

## VFD Grundfos Direct Sensor<sup>™</sup>

Digital direct sensor for measuring temperature and flow rate



*Direct communication  
via RESOL VBus<sup>®</sup>*

The digital VFD Grundfos Direct Sensors<sup>™</sup> measure the temperature and the flow rate with a single measuring element and then transmit the measured values directly via the RESOL VBus<sup>®</sup> protocol.

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

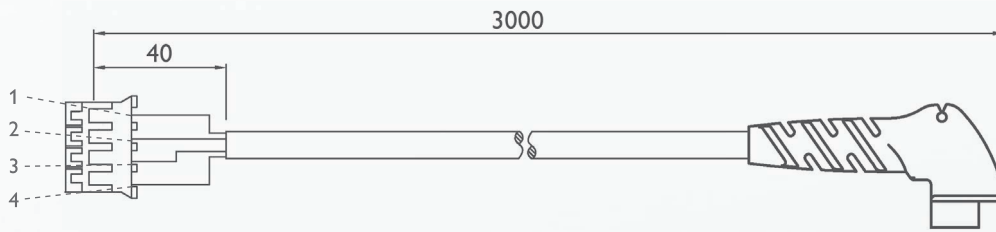
VFD 1-12l are designed for systems with low flow rates.

VFD 2-40l are designed for systems with higher flow rates.

The VFD 2-40l fast is ideal for DHW exchange modules due to its quick response time.

- ✓ One sensor, two measured quantities
- ✓ Quick response time and refresh rate
- ✓ 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	RESOL VBus® A (Master)	Yellow
2	RESOL VBus® B (GND)	White
3	GND (0V)	Green
4	Power supply (+ 5.5 V $\overline{\text{---}}$ ), PELV	Brown

### Protection type

IP20

### Sensor fitting

Material: stainless steel 1.4408

### Cable

Insulation: PVC (-30... +80 °C)

Cable leads: 4x0.13 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

### Temperature

Measuring range: 0... 120 °C

Accuracy: +/- 2 °C

Accuracy at 25... 80 °C: +/- 1 °C

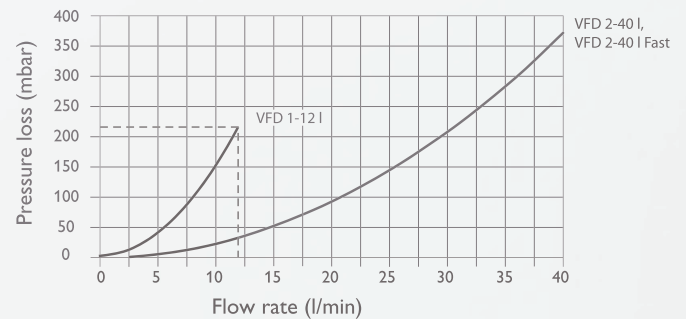
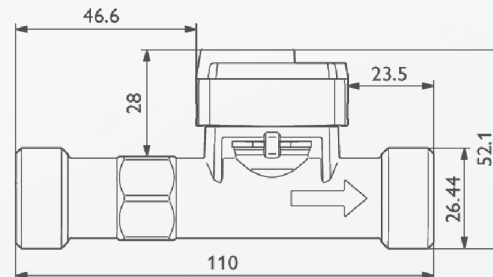
Refresh rate: 250 ms

Response time (63.2%): ca. 1.5 s

Resolution: 0.4 °C

Flow rate output signal: 10<sup>-2</sup> l/min

Temperature output signal: 10<sup>-2</sup> °C



### Flow rate

	VFD 1-12 I	VFD 2-40 I	VFD 2-40 I Fast
Accuracy in water (0... 100 °C)	+/- 2%	+/- 2%	+/- 5%, typically +/- 3%
Accuracy in Tyfocor® LS (20... 80 °C)	+/- 3%	+/- 3%	---
Refresh rate	250 ms	250 ms	< 180 ms
Resolution	0.06 l/min	0.2 l/min	0.1... 0.2 l/min

### Electrical data

	VFD
Power supply	+5.5 V $\overline{\text{---}}$
Power consumption	< 50 mW
Output signals	RESOL VBus® protocol V3
Pressure signal	RESOL VBus® protocol V3
Temperature signal	RESOL VBus® protocol V3
RESOL VBus® refresh rate	250/180 ms
Baud rate	9600 Bd
Load impedance	> 10 kΩ

### 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 Ω.

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

Digitalsensor inkl. Armatur, Insert und Anschlussleitung

Price bracket B | Article no.: **130 000 80** (Solar / DHW)

Price bracket B | Article no.: **130 002 30** (Heating)

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

Digitalsensor inkl. Armatur, Insert und Anschlussleitung

Price bracket B | Article no.: **130 001 00** (Solar / DHW)

Price bracket B | Article no.: **130 002 40** (Heating)

#### Grundfos Direct Sensor™ VFD 2-40 I Fast

Digitalsensor inkl. Armatur, Insert und Anschlussleitung

Price bracket B | Article no.: **130 001 40**

For mounting information see the manual of the corresponding sensor.

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

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