

300PSI Pressure Sensor Datasheet

USER
MANUAL
Rev 1.0



EMTRON



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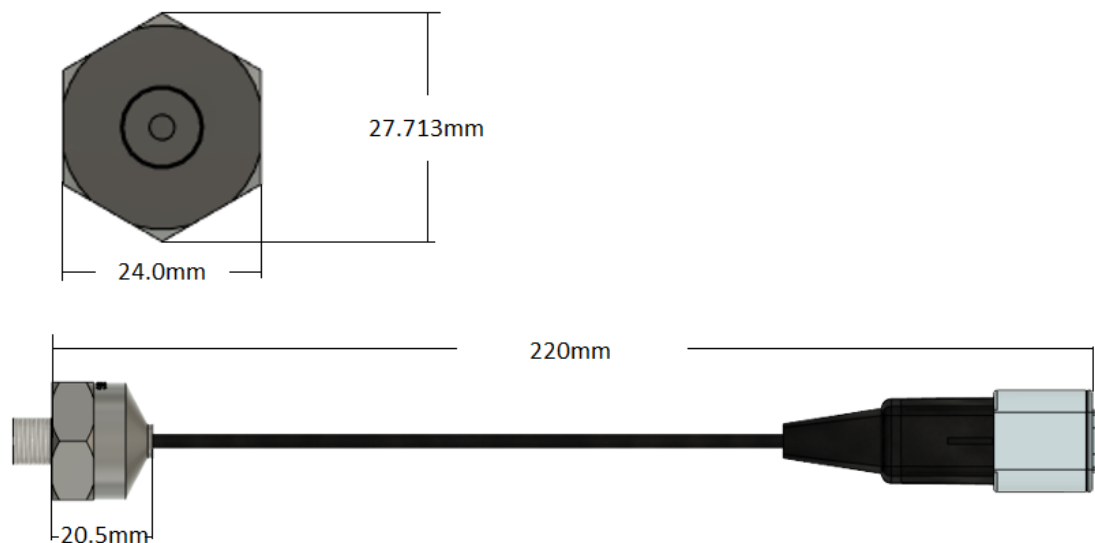
1.0 Description

The Emtron 300psi Gauge Pressure Sensor uses a state-of-the-art piezoresistive transducer from Bourns Semiconductors. It is highly accurate, providing a high level analog output signal that is proportional to the applied pressure.

1.1 Features

- Genuine Bourns BPX130 series sensor
- Pressure Range: 0kPa to 2068.4kPa
- Supply Voltage: 4.50 to 5.50 Volts DC
- Current Supply 10.0mA
- Compatible with harsh media – air, water, oil, petrol and methanol.
- Fully calibrated and temperature compensated from -40 DegC to +150 DegC
- Response time 1ms
- Compact Design
- Stainless Steel 303 body for durability then coated in black nickel for superior abrasion resistance
- Fully potted for a waterproof seal and resistance to shock and vibration
- 1/8 NPT Thread
- Deutsch 3 Way Connector (mating end also supplied)

1.2 Dimensions



2.2 Installation

Fit to a prepared 1/8 NPT tapped port.

Screw pressure sensor finger tight into the port then tighten with a spanner 1.5 to 3.0 turns past finger tight. Do not exceed 16Nm (12 lbs/ft.)

An anaerobic thread sealant may be used sparingly. Avoid excessive use to prevent sensor blockage/failure.

Warning: Do not back off an installed pressure sensor to achieve a desired alignment. Loosening the installed pressure sensor will compromise the seal and lead to potential leakage or failure.

2.3 Wiring

Deutsch 3 Way Connector Pinout

Pin	Function
1	Sensor 0V ref
2	Signal
3	5.0V

1. Connect the Pressure Sensor 0V (Pin 1) to the ECU Sensor 0V Reference pin.
(Sensor Ground)
DO NOT connect the Pressure Sensor 0V directly to the ECU ground or engine block.
2. Connect the Pressure Sensor Signal to an available Analog Voltage input or Digital input
3. Connect the Pressure Sensor 5.0V to an available 5.0V VRef source which will be referenced for ratiometric correction in the Emtune software

2.4 Calibration

Transfer Function:

Sensor-Supply allows for ratiometric correction. Set to 5.000V when not required.

$$P = 2068.4 \text{ kPa: } V_{out} = (2068.4 - 0.0) \times ((4.5 - 0.5) / (4.5 - 0.5)) + 0 = 4.500V$$

$$P = 0.0 \text{ kPa: } V_{out} = (0.0 - 0.0) \times ((0.5 - 0.5) / (4.5 - 0.5)) + 0 = 0.500V$$

Voltage (V)	Pressure (kPa)
0.500	0
4.500	2068.4

This calibration option is available from Emtune. Select “Emtron 300psi” option from the Predefined Calibration list on any Analog or Digital Channel Input.

Transfer Function Formula

$$P_{psi} = (P_{max} - P_{min}) \cdot \left(\frac{V_{out} - V_{minComp}}{V_{maxComp} - V_{minComp}} \right) + P_{min}$$

Where

- P_{psi} = Measured Pressure in PSI
- P_{max} = Maximum Pressure
- P_{min} = Minimum Pressure
- $V_{minComp}$ = Minimum Voltage (Usually 0.5 V)
- $V_{maxComp}$ = Maximum Voltage (Usually 4.5 V)
- V_{out} = Output Voltage

Filter Settings

Filter Setting Minimum = 0 (OFF)

Filter Setting Maximum = 50

Recommended Filter Range = 15 - 25.

NB: This setting is heavily dependent on engine setup and the stability of the pressure signal source that is being measure.

2.5 Ordering Information

Product	Part Number
Emtron MAP Sensor 300 Psi	1606-300G

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(See the www for contact information)

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