

RLP 10 F902: Pneumatic volume-flow transducer

How energy efficiency is improved

Enables the accurate recording of volume flows for the optimisation of energy consumption in ventilation systems.

Areas of application

Measuring actual volume flow value using a suitable dynamic pressure sensor

Features

- Conversion of pressure difference by means of a square root extracting transducer into a linear flow signal
- Application of output signal as a command variable of a volume flow controller in the supply air
- Static differential pressure sensor with large measuring range (10 to 250 Pa)
- Controller front panel is printed with circuit diagram for rapid identification of function
- Thermoplastic housing suitable for wall or top-hat rail mounting (rail EN 60715)
- Compressed-air connections with Rp 1/8" female thread
- Low-pressure connections in form of stepped nipples for flexible plastic hose (internal Ø 4 and 6 mm)
- Complies with directive 97/23/EC Art. 3.3 on pressure equipment

Technical description

- Supply pressure 1.3 bar $\pm$ 0.1
- Response sensitivity of sensor 0.5 Pa
- Linearity, square root extraction accuracy 2%
- One output for:
 - actual value of air volume

Type	Description	Measuring range Volume flow % $\dot{V}$	Measuring range Pressure diff. ¹⁾ Pa	Weight kg
RLP 10 F902	–	20...100	10...250	0,2
Output pressure	0,2...1,0 bar	Response sensitivity Linearity; accuracy of root extraction ²⁾	0,1 Pa	0,1 Pa
Usable range p _{stat}	0...3 kPa			
Permissible pressure (low-pressure connections)	10 kPa			
Supply pressure ³⁾	1,3 bar ± 0,1	Permissible amb. temp.	0...55 °C	0...55 °C
Air capacity	330 l _n /h			
Air consumption	19 l _n /h			
		Connection diagram	A02889	
		Dimension drawing	M297240	
		Fitting instructions	MV 505678	

Accessories

0297354 000* Short screw-type connector (R 1/8) for soft plastic tubing, internal Ø 4 mm; 2 pcs required

0296936 000* Fixing bracket for rail EN 60715, 35 × 7,5 and 35 × 15

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

1) Factory setting 10...250 Pa. Using the XYP 3 test unit, the range can be altered from 5...125 Pa (E = 0.7) to 20...500 Pa (E = 1,4)

2) The percentages refer to 100% air volume.

3) See Section 60 on regulations concerning the quality of supply air, especially at low ambient temperatures

Operation

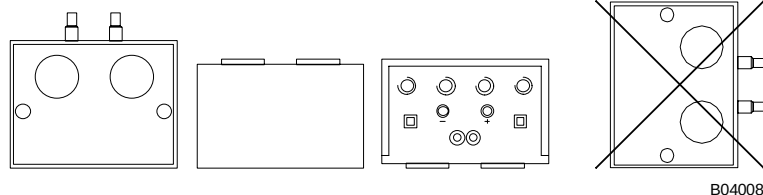
The pressure difference (10...250 Pa) created at the orifice plate of dynamic pressure sensor is converted by the root-extracting transducer into a fluidic-linear standard signal (0,2...1,0 bar). The output signal at connection 2 is, therefore, proportional to either the air volume or the air speed.

Technical information

Technical manual: VAV 7 000 621 003

Engineering and fitting notes

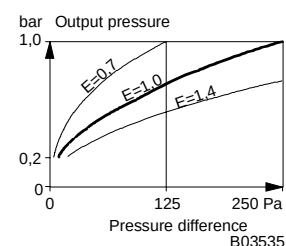
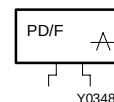
The unit should not be fitted standing on its side.



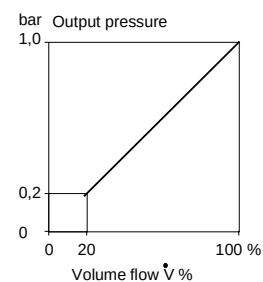
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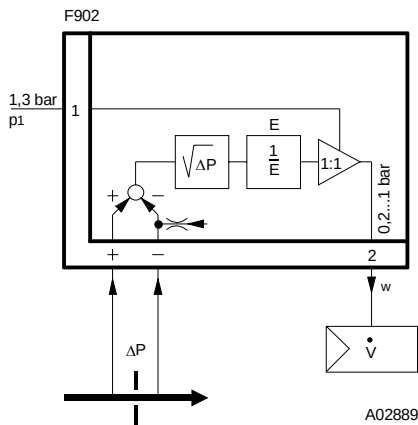


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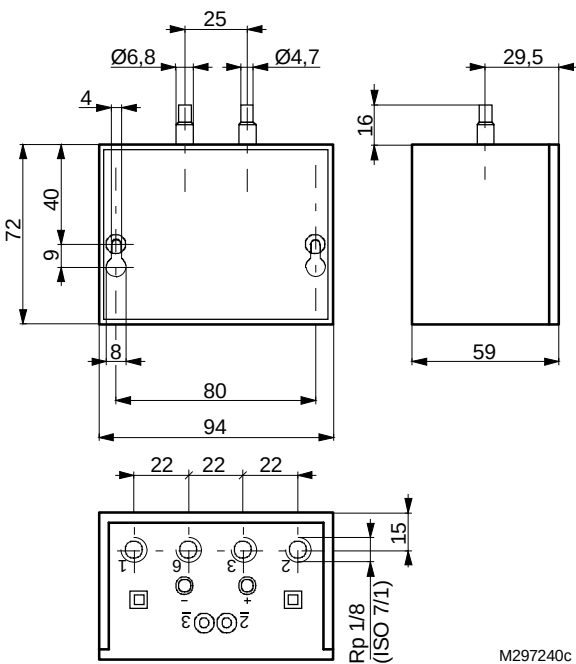
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Connection diagram



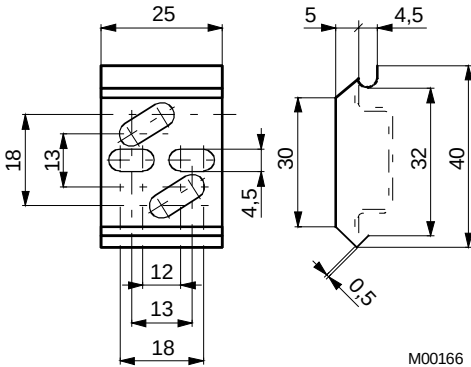
w command variable
Δp pressure difference

Dimension drawing

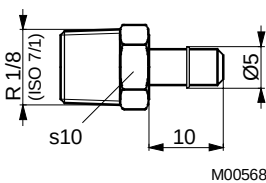


Accessories

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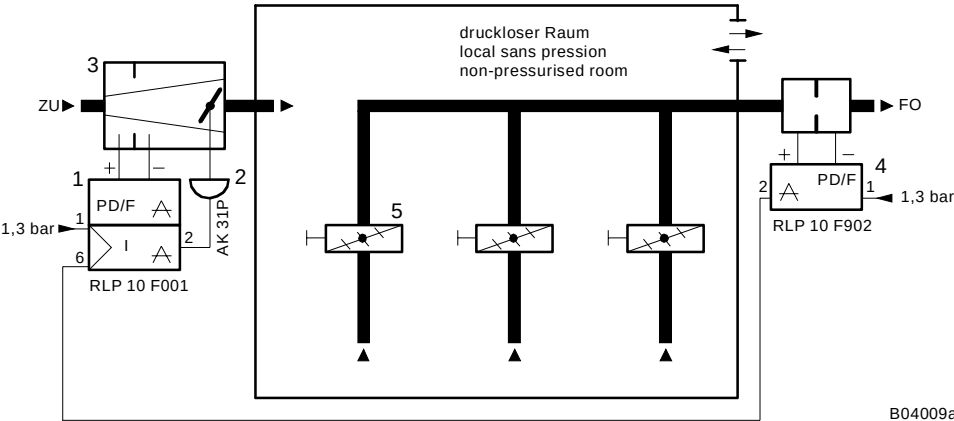


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Example of use

Control facility for variable air volume with transducer for 'open' rooms. The output signal of the transducer in the return air is used as the command signal for the VAV controller in the supply air.



1 Volume-flow controller
2 Damper drive
3 Pressure-release unit

4 Volume-flow transducer
5 Manual damper
FO EA (exhaust air)
ZU SA (supply air)