Differential pressure sensor
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 G 1/8" 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

Four sensor types are available. The sensor range covers the full pressure range from 0 to 1000 mbar. A suitable fixing bracket is supplied with the sensor.

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure range</th>
<th>Output signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>QBE63-DP01</td>
<td>0 ... 100 mbar</td>
<td>0 ... 10 kPa DC 0 ...10 V</td>
</tr>
<tr>
<td>QBE63-DP02</td>
<td>0 ... 200 mbar</td>
<td>0 ... 20 kPa DC 0 ...10 V</td>
</tr>
<tr>
<td>QBE63-DP05</td>
<td>0 ... 500 mbar</td>
<td>0 ... 50 kPa DC 0 ...10 V</td>
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<tr>
<td>QBE63-DP1</td>
<td>0 ... 1 bar</td>
<td>0 ... 100 kPa DC 0 ...10 V</td>
</tr>
</tbody>
</table>

Ordering

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

Accessories

Any accessories required must be ordered separately.

The components of the AQB51 mounting kit are supplied by SERTO, but the kit must be ordered from Landis & Staefa Division.

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

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)

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.
**Mechanical design**

The QBE63.DP... differential pressure sensors comprise:
- Plastic housing with PG9 cable gland
- Pressure casing with diaphragm and spring
- Printed circuit board with Hall-effect transducer
- Fixing bracket

**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
### 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 kOhm

#### Product data
- **Differential pressure range**
  - Operating range, see "Types"
- **Measuring element**
  - Hall-effect transducer
- **Measuring accuracy**
  - Hysteresis: < ± 1.0% FS
  - Linearity: < ± 1.5% FS
  - Temperature drift: 0.08% FS / K (20°C in relation to zero point)

#### Measuring accuracy
- **Overload capacity**
  - 10 bar (sensor range up to 200 mbar)
  - 20 bar (sensor range from 500 mbar)

#### Overload capacity
- **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

#### Materials
- **Maintenance**
  - No maintenance required
- **Pressure casing**
  - Nickel-plated brass
- **Cover**
  - Plastic (ABS without fibre-glass)
  - Polystyrol
- **Diaphragm**
  - EPDM (ethylene propylene rubber)
- **Mounting bracket**
  - Galvanised steel
- **Mounting kit AQB51.1**
  - See "Accessories"

#### Connections
- **Connection terminals**
  - 3 screw-terminals, 1.5 mm²
- **Cable entry**
  - PG9 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

#### General ambient conditions
- **Temperature ranges**
  - Operation: −25 ... +60°C (electronics)
  - Storage / Transport: −40 ... +80°C
- **Ambient humidity**
  - < 90% rH, non-condensing

#### Dimensions / Weight
- **Weight (including packaging)**
  - 0.86 kg

#### Safety
- **Protection standard**
  - IP65 to IEC529 (with cover fitted)
- **Combustion class**
  - UL 94 HB
- **Meets the requirements for CE marking in:**
  - EG89/336 (EMC), EN50081-1, EN50081-2, EN50082-2
Connection terminals

Supply voltage AC 24 V or DC 20 … 30 V
DC 0 … 10 V output signal (reference point GND)
GND

Dimensions

All dimensions in mm

Fixing bracket

- Supply voltage AC 24 V or DC 20 … 30 V
- DC 0 … 10 V output signal (reference point GND)
- GND

Dimensions:

- Fixing bracket: 72 x 65 x 11 mm
- G1/8
- ø 5.2
- 47 x 60 mm
- 45 x 63 mm
- 43 x 20 mm
- 920073