Flow sensor

DF100

Description

The DF100 flow sensor is used to measure fluid flows in pipe systems. It works based on the rotor principle. The rotor consists of five blades in which magnetic plates have been cast.

The flowing fluid causes the rotor to move, which generates current impulses in the magnetic field sensor, which is fitted in the flow sensor's body. The integrated signal amplifier converts these current impulses into a square wave signal that has an output frequency which is proportional to the flow rate.

Partly due to the lack of magnetic interaction between the rotor and the magnetic field sensor, the flow sensor's minimum flow rate is 0.15 m/s. The maximum flow rate is 10 m/s. Depending on the design, the output frequency is approximately 45 Hz at 1 m/s. The output signal's amplitude is equal to the supply voltage and can bridge a distance of 100 metres without additional amplification.

Thanks to the open rotor construction, the blades have almost no effect on the fluid's flow pattern and the pressure loss is kept to a minimum.

The DF100 flow sensor can measure the flow in any direction. The concentration of solid particles in the fluid must not exceed 2-5% of the volume. The fluid's viscosity must be 0.5-20 cSt.

There are various fittings available for installing the flow sensor in a pipe. The DF100 flow sensor can be made of various materials, depending on the pressure, temperature and composition of the medium concerned.

If the correct materials are selected, the DF100 flow sensor can be used in a temperature range of -40 °C to +140 °C and with an operational pressure of up to 10 bar.

Materials

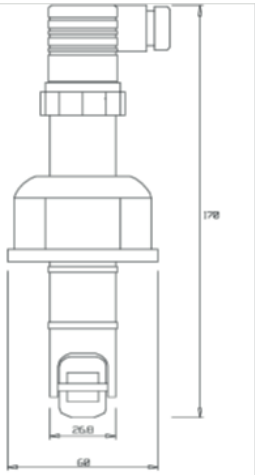
The following materials are available:

- Flow sensor body: PVC, PP, PVDF and stainless steel 316
- Rotor: E-CTFE (HALAR) as standard
- Rotor shaft and bearings: ceramic (AL2O3)
- Seal (O-ring): NBR, EPDM or FPM (Viton)

The fittings are available in PVC, PP, PVDF, steel and stainless steel and have an internal pipe diameter between DN15 (1/2") and DN300 (12").

Technical specifications

Technical specifications DF100	
Supply voltage:	5-24 V(DC)
Maximum current consumption:	35 mA
Electrical connection:	Plug according to DIN 43650
Ingress protection:	IP65 according to IEC529 and DIN 40050
Weight:	Approx. 190 g
Maximum cable length:	100m
Measurement range:	0.15-10 m/s
Output frequency:	Approx. 45 Hz/m/s
Output signal:	5-24 V square wave NPN (Pull down, open collector)
Measurement accuracy:	+/- 1% of the measurement range end value
Linearity:	+/- 1% across the entire measurement range
Reproducibility:	+/- 0.5% across the entire measurement range
Medium viscosity:	0.5-20 cSt.



Electrical connection: