

QBE63-DP... Series

Differential Pressure Sensor For Neutral and Mildly Corrosive Liquids and Gases



Description	Differential pressure sensor, suitable for gases and liquids, used for measuring positive and negative pressures and pressure differentials in HVAC systems.
Features	<ul style="list-style-type: none"> • Hall-effect transducer technology • Highly resistant to positive pressure • Simple, heavy duty construction for highly reliable operation • For neutral and mildly corrosive liquids and gases • Supply voltage 24 Vac or 20 to 30 Vdc • Output signal 0 to 10 Vdc • Female-threaded G1/8-inch connection
Application	<p>The QBE63-DP... differential pressure sensors are particularly suitable for use in HVAC systems for continuous monitoring of the level or flow rate of neutral or mildly corrosive gases or liquids.</p> <p>The pressure being monitored acts on a measuring system consisting of a diaphragm, permanent magnet and Hall-effect transducer. The measured pressure is converted electronically into a linear 0 to 10 Vdc output signal.</p>
Product Numbers	Four sensor types are available. The sensor range covers the full pressure range from 0 to 14.5 psi (0 to 1000 mbar). A mounting bracket is included with the sensor.

Table 1. QBE63-DP Series Product Numbers.

Product Number	Pressure Range		Output Signal
QBE63-DP01	0 to 100 mbar	0 to 1.5 psi (10 kPa)	0 to 10 Vdc
QBE63-DP05	0 to 500 mbar	0 to 7.2 psi (50 kPa)	0 to 10 Vdc
QBE63-DP1	0 to 1 bar	0 to 14.5 psi (100 kPa)	0 to 10 Vdc

Ordering

Specify the part number, product name and quantity.

Example:

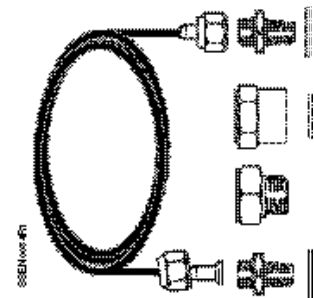
QBE63-DP05	Differential Pressure Sensor	1, and
AQB51.1	Mounting Kits	2

Accessories

AQB51.1 Mounting Kit:

- 2 brass thread adapters, 2 × G1/8-inch, male
- 2 copper seals, 1/8-inch
- 1 copper capillary, 3.3 feet, with retaining nuts at each end, G1/8-inch, female
- 1 thread adapter, G1/8-inch female to G1/2-inch UN, female, with 1 copper seal, 1/2-inch
- Thread adapter, G1/8-inch female to R1/2-inch, male
- Mounting instructions

NOTE: Mounting kit components cannot be ordered separately.



**Figure 1. AQB51.1
Accessory Kit.**

Compatibility

The QBE63-DP... Differential Pressure Sensors can be used in conjunction with all devices or systems capable of processing a 0 to 10 Vdc output signal.

Specifications

Power supply	Low voltage (Class 2) 24 Vac, 50/60 Hz or 20 to 30 Vdc +15/–10%
– Maximum voltage tolerance	<1 VA
Power consumption	35 mA
– Current consumption	

Electrical interface

Output signal	0 to 10 Vdc , short-circuit-proof and proof against polarity reversal
– Working resistance	≥10K Ohm

Product data

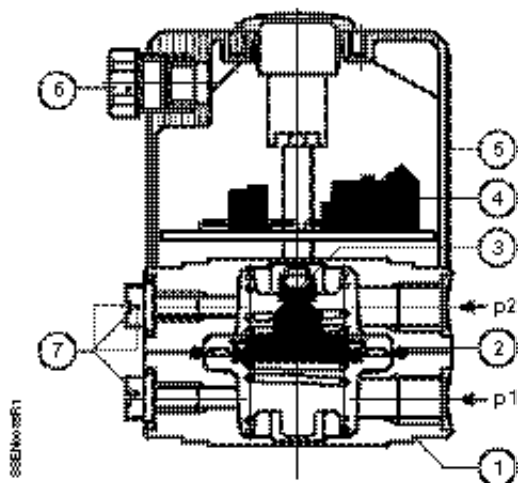
Differential pressure range	Operating range, See <i>Product Numbers</i>
Measuring element	Hall-effect transducer
Measuring accuracy	<±1.0% FS FS = Full Scale
– Hysteresis	<±1.5% FS
– Linearity	<±1.5% FS
– Temperature drift	0.14%FS/°F (68°F) 0.08% FS/°C (20°C) in relation to zero point)
Overload capacity	145 psi (sensor range up to 2.9 psi) 290 psi (sensor range from 7.3 psi)
Burst pressure	435 psi
Dynamic response:	
– Response time	<10 ms
– Load alternation	<10 Hz
Suitable media	Air or mildly corrosive gases and liquids
– Admissible temperature of medium	–15°F to 175°F (–10°C to 80°C)
Maintenance	No maintenance required

Specifications, Continued

Materials	Pressure casing	Nickel-plated brass
	Cover	Plastic
	Cable gland	Polystyrol
	Diaphragm	EPDM (ethylene propylene rubber)
	Mounting bracket	Galvanized steel
	Mounting kit AQB51.1	See <i>Accessories</i>
Connections	Connection terminals	3 screw-terminals, 18 AWG
	Cable entry	PG9 cable gland
	Pressure connections	Female-threaded G1/8-inch
Mounting	Mounting bracket	For mounting in ducts, on walls or ceilings and in control panels
	Orientation	Any (factory-calibrated with pressure connections at bottom) When used with liquids: purging points at top
General ambient conditions	Temperature ranges	
	– Operation (electronics)	–13°F to 140°F (–25°C to 60°C)
	– Storage/Transport	–40°F to 175°F (–40°C to 80°C)
	Ambient humidity	<90% RH, non-condensing
Dimensions/Weight	Weight (including packaging)	1.9 lbs. (0.86 kg)
	Dimensions	See <i>Dimensions</i>
Safety	Protection standard	IP65 to IEC529 (with cover fitted)

Operation

The pressure to be monitored acts on an EPDM diaphragm which deflects a spring. As a result of the pressure and consequent movement of the diaphragm, a permanent magnet attached to the diaphragm changes its position in relation to the Hall-effect transducer on the outside of the pressure housing. The transducer delivers an electrical signal proportional to the magnetic field. This signal is linearized, temperature-compensated and amplified by the built-in electronics.

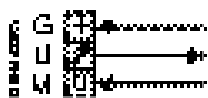


Key:

1. Pressure housing (measuring chamber)
 2. Diaphragm and spring
 3. Permanent magnet
 4. Hall-effect transducer with measuring electronics
 5. Cover
 6. Cable entry with PG9 gland
 7. Purging points
- p1 G1/8-inch threaded connection for higher pressure or lower vacuum
p2 G1/8-inch threaded connection for lower pressure or higher vacuum

Figure 2. Cross-section.

Connection Terminals



Supply voltage 24 Vac or 20 to 30 Vdc
0 to 10 Vdc output signal (reference point GND)
GND

Figure 4. Electrical Diagram.

Dimensions

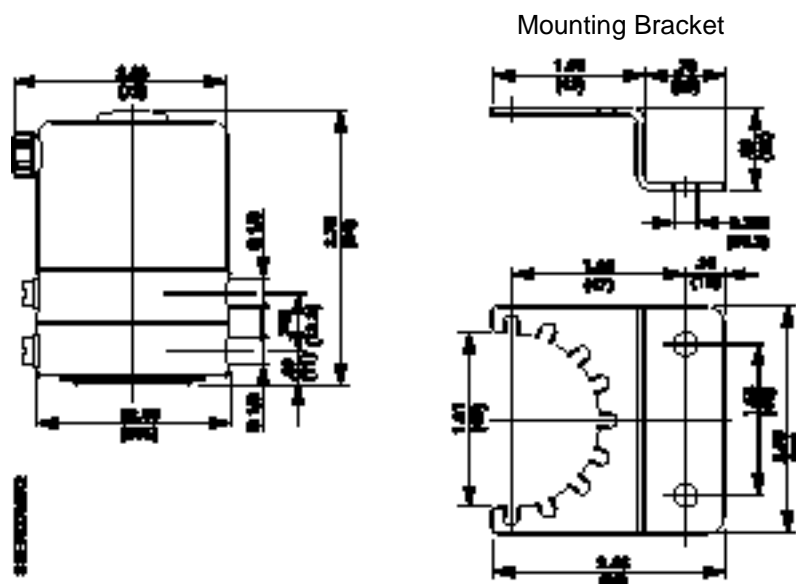


Figure 5. Dimensions in Inches (Millimeters).

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