

Barometric Transmitter

BAROsense

○ GUARANTEE OF ACCURACY AND PRECISION

Piezo-resistive pressure sensor with integrated temperature sensor

○ COMBINATION OF MULTIPLE PARAMETERS

Optional input for combined temperature and relative humidity probe

○ WIDE VARIETY OF OUTPUT CHOICE

Standard with RS485 output

As option, analog current or voltage additional output

○ IDEAL FOR REMOTE INSTALLATION

Digital output for data transmission over long distances

○ STAND-ALONE OR PART OF A NETWORK

RS485 output with MODBUS-RTU or proprietary protocol for connection into sensors networks

BAROsense is a barometric transmitter equipped with a precision piezo-resistive pressure sensor with integrated temperature sensor. The pressure and temperature measurements are digitally processed to obtain a pressure output value compensated over the whole transmitter temperature operating range.

The sensor is factory calibrated in multiple points and has excellent time stability and repeatability.

The instrument has a digital RS485 output with MODBUS-RTU or proprietary protocol. As option, it can be supplied with an additional analog output, which can be selected in current or voltage via an internal jumper. The current output is user configurable 0/4...20 mA, while the voltage output must be defined when ordering (0...1 V, 0...5 V or 0...10 V).

The transmitter digital output enables the transmission of the measurements over long distances and connects the transmitter to sensors networks.

The pressure can be expressed in different user-selectable units of measurement. Versions with optional display are available for immediate and direct reading.

For outdoor installation, a static port with support bracket is available. This is meant to minimize the measurement error caused by the wind flow on the pressure input and to make measurements in open field extremely accurate and reliable.



BAROsense with optional static port

Main Applications

- Meteorological Applications
- Environmental Monitoring System
- Altitude applications
- Barometric pressure compensation in internal combustion engines
- Cleanrooms
- Testing of vehicle emissions



BAROsense with static port and LCD

Technical Specifications

BAROMETRIC PRESSURE

Sensor	Piezoresistive
Measuring range	300...1100 hPa Configurable for the analog output: default 600...1100 hPa
Resolution	0.1 hPa for the display 0.01 hPa for the output
Accuracy	± 0.5 hPa (700...1100 hPa) @ 20 °C ± 1 hPa (500...1100 hPa) ± 1.5 hPa (300...500 hPa) @ T=(0...60 °C)
Long-term stability	< ± 1 hPa/year

RELATIVE HUMIDITY (with optional external T/RH probe)

Sensor	Capacitive
Measuring range	0...100 %RH
Resolution	0.1%
Accuracy	± 2.5% (0...85%) ± 3.5% (85...100%) @ T=23 °C
Temperature drift	0.05%/K (0...60 °C)
Sensor operating temp.	-40...+105 °C (R.H. max= [100-2*(T-80)] @ T=80...105 °C)
Response time	$T_{63} < 4$ s (air speed = 2 m/s, without filter)
Long-term stability	< 1%/year (@ 23 °C and 30...70 %RH)

TEMPERATURE (with optional external T/RH probe)

Sensor	PTAT integrated in humidity module
Measuring range	-40...+105 °C
Resolution	0.1 °C
Accuracy	± 0.2 °C in the range 0...+60 °C ± (0.2 - 0.05 * T) °C in the range T=-40...0 °C ± [0.2 + 0.032 * (T-60)] °C in the range T=+60...+105 °C
Long-term stability	0.05 °C/year

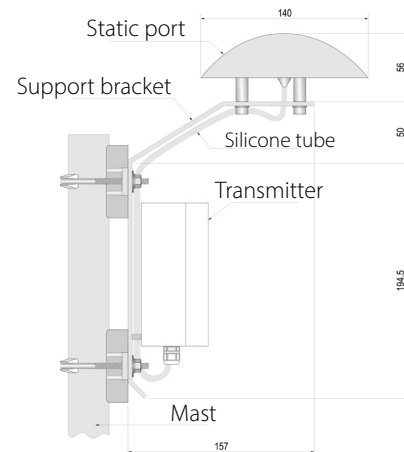
Accessories

SWD10F	100...240 Vac / 12 Vdc – 1A power supply. Includes adapter cable with jack connector on the power supply side and free wires on the instrument side.
HP3517ITC1...	Temperature and relative humidity combined probe. 4-pole M12 connector. T/RH measuring range: -40...+105 °C / 0...100%. Stem dimensions: Ø14 x 135 mm. Material: PBT. Cable length: 2 m.
HD9007A-1	12-ring protection from solar radiations. Supplied with mounting bracket. For the HP3517ITC1... probe.
HD9007A-2	16-ring protection from solar radiations. Supplied with mounting bracket. For the HP3517ITC1... probe.
HD9007T26.2	Fitting for Ø 14 mm probes for the protections from solar radiations HD9007A-1 and HD9007A-2.

GENERAL FEATURES

Output	RS485 (Modbus-RTU or ASCII proprietary protocol) Optional analog output, selectable in current (0/4...20 mA) or voltage (0...1 V, 0...5 V or 0...10 V, depending on the model)
Power supply	BAROsense-M: 7...30 Vdc BAROsense-1 and BAROsense-5: 8...30 Vdc BAROsense-10: 15...30 Vdc
Consumption	4 mA @ 24 Vdc (+ output current if current output is used)
Connection	Internal screw terminal header / PG7 cable gland for power supply and output. Optional M12 connector for the T/RH external probe.
Operating conditions	-40...+60 °C (-20...+60 °C with LCD) 0...100 %RH
Compatible media	Air and dry gases
Materials	Transmitter: polycarbonate, pressure input in nickel-plated brass Static port (optional): ASA Support bracket (optional): aluminium alloy
Weight	250 g approx. (+ 570 g approx. for static port)
Protection degree	IP 65

Dimensions



Ordering Codes

BAROsense

Static port <i>Blank</i> = without static port <i>K</i> = with static port + bracket
LCD <i>Blank</i> = without LCD <i>L</i> = with LCD
Output <i>M</i> = RS485 Modbus-RTU <i>7</i> = RS485 Modbus-RTU + analog 0/4...20 mA or 0...1 V <i>5</i> = RS485 Modbus-RTU + analog 0/4...20 mA or 0...5 V <i>10</i> = RS485 Modbus-RTU + analog 0/4...20 mA or 0...10 V
Input for T/RH probe — (<i>minus</i>) = no (e.g. BAROsense-M...) <i>1</i> = yes (e.g. BAROsense1M...)

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