

Sensyflow D

Thermal mass flowmeter
for compressed air,
measurement of consumption
and leakage detection

10/14-6.73 EN



- Mass flow meter for compressed air, independent of media pressure and temperature
- Wide measuring range up to 1:100
- Negligible pressure loss < 10 mbar
- No moving parts
- Immediately ready for operation
- Easy installation
- Low cost of installation
- Arbitrary mounting orientation
- Simplifies the maintenance
- Saves operating costs
- Short time of amortization

Applications

- Measurement of consumption
- Leakage detection

Function and system design

Sensyflow D is a compact measuring system for mass flow or norm-volume flow, especially for compressed air.

Sensyflow D operates according to the principle of a hot-film anemometer. This measuring method determines the air mass flow directly, without further need for pressure and temperature compensation. Additional measuring sites for pressure and temperature, and a flow calculator become obsolete.

The measuring system consists of transducer and pipe component. The transducer with sensor unit and electronics is installed in the pipe component in a well-defined and nonrotatable position. Pipe components are equipped with male inch threads as process connection

Sensyflow D supplies an output signal linear to the mass flow. Output parameters can be adjusted via LKS (Local communication interface) adapter (option). The system is calibrated and immediately ready for operation.

Sensyflow D operates with a standard 24 V power supply.

ABB

Technical data

Measuring principle

Thermal: hot-film anemometer

Input

Measured variable

Flow rate of air

Measuring ranges

Nominal size (inch)	Maximal upper range value		
	kg/h	Nm ³ /h ¹⁾	NI/min ²⁾
1"	165	125	2100
1½"	430	330	5500
2"	740	570	9500
3"	1775	1375	22800

Output

Analog output signal

0/4...20 mA, switchable
electrically isolated

Load

< 800 Ω

Performance characteristic, Measurement accuracy

Accuracy

< ± (1.8 % of measured value + 0.05 % of end value)

Repeatability

< ± 0.25 % of measured value

Response time

T₆₃ ≈ 500 ms

Influences

Temperature effect

< 0.05 %/K of measured value

Pressure effect

≤ 0.2 %/100 kPa (bar) of measured value

Pressure drop

< 1 kPa (10 mbar) at full scale
decreasing quadratically to smaller flow rates

Operating conditions

Recommended steadying length

according to DIN EN ISO 5167-1

Inlet run min. 15 × pipe diameter D

Outlet run min. 5 × pipe diameter D

Ambient conditions

Ambient temperature for transducer

-25...70 °C

Degree of protection

IP 65

Measured medium conditions

Operating temperature

-25...150 °C

Maximum operating pressure

Standard 16 × 10² kPa (= 16 bar)

Construction

Weight

dependent on nominal size

1" 1.5 kg

1.5" 3.0 kg

2" 5.5 kg

3" 9.5 kg

Material

Transducer stainless steel, e. g. 1.4301

Pipe component galvanized steel

Process connection

Male threads R 1"...3"

Electrical connection

Terminals

Cable connector PG 13,5

Power supply

Voltage

24 V AC/DC ± 10 %

Power consumption

< 15 W

Current

Peak < 1A

Operation < 0.6 A

Interface

LKS (Local communication interface) adapter

Accessories

- Power supply
- Display unit
- Totalizer with display (current-to-pulse converter)
- Power supply, display unit and totalizer mounted in field housing

Programming

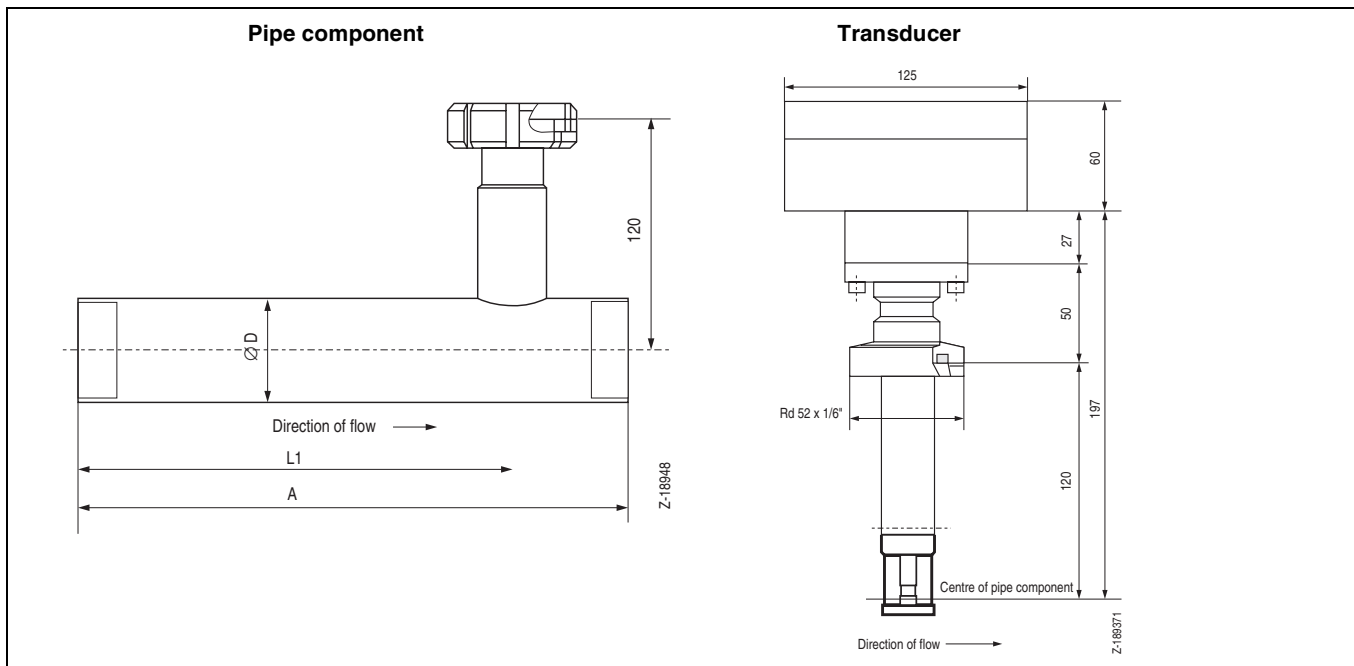
The analog output of the Sensyflow D can be switched between 0...20 mA and 4...20 mA.

Additionally, there is the opportunity to define a measurement window in a way that a flow rate smaller than the calibrated one,

causes an output signal of 20 mA. The programming of the transducer operates with the LKS (Local communication interface) adapter and a standard PC or Laptop.

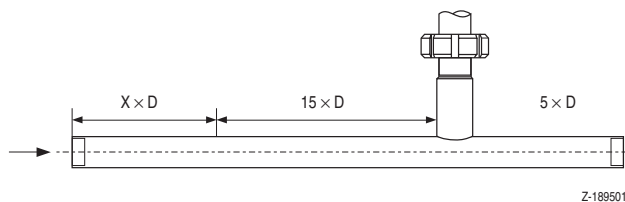
¹⁾ m³/h - q_n
²⁾ l/min - q_n

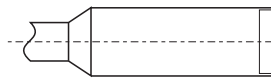
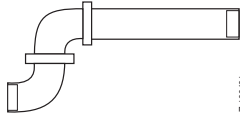
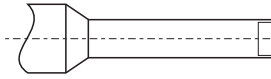
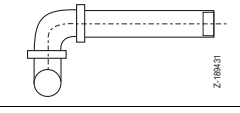
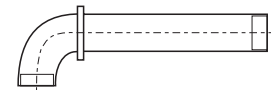
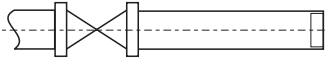
Dimensional drawings (dimensions in mm)



Nominal size	A	L1	Ø D	Thread
1"	550	410	27.3	R1": 33.7 × 1.2
1½"	820	615	41.9	R1½": 48.3 × 3.2
2"	1080	810	53.9	R2": 60.3 × 3.2
3"	1600	1200	79.9	R3": 88.9 × 4.5

Recommended steadying length for Sensyflow D



 Z-189391	Expansion X = 0	 Z-189421	Two 90°-elbows in one level X = 10
 Z-189401	Reduction X = 0	 Z-189431	Two 90°-elbows in two levels X = 25
 Z-189411	90°-elbow X = 5	 Z-189441	Valve / slide X = 35

Ordering information				
	Catalog No			
Transducer Sensyflow D	V14223 -		Code	
Standard calibration Operating pressure 6 -10 bar abs., operating temperature 0...60 °C Upper range value see table page 2 ¹⁾ Unit accord. to Code Nos. 519 and 515 (see additional ordering inform.)	1			
Special calibration Accord. to Code -Nos. 512 -515 and 519 (see additional ordering inf.)	2			
Analog output 4...20 mA (error indication < 3,5 mA) 4...20 mA (error indication > 22 mA) 0...20 mA	1 2 3			
Pipe component 1" 1 1/2" 2" 3"	1 2 3 4			

Additional ordering information				
	value	unit		
Flow unit	.....	.....¹⁾	515	
Standard conditions	.....	°C, mbar abs. ²⁾	519	
Operating temperature	.....	°C	512	
Operating pressure	.....	mbar abs.	513	
Upper range value calibrated to	.....	.....³⁾	514	

¹⁾ Possible units are:kg/h; kg/min; kg/s; m³/h -q_n; m³/min -q_n; m³/s -q_n; l/h -q_n; l/min -q_n; l/s -q_n; SCFM

²⁾ Standard state for volume flow units: Please specify the conditions, e.g. 0 °C, 1013 mbar

³⁾ The upper range value must be smaller than the maximum measurement value (see table page 2).

Accessories				
	Catalog No			
Power supply 24 V DC; 2,5 VA	14246 -7962800			
LKS (Local communic. interface) program adapter incl. communic. software; Data Sheet 10/10-5.10 EN	14246-7962828			
3 1/2 digit LED, 24 V DC, Data Sheet 10/10-5.11 EN	10319 -7957527			
3 1/2 digit LED, 230 V AC, Data Sheet 10/10-5.11 EN	10319 -7957526			
Flow Totalizer SensyCal T, Data Sheet 10/18-5.22 EN	V18022-5.....			
Power supply, display and totalizer completely mounted in IP 65 housing	on request			

Technical support and application:
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