OPTIMA-R-FM

Air Flow Measurement Device

Handbook

systemair

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Description

The air flow measurement device OPTIMA-R-FM is intended for continuous reading of the air flow volume in the circular-shaped ventilation ducts. The air flow volume is interpreted and transmited by the analog signal or by the bus communication.

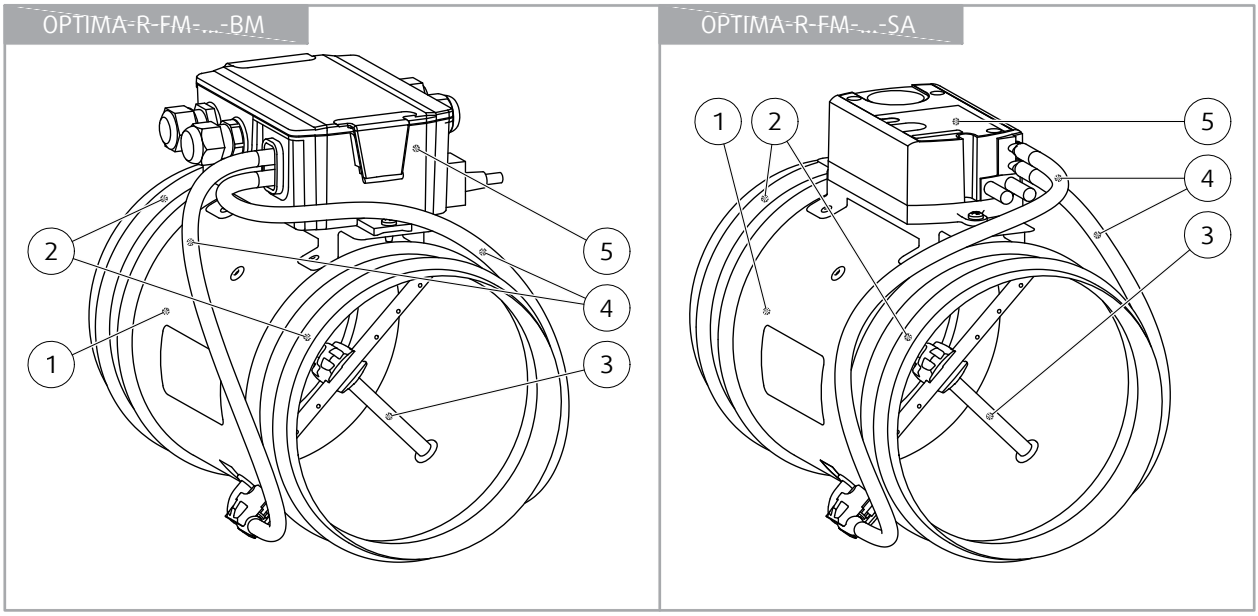
Highlights

- Precise continuous air flow volume reading
- Measurement data transfer via analog signal, or Bus line: Modbus or BACnet
- Compact dimensions
- No maintenance

Design

OPTIMA-R-FM consists of the circular-shaped casing from galvanized steel with rubber gaskets on the spiro-duct connection part. Inside it is equipped by the air flow measurement probe of dynamic ΔP type. Outside the air flow transmitter is attached and connected to the measurement probe by flexible impulse tubes.

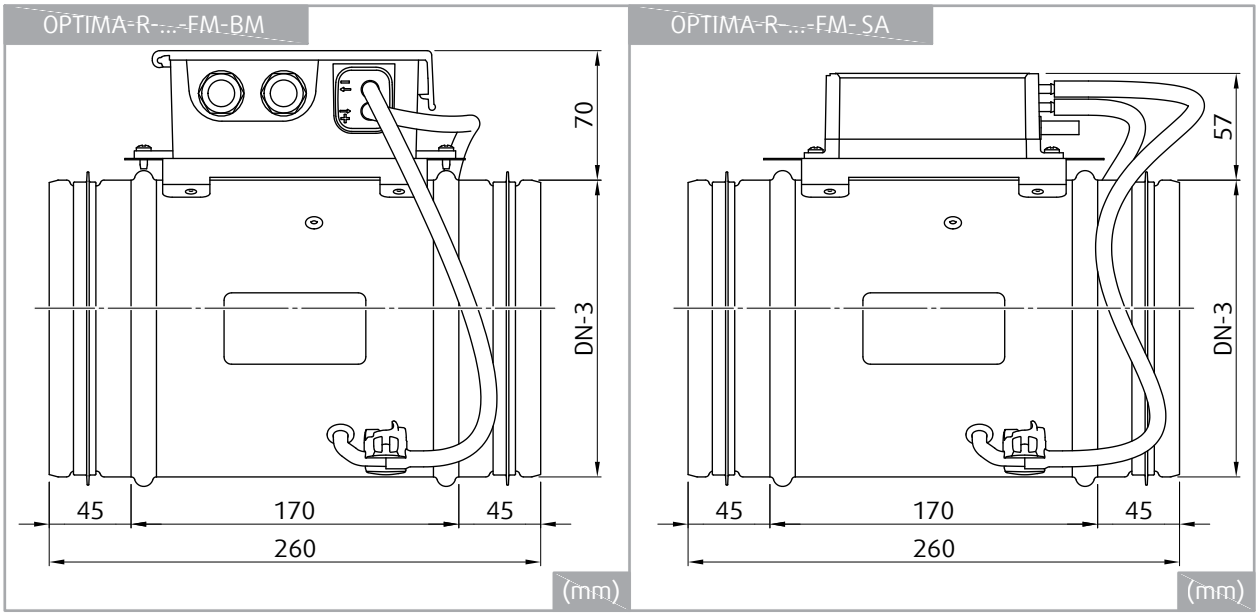
Product Parts



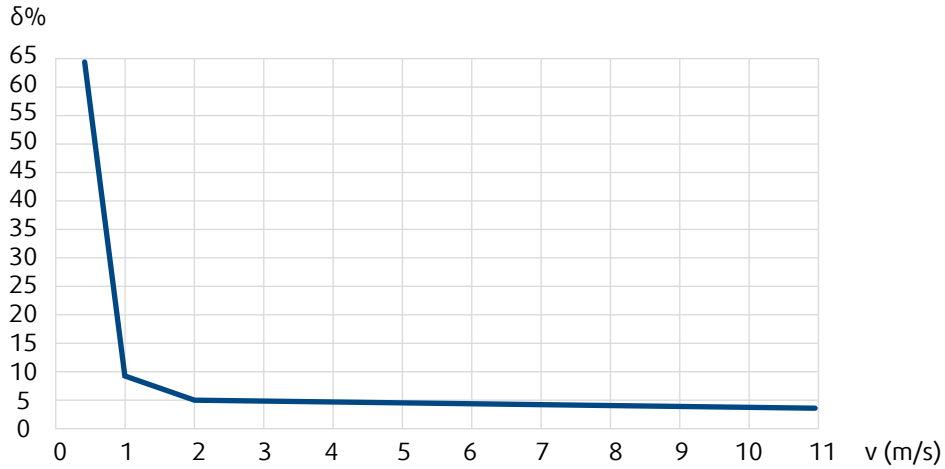
Legend

1 Casing
2 Duct connection gaskets
3 Air flow measurement probe
4 Impulse tubes
5 Air flow transmitter

Dimensions & Weights



OPTIMA-R-FM-...		DN (mm)														
		80	100	125	140	160	180	200	225	250	280	315	355	400	500	630
m (kg)		1,0	1,1	1,4	1,5	1,6	1,7	1,9	2,0	2,5	2,8	3,1	3,4	3,8	4,6	5,7
V_{nom} @ 11 m/s	m^3/h	199	311	486	610	796	1008	1244	1575	1944	2438	3086	3920	4976	7775	12344
	l/s	55	86	135	169	221	280	346	438	540	677	857	1089	1382	2160	3429



Typical max. absolute control deviation δ from actual air flow dependent on the air flow velocity v in the duct

Ordering Codes

Nominal diameter DN

80

100

125

140

160

180

200

225

250

280

315

355

400

500

630

OEM, Communication type

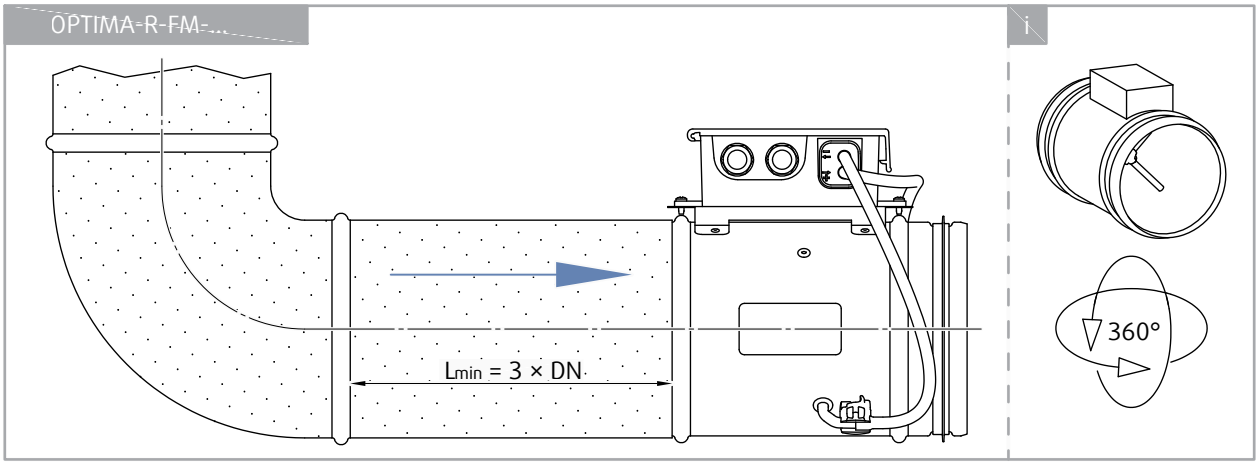
SA Siemens, Analog
BM Belimo, Analog, Modbus, BACnet

Example of the Ordering Code

OPTIMA-R-FM-160-BM

Air flow measurement device with circular shape of nominal dimension 160, analog, modbus or BACnet communication, OEM Belimo.

Installation



Measurement

The air flow transmitter measures the flow velocity dependent dynamic pressure on the measurement probe. The air flow volume is interpreted by the transmitter in the form of analog signal U in the 0 V ... 10 V or the 2 V ... 10 V mode from the analog output. The air flow volume q can be calculated using this analog voltage value and the nominal air flow volume V_{nom} of the measurement device. The V_{nom} values are in the table of dimensions. The V_{nom} is the upper limit of the measurement range.

Mode 0 V ... 10 V

$$q = \frac{U}{10} \cdot V_{nom}$$

Mode 2 V ... 10 V

$$q = \frac{U - 2}{8} \cdot V_{nom}$$

The actual air flow volume can be also read via Modbus or BACnet communication line when connected to the transmitter.

Detailed description and addressing of these variables is described in the Modbus Registers or BACnet Interface Description in Systemair DESIGN Documents section.

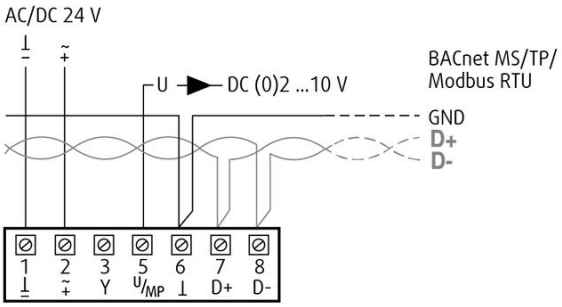
Electrical Connections

Type of Measurement Transmitter BM

Supply voltage: DC/AC 24V

Terminals: 2,5 mm²

Power rating: 2 VA

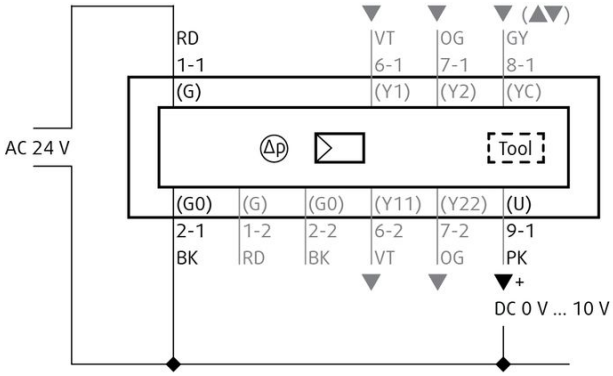


Type of Measurement Transmitter SA

Supply voltage: AC 24V

Cable (6 wires): 0,75 mm²

Power rating: 1 VA



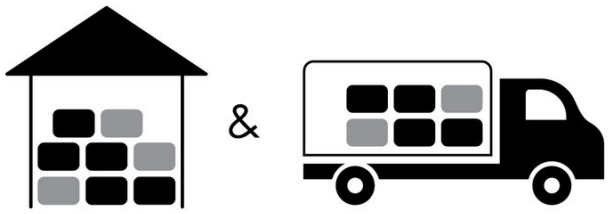
Legend

G wire 1-1 red phase AC 24 V

G0 wire 2-1 black common conductor

U wire 9-1 pink flow measurement signal DC 0 V ... 10 V

Transport, Storage and Operation



-40°C ... +50°C

≤ 95%

-20°C ... +50°C

≤ 95%

Supplement

Any deviations from the technical specifications contained herein and the terms should be discussed with the manufacturer. We reserve the right to make any changes to the product without prior notice, provided that these changes do not affect the quality of the product and the required parameters.

Current information on all products is available on design.systemair.com.

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