



Pressure Sensors

for refrigerants incl. ammonia

QBE2004-P...
QBE2104-P...

- High-precision measuring
- Measuring range -1 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
- Seal free, fully welded
- Measurement unaffected by changes in temperature
- High temperature stability
- Internal thread 7/16-20 UNF
- High overload resistance
- Suitable for all media, including ammonia
- Maintenance free thanks to outstanding long-term stability
- Robust and compact construction

Use

The pressure sensors are suitable for the measurement of static and dynamic positive pressure in HVAC plant, particularly in hydraulic and refrigeration systems using liquid or gaseous media.

Type summary

Type reference	Stock number	Pressure range		Output signal
QBE2004-P10U	S55720-S310	–1...+9 bar	–100... +900 kPa	DC 0...10 V
QBE2004-P25U	S55720-S311	–1...+24 bar	–100...+2400 kPa	DC 0...10 V
QBE2004-P30U	S55720-S312	–1...+29 bar	–100...+2900 kPa	DC 0...10 V
QBE2004-P60U	S55720-S313	–1...+59 bar	–100...+5900 kPa	DC 0...10 V
QBE2104-P10U	S55720-S314	–1...+9 bar	–100... +900 kPa	DC 4...20 mA
QBE2104-P25U	S55720-S315	–1...+24 bar	–100...+2400 kPa	DC 4...20 mA
QBE2104-P30U	S55720-S316	–1...+29 bar	–100...+2900 kPa	DC 4...20 mA
QBE2104-P60U	S55720-S317	–1...+59 bar	–100...+5900 kPa	DC 4...20 mA

Ordering and delivery

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

Example

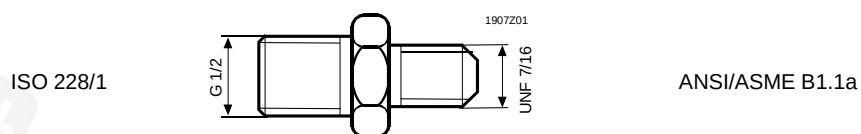
Quantity	Type ref. (ASN)	Stock number (SSN)	Product Name
1	QBE2004-P10U	S55720-S310	Pressure sensor

Any accessories required must be ordered separately.

Accessories

Type ref.	Name	Data sheet
FT-PZ1	Adapter for QBE2x04 with G ½" thread	A6V10434676
AQB2004	Fixing bracket for sensor (for remote mounting)	A6V10434028

FT-PZ1 consists of a transition screw fitting made from stainless steel (1.4305) and two copper seals. The adapter is used for gas or hydraulic systems with G ½" threads where higher medium temperatures are required.



Caution !

Not suitable for refrigerants (**ammonia**).

Mode of operation

The pressure sensors operate on the piezo-resistive measuring principle. The sensor diaphragm (measuring element) of stainless steel acquires the pressure through direct contact with the medium. The pressure measuring cell is fully welded. 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:

- Piezo-resistive measuring element integrated in the stainless steel case
- Pressure connection, female thread $\frac{7}{16}$ -20 UNF
- PVC cable electrical connection, 1.5m

No changes or adjustments are possible.

Mounting notes

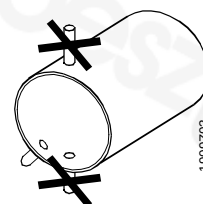
Mounting Instructions are enclosed with the sensor. Connection set FT-PZ1 is required to connect the sensor to G $\frac{1}{2}$ threaded systems (see "Accessories"). The supplied copper seal must be placed on the flange seat to ensure a leak-proof fit.

To provide for test measurements without leakage of the medium, it is strongly recommended that an appropriate test adapter and shutoff device be fitted. The interior tappets in the sensor threads open (or close) any existing SCHRADER fittings when mounting (or dismounting).

Pressure measurement with liquids

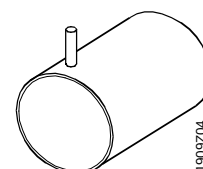
The tapping point should be at the side, near the bottom of the pipe. Do not measure the pressure from the top of the pipe (where it may be affected by airlocks) or the bottom (where it may be affected by dirt).

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 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.

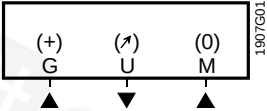
- Dispose of the device via the channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

Technical data

Electrical interface	Power supply	Protection by extra low voltage (SELV, PELV)	
	Supply voltage (QBE2004...)	AC 24 V ±15 %, 50...60 Hz or DC 12...33 V	
	Current consumption	<7 mA, < 0.5 VA	
	Supply voltage (QBE2104...)	DC 7...33 V	
	Current consumption	< 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 QBE2004...	DC 0 ...10 V, load >10 kΩ, < 100 nF, 3-wire	
	Output signal QBE2104...	DC 4...20 mA, $R_{Load} \leq \frac{\text{Operating voltage} - 7 \text{ V}}{0,02 \text{ A}}$ Ohm 2-wire	
	Insulation voltage	500V	
	Application range	Refer to "Type summary"	
Functional data	Characteristic curve ¹⁾	±0.3 % FS	
Measuring accuracy FS = Full scale	Resolution	0.1 % FS	
	Temperature response	<±0.2 % FS/10 °C (-15...85 °C)	
	Long-term stability (as per IEC EN60770-1)	<±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	3 x scale end value of measuring range (FS)	
	Rupture pressure	6 x scale end value of measuring range (FS)	
	Media	Suitable for all media, including ammonia (see "Accessories")	
	Admissible temperature of medium	-40...+135 °C	
Protection	Protection standard	IP 67 to EN 60529	
	Protection class	III according to EN 60730-1	
Connections	Electric connection		
	QBE2004	PVC cable length 1.5 m, 3 x 0.5 mm ²	
	QBE2104	PVC cable length 1.5 m, 2 x 0.5 mm ²	
	Screwed fitting	Internal thread 7/16-20 UNF	
	Temperature	Operation	Storage
		-30...+85 °C	-50...+100 °C
	Humidity	Insensitive to	Insensitive to
		Condensation	Condensation
	Mechanical robustness		
	Shock	DIN IEC 60 066-2-27	
	Continuous shock	DIN IEC 60 068-2-29	
Vibration	DIN IEC 60 068-2-6		
Maintenance	maintenance-free		
Mounting position	optional		
Directives and standards	Product standard	EN 61326-1	
		Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements	
	EU Conformity (CE)	8000078214 *)	
	RCM Conformity	CE1T1909en_C1 *)	
Weight	Including packaging	0,171 kg	

Internal diagram

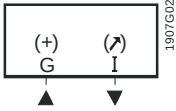
QBE2004-P...



Legend

SBT-Terminal marking	Core color	Meaning
G (+)	brown	Supply voltage AC 24 V or DC 12...33 V
U (I)	green	Output signal DC 0...10 V (Reference point 0)
M (0)	white	GND

QBE2104-P...

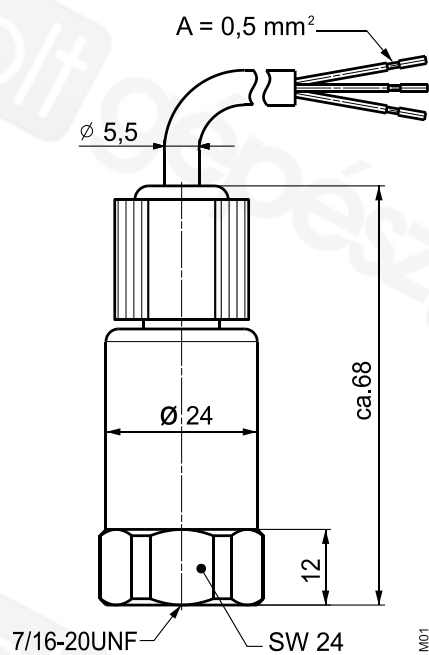


Legend

SBT-Terminal marking	Core color	Meaning
G (+)	brown	Supply voltage DC 7...33 V
I (I)	green	Output signal DC 4...20 mA

Dimensions

QBE2004-P...
QBE2104-P...



Published by:
Siemens Switzerland Ltd.
Building Technologies Division
International Headquarters
Gubelstrasse 22
6301 Zug
Switzerland
Tel. +41 58-724 24 24
www.siemens.com/buildingtechnologies

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