SIEMENS

QBE2003-P…
QBE2103-P…

Pressure Sensors

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**

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Smart Infrastructure

Промэлектроника, sales@prom-elec.com

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	*Order 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

*) These types do not have M5 inside threads.

Ordering and delivery

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

Example

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

Any accessories required must be ordered separately.

Accessories

Type	**Order No.(SSN)**	**Name**	**Data Sheet**
AQB2004)**	S55720-S318	Mounting bracket to attach the pressure sensor for remote mounting.	A6V10434028
AQB2001)**	S55720-S116	Connection set for remote mounting with 1 m copper capillary line. Pressure connection external thread G ⅛" or G ½".	A6V10434028

**) Cannot be used with types QBE2003-P10, QBE2003-P16, QBE2003-P25, QBE2103-P10, QBE2103-P16, and QBE2103-P25. These types do not have M5 inside threads.

Mode of operation

The pressure sensors operate on the piezo-resistive measuring principle. The ceramic or stainless steel diaphram*) (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.

*) Applies to QBE2003-P10, QBE2003-P16, QBE2003-P25, QBE2103-P10, QBE2103-P16, and QBE2103-P25

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.

*) The following types do not have M5 inside threads:
QBE2003-P10, QBE2003-P16, QBE2003-P25, QBE2103-P10, QBE2103-P16, and QBE2103-P25

**) Cannot be used on types QBE2003-P10, QBE2003-P16, QBE2003-P25, QBE2103-P10, QBE2103-P16, and QBE2103-P25. A solution on the construction side using the ½" threaded connection is possible.

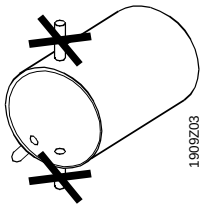
Mounting notes

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

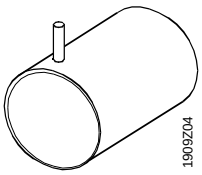
The tapping point should be at the side, near the bottom of the pipe. Do not measure the pressure from the top of the pipe (where it may be affected by airlocks) or the bottom (where it may be affected by dirt).

Always purge the system.



Pressure measurement with condensing gases

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



Important note

Ensure suitable constructions measures are undertaken to avoid pressure shocks in the plant; pressure shocks may damage the pressure sensor's diaphragm.
In the event that pressure shocks are unavoidable, a panel screw (M5) may be able to weaken the effect. Contact in this case your nearest Siemens branch office.

Disposal

The device is considered electrical and electronic equipment for disposal in terms of the applicable European Directive and may not be disposed of as domestic garbage.

- 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.elem.**) Sealant	Stainless steel 1.4404 / AISI 316L Ceramics Al2O3 (96 %) Stainless steel FPM
Conformity	EU Conformity (CE)		8000078214 ***)
	RCM Conformity		CE1T1909en_C1 ***)
Weight	Including packaging		0,171 kg

*) The following types do not have M5 inside threads.

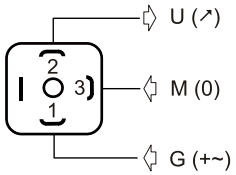
QBE2003-P10, QBE2003-P16, QBE2003-P25, QBE2103-P10, QBE2103-P16, and QBE2103-P25

**) Stainless steel for types QBE2003-P10, QBE2003-P16, QBE2003-P25, QBE2103-P10, QBE2103-P16, and QBE2103-P25

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

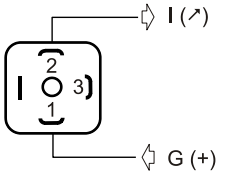
Internal diagram

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…



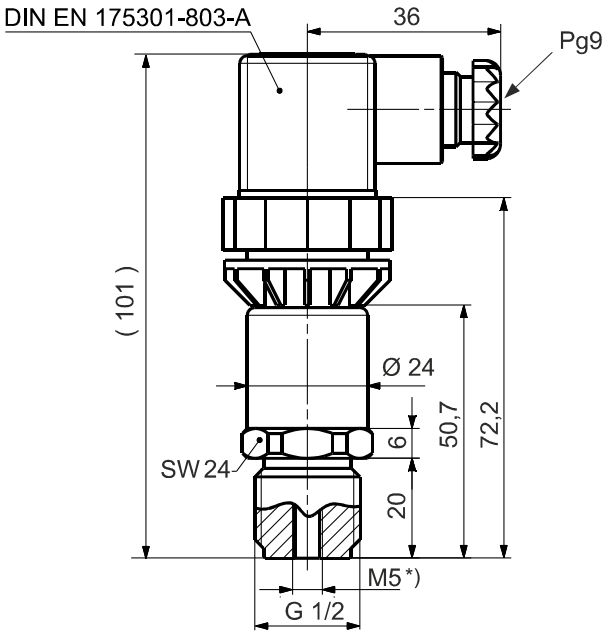
BT-Terminal marking	*Terminal nr.*	*Meaning*
I (↗)	*2*	Output signal DC 4...20 mA
G (+)	*1*	Supply voltage DC 7...33 V

Dimensions

QBE2003-P…
QBE2103-P…

***) The following types do not have M5 interior threads:**

QBE2003-P10
QBE2003-P16
QBE2003-P25
QBE2103-P10
QBE2103-P16
QBE2103-P25



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