

DPS 0 - 6.0

Differential PressureSensor, standard 0 - 6.0 bar series 100



TM04 4457 1309

Fig. 1 DPS sensor

Technical overview

Grundfos Direct Sensors™, type DPS, is a series of combined differential-pressure and temperature sensors (two-in-one). The DPS sensors are fully compatible with wet, aggressive media and are available for differential pressure ranges of 0 - 0.6 to 0 - 6.0 bar.

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

Applications

- Pump and pump control systems
- Water treatment systems
- Filters (monitoring)
- Underfloor heating
- Valve-controlled systems
- Cooling and temperature control systems
- Building management systems.

Features

- Differential-pressure ranges: 0 - 0.6; 0 - 1.0; 0 - 1.6; 0 - 2.5; 0 - 4.0 and 0 - 6.0 bar
- High burst pressure
- Compact and robust mechanical design
- Voltage output (ratiometric, ideal for use with micro controller)
- Approved for potable water: WRAS, KTW, ACS.
- Designed for harsh environments.

Benefits

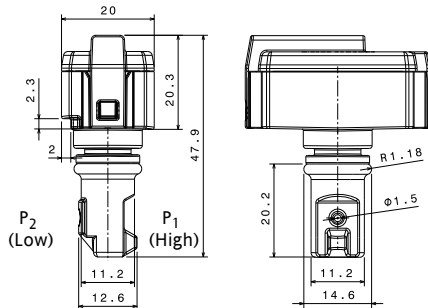
- Differential-pressure and temperature sensor in one package (two-in-one sensor)
- Compatible with wet, aggressive media
- Accurate, linearised and temperature-compensated differential-pressure sensor
- Quick temperature response (direct media contact).

Specifications

Pressure	
Measuring range (differential)	0 to 6.0 bar
Accuracy ($\pm 1\sigma$), 25 to 80 °C	± 2 % FS
Accuracy ($\pm 1\sigma$), 0 to 100 °C	± 2.5 % FS
Response time	< 0.5 s
System pressure deviation	6 mbar/bar
Resolution	6.0 mbar
Temperature	
Measuring range	0 to 100 °C
Accuracy ($\pm 1\sigma$), 25 to 80 °C	± 1.0 °C
Accuracy ($\pm 1\sigma$), 0 to 100 °C	± 2.0 °C
Response time, sensing element to output change	< 1.0 s
Resolution	0.2 °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, media must not freeze
Ambient air temp. (operation)	-25 to +60 °C
Ambient air temp. (peak)	-55 to +90 °C
Humidity (relative)	0 to 95 %, non-condensing
Application pressure P_1	Max. 16 bar @ 70 °C Max. 12 bar @ 100 °C
Differential pressure $P_1 - P_2$	Max. 10 bar
Burst pressure P_1	Max. 30 bar
Burst pressure P_2	Max. 10 bar
Electrical data	
Power supply	5 VDC (± 5 %). Grounding of the sensor supply is required.
Output signals	Ratiometric
Pressure signal	0.5 to 4.5 V
Temperature signal	0.5 to 4.5 V
Power consumption	< 50 mW
Load impedance	> 10 k Ω
Sensor materials	
Sensing element	Silicon-based MEMS sensor
Sealing Cap	EPDM rubber
Housing	Composite (PPS)
Wetted materials	Corrosion-resistant coating, EPDM, PPS
Environmental standards	
Enclosure class (overmoulded)	IP44
Temperature cycling	IEC 68-2-14
Vibration (non-destructive)	20 to 2000 Hz, 10G, 4h
Electromagnetic compatibility	EN 61326-1
Dimensions	
Sensing element	47 x 40 x 20 mm

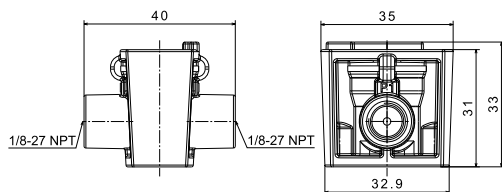
If the sensor is used in a manner not specified by the manufacturer, the protection provided may be impaired.

Dimensions [mm]



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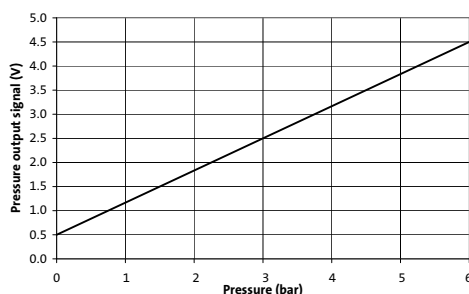
Fig. 2 Dimensional sketches of sensing element P₁ is the high-pressure side



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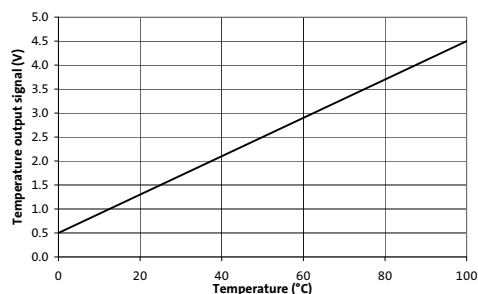
Fig. 3 Isometric view of DPS house

Sensor output signals



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Fig. 4 Differential pressure response

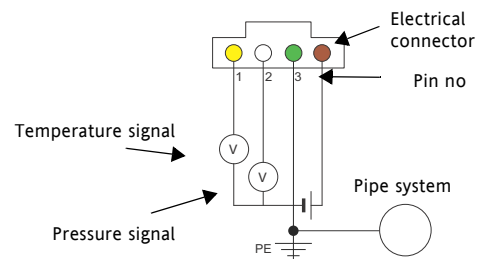


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Fig. 5 Temperature response

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Electrical connections



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Fig. 6 Electrical connections

Pin configuration	Colour
1 Temperature signal (0.5 to 4.5 V relative to pin 3)	Yellow
2 Pressure signal (0.5 to 4.5 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

Part
Housing for DPS
Fitting 6 mm
Fitting 8 mm
Fitting 6 mm
Fitting 8 mm
Wall bracket (housing for DPS)
Flow by pipe sample set for sensor
Sensor overmoulded

Type key

The DPS sensor (overmoulded) is labelled with a type designation.

96XXXXXX	- XX	- XXXX	XXXXX
Product number			
Version			
Production year and week			
Consecutive number			

The trademark Grundfos Direct Sensors™ is owned and controlled by the Grundfos Group.

Subject to alterations.