Pressure Sensors QBE2001-P...

for refrigerants

- **Piezo-resistive measuring system**
- **DC 0...10 V output signal**
- **Integral cast encapsulated**
- **Measurement unaffected by changes in temperature**
- **High temperature stability**
- **No mechanical aging or creepage**
- **Internal thread $^{7}/_{16}$-20 UNF**
- **Excellent EMC characteristics**
- **For use with all media, included ammonia**

Use

The QBE2001-P... pressure sensors are suitable for the measurement of static and dynamic positive pressures in HVAC plant, particularly in hydraulic and refrigeration systems using liquid or gaseous media.

Technical design

The QBE2001-P... 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.

Type summary

Type reference	*Pressure range*		
QBE2001-P10U	−1...+9 bar	−100... +900 kPa	−14.5... +130.0 psi
QBE2001-P25U	−1...+24 bar	−100...+2400 kPa	−14.5... +348.0 psi

Ordering

When ordering, please give name and type reference, e.g.:
Pressure sensor **QBE2001-P10U**
Any accessories required must be ordered separately.

Equipment combinations

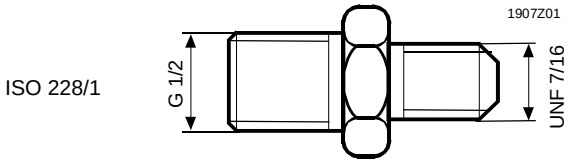
The QBE2001-P... pressure sensors can be combined with all devices or systems capable of processing the DC 0 ...10 V output signal from the pressure sensor.

Mechanical design

The QBE2001-P... pressure sensors are compact units and cannot be dismantled. No changes or adjustments are possible.

Accessories

FT-PZ1 The FT-PZ1 thread adapter kit is available for connection to gas or hydraulic systems with G½" threads. The kit comprises 1 stainless steel (1.4306) reducing coupling and 2 copper sealing washers.

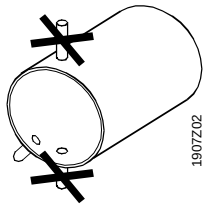


Fitting notes

Mounting Instructions are enclosed with the sensor.
The FT-PZ1 thread adapter (reducing coupling and copper sealing washer) should be used for connections to systems with G½" threads (refer to "Accessories").
To provide for test measurements without leakage of the medium, it is strongly recommended that an appropriate test adapter and shutoff device should be fitted. The pin on the inside of the screwed fitting of the sensor is designed to ensure that any Schrader-type fitting will be opened (or closed) when the sensor is installed or removed.
To ensure tight fitting without leakage, a copper sealing washer (not supplied) should be fitted to the flange seat.

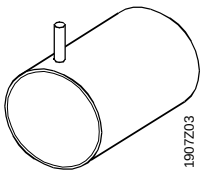
Pressure measurement with liquids

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

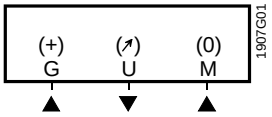
The tapping point should be at the top so that no condensate reaches the sensor.



Technical data

Electrical interface	Power supply	with extra-low voltage only (SELV, PELV)
	Supply voltage	AC 24 V, 50...60 Hz or DC 16...33 V
	Max. voltage tolerance	±15 % at AC 24 V
	Current consumption	<4 mA
	Output signal	DC 0 ...10 V, R_{Load} >10 kΩ (not galvanically separated, 3-wire connection, short-circuit proof and protected against polarity reversal)
Functional data	Application range	
	QBE2001-P10U	−1...+9 bar
	QBE2001-P25U	−1...+24 bar
	Accuracy:	(FS = Full Scale)
	Total of linearity, hysteresis and reproducibility	<±0.5 % FS
	Zero point offset voltage	<30 mV
	Temperature drift:	
	TC zero point	<±0.03 % FS/K (typically)
	TC sensitivity	<±0.015 % FS/K (typically)
	Response time	<2 ms
	Nominal pressure	relative pressure as in "Type summary" (measurement of difference from ambient pressure)
	Max. admissible pressure	
	QBE2001-P10U	30 bar
	QBE2001-P25U	75 bar
	Rupture pressure	6 x scale end value of measuring range (FS)
	Media	for use with all media, included ammonia
	Admissible temperature of medium	−40...+125 °C
	Maintenance	maintenance-free
	Mounting position	optional
Protection	Protection standard	IP 67 to EN 60 529
Connections	Connecting cable	PVC, length 1.5 m, 3 x 0.25 mm^2 stranded wires
	Screwed fitting	internal thread $^7/_{16}$-20 UNF
Environmental conditions	Operation to	IEC 721-3-3
	Climatic conditions	class 3K7
	Temperature	−40...+85 °C
	Humidity	<95 % r.h.
	Storage/transport	
	Climatic conditions	
	Temperature	−40...+85 °C
	Humidity	<95 % r.h.
Standards	Electromagnetic compatibility	
	Immunity to	EN 61 000-6-2, EN 61 326-1
	Emissions to	EN 61 000-6-3, EN 55 022, EN 61 326-1
	CE conformity to	
	EMC directive	89/336/EEC
	C-Tick conformity to	
	Australian EMC Framework	Radio Communication Act 1992
	Radio Interference Emission Standard	AS/NZS 3548
Materials	Base	stainless steel (1.4305)
	Measuring element	ceramics diaphragm
	Cover	stainless steel (1.4305)
	Sealant	metallically welded
	FT-PZ1 coupling	stainless steel (1.4305)
	Flat-faced seal for FT-PZ1	copper
Weight	Including packaging	0.172 kg

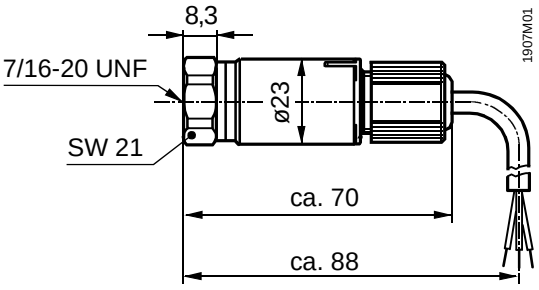
Internal diagram



Legend

SBT terminal marking	*Color of core*	*Meaning*
G (+)	Brown	Supply voltage AC 24 V or DC 16 ... 33 V
U (↗)	Green	Output signal DC 0...10 V (signal ground GND)
M (0)	White	GND

Dimensions



Dimensions in mm