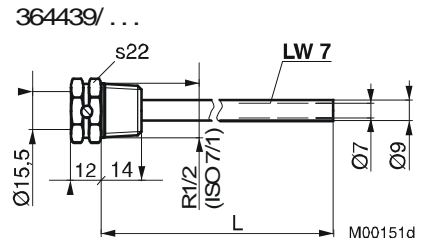
Dimension drawing



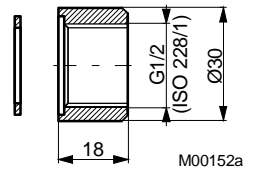
TYP	L	LA
TUP 214	304	201
TUP 224	304	201
TUP 242	214	112
TUP 262	214	112

M297632

Accessories



364263
364264



297631

