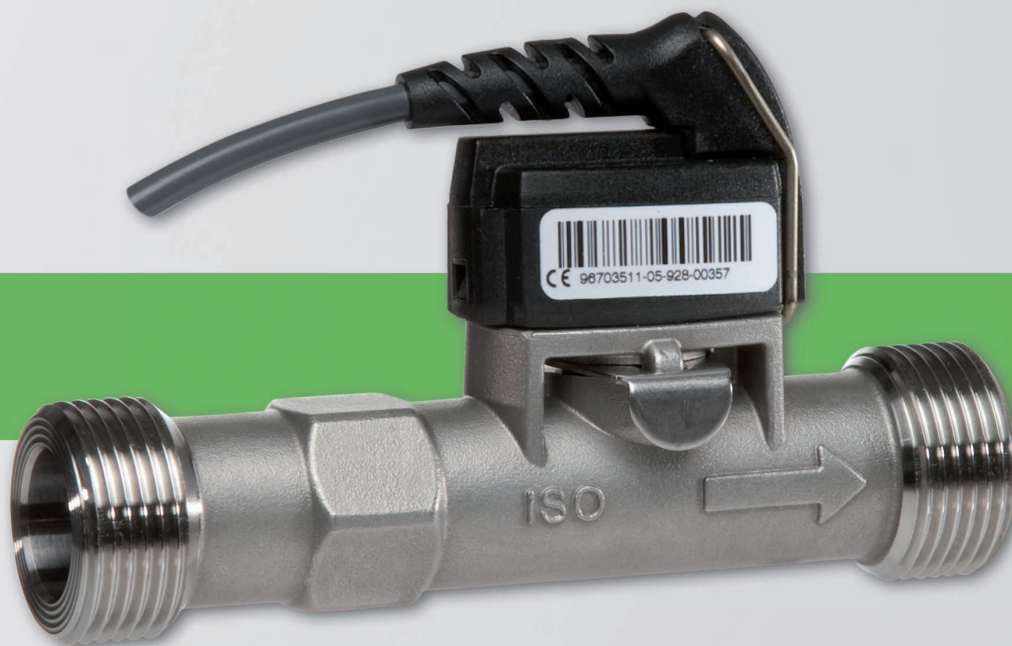


## VFS Grundfos Direct Sensors™

Analogue direct sensors for temperature and flow rate measurement



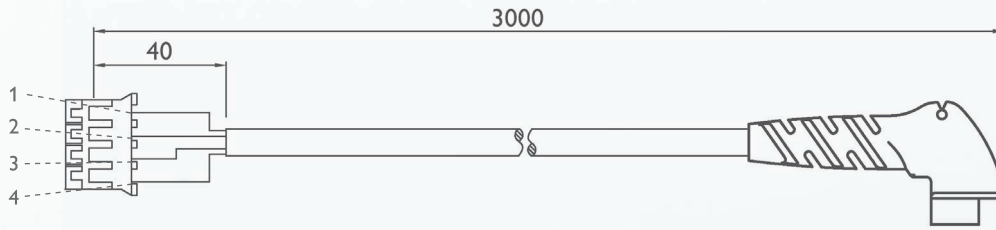
The analogue VFS Grundfos Direct Sensors™ measure the temperature and the flow rate with a single measuring element.

Grundfos Direct Sensors™ can be used in aggressive fluids as well as in domestic water and thus are ideally suited for measuring the flow rate and the heat quantity in solar thermal and heating systems.

VFS 1-12l are designed for systems with low flow rates. VFS 2-40l are designed for systems with higher flow rates.

- ✓ One sensor, two measured quantities
- ✓ Incl. fitting, insert and connection cable
- ✓ Quick and precise measurement through direct fluid contact
- ✓ No moving parts – no mechanical wear

## Technical data



### Pin configuration

1	Temperature signal (0.5... 3.5 V relative to Pin 3)	Yellow
2	Flow rate signal (0.5... 3.5 V relative to Pin 3)	White
3	GND (0V)	Green
4	Power supply (+5 V $\overline{\text{---}}$ ), PELV	Brown

### Protection type

IP20

### Sensor fitting

Material: stainless steel 1.4408

### Cable

Insulation: PVC (-30... +80 °C)

Cable leads: 4 x 0.13 mm<sup>2</sup> (AWG26), PVC insulated

Cable lead colours: Yellow, white, green, brown (DIN 47100)

Conductor: Flexible Cu wire (DIN-VDE 0295)

### Sensor element

Type: Silicon-based MEMS sensor

Electromagnetic compatibility: EN 61326-1

Temperature cycling: IEC 68-2-14

### Flow rate

	VFS 1-12 I	VFS 2-40 I
Measuring range in water (0... 100 °C), in Tyfocor® LS (30... 100 °C)	1-12 l/min	2-40 l/min
Accuracy (0... 100 °C)	1.5... 5.0% (typically 3%)	1.5... 5.0% (typically 3%)
Response time (63.2%)	< 3s	< 1s
Resolution	0.06 l/min	0.2 l/min
Flow rate signal	0.5... 3.5 V (0 l/min at 0.25 V)	0.5... 3.5 V (0 l/min at 0.25 V)

### Temperature

Measuring range: 0... 100 °C

Accuracy: +/- 2 °C

Accuracy at 25... 80 °C: +/- 1 °C

Response time (63.2%): ca. 0.25 s

Resolution: 0.4 °C

### Note:

If the sensor has been correctly connected to RESOL controller, the required grounding of the sensor is ensured. The grounding resistance between pipe and sensor GND must be lower than 10  $\Omega$ .

#### Grundfos Direct Sensor™ VFS 1-12 I

Analogue sensor incl. fitting, insert and connection cable

Price bracket B | Article no.: **130 000 20** (Solar/DHW)

Price bracket B | Article no.: **130 002 00** (Heating)

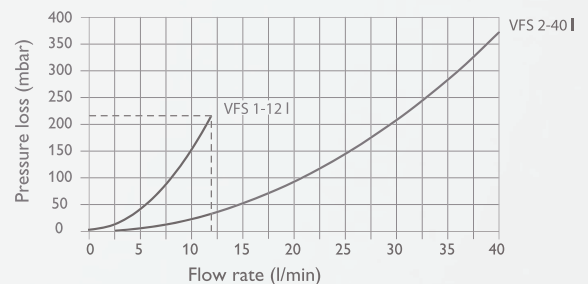
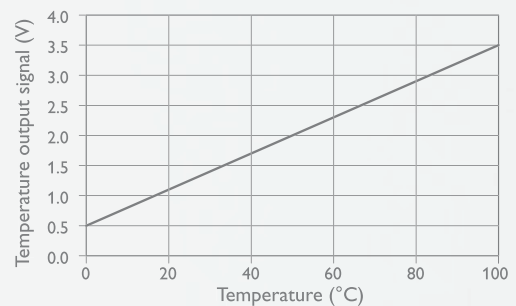
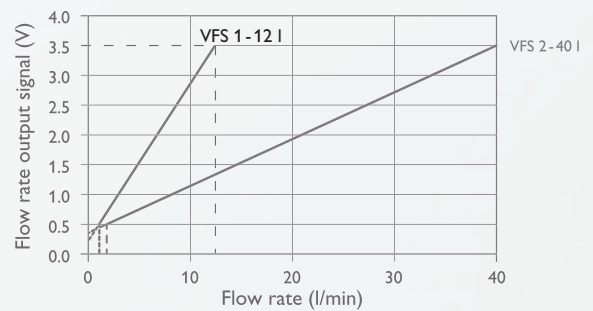
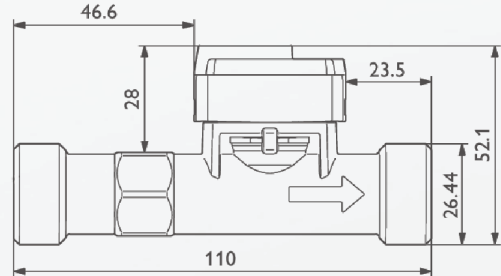
#### Grundfos Direct Sensor™ VFS 2-40 I

Analogue sensor incl. fitting, insert and connection cable

Price bracket B | Article no.: **130 000 30** (Solar/DHW)

Price bracket B | Article no.: **130 002 10** (Heating)

For mounting information see the manual of the corresponding sensor.



### Electrical data

	VFS
Power supply	+5 V $\overline{\text{---}}$
Power consumption	< 50 mW
Output signals	Ratiometric
Temperature signal	0.5... 3.5 V
Load impedance	> 10 k $\Omega$

Do you have any further questions? We have the answers:

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