SIEMENS

QBE2003-P…
Pressure Sensors QBE2103-P…

for neutral and slightly aggressive liquids and gases

- **High-precision measuring**
- **Measuring range 0 to 60 bar relative**
- **Supply voltage AC 24 V / DC 12...33 V or DC 7…33 V**
- **DC 0 ...10 V or DC 4…20 mA output signal**
- **Measurement unaffected by changes in temperature**
- **High temperature stability**
- **Connection: external thread G ½", inside thread M5**
- **Maintenance free thanks to outstanding long-term stability**
- **High overload resistance**
- **Robust and compact construction**

A6V10432494_en--_a
2014-08-29

Building Technologies

Use

The pressure sensors are suitable for the measurement of relative pressure in HVAC plant, particularly in hydraulic and pneumatic systems using liquid or gaseous media (steam applications).

Type summary

Type reference	*Stock number*	*Pressure range*		*Output signal*
QBE2003-P1	S55720-S290	0...1 bar	0...100 kPa	0…10 V
QBE2003-P1.6	S55720-S291	0...1.6 bar	0...160 kPa	0…10 V
QBE2003-P2.5	S55720-S292	0...2.5 bar	0...250 kPa	0…10 V
QBE2003-P4	S55720-S293	0...4 bar	0...400 kPa	0…10 V
QBE2003-P6	S55720-S294	0...6 bar	0...600 kPa	0…10 V
QBE2003-P10	S55720-S295	0...10 bar	0...1.0 MPa	0…10 V
QBE2003-P16	S55720-S296	0...16 bar	0...1.6 MPa	0…10 V
QBE2003-P25	S55720-S297	0...25 bar	0...2.5 MPa	0…10 V
QBE2003-P40	S55720-S298	0...40 bar	0...4.0 MPa	0…10 V
QBE2003-P60	S55720-S299	0...60 bar	0...6.0 MPa	0…10 V
QBE2103-P1	S55720-S300	0...1 bar	0...100 kPa	4…20 mA
QBE2103-P1.6	S55720-S301	0...1.6 bar	0...160 kPa	4…20 mA
QBE2103-P2.5	S55720-S302	0...2.5 bar	0...250 kPa	4…20 mA
QBE2103-P4	S55720-S303	0...4 bar	0...400 kPa	4…20 mA
QBE2103-P6	S55720-S304	0...6 bar	0...600 kPa	4…20 mA
QBE2103-P10	S55720-S305	0...10 bar	0...1.0 MPa	4…20 mA
QBE2103-P16	S55720-S306	0...16 bar	0...1.6 MPa	4…20 mA
QBE2103-P25	S55720-S307	0...25 bar	0...2.5 MPa	4…20 mA
QBE2103-P40	S55720-S308	0...40 bar	0...4.0 MPa	4…20 mA
QBE2103-P60	S55720-S309	0...60 bar	0...6.0 MPa	4…20 mA

Ordering and delivery

When ordering a pressure sensor, please provide quantity, type reference, stock number and product name.

Example

Quantity	**Type ref. (ASN)**	**Stock number (SSN)**	**Product Name**
1	QBE2003-P1	S55720-S290	Pressure sensor

Any accessories required must be ordered separately.

Accessories

Type ref.	**Stock number (SSN)**	**Name**	**Data sheet**
AQB2004	S55720-S318	Fixing bracket for sensor (for remote mounting).	A6V10434028
AQB2001	S55720-S116	Mounting kit for remote mounting with 1 m copper capillary line. Pressure connection with G ⅛" or G ½" outer threading	A6V10434028

Mode of operation

The pressure sensors operate on the piezo-resistive measuring principle. The ceramics diaphragm (thick-film hybrid technology) acquires the pressure through direct contact with the medium. The measurement is converted electronically into a linear output signal of DC 0...10 V or DC 4…20 mA.

Mechanical design

The pressure sensor consists of:

- Sensor hood with DIN EN 175301-803-A plug-in connection
- Piezo-resistive measuring element integrated in the stainless steel case
- Pressure connection external thread G ½" and inside thread M5 for use with accessory AQB2001
- Plug DIN EN 175301-803-A (plugged in)

No changes or adjustments are possible.

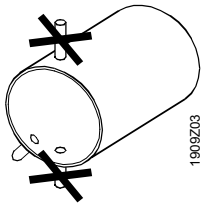
Mounting notes

Mounting Instructions are enclosed with the sensor. For further information about mounting location and mounting position refer to the sensor mounting user's manual at the BT download center: http://siemens.com/bt/download.
Appropriate measures must be taken to ensure a leak-proof fitting.
To provide for test measurements without leakage of the medium, it is strongly recommended that an appropriate test adapter and shutoff device be fitted.

Pressure measurement with liquids

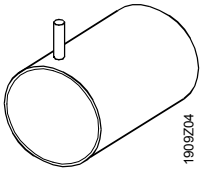
The tapping point should be at the side, near the bottom of the pipe. Do not measure the pressure from the top of the pipe (where it may be affected by airlocks) or the bottom (where it may be affected by dirt).

Always evacuate the system.



Pressure measurement with condensing gases

The tapping point should be at the top so that no condensate reaches the sensor.



Disposal

The devices are considered electronics devices for disposal in terms of European Directive 2012/19/EU and may not be disposed of as domestic waste.

- Dispose of the device via the channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

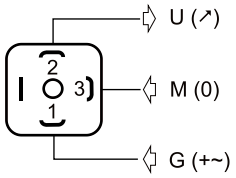
Technical data

Electrical interface	Power supply		Protection by extra low voltage (SELV, PELV)
	Supply voltage (QBE2003…) Current consumption		AC 24 V ±15 %, 50...60 Hz or DC 12...33 V <7 mA, < 0.5 VA
	Supply voltage (QBE2103…) Current consumption		DC 7…33 V <23 mA, < 0.7 VA
	External supply line protection		Fuse slow max. 10 A or Circuit breaker max. 13 A Characteristic B, C, D according to EN 60898 or Power source with current limitation of max. 10 A
	Output signal QBE2003…		DC 0 ...10 V, load >10 kΩ, < 100 nF, 3-wire
	Output signal QBE2103…		DC 4…20 mA, $R_{Load} \leq \frac{\text{Operating voltage} - 7\ V}{0{,}02\ A}$ Ohm 2-wire
	Insulation voltage		500V
	Short circuit proof, protected against reverse polarity		Any connection
Functional data	Application range		Refer to "Type summary"
Measuring accuracy *FS = Full scale*	Characteristic curve [1)] Resolution Temperature response Long-term stability (as per IEC EN60770-1)		±0.3 % FS 0.1 % FS <±0.2 % FS/10 °C *(-15…85°C)* <±0.25 % FS
	[1)] typical; max. 0.5 % FS (including zero point, end value, linearity, hysteresis, and reproducibility)		
	Dynamic response		Response time: <2 ms, typical 1 ms Load change: < 100 Hz
	Nominal pressure		Relative pressure as in "Type summary" (measurement of difference from ambient pressure)
	Max. admissible pressure/ Rupture pressure		3 x scale end value of measuring range 0…1 to 0…4 bar 2.5 x scale end value of measuring range 0...6 to 0...60 bar
	Media Admissible temperature of medium		Neutral and slightly corrosive liquids and gases (suited for use with oil-contacting media) −15...+125 °C
	Maintenance		maintenance-free
	Mounting position		optional
Protection	Protection standard		IP 65 to EN 60529
	Protection class		III according to EN 60730
Connections	Electric connection		Plug DIN EN 175301-803-A, Cable diameter 6-8 mm
	Screwed fitting		External thread G ½", inside thread M5
Environmental conditions			Operation / Storage
	Temperature		−30...+85 °C / −50...+100 °C
	Humidity		Insensitive to Condensation / Insensitive to Condensation
Directives and standards	Product standard		EN 61326-1 Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements
Materials	Pressure connection		Stainless steel 1.4404 / AISI 316L
	Plug housing		Polyarylamide 50 % GF VO
	Materials and media contact	Press. connection Meas.element Sealant	Stainless steel 1.4404 / AISI 316L Ceramics Al2O3 (96 %) FPM
Conformity	EU Conformity (CE)		CE1T1907xx *)
	RCM Conformity		CE1T1909en_C1 *)
Weight	Including packaging		0,171 kg

*) The documents can be downloaded from http://siemens.com/bt/download.

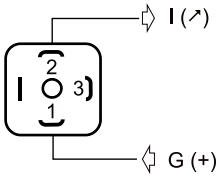
Internal diagram

QBE2003…



BT-Terminal marking	*Terminal nr.*	*Meaning*
U (↗)	*2*	Output signal DC 0...10 V (signal ground GND)
M (0)	*3*	GND
G (+)	*1*	Supply voltage AC 24 V or DC 12...33 V

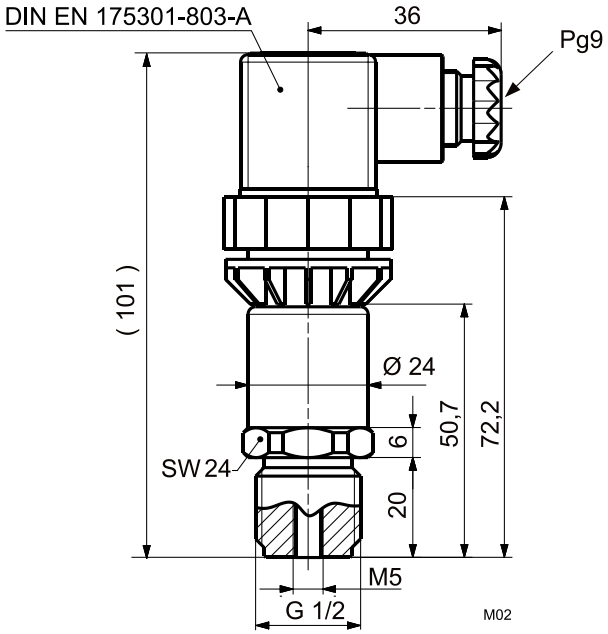
QBE2103…



BT-Terminal marking	*Terminal nr.*	*Meaning*
I (↗)	*2*	Output signal DC 4...20 mA
G (+)	*1*	Supply voltage DC 7...33 V

Dimensions

QBE2003-P…
QBE2103-P…



©2005-2014 Siemens Switzerland Ltd.