

QBE64-DP4

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"> • Measuring system based on ceramic lever technology. • Simple, heavy duty construction for highly reliable operation. • For neutral and mildly corrosive liquids and gases. • Supply voltage 24 Vac or 18 to 33 Vdc. • Output signal 0 to 10 Vdc. • Female-threaded G1/8-inch connection. • Includes two screwed fittings for copper pipes, 6 mm diameter. 						
Application	<p>The QBE64-DP4 differential pressure sensor is 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 ceramic sensor element. The measured pressure is converted electronically into a linear 0 to 10 Vdc output signal.</p>						
Product Number	QBE64-DP4						
Ordering	<p>Specify the part number, product name and quantity.</p> <p><i>Example:</i></p> <table border="0"> <tr> <td>QBE64-DP4</td> <td>Differential Pressure Sensor</td> <td>1, and</td> </tr> <tr> <td>AQB51.1</td> <td>Mounting Kits</td> <td>2</td> </tr> </table> <p>A mounting bracket is included with the sensor. Any accessories must be ordered separately.</p>	QBE64-DP4	Differential Pressure Sensor	1, and	AQB51.1	Mounting Kits	2
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AQB51.1	Mounting Kits	2					

Accessories

AQB51.1 Mounting Kit:

- 2 brass thread adapters, 2 x 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.

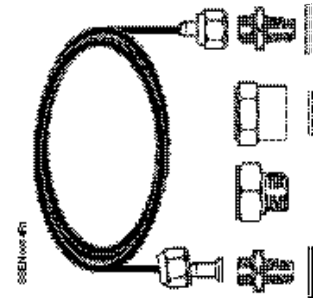


Figure 1. AQB51.1 Accessory Kit.

Compatibility

The QBE64-DP4 Differential Pressure Sensor can be used in conjunction with all devices or systems capable of processing a 0 to 10 Vdc output signal.

Technology

The pressure to be monitored acts on a ceramic sensor element. The ceramic element has the following significant advantages:

- Very low susceptibility to temperature.
- Resistance to high temperature.
- No mechanical aging or creepage.

The sensor signal is linear, temperature compensated and amplified by the sensor electronics.

Specifications

Power supply Low voltage (Class 2)
 24 Vac, 50/60 Hz or 18 to 33 Vdc
 $\pm 15\%$ with 24 Vac

Electrical interface

– Current consumption <5 mA with maximum output signal
 Output signal 0 to 10 Vdc , short-circuit-proof and proof against polarity reversal
 – Zero point voltage < 50 mV
 – Working resistance >10K Ohm

Product data

Differential pressure range 0 to 4 bar
 Measuring element Ceramic element
 Measuring accuracy Factory calibrated
 – Sum of hysteresis, linearity and repeatability $\pm 0.5\%$ FS (FS = Full Scale)
 – TC zero point $\pm 0.06\%$ FS/K
 – TC sensitivity Typically $\pm 0.015\%$ FS/K
 Overload on one side P1/Ps 8/8 bar
 System pressure 25 bar (P1 and P2 simultaneously)
 Bursting pressure 37.5 bar (1.5 x system pressure)
 Dynamic response:
 – Response time <5 ms
 – Load alternation <50 Hz

	Suitable media – Admissible temperature of medium	Air or mildly corrosive gases and liquids –5°F to 175°F (–15°C to 80°C)
	Maintenance	No maintenance required
Protective data	Protection standard	IP 65 to IEC 529
Connections	Connection cable Cable entry Pressure connections	3-core, 1.5 m long Cable gland Male-threaded G1/8-inch with screwed fittings for copper pipes (6 mm)
Mounting	Mounting bracket Orientation	For mounting in ducts, on walls or ceilings and in control panels Any (factory-calibrated with pressure connections at bottom) When used with liquids: purging points at top
General ambient conditions	Temperature ranges – Operation (electronics) – Storage/Transport Ambient humidity	5°F to 140°F (–15°C to 60°C) (electronics) –40°F to 175°F (–40°C to 80°C) <90% RH, non-condensing
Materials	Pressure casing, cover Parts in contact with medium Sealant Mounting bracket Mounting kit AQB51.1	Aluminum (AlMgSi1) Stainless steel (1.4305), ceramic element FPM (fluorelastomer) Stainless steel (1.4305) See <i>Accessories</i>
Dimensions/Weight	Weight (including packaging) Dimensions	1.9 lbs. (0.86 kg) See <i>Dimensions</i>
Safety	Protection standard	IP65 to IEC529 (with cover fitted)

Mechanical Design

The QBE64-DP4 Differential Pressure Sensor includes:

- Sensor cover with connecting cable and gland.
- Pressure sensor casing with ceramic element, screw connections and purging points.
- Printed circuit board.
- Two screwed fittings for copper pipe, 6 mm diameter.
- Mounting bracket.

Mounting Instructions

Mounting instructions are enclosed with the differential pressure sensor.

The QBE64-DP4 sensor can be connected directly with R1/8-inch screwed fittings. Special precautions must be taken on site when mounting the sensors, to ensure airtight screw connections.

Recommended measures

- Use standard T-fittings or drill and de-bur measuring holes, each .020-inch (5 mm) diameter, for the pressure tapping points (A).
- An isolating bypass (5) can be fitted to avoid overloading the pressure sensor on one side while making adjustments.
- For inspection purposes, measuring circuits can be fitted with a measuring-T at the sensor head.

Important note

Mounting for use with liquids:

- Always mount the sensor lower than the pressure measuring points.
- Mount on a vibration-free surface.
- Always evacuate the system.

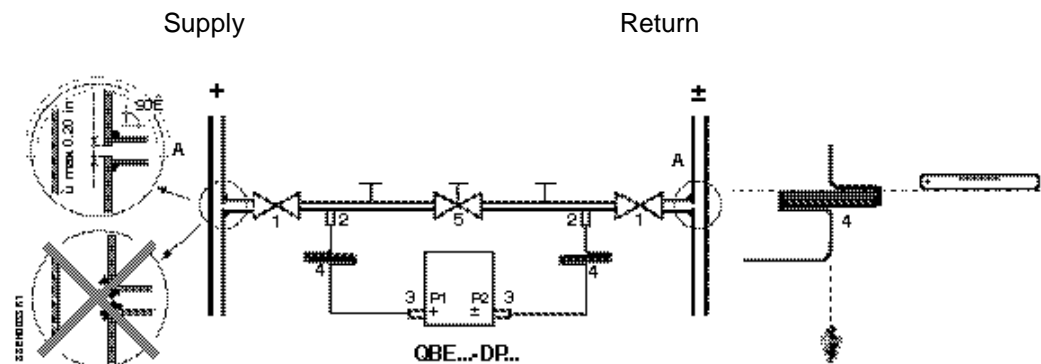
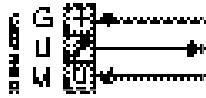


Figure 3. Mounting Diagram.

Key:

- A Measuring holes
- 1 Isolating valves
- 2 T-joints
- 3 Connection pieces (from mounting kit AQB 51.1)
- 4 Copper pipes (from mounting kit AQB 51.1)
- 5 Isolating bypass

**Connection
 Terminals**



Supply voltage 24 Vac or 18 to 33 Vdc
 0 to 10 Vdc output signal (reference point GND)
 GND

Figure 4. Electrical Diagram.

Dimensions

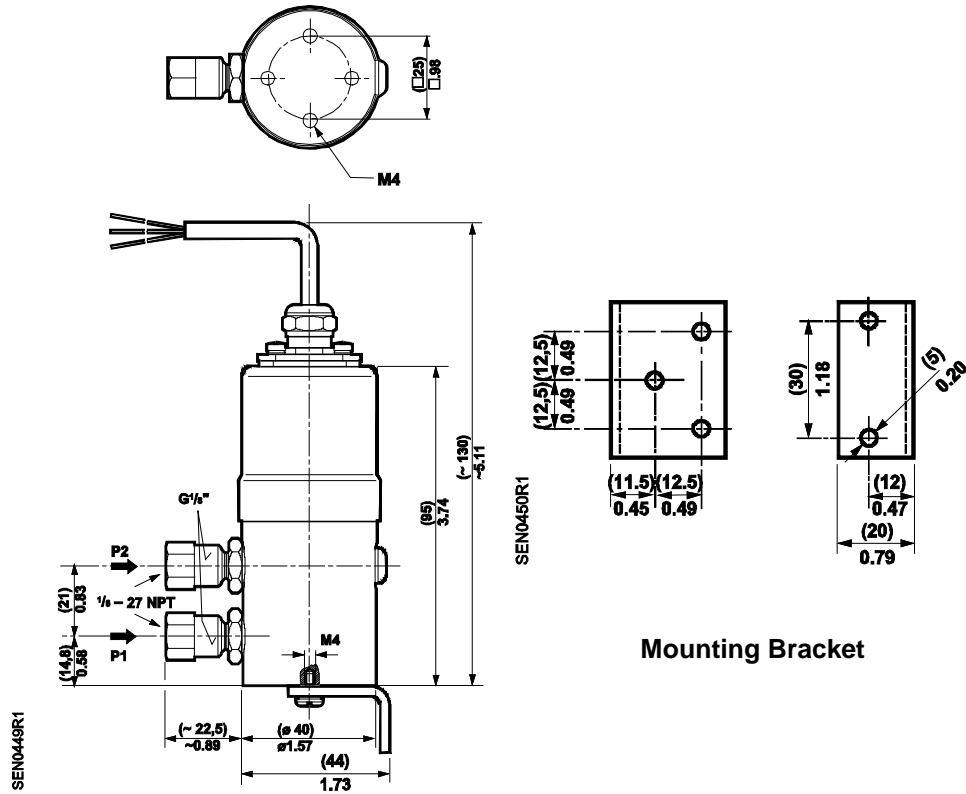


Figure 5. Dimensions in Inches (Millimeters).

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