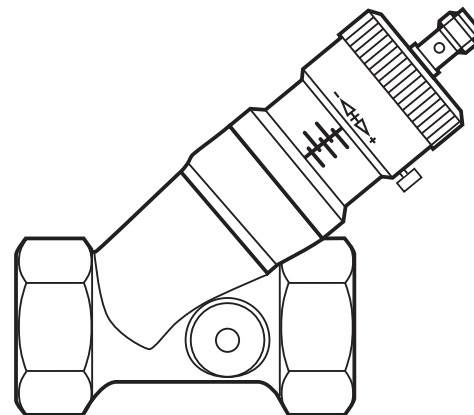


proense[®]

CE

Operating instructions
Liquid flow sensor
FSD1-AP-26H

706349 / 01 04 / 2013



by Automationdirect.com

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1 Safety instructions

- Please read the product description prior to set-up of the unit. Ensure that the product is suitable for your application without any restrictions.
- Improper or non-intended use may lead to malfunctions of the unit or to unwanted effects in your application. That is why installation, electrical connection, set-up, operation and maintenance of the unit must be carried out by qualified personnel authorised by the plant operator.
- Check the compatibility of the product materials (see technical data) with the media to be monitored in all applications.
- The device shall be supplied from an isolating transformer having a secondary Listed fuse rated either
 - a) max 5 amps for voltages 0~20 V (0~28.3 Vpeak), or
 - b) 100/Vp for voltages of 20~30 V (28.3~42.4 Vpeak).
- Flow Operated Switches shall be connected only by using any R/C (CYJV2) cord, having suitable ratings.

2 Functions and features

The unit monitors liquid media (water, glycol solutions, oils).

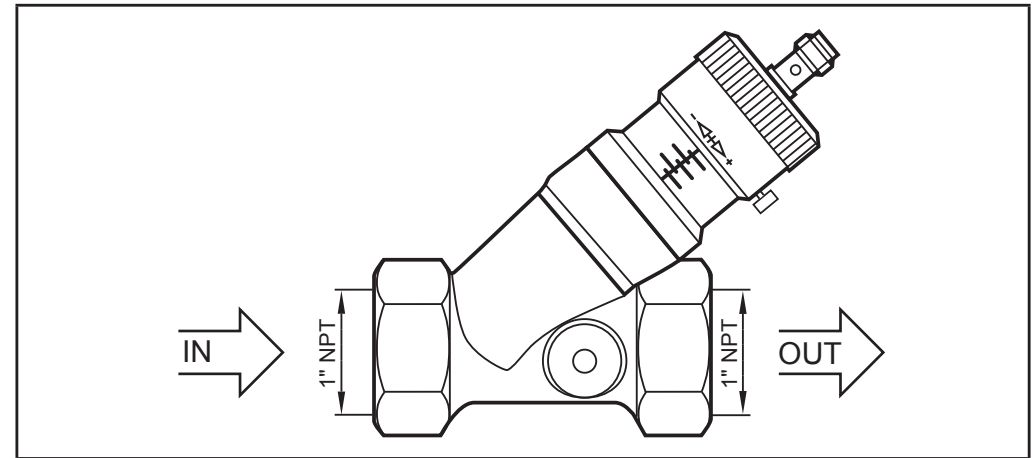
It detects the volumetric flow quantity to the principle of differential pressure and switches the output:

- Output closed (LED = ON), if volumetric flow quantity \geq switch point.
- Output open (LED = OFF), if volumetric flow quantity $<$ switch point.

The switch point is adjustable.

3 Installation

- ⚠ Ensure that the system is free of pressure during installation.
- ▶ Ensure that no media can leak at the mounting location during installation.
- ▶ Install the unit according to the marked flow direction into a pipe 1" NPT and tighten firmly.



IN = inlet
OUT = outlet

4 Electrical connection

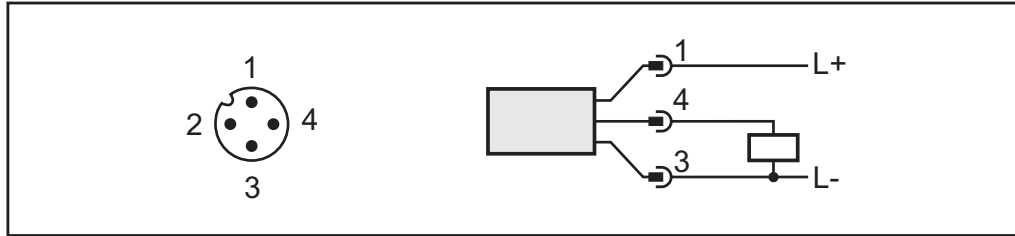


The unit must be connected by a qualified electrician.

The national and international regulations for the installation of electrical equipment must be adhered to.

Voltage supply to EN 50178, SELV, PELV.

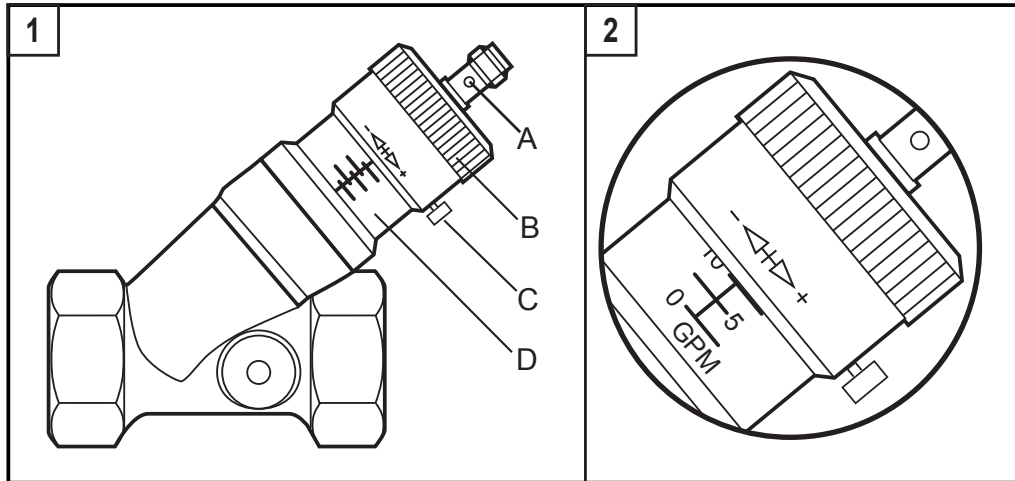
- ▶ Disconnect power.
- ▶ Connect the unit as follows:



5 Switch point setting

There are 2 possibilities:

- Adjustment to desired value → 5.1.
- Adjustment to existing flow → 5.2.



A: LED; B: setting dial; C: lock screw; D: setting scale



Do not turn the setting dial beyond the maximum value of the setting range to avoid faulty switching.

5.1 Adjustment to desired value

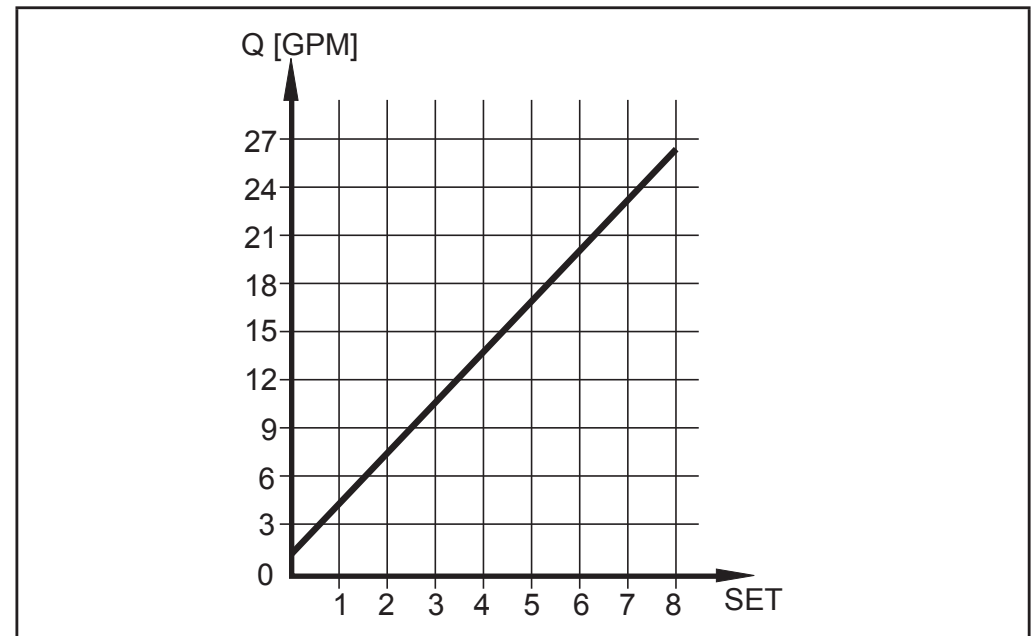
- ▶ Loosen the lock screw.
- ▶ Turn the setting dial until the requested value just becomes visible on the setting scale. → Example in figure 2: requested value = 10 GPM.
- ▶ Tighten the lock screw.

5.2 Adjustment to existing flow

- ▶ Let the normal flow circulate in the installation.
- ▶ Loosen the lock screw.
- ▶ Set the switch point with the setting dial.
 - If the LED lights before setting: turn the setting dial in the direction [+] until the LED goes out. Then turn in the opposite direction [-] until the LED lights.
 - If the LED does not light before setting: turn the setting dial in the direction [-] until the LED lights.
- ▶ Tighten the lock screw.

Correlation between number of turns of the setting dial (SET) and switch point in GPM:

One complete turn corresponds to	approx. 3.3 GPM
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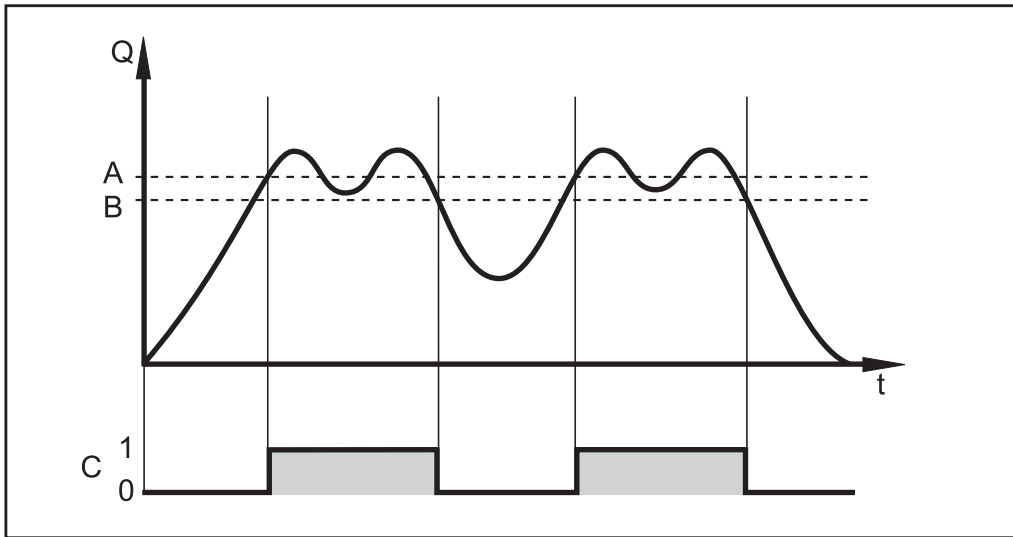


The diagram shows the typical course of the measurement curves for water at 20 °C.

6 Operation

After power on the unit is ready for operation. It detects the volumetric flow quantity and switches the output according to the setting.

Function diagram



A = switch setpoint; B = hysteresis*; C = output status

* Hysteresis varies based on switch setpoint.

Hysteresis range: 0.8 to 1.58 GPM

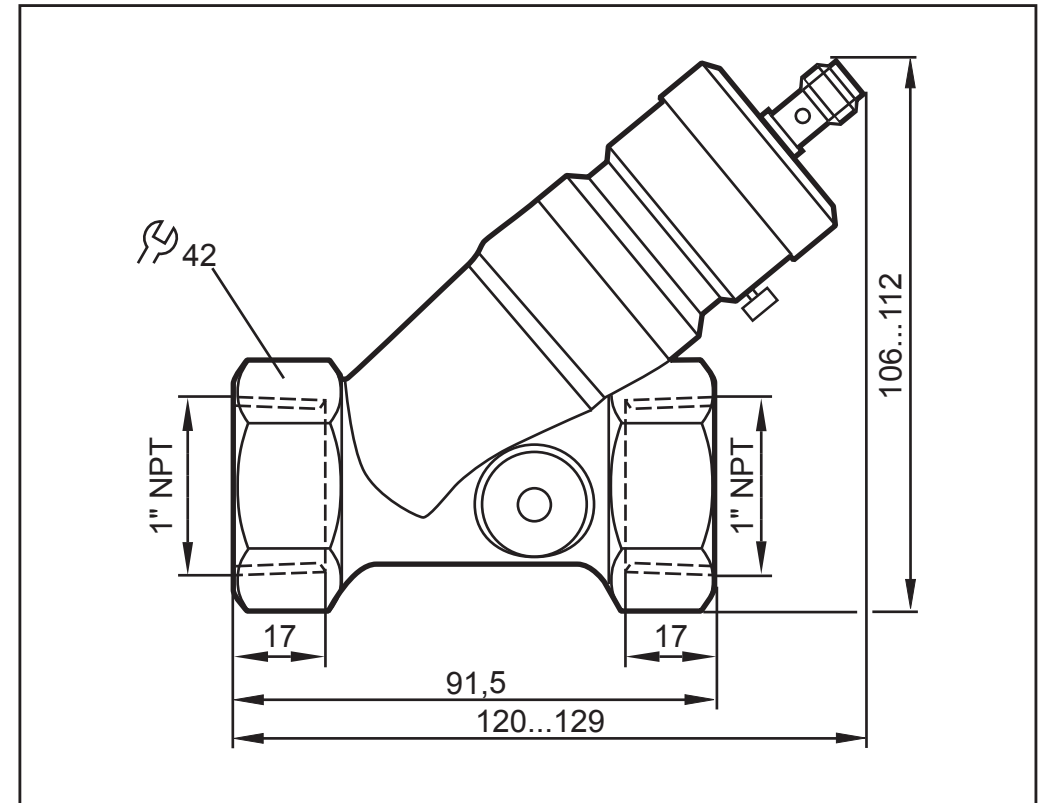
7 Maintenance, repair and disposal

In case of correct use no maintenance and repair measures are necessary.

In case of strongly polluted media: mount a filter in front of the inlet (IN). Recommendation: use a 50-micron filter.

After use dispose of the unit in an environmentally friendly way in accordance with the applicable national regulations.

8 Scale drawing



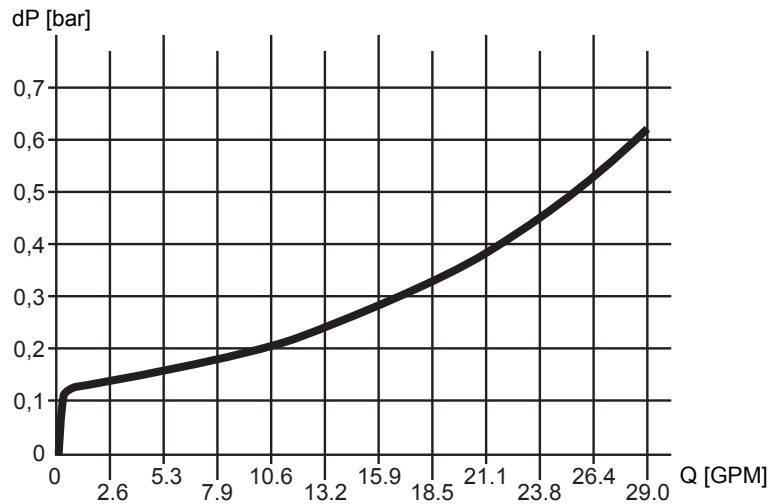
dimensions are in millimeters

9 Technical data

Setting range [GPM] **)1.32...26.4
 Flow range max. [GPM].....52.8

Operating voltage [V]..... 24 DC (-15 % / +10 %)
 Current rating [mA] 100
 Protected against short circuits, reverse polarity and overload
 Voltage drop [V].....< 2.5
 Current consumption [mA].....< 15

Hysteresis [GPM]..... 0.8...1.58
 Repeatability [GPM].....0.26
 Accuracy [% of value of measuring range] **)± 5
 Response time [s].....< 0.01
 Pressure loss (dP) / flow rate (Q)



Housing materials.....brass chemically nickel-plated; aluminium anodised; PP
 Materials (wetted parts)..... stainless steel (304S15); brass chemically nickel-plated;
 PP; polybutylen terephthalate; O-ring: FPM (Viton)
 Protection IP65, IP 67 III
 Switching cycles min. 10 million
 Medium temperature [°C] 0...85
 Operating temperature [°C] 0...60
 Pressure resistance [bar]..... 25

**) For water

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