RPS 0-10

Relative Pressuresensor Standard, 0-6 bar

Fig. 1 RPS sensor

Technical overview

Grundfos Direct Sensors™, type RPS, is a series of combined pressure and temperature sensors (two-in-one) designed for high-volume production. The RPS sensors are fully compatible with wet, aggressive media and are available for pressure ranges of 0-0.6 up to 0-16 bar (relative pressure).

The RPS sensor utilises MEMS-sensing technology in combination with a novel packaging concept using corrosion-resistant coating on the MEMS sensor element. This makes the RPS sensor very robust and ideal for high-volume OEM applications.

Applications

- domestic hot-water system efficiency
- water level in central heating system
- dry-running protection in solar systems and gas boilers
- monitoring of pressure and temperature

Features

- pressure ranges: 0-0.6; 0-1.0; 0-1.6; 0-2.5; 0-4; 0-6; 0-10 and 0-16 bar.
- voltage output (ratiometric, ideal for use with microcontroller)
- compact and robust mechanical design
- approved for potable water: WRAS, KTW, W270, ACS.

Benefits

- pressure and temperature sensor in one package (two-in-one sensor)
- compatible with wet, aggressive media
- accurate, linearised and temperature-compensated pressure sensor
- fast temperature response (direct media contact)

Specifications

Pressure	
Measuring range (relative)	0 to 10 bar
Accuracy (±1σ), 25 to 80 °C	±2 % FS
Accuracy (±1σ), 0 to 100 °C	±2.5 % FS
Response time	< 1.0 s / 1.5 s
Resolution	20 mbar
Temperature	
Measuring range	0 to 100 °C
Accuracy (±1σ), 25 to 80 °C	±1 °C
Accuracy (±1σ), 0 to 100 °C	±2.5 °C
Response time (63.3 % at flow velocity > 2 m/s)	< 1.5 s
Resolution	0.5 °C
Media and environment	
Media	The sensor is compatible with liquids
Media temperature (operation)	0 to 100 °C
Media temperature (peak)	–25 to 120 °C, non-freezing
Ambient air temp. (operation)	–25 to 60 °C
Ambient air temp. (peak)	–55 to 90 °C
Humidity	0 to 95 % (relative), non-condensing
System burst pressure	> 30 bar
Electrical data	
Power supply	5 VDC (±5 %). Grounding of the sensor supply is recommended.
Output signals	Ratiometric
Pressure signal	0.5 to 3.5 V
Temperature signal	0.5 to 3.5 V
Power consumption	< 50 mW
Load impedance	> 10 kΩ
Sensor materials	
Sensor element	Silicon-based MEMS sensor
Seal (sensor to housing)	EPDM rubber
Housing	Composites (PPS)
Wetted materials	Corrosion-resistant coating EPDM, PPS
Environmental standards	
Enclosure class	IP44 (Non overmolded IP20)
Temperature cycling	IEC 68-2-14
Vibration (non-destructive)	20-2000 Hz, 10G, 4h
Electromagnetic compatibility	EN 61326-1
Physical properties	
Sensor dimensions	47 x 40 x 20 mm

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Dimensions (in mm)

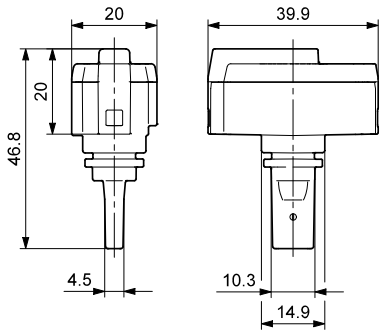

Fig. 2 Dimensional sketches

Output signals

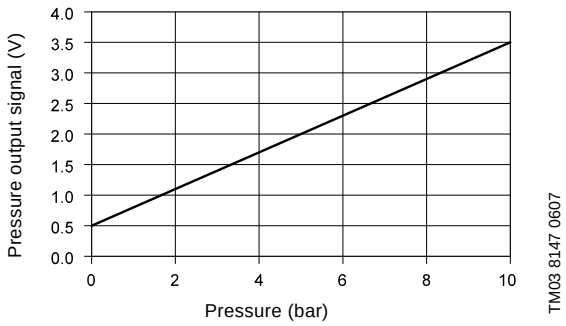

Fig. 3 Pressure response (pin 2)

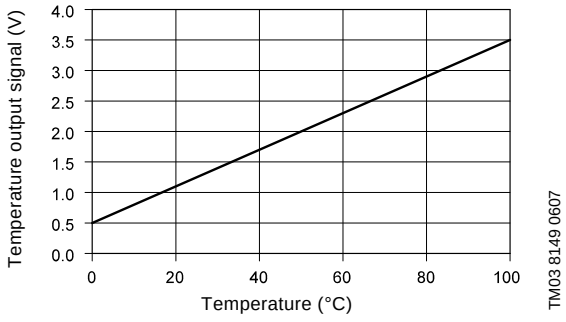

Fig. 4 Temperature response (pin 1)

Electrical connections

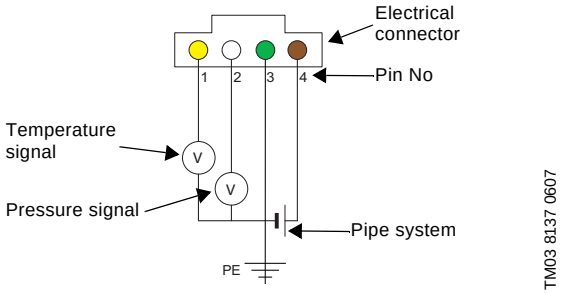

Fig. 5 Electrical connections

Pin configuration		Colour
1	Temperature signal (0.5 to 3.5 V relative to pin 3)	Yellow
2	Pressure signal (0.5 to 3.5 V relative to pin 3)	White
3	GND (0 V)	Green
4	Voltage supply (+5 VDC), PELV	Brown

Power supply requirements

- 5 VDC
- separated from hazardous live circuitry by double or reinforced insulation
- power limitation:150 VA; current limitation: 8 A.

Options

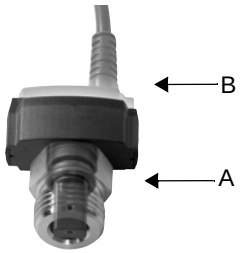

Fig. 6 Sensor options

Pos.	Description
A	1/2" nipple, stainless steel (316L) or 3/8" composite
B	Overmoulded or simple connector

Type key

The sensor is labelled with a type designation.

	96	- XX	- XXX	XXXXX
Product number				
Revision				
Production year and week				
Consecutive number				

For more information, see

96701206 0909
Repl. 96701206 1208
GB

Subject to alterations.

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