



Installation and Operation Instructions GP Series with 4-20mA Output

READ THESE INSTRUCTIONS BEFORE YOU BEGIN INSTALLATION

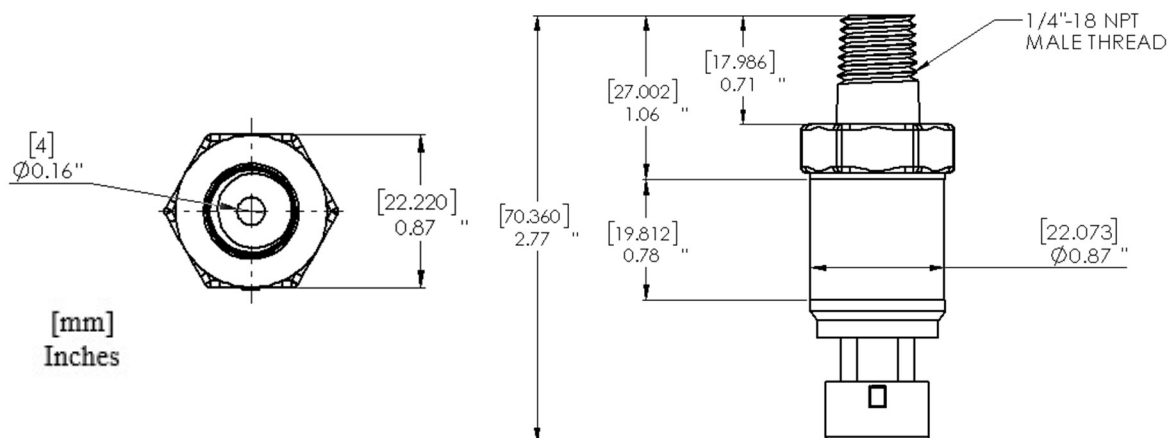


Figure 1

■ Product Description

The GP Series pressure sensor is a 4-20mA current output device that is designed to provide excellent accuracy and reliability in commercial, industrial, and process control applications where performance is critical. The GP Series is available in two pressure sensing types: Gage (PSIG) and Sealed Gage (PSIS). Gage sensors (PSIG) measure pressure relative to ambient pressure through a port that is open to the atmosphere, and are used in lower pressure applications where measurement in a vacuum is not required. Sealed sensors (PSIS) measure pressure relative to a port that is connected to a sealed perfect vacuum chamber. Sealed pressure transducers are calibrated to have 4 mA at +14.5 PSIA.

■ Optional Accessories

Pressure Snubber

ACI recommends the use of the A/0.25" Snubber (Water or Air/Gas) with all GP series sensors. The use of a pressure snubber is a cost-effective solution that can extend the life of your sensor by smoothing out pressure spikes, surges and pulsations, and prevent debris from collecting in the sensor diaphragm opening. The A/0.25" Snubbers are made of 316 Stainless Steel and should be used with compatible materials.

Syphons

The A/Syphon must be used to protect the sensor from extreme operating temperatures when the operating temperature of the steam being monitored is higher than the maximum operating temperature of the GP pressure sensor. There are three bend configurations available (90°, 180°, and 270°) to allow the mounting of the sensor vertically away from the main pipe.

NEMA 4 Enclosure

ACI recommends the use of a NEMA 4 enclosure to protect the gage pressure sensor in applications where debris and moisture could contact the sensor or electrical connections. The A/GP-(xx)-NEMA 4 GP Series pressure sensor is mounted in a NEMA 4 Rated, steel enclosure with one 1/2" conduit knockout. A 1/4" male NPT Stainless Steel fitting is provided for installation to your pipe, tank, or reservoir.

■ Media Compatibility

The bulk micro-machined transducer features a stainless steel diaphragm with welded construction that contains no O-rings, which makes them compatible with any gas or liquid that's compatible with 304L stainless steel. Some compatible gasses and liquids include refrigerants, glycol, motor oil, diesel, hydraulic fluid, brake fluid, water, waste water, hydrogen, nitrogen and air.

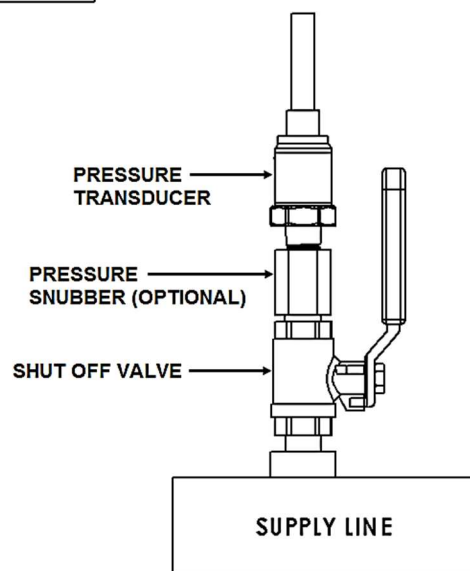


Figure 2

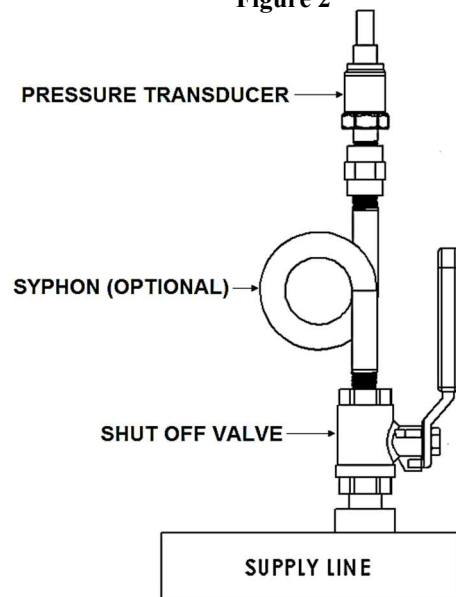


Figure 3

■ Installation

Location

Install the sensor in a location where it will not be exposed to extreme temperatures, vibration or shock. Install the pressure sensor above or on the side of pipes, in a location where liquid will not drip on the unit. Condensation can potentially build up and run down the harness, position the unit and harness so water does not pool on the back of the sensor. Do not install the sensor at the end of a long run of pipe.

Connection

The GP uses a standard 1/4"-18 NPT external fitting. Standard pipe fittings and installation procedures should be used during installation. Install pipe tape, thread sealant or other suitable pipe compound when connecting the sensor to the pressure source or any of the accessories. For pressure ranges more than 500 PSI (3447.4 kPa), we recommend the use of a sealant such as Loctite Hydraulic Sealant. Do not use excessive amounts of sealant or you might block the pressure going into the transducer. Install the device using a wrench on the hex flats provided. Do not use a strap wrench on the body. When installing the GP sensor, the torque limit is 150 in lbs (16.95 Nm), **Do Not over tighten**. Overtightening metal fittings may cause a slight zero shift. The use of plastic fittings typically results in no noticeable zero shift. The torquing effect does not appreciably affect linearity or sensitivity. In liquid pressure monitoring applications, air present in the lines will cause erratic readings, use bleed fittings to bleed off any air that has been trapped before transducer installation.

■ Electrical Connections

The transducer requires a supply voltage of +8 to 30 VDC with a minimum supply current of 25 mA (per unit) to power the loop. The transducer is equipped with a Packard connector for easy installation, and is designed for use with the GP Harness. Install the GP Sensor onto the harness then make the proper connections to the harness. Connect the **Power lead (Red)** to the plus terminal of the supply voltage. Connect the **Return lead (White)** to the plus terminal of the current measuring device(controller). Connect the minus terminal of the current measuring device to the minus terminal of the supply voltage, and the **Shield Wire** should be connected to the system or earth ground. See **Figure 4**, wiring diagram.

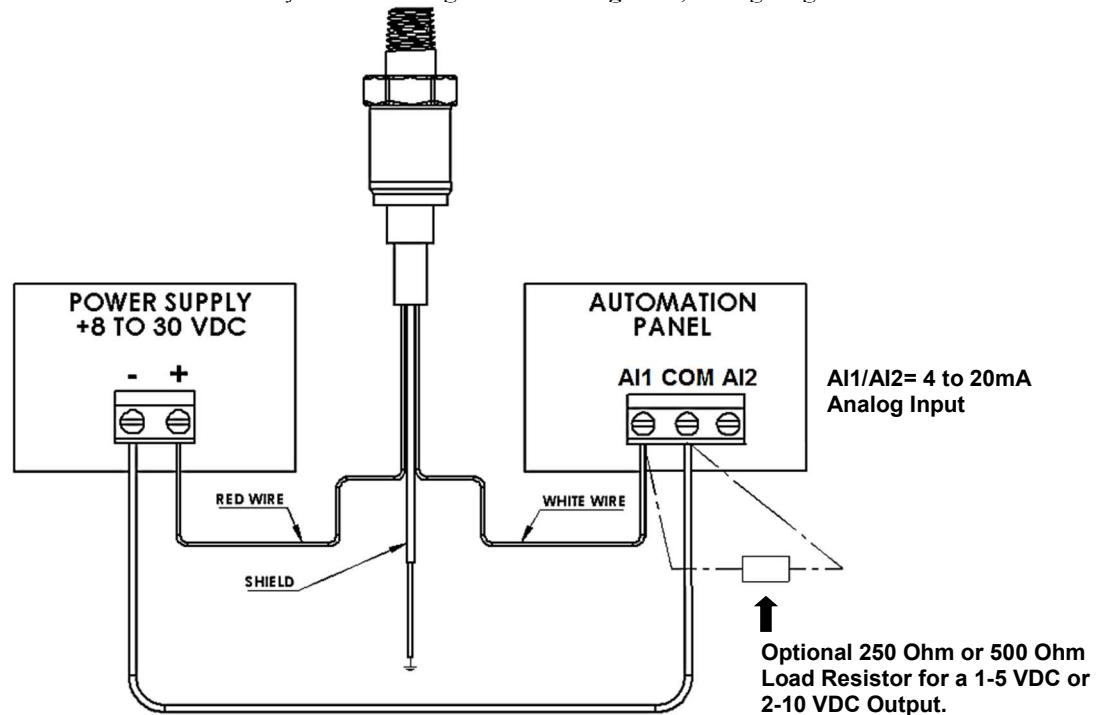


Figure 4

■ General Specifications

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| Supply Voltage: | 4-20 mA Output: +8 to 30 VDC 250 Ohm Load: +13 to 30 VDC 500 Ohm Load: +18 to 30 VDC |
| Supply Current: | 25 mA minimum |
| Output Signal: | 4 to 20 mA (2-Wire, Loop Powered) |
| Proof Pressure | 15 to 300 PSIG: 3x FS 500 PSIG: 3x FS |
| Burst Pressure: | 15 to 300 PSIG: 3x FS 500 PSIG: 3x FS |
| Accuracy¹ @ 22°C (71.6°F): | 15 to 60 PSIG: < +/- 1.0% FS 75 to 300 PSIG: < +/- 0.5% FS 500 PSIG ³ : < +/- 0.5% FS |
| Thermal Error² (-40° to 105°C) | 15 to 60 PSIG: < +/- 1.0% FS 75 to 300 PSIG: < +/- 0.5% FS 500 PSIG ³ : < +/- 0.5% FS |
| Stability (250 Hours @ 225°F (125°C)): | +/- 0.03% FS @ 0 PSIG; +/- 0.12% FS @ 1000 PSIG |
| Operating Storage Temperature: | -40 to 221°F (-40 to 105°C) -40 to 176°F (-40 to 80°C) |
| Process Fitting Material Thread Size: | 304L Stainless Steel 1/4"-18 NPT |

Note 1: Accuracy includes Hysteresis, Repeatability, and Non-linearity (BFSL) **Note2:** Additional error over temperature range

Note 3: PSIG transducers are not vented to atmosphere, but are calibrated to have 4 mA at +14.5 PSIA