



Differential Pressure Sensors

QBE63-DP...

for neutral and mildly corrosive liquids and gases

Differential pressure sensor, suitable for gases and liquids, for the measurement of positive and negative pressures and pressure differentials in HVAC systems.

- Hall-effect transducer technology
- Highly resistant to positive pressure
- Simple, robust construction for highly reliable operation
- For neutral and mildly corrosive liquids and gases
- Supply voltage AC 24 V or DC 20...30 V
- DC 0...10 V output signal
- Female-threaded G¹/₈" connection

Use

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.

The pressure being monitored acts on a measuring system comprising a diaphragm, permanent magnet and Hall-effect transducer. The measured pressure is converted electronically into a linear DC 0 ...10 V output signal.

Types

<i>Type</i>	<i>Pressure range</i>	
QBE63-DP01	0 ... 100 mbar	0 ... 10 kPa
QBE63-DP02	0 ... 200 mbar	0 ... 20 kPa
QBE63-DP05	0 ... 500 mbar	0 ... 50 kPa
QBE63-DP1	0 ... 1 bar	0 ... 100 kPa

Ordering and delivery

When ordering, please specify the quantity, product name and type code.

Example: **1 differential pressure sensor, type QBE63-DP05 and
2 mounting kits, type AQB51.1**

A suitable fixing bracket is supplied with the sensor.

Any accessories required must be ordered separately.

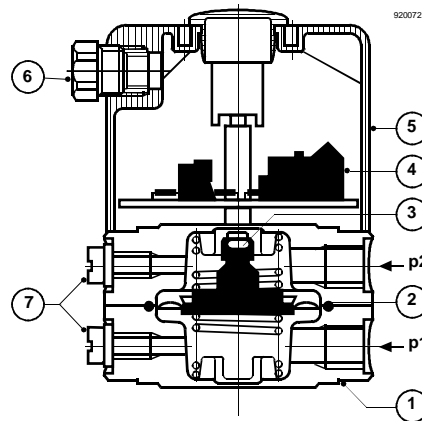
Compatibility

The QBE63-DP... differential pressure sensors can be used in conjunction with all devices or systems capable of processing the DC 0...10 V output signal.

Technology

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 linearised, temperature-compensated and amplified by the built-in electronics.

Cross-section



Key:

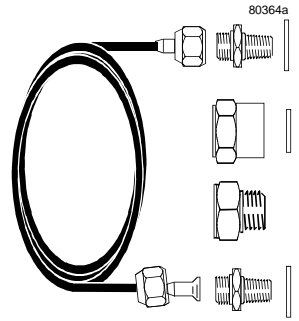
- 1) Pressure housing (measuring chamber)
 - 2) Diaphragm and spring
 - 3) Permanent magnet
 - 4) Hall-effect transducer with measuring electronics
 - 5) Cover
 - 6) Cable entry with PG9 gland
 - 7) Purging points
- p1 G¹/₈" threaded connection for higher pressure or lower vacuum
- p2 G¹/₈" threaded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

Mechanical design

The QBE63.DP... differential pressure sensors comprise:

- Plastic housing with Pg 9 cable gland
- Pressure casing with diaphragm and spring
- Printed circuit board with Hall-effect transducer
- Fixing bracket

- AQB51.1** Mounting kit comprising:
- 2 brass thread adapters, 2 x G^{1/8}", male
 - 2 copper seal, 1/8"
 - 1 m copper capillary with retaining nuts at each end, G^{1/8}" female
 - 1 thread adapter, G^{1/8}" female to G^{1/2}" female, with 1 copper seal, 1/2"
 - Thread adapter, G^{1/8}" female to R^{1/2}" male
 - Mounting instructions (no. 35757)



The components of the AQB51 mounting kit are supplied by SERTO, but the kit must be ordered from HVAC Products (SBT).

Other mounting arrangements can be ordered directly from the SERTO range.

Mounting instructions

Mounting instructions are enclosed with the differential pressure sensor. The QBE63-DP... sensors can be connected directly with G^{1/8}" or R^{1/8}" screwed fittings. Special precautions must be taken on site when mounting the sensors, to ensure airtight screw connections.

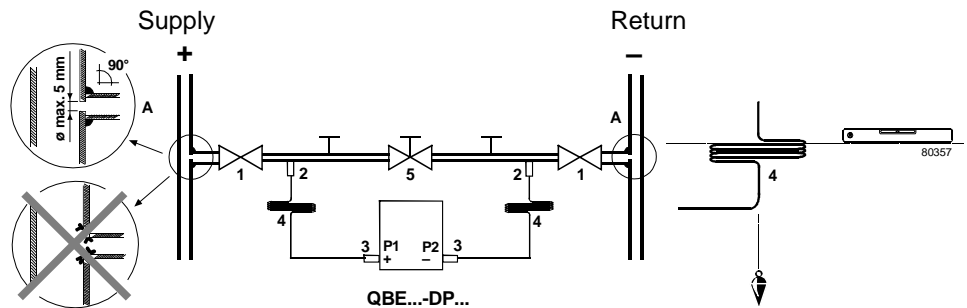
Recommended measures:

- Use standard T-fittings or drill and de-bur measuring holes, each 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

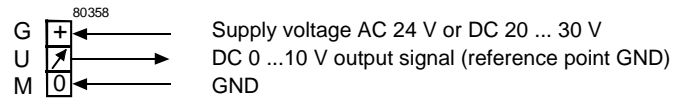


- Key:**
- A Measuring holes
 - 1 Isolating valves (SERTO SO 7100-6 GREY and, if required, screw-on base SERTO SO 09904-4-8)
 - 2 T-joints (SERTO SO 03000-1/8)
 - 3 Connection pieces (from mounting kit AQB 51.1)
 - 4 Copper pipes (from mounting kit AQB 51.1)
 - 5 Isolating bypass

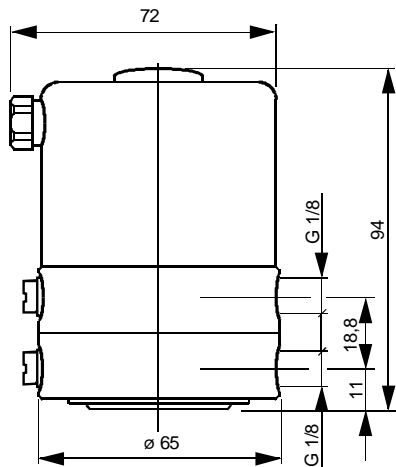
Technical data

Electrical interface	Power supply	Low voltage (SELV, PELV) AC 24 V, 50/60 Hz or DC 20...30 V
	– Max. voltage tolerance	+15 / –10 %
	Power consumption	<1 VA
	– Current consumption	35 mA
	Output signal	DC 0...10 V, short-circuit-proof and proof against polarity reversal
	Working resistance	≥10 kΩ
Product data	Differential pressure range	Operating range, see "Types"
	Measuring element	Hall-effect transducer
	Measuring accuracy	<±1.0 % FS (FS = Full Scale)
	Hysteresis	<±1.5 % FS
	Linearity	<±1.5 % FS
	Temperature drift	0.08 % FS / K (20 °C in relation to zero point)
	Overload capacity	10 bar (sensor range up to 200 mbar) 20 bar (sensor range from 500 mbar)
	Burst pressure	30 bar
	Dynamic response:	
	Response time	<10 ms
Load alternation	<10 Hz	
Suitable media	Air or mildly corrosive gases and liquids	
Admissible temperature of medium	–10...+80 °C	
Maintenance	No maintenance required	
Protective data	Protection standard	IP 65 to IEC 529 (with cover fitted)
	Combustion class	UL 94
	Cover	HB
Connections	Connection terminals	3 screw-terminals, 1.5 mm ²
	Cable entry	Pg 9 cable gland
	Pressure connections	Female-threaded G1/8"
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
Environmental conditions	Perm. ambient temperature	
	Operation	–25... +60 °C (electronics)
	Storage/Transport	–40... +80 °C
	Perm. ambient humidity	<90 % r. h. (non-condensing)
Standards	Electromagnetic compatibility	
	Immunity to	EN 50 082-2
	Emissions to	EN 50 081-1, EN 50 081-2
	CE conformity to EMC directive	89/336/EWG
Materials	Pressure casing	Nickel-plated brass
	Cover	Plastic (ABS without fibre-glass)
	Cable gland	Polystyrol
	Diaphragm	EPDM (ethylene propylene rubber)
	Mounting bracket	Galvanised steel
	Mounting kit AQB51.1	See "Accessories"
Weight	Including packaging	0.86 kg

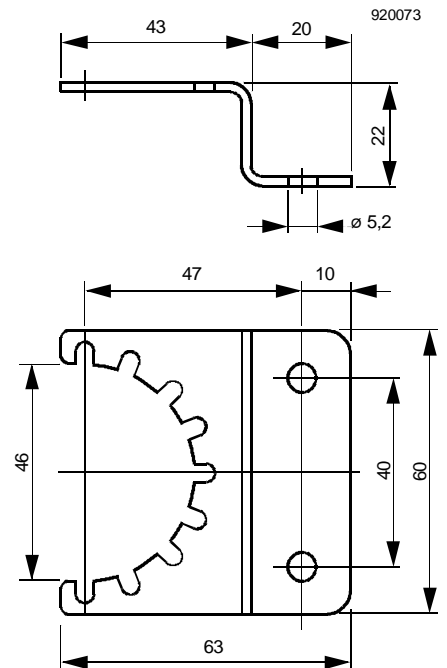
Connection terminals



Dimensions



Fixing bracket



Dimensions in mm

