

QM42-DPS Differential Pressure Sensor



Datasheet



The differential pressure sensor offers accurate low-differential pressure measurement of air and non-condensing, non-corrosive gases in applications such as air filter monitoring, isolation and clean rooms, building pressurization and dust collectors.

- Silicon piezoresistive differential pressure core
- Aluminum alloy housing
- Senses up to ± 1 inches of water column using the **QM42-DPS1-1Q** model
- Senses up to ± 20 inches of the water column using the **QM42-DPS20-1Q** model

Models

Model	Description	Interface	Connection
QM42-DPS1-1Q	Differential Pressure Sensor ± 1 in w.c. and 10 ft of tubing	1-wire serial	2.09 m (6.9 ft) cable with a 5-pin M12 quick disconnect (QD) connector
QM42-DPS20-1Q	Differential Pressure Sensor ± 20 in w.c. and 10 ft of tubing		

Wiring

5-pin M12 male quick disconnect	Pin	Wire Color	Description
	1	Brown (bn)	Supply +
	2	White (wh)	Serial select
	3	Blue (bu)	Ground
	4		No connection
	5	Gray (gy)	1-wire serial communication

Holding Registers

Table 1: Holding registers for the **QM42-DPS1-1Q** model

Sensor Register	Output Type	I/O Range		Holding Register Representation		Measured Results
		Minimum	Maximum	Minimum (Decimal)	Maximum (Decimal)	
1	Pressure (Inches of Water)	-1	1	-1000	1000	Register value \div 1000
2	Pressure (PSI)	-0.036	0.036	-36	36	Register value \div 1000
3	Temperature (F)	-40	221	-4000	22100	Register value \div 100
4	Temperature (C)	-40	105	-4000	10500	Register value \div 100
5	Pressure (Pa)	-248	248	-248	248	Register value

Table 2: Holding registers for the **QM42-DPS20-1Q** model

Sensor Register	Output Type	I/O Range		Holding Register Representation		Measured Results
		Minimum	Maximum	Minimum (Decimal)	Maximum (Decimal)	
1	Pressure (Inches of Water)	-20	20	-20000	20000	Register value \div 1000
2	Pressure (PSI)	-0.722	0.722	-722	722	Register value \div 1000
3	Temperature (F)	-40	221	-4000	22100	Register value \div 100



Sensor Register	Output Type	I/O Range		Holding Register Representation		Measured Results
		Minimum	Maximum	Minimum (Decimal)	Maximum (Decimal)	
4	Temperature (C)	-40	105	-4000	10500	Register value + 100
5	Pressure (Pa)	-4977	4977	-4977	4977	Register value

Installing the Pressure Sensor

The pressure sensor can be mounted to any surface using fasteners sized for the 1/8-inch (3.2 mm) diameter through-holes on the base of the unit. The optional **BWA-BK-001** bracket may be used for mounting to a magnetic surface.

The supplied tubing has an 1/8 inch inner diameter and is intended to fit the barbed fittings on the high (+) and low (-) pressure ports. Cut the tubing to the length required, but for the best results, keep the tubing as short as possible. Install the high (+) side to the upstream or high-line pressure and install the low (-) side to downstream or low-line pressure.

Differential Pressure Sensor Specifications

Supply Voltage

3.6 V DC to 5.5 V DC

Current Consumption

< 3 mA

Pressure Range

QM42-DPS1-1Q: ±1 inches water column (wc)

QM42-DPS20-1Q: ±20 inches water column (wc)

Output

1-wire serial

Accuracy

0.2% full scale

Communication Hardware

Interface: 1-wire serial interface

Baud rates: 9.6k, 19.2k (default), or 38.4k

Data format: 8 data bits, no parity (default, 1 stop bit)

Measuring Media

Gaseous

Pressure Interface

Dual barbed ports

Temperature

Compensated: -20 °C to +85 °C (-4 °F to +185 °F)

Operating: -25 °C to +85 °C (-13 °F to +185 °F)

Zero/Span Offset Tolerance

Zero temperature drift

± 0.5% full scale per °C

Humidity Limits (non condensing) 0 to 95% RH

Proof and Burst Pressure

QM42-DPS1-1Q: Proof Pressure: 100× Maximum Operating Pressure

QM42-DPS1-1Q: Burst Pressure: 300× Maximum Operating Pressure

QM42-DPS20-1Q: Proof Pressure: 200× Maximum Operating Pressure

QM42-DPS20-1Q: Burst Pressure: 500× Maximum Operating Pressure

Stability

≤ 0.2% full scale per year

Included PVC Tubing

Inner diameter: 0.125 in

Outer diameter: 0.25 in

Length: 10 ft

Indicators

Green flashing: Power ON

Amber flashing: Serial Tx

Communication Protocol

Sure Cross DX80 Sensor Node with a 1-wire Serial Interface

Electrical Connection

Conduit fitting with cable

Connection

2.09 m (6.9 ft) cable with a 5-pin M12 male quick disconnect

Construction

Black anodized aluminum alloy

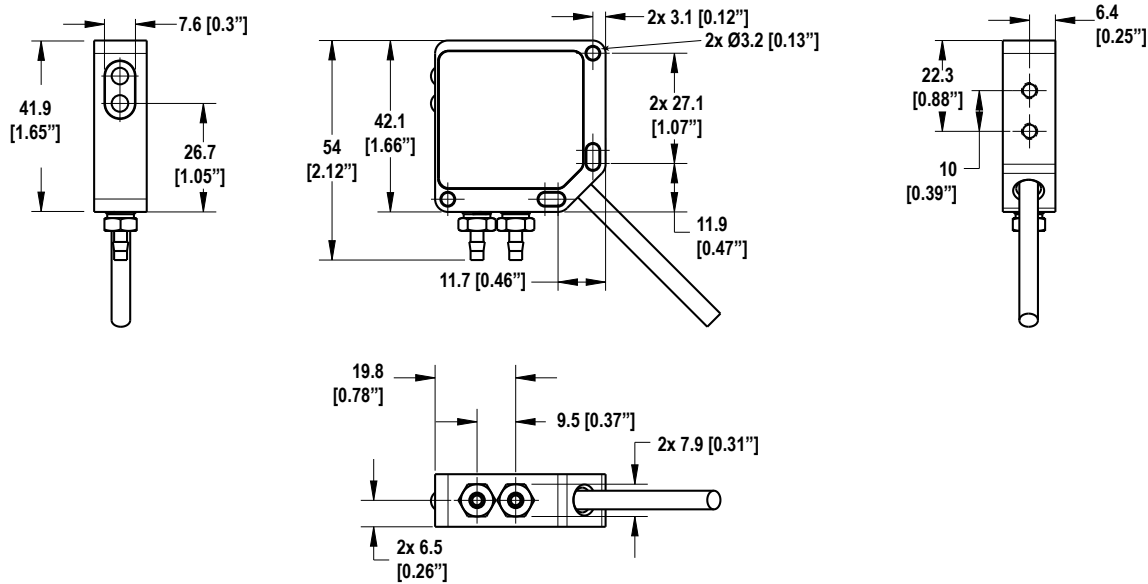
Environmental Rating

IP67, NEMA 6

Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise.

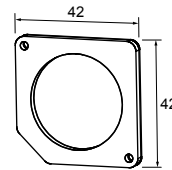
Figure 1. Dimensions



Accessories

BWA-BK-001

- Includes magnetic mounting bracket **SMB42FLM12** and 2 mounting screws



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