

Flow-Sensor FS 242

Rotor sensor with pulse- or analog output for mounting in flow fittings

Features

- Conform to German WHG
- Measuring range from (0)0.3 ... 6 m/sec
- Impulse output NPN/PNP open collector, analog output 4 ... 20 mA (loop powered)
- Selectable filter function
- Accuracy 2.5 % of the measured value + 0.5 % of the end value
- Repeat accuracy 0.5 %
- Process pressure max. 10 bar
- Medium temperature max. 60 °C (140 °F)
- Body PP, rotor PVC-U
bearing ceramic, seal EPDM
- Electr. connection 4-pole plug DIN EN 175301-803/A
- Protection IP65



General information

The Flow-Sensor FS242 was designed for continuous flow measurement of pure liquids (without solid parts). The rotor of the FS242 turns in the liquid stream. Small magnets inside the wings generate pulses, when passing a hall sensor built-in the body of the sensor. The pulse frequency is directly proportional to the flow speed. Dependent on selected version a built-in electronic circuit provides pnp- and npn-output or loop powered analog output 4 ... 20 mA.

Project engineering tips

Pipe diameter should be selected to get flow speed within the range 0,3...6,0 m/s under different operating conditions. Suitable flow fittings FF25 for different pipe sizes are available. For pressure and temperature please mind material specified data of PVC-U.

For precise measurement it is indispensable, that there are no turbulences in the pipe, especially in the area where the flow sensor is installed. This can be arranged with special in- and outflow zones (please see page 3).

Flow quantities differ with pipe diameter. Using flow-sensor FS242 with pulse-output the K-factor will show, how many pulses are generated per litre flow. For correct flow measurement the K-factor has to be entered in the signal processing unit (please see table page 2).

Technical data

Power supply

Supply voltage : 4 ... 30 V DC (Impulse output) 10 ... 30 V DC (analog output 4 ... 20 mA)
 Operating temperature : 0 ... 60 °C (32 ... 140 °F)
 Electrical connection : 4pol. angle entry plug DIN EN 175301-803/A

CE conformity :

Certification			Performance
IEC61326 05/2004			
IEC61000-4-2	4 kV(8 kV)	contact(air)	A
IEC61000-4-3	10 V/m		A
IEC61000-4-4	1 kV		A
IEC61000-4-5	1 kV		B
IEC61000-4-6	3 V		A
CISPR16-1/16-2			A

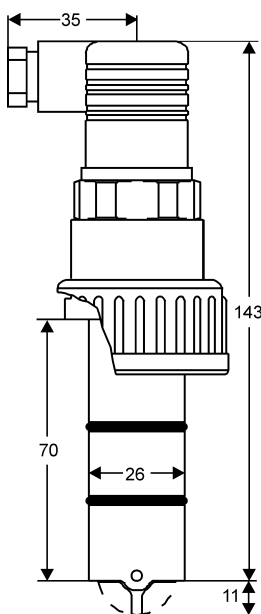
Output

Measuring range : (0)0.3 ... 6.0 m/s (for flow quantity see table page 3)
 Impulse output : Transistor NPN/PNP open collector, max 20 mA with short circuit protection
 Analog output : 4 ... 20 mA
 Accuracy : 2.5 % of the measured value, +0.5 % of the end value in the range 0.3 ... 6.0 m/s
 Repeat accuracy : 0.5 %
 Medium temperature : 0 ... 60 °C (32 ... 140 °F)
 Process pressure : max. 10 bar
 Minimum Reynoldsnr. : 4500

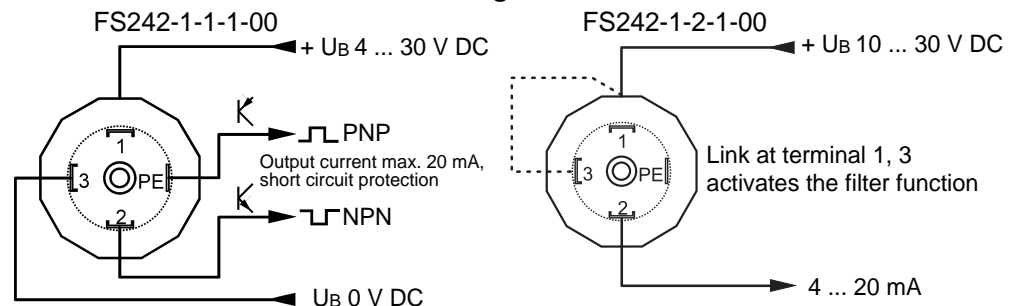
Material

Sensor body/cap nut : PP
 Seal : EPDM
 Rotor : PVC-U
 Bearing : Keramik Al₂O₃
 Weight : 140 g
 Protection : IP65

Dimensions



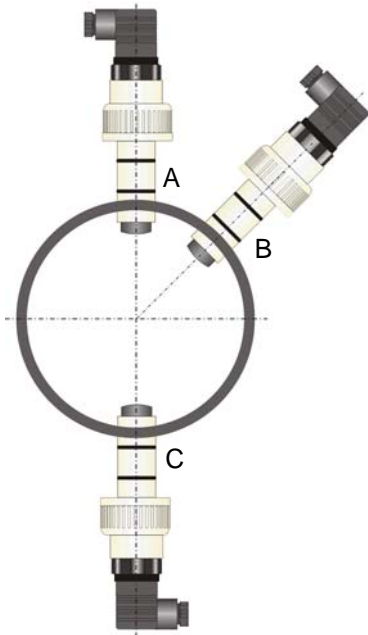
Connection diagram



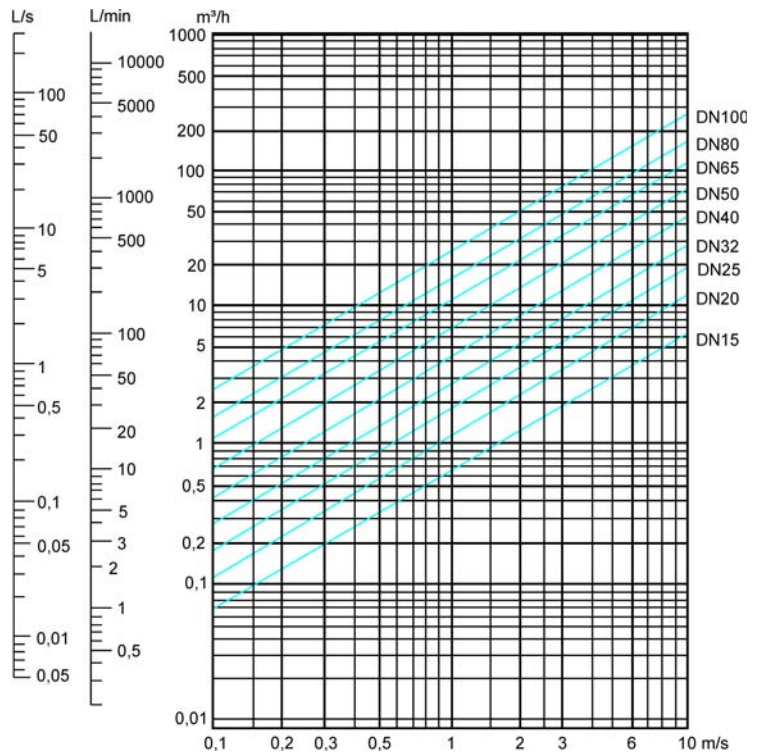
K-factor and flow quantity in accordance with the pipe diameter

Flow fitting	K-factor FS242-1-1-1-00 [Impulse/litre]	Flow quantity FS242-1-2-1-00 [l/min]	Flow quantity FS242-1-2-1-00 [m³/h]
FF25-2-0-DN15-00	132,40	0 ... 60.7	0 ... 3.64
FF25-2-0-DN20-00	73.45	0 ... 109.5	0 ... 6.57
FF25-2-0-DN25-00	41.02	0 ... 196.0	0 ... 11.76
FF25-2-0-DN32-00	24.56	0 ... 327.4	0 ... 19.64
FF25-2-0-DN40-00	15.47	0 ... 519.7	0 ... 31.18
FF25-2-0-DN50-00	9.284	0 ... 866.0	0 ... 51.96
FF25-3-0-DN65-00	6.252	0 ... 1286.0	0 ... 77.16
FF25-3-0-DN80-00	4.451	0 ... 1806.3	0 ... 108.98
FF25-3-0-DN100-00	2.815	0 ... 2856.1	0 ... 171.37

Mounting diagram



Flow diagram for nominal pipe diameter



Horizontal flow direction

- A Installation without air bubbles (Optimal)
- B Installation with temporarily air bubbles and small solid parts
- C Installation without solid parts

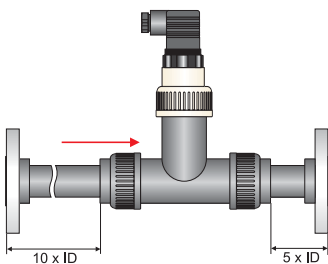
Verticale flow direction

Installation in any position possibly with flow direction upwards, to guarantee a full pipe.

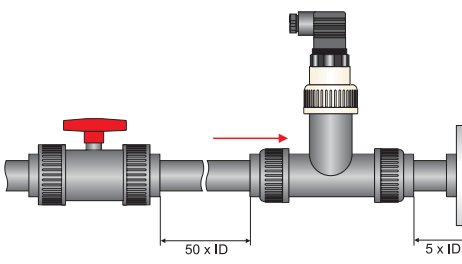
Installation instructions for in - and outflow zones

(Flow direction)

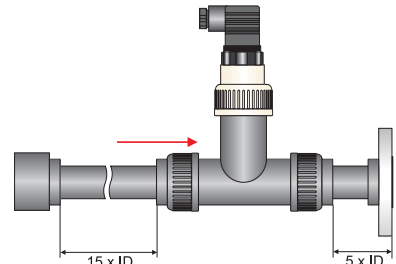
Flange



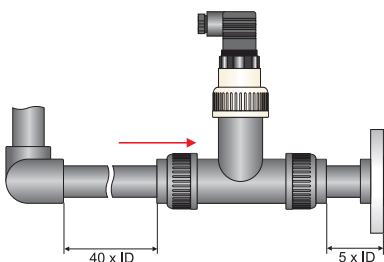
Valve/gate



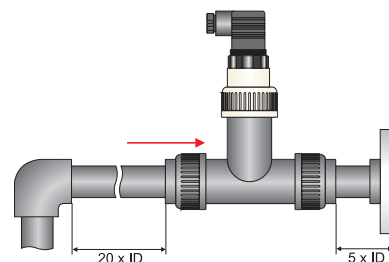
Reduction



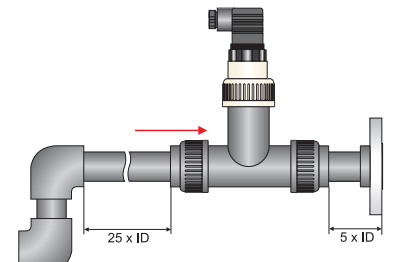
2 x bends 90° 3D



1 x bend 90°



2 x bends 90°



ID = inside diamter of the installed pipes

Ordering code

FS242 - 1. - 2. - 3. - 4.

1. Measuring range [m/s]

1 (0)0.3 ... 6.0

2. Output

1 Impulse output NPN/PNP

2 Analog output 4 ... 20 mA

3. Material

1 PVC-U, PP, ceramic, EPDM, max. 60 °C

4. Options

00 without option

Note:

For information about flow in-line fittings FF25, flow instruments DF9648 and flow converter UNICON-DF please contact us or visit our home page.