

TWUP: Transducer for outdoor temperature

How energy efficiency is improved

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

Areas of application

Pneumatic measurement and/or control of outside temperature in combination with pneumatic control equipment (*centair*).

Features

- Part of the *centair* family of systems
- Capillary tube and cartridge filled with expansion fluid
- Conversion of temperature into a standard 0.2 to 1.0 bar pneumatic signal

Technical description

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

Type	Measuring range °C	Cartridge ø mm	Capillary tube m	Sensor temp. °C	Weight kg
TWUP 210 F001	-20...40	9	1.5	-25...70	0.24
TWUP 220 F001	5...35	9	1.5	-25...70	0.24

Supply pressure ¹⁾ via external restrictor ø 0.2 mm	1.3 \pm 0.1 bar	Time constant in air 0.5 m/s	3.2 min
Output pressure	0.2...1.0 bar	3.0 m/s	1.6 min
Air capacity, air consumption	33 l _n /h	Influence of temp. at instrument head	0.1 K/K
Linearity	< 2%	Permissible ambient temp.	0...70 °C
Time constant in water without pocket	12 s	Wiring diagram	A02781
with pocket	70 s	Dimension drawing	M297634
pocket plus heat-conducting paste	25 s	Fitting instructions	MV 23212

Accessories

- 0364440 120*** Pocket²⁾, brass, 15 mm int. dia., 120 mm long, with R½ thread, max. pressure 16 bar; requires support (no. 0364140) to relieve pressure on capillary tube
- 0364258 120*** Pocket²⁾, stainless steel, 15 mm int. dia., 120 mm long, with G½ thread, max. pressure 25 bar; requires support (no. 0364140) to relieve pressure on capillary tube
- 0364140 000*** Support to relieve pressure on capillary tube in pocket
- 0303212 000*** Sensor holder for duct mounting

*) Dimension drawing and wiring diagram are available under the same number

- 1) In the RCP and RPP 20 controllers, the restrictors (ø 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) For further technical details, see PDS 29.001

Operation

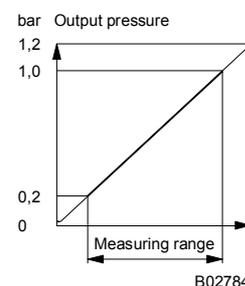
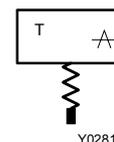
The expansion fluid in the cartridge expands when exposed to heat and exerts a proportional pressure on the diaphragm box. This is converted by spring converter into a force acting on the force-comparison lever. The bleed-off nozzle-ball system converts this force into a corresponding pressure change. The output pressure increases as the temperature rises.

Engineering and fitting instructions

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

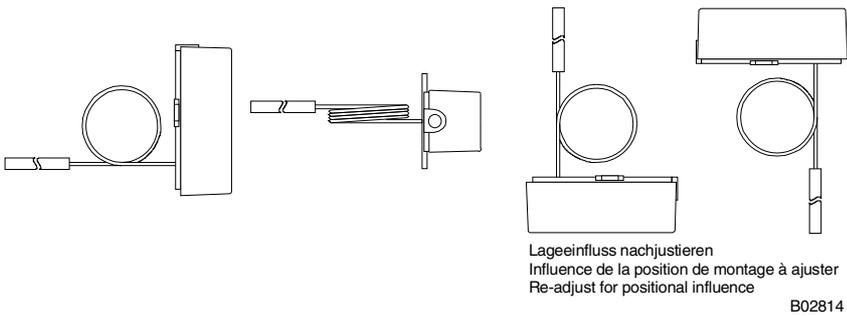


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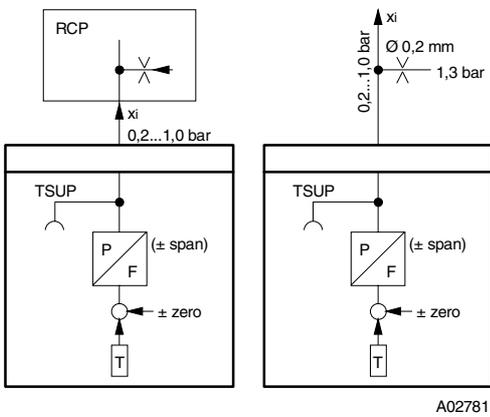
Permissible fitting positions



Technical information

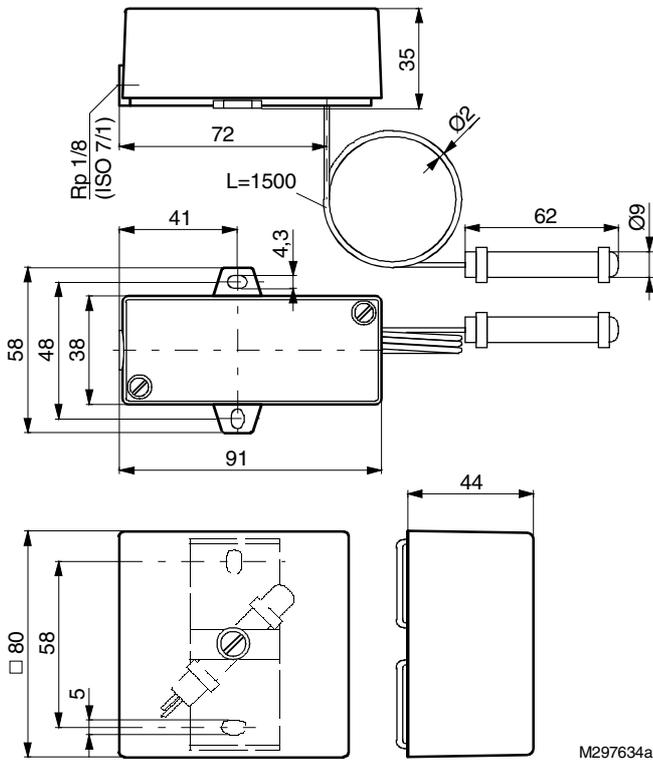
Technical manual: *centair* system 304991 003

Wiring diagram



A02781

Dimension drawing



M297634a

Accessories

