

## TMUP: Average-temperature transducer

### How energy efficiency is improved

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

### Areas of application

Measurement and/or control of average temperature value in air ducts in combination with pneumatic control equipment (Centair).

### Features

- Part of the Centair family of systems
- Capillary tube filled with expansion fluid (10 m long)
- Conversion of temperature into a standard 0.2 to 1.0 bar pneumatic signal
- Complies with directive 97/23/EC Art. 3.3 on pressure equipment

### Technical description

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

Type	Measuring range °C	Capillary tube m	Temp. range of sensor °C	Weight kg
TMUP 210 F001	-20...40	10	-25...70	0,36
TMUP 220 F001	5...35	10	-25...70	0,36

Supply pressure 1)		Influence of temp. at instrument head	0,08 K/K
via external restrictor $\varnothing$ 0,2 mm	1,3 $\pm$ 0,1 bar	Permissible ambient temp.	0...70 °C
Output pressure	0,2...1,0 bar	Connection diagram	<a href="#">A02781</a>
Air capacity, air consumption	33 l <sub>r</sub> /h	Dimension drawing	<a href="#">M297633</a>
Linearity	< 2%	Fitting instructions	<a href="#">MV 23211</a>
Time constant in air	0,5 m/s 3,0 m/s		

### Accessories

**0303167 000\*** Five brackets for fitting the capillary tubing.

\*) Dimension drawing or wiring diagram are 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.

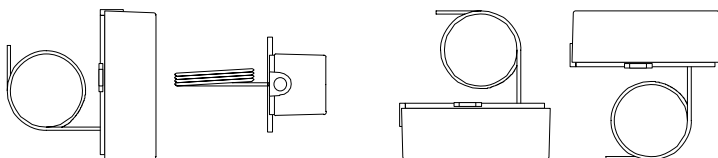
### Operation

The expansion fluid in the capillary tube expands when exposed to heat 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. The output pressure increases as the temperature 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, since the measuring span is unaffected by either fitting or use.

### Permissible fitting positions

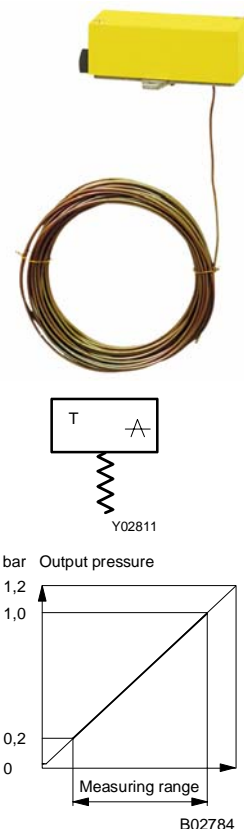


Lageeinfluss nachjustieren  
Influence de la position de montage à ajuster  
Re-adjust for positional influence

B02812

### Technische Information

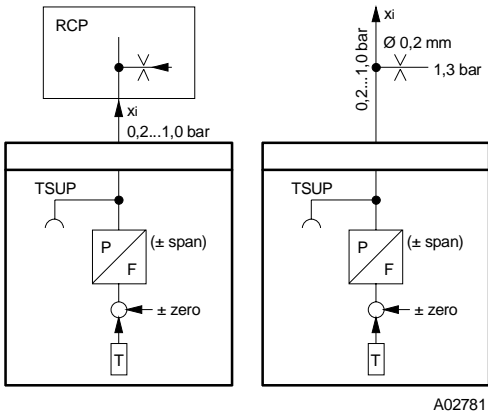
Technical manual: *centair* system 304991 003



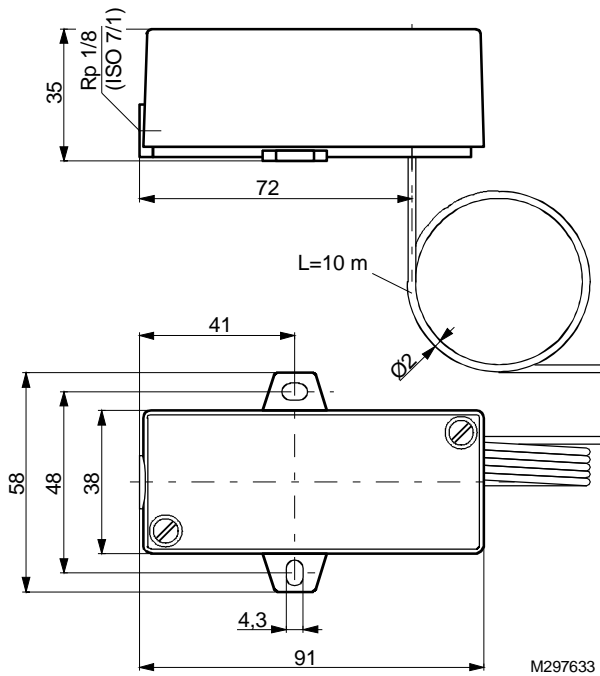
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Connection diagram



Dimension drawing



Accessories

