ifm electronic

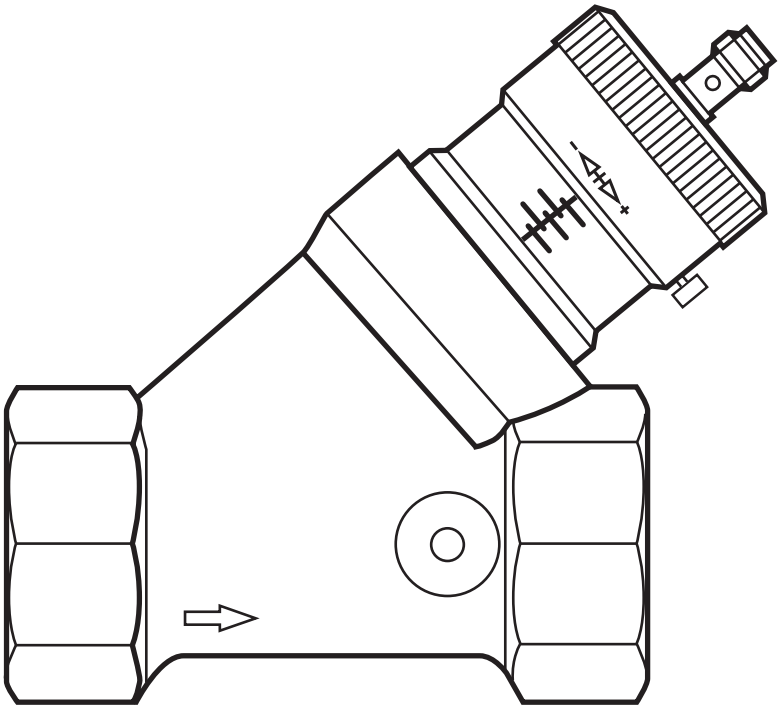
CE

Operating instructions
Mechatronic flow sensor

efector300

SBY357

UK



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Contents

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:

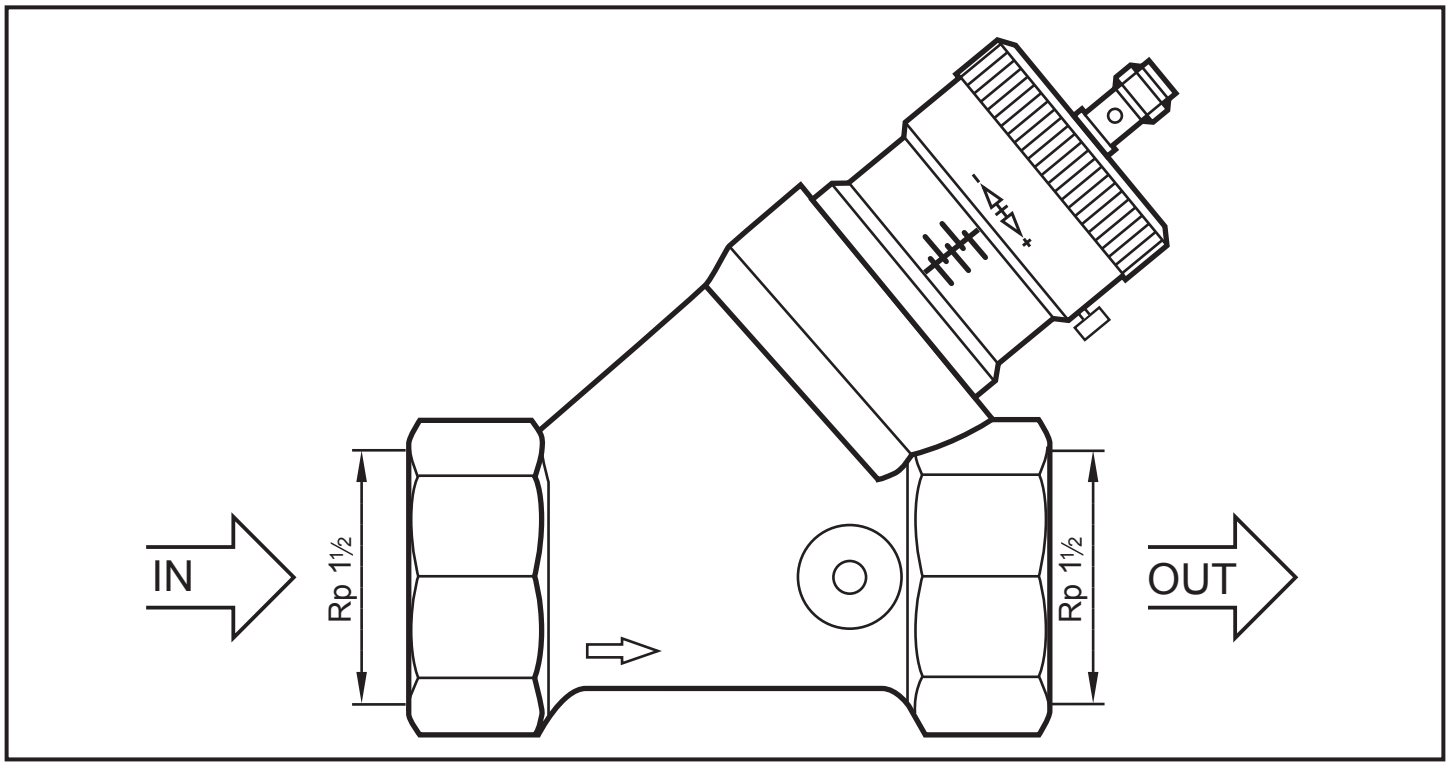
- Output closed (LED = ON), if volumetric flow quantity ≥ switch point.
- Output open (LED = OFF), if volumetric flow quantity < switch point.

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 RP 1½ and tighten firmly.

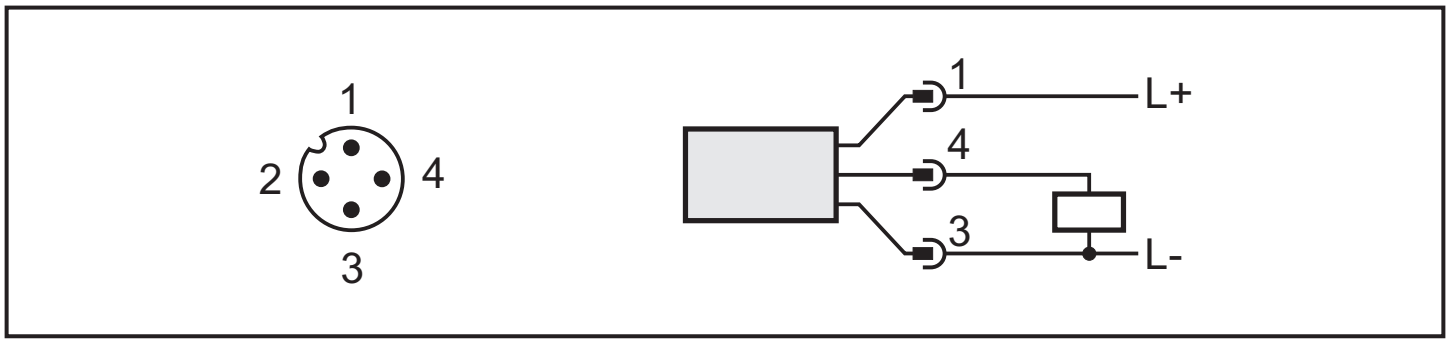


IN = inlet
OUT = outlet

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.

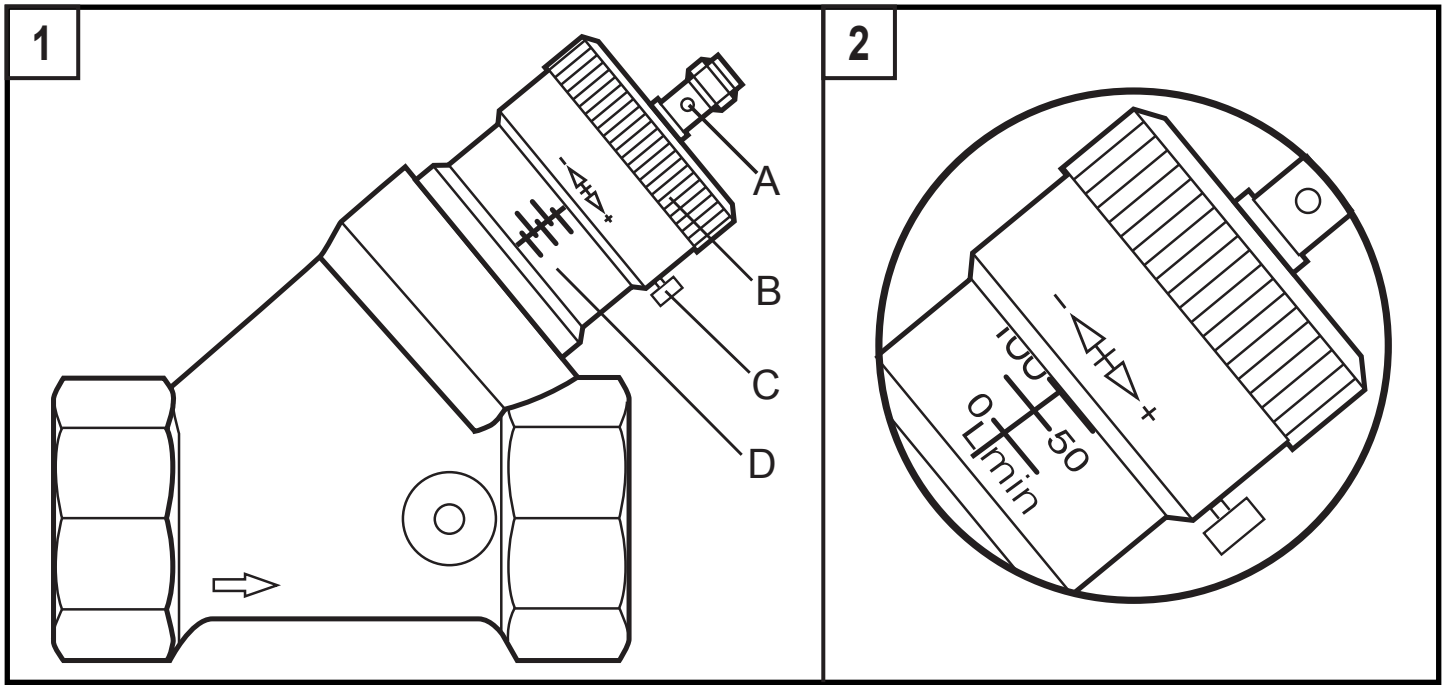
▶ Disconnect power.
▶ Connect the unit as follows:



For information about available sockets/connectors see:
www.ifm.com → Products → Accessories

5 Switch point setting

There are 2 possibilities:
- Definition of requested value → 5.1.
- Adjustment to existing flow → 5.2.



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

Do not turn the setting screw beyond the maximum value of the setting range (→ Technical data) to avoid faulty switching.

5.1 Definition of requested value

▶ Loosen the lock screw.
▶ Turn the setting screw until the requested value just becomes visible on the setting scale. → Example in figure 2: requested value = 100 l/min.
▶ Tighten the lock screw.

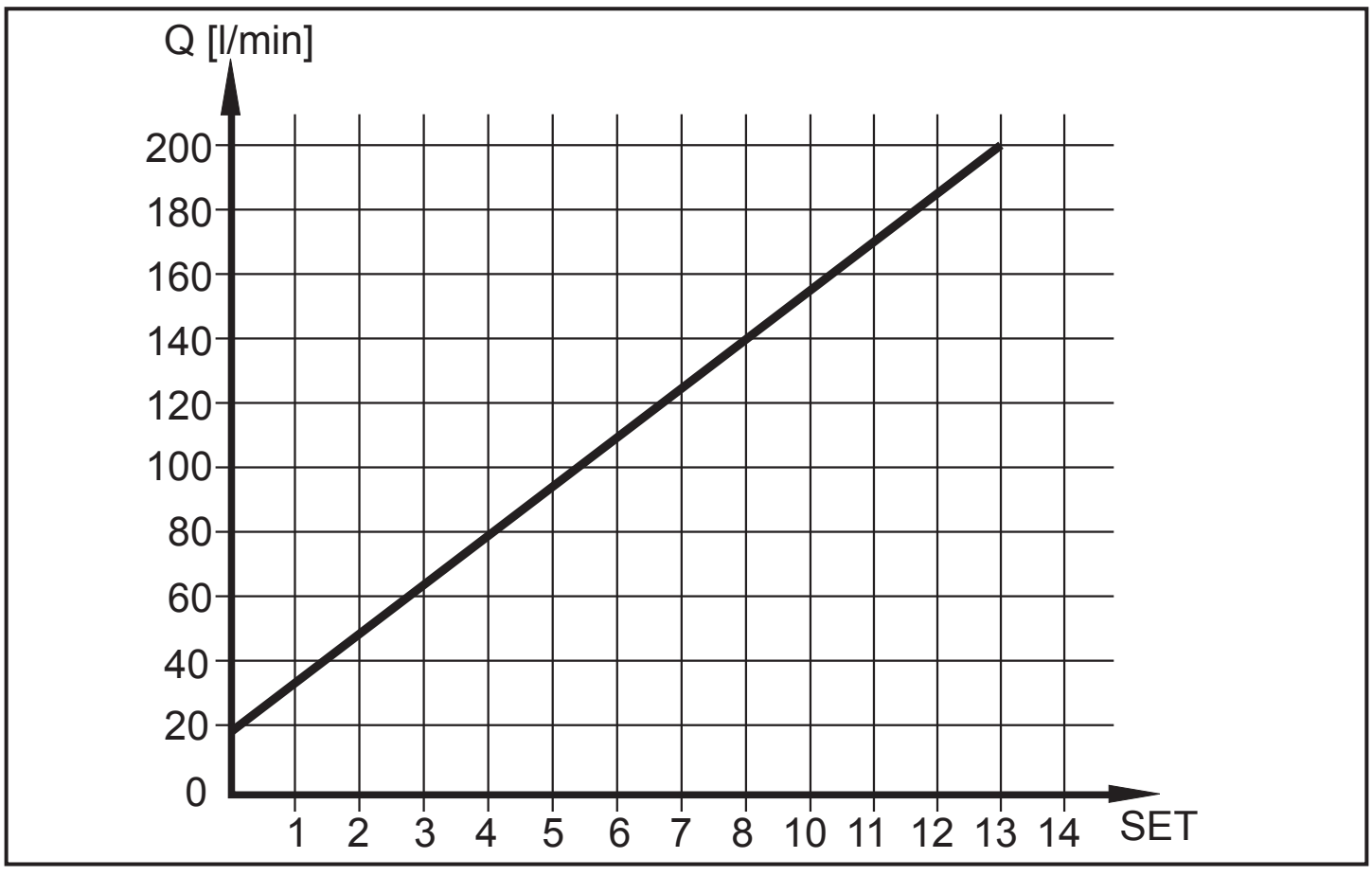
5.2 Adjustment to existing flow

▶ Let the normal flow circulate in the installation.
▶ Loosen the lock screw.
▶ Set the switch point with the setting screw.
- If the LED lights before setting: turn the setting screw 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 screw in the direction [-] until the LED lights.

▶ Tighten the lock screw.

Correlation between number of the turns of the setting screw (SET) and switch point in l/min:

One complete turn corresponds to	approx. 18 l/min

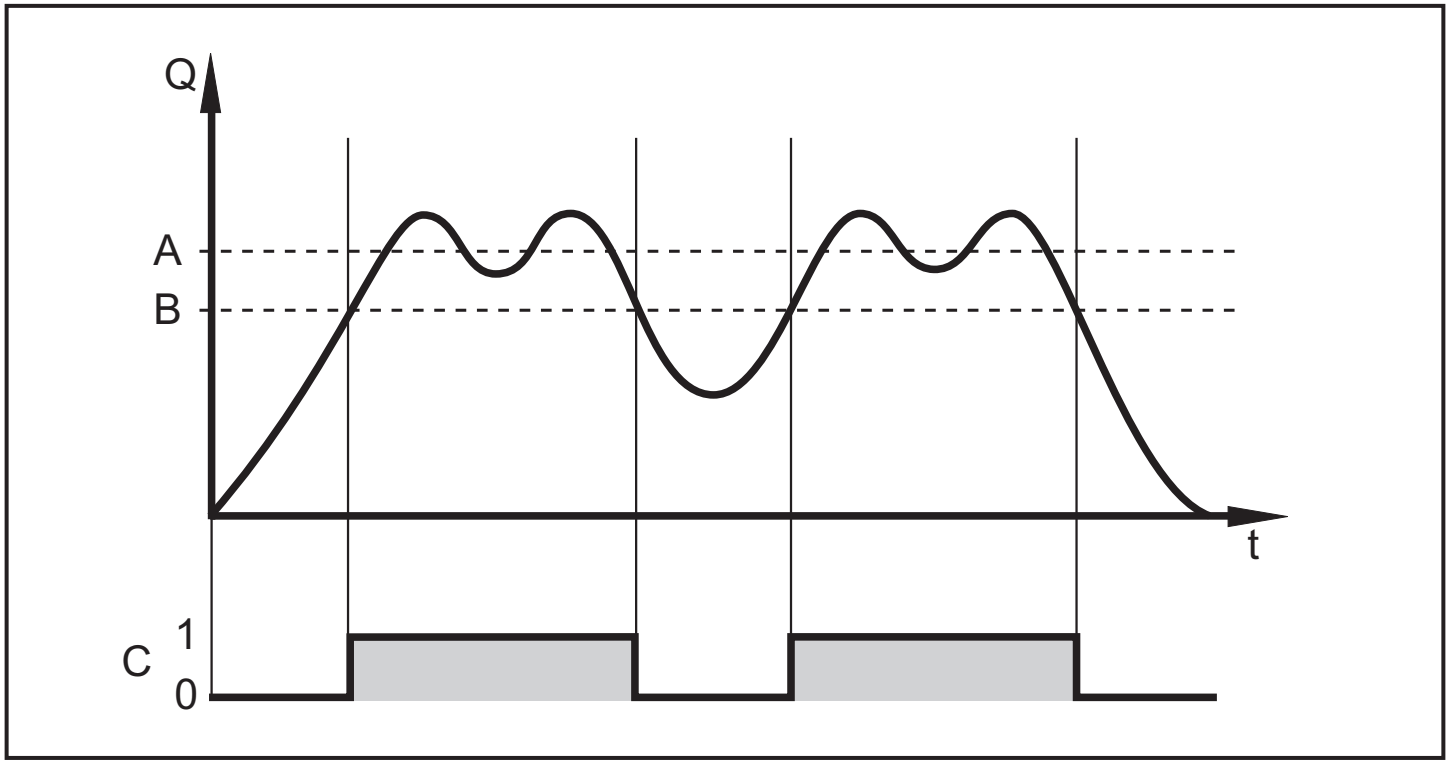


The diagram shows the typical course of the measurement curves for water at 20 °C.

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

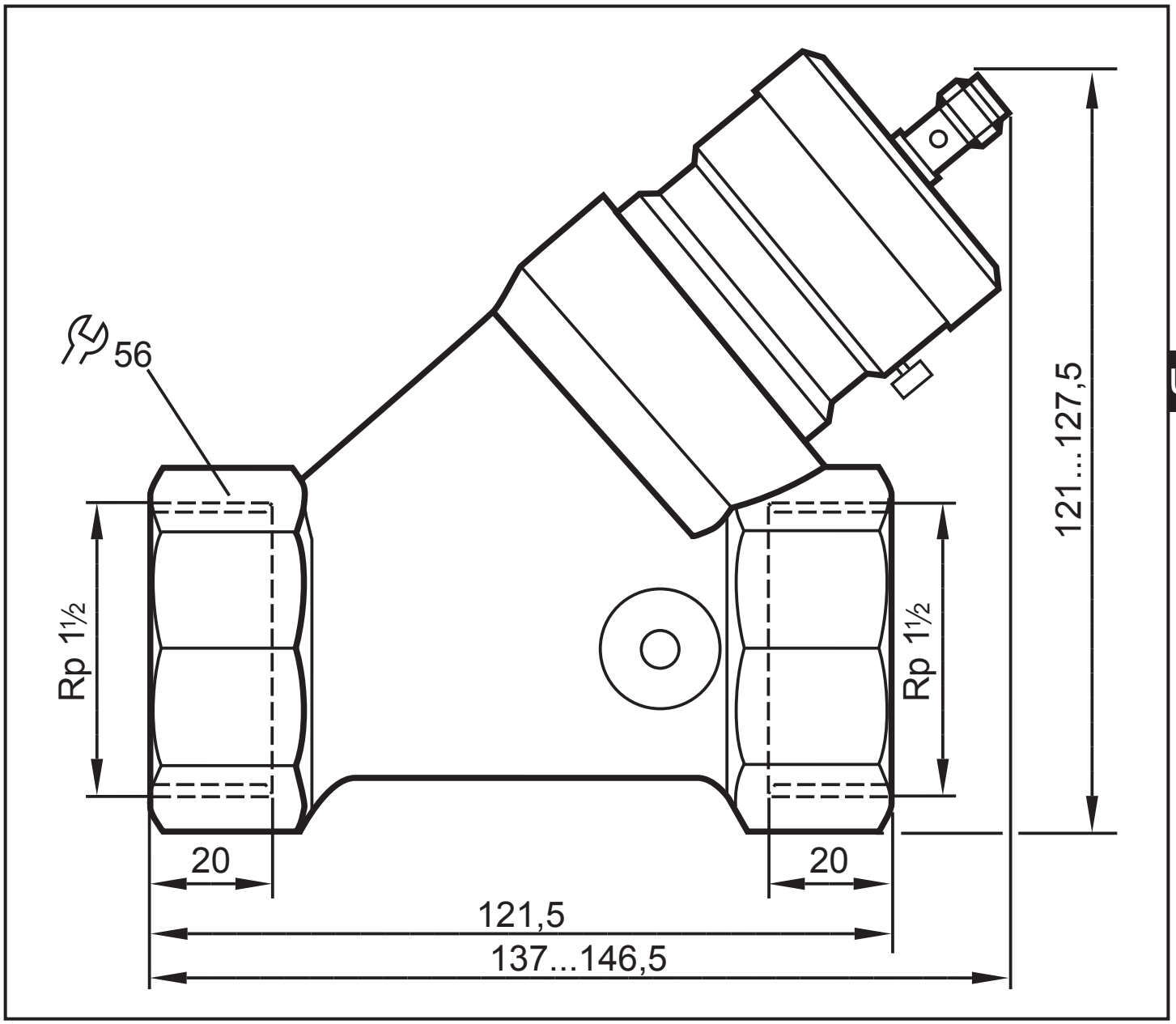


A = requested flow; B = switch point; C = switching output

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.
Only the manufacturer is allowed to repair the unit.
After use dispose of the unit in an environmentally friendly way in accordance with the applicable national regulations.

8 Scale drawing

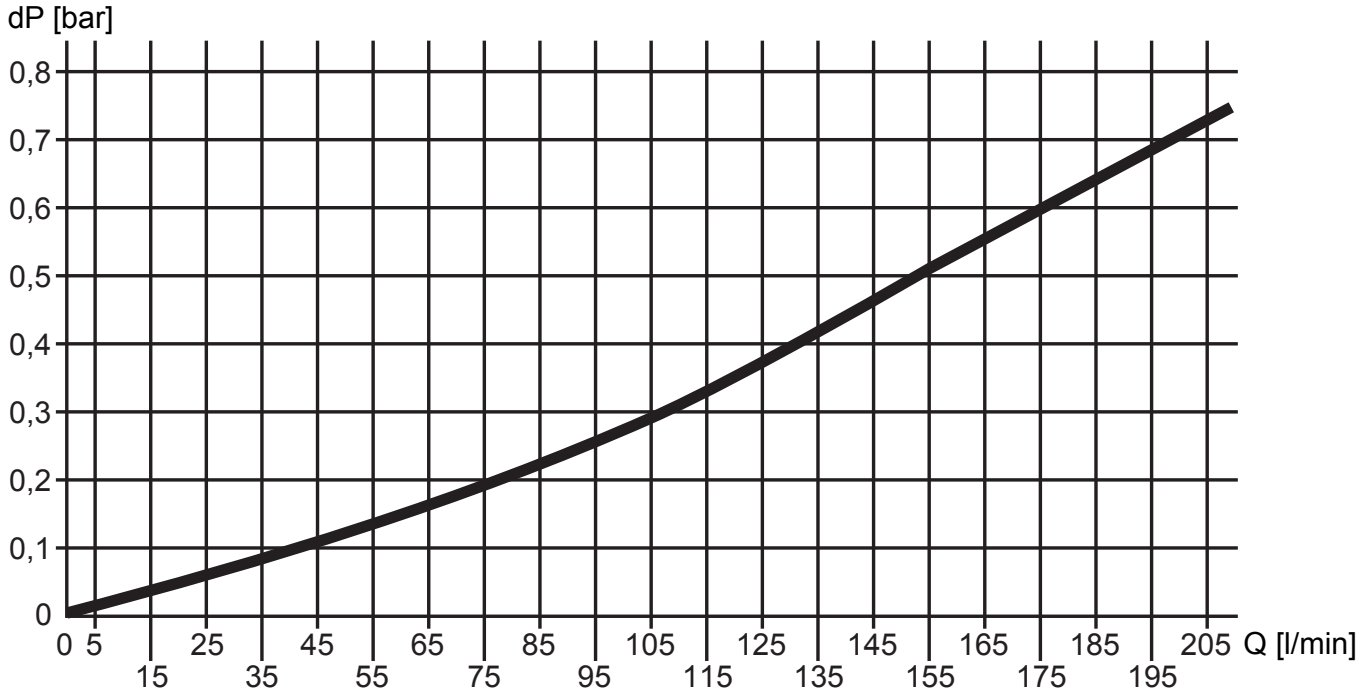


dimensions are in millimeters

9 Technical data

Setting range [l/min]	20...200
Flow range max. [l/min]	200
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 [l/min]	5...10
Repeatability [% of value of measuring range]	1
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; O-ring: FPM (Viton)
Protection	IP 67 III
Switching cycles min.	10 million
Medium temperature [°C]	0...85
Operating temperature [°C]	0...60
Pressure resistance [bar]	25

Further information at www.ifm.com