

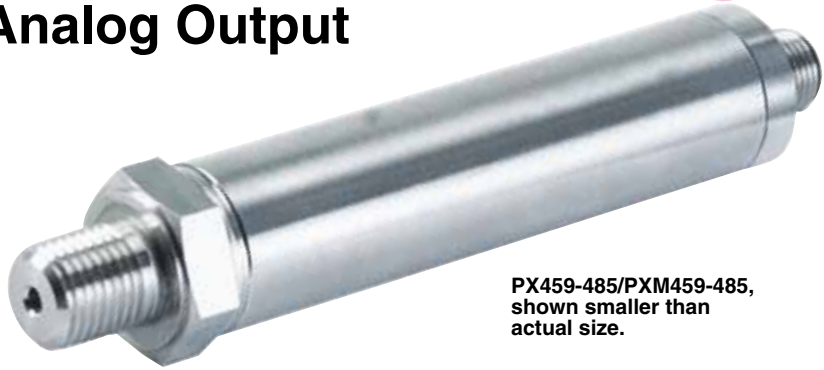


# RS485 Output Silicon Pressure Transmitter

## Digital RS485 with Analog Output

### Imperial and Metric

**Gage and Absolute Pressures**  
 10 inH<sub>2</sub>O to 5000 psi (25 mb to 345 bar)  
**Vacuum and Compound Ranges**  
 10 inH<sub>2</sub>O to 15 psi (25 mb to 1 bar)  
**Barometric Pressure Ranges**  
 0 to 32, 16 to 32, and 26 to 32 inHg  
 (0 to 1100 hPa, 550 to 1100 hPa,  
 and 880 to 1100 hPa)



PX459-485/PXM459-485,  
 shown smaller than  
 actual size.

PX409-485/PXM409-485  
 Series



- ✓ Up to 640 Readings/Second
- ✓ Micro-Machined Silicon Sensor
- ✓ 316L SS Wetted Parts
- ✓ High ±0.08% BSL Accuracy
- ✓ RS485 and Analog Outputs
- ✓ Excellent Long Term Stability
- ✓ M12 Connection
- ✓ Ruggedized with Secondary Containment

The PX409 RS485 Series is an industrial RS485 silicon pressure sensor. Use as a stand-alone for up to 640 Hz sampling rate, or connect up to 16 units in an independent multidrop RS485 network at 1 Hz overall bus sampling rate. Interface to the sensor using command line access, or use the free PC software from OMEGA to chart, log, display, and output data for analysis. An additional analog output (0 to 5V, or 4 to 20 mA) provides even more flexibility. The micro-machined silicon design is ideal for pressure or level applications in laboratory, test platforms, or bio/pharmaceutical applications as well as industrial applications that require a rugged, high accuracy transmitter that can transmit over long distances. The micro-machined silicon sensor provides a very stable transmitter with exceptional high accuracy of ±0.08% and a broad compensated range of -29 to 85°C (-20 to 185°F). The modular construction allows for fast delivery of most configurations and fittings.

### FREE OMEGA® Downloadable Software!

Free OMEGA PC software takes the data from the transmitter directly to the digital domain, turning your laptop or Windows® tablet into a virtual meter, chart recorder, or data logger. Also included are .NET APIs and a command set for command-line access. Visit <https://www.omega.com/en-us/sensors-and-sensing-equipment/pressure-and-strain/pressure-transducers/p/PX409-Series> to download your free copy.

*Note: RS485 to PC interface is required, sold separately*

### Specifications

**Supply:** 12 to 36 Vdc (when using mA output, derate using formula in operating temperature section)

**Maximum Loop Ω:** (Supply-9) x 50

**Accuracy:** 0.08% BSL (linearity, hysteresis and repeatability combined)

**Resolution:** Up to 5.5 significant figures

**Zero Balance:** ±0.5% FS typical 1% maximum (1% typical, 2% maximum for 2.5 psi and below)

**Span Setting:** ±0.5% FS typical 1% maximum (1% typical, 2% maximum for 2.5 psi and below). Calibrated in vertical direction with fitting down

**Temperature Compensation (Over Compensated Range):**

**Span:** Range > 5 psi: ±0.5%; Range ≤ 5 psi: ±1.0%

**Zero:** Range > 5 psi: ±0.5%; Range ≤ 5 psi: ±1.0%

**Minimum Isolation:** 100 MΩ @ 50 Vdc case to output terminations

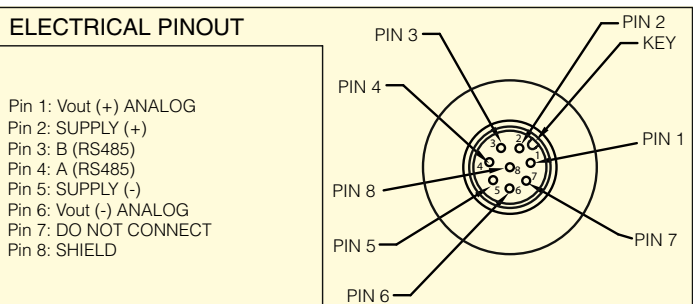
**Pressure Cycles:** 1 million, minimum

**Long Term Stability (1-Year):** ±0.1% full scale typical

**Power Consumption:**

**-5V:** 0.65 W typical

**-I:** 1.25 W maximum





**Secondary Containment**

**Gage/Vacuum/Compound Pressure:**

- 10 inH<sub>2</sub>O to 5 psi: to 1000 psi
- 15 to 1000 psi: to 3000 psi
- 1500 to 5000 psi: to 10,000 psi

**Absolute/Barometric Pressure:**

- 5 to 1000 psia: to 6000 psia
- 1500 to 5000 psia: to 10,000 psia

**Overpressure**

**Gage/Vacuum/Compound Pressure:**

- 10 inH<sub>2</sub>O: 10 times span
- 1 psi: 6 times span
- 2.5 psi to 1000 psi: 4 times span
- 1500 psi to 5000 psi: 7250 psi maximum

**Absolute/Barometric Pressure:**

- 5 psia: 6 times span
- 15 psia to 1000 psia: 4 times span
- 1500 to 5000 psia: 7250 psia maximum

**Secondary Containment**

**Gage/Vacuum/Compound Pressure:**

- 25 to 350 mb: to 70 bar
- 1 to 70 bar: to 200 bar
- 100 to 350 bar: to 700 bar

**Absolute/Barometric Pressure:**

- 350 mb to 70 bar: to 400 bar
- 100 to 350 bar: to 700 bar

**Overpressure**

**Gage/Vacuum/Compound Pressure:**

- 25 mb: 10 times span
- 70 mb: 6 times span
- 170 mb to 100 bar: 4 times span
- 175 to 350 bar: 500 bar maximum

**Absolute/Barometric Pressure:**

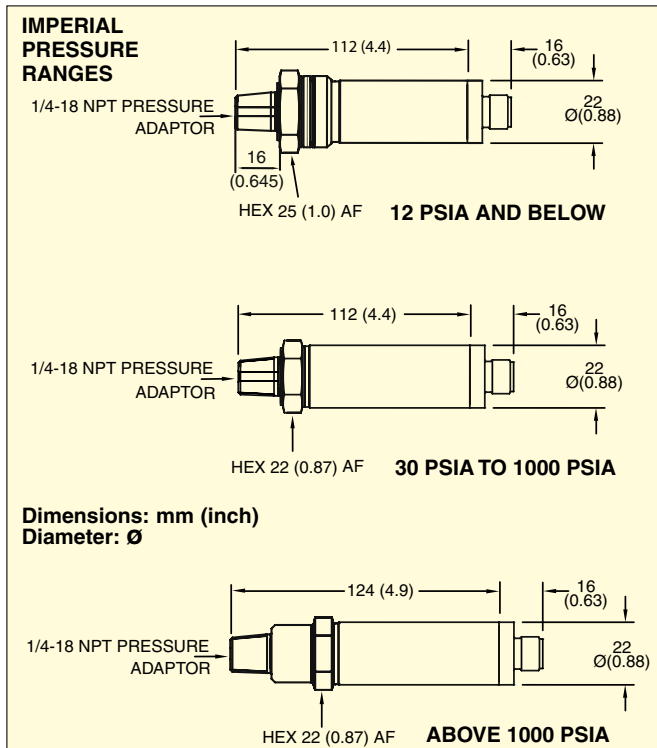
- 350 mb to 100 bar Absolute: 4 times span
- 175 to 350 bar Absolute: 500 bar maximum

**Wetted Parts:** 316L stainless steel

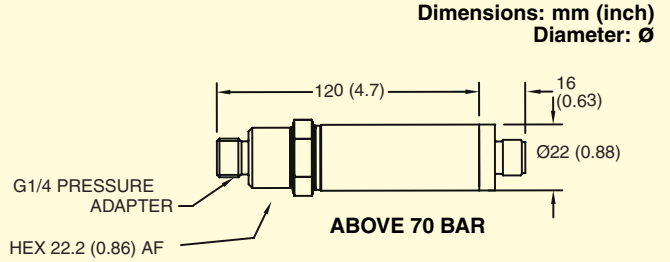
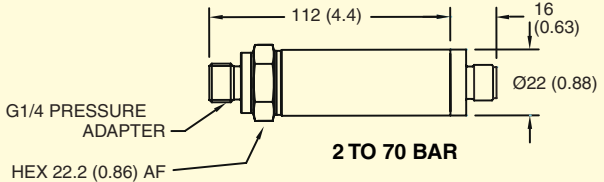
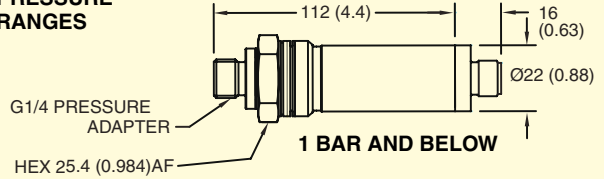
**Weight:** 200 g (7 oz)

**Operating Temperature Range:** -40 to 85°C (-40 to 185°F);

when using mA output; maximum ambient temperature = 106 + (0.038) R - (2.1) V where R = Loop Ω and V = Vsupply



**METRIC PRESSURE RANGES**



**Compensated Temperature**

**Imperial:**

- Ranges >5 psi: -29 to 85°C (-20 to 185°F)
- Ranges ≤5 psi: -17 to 85°C (0 to 185°F)

**Metric:**

- Ranges > 350 mb: -29 to 85°C (-20 to 185°F)
- Ranges ≤ 350 mb: -17 to 85°C (0 to 185°F)

**Pressure Port:**

- Imperial: ¼-18 NPT male
- Metric: G-¼ male

**A to D Conversion:** 24-bit

**Output:** RS485 digital with discrete analog (choose 0 to 5 Vdc or 4 to 20 mA)

**DAC Conversion:** 320 Hz at 16 bit

**Bandwidth:**

- Multidrop Mode:** Overall Bus rate: DC to 1 update per second typical
- Standalone Mode:** DC to 640 updates per second

**Electrical Termination:** 8-pin M12 type A male with shield pin connection (IEC61076-2-101); female M12 connector M12.8-S-F-FM with screw terminals sold separately

**CE Compliant:** Meets industrial EN61326

**Emissions, Burst and Surge**

- Susceptibility (10 V/m):** ±0.25% max, all outputs, Tested using 6.1 m (20') shielded 6 conductor cable
- ESD Protection:** Tested to 4 kV to case and shielded wire
- Digital Outputs:** Protection device rated to ±13 kV
- Analog Output:** Protection device rated to:  
  - Contact: ±8 kV min, ±30 kV max
  - Air: ±15 kV min, ±30 kV max

**For Stated EMC Performance:** Use recommended cable, tie drain wire to shield connection on PX409-485 side, and to earth ground on supply side. Ground PX409-485 case

**Environmental Protection:** IP65

**RS485 (Non-Isolated):**



- Protocol:** OMEGA command structure (provided)
- Unit Load:** ½

**Standalone and Addressed Multidrop Modes**

- Recommended Cable:** Belden 9843 or equivalent
- Maximum Number of Units on One RS485 Bus:** 16 units (multidrop mode), 1 unit (standalone mode)
- Software-enabled 120Ω termination resistor**



OPTION DESCRIPTIONS	
<b>Electrical Termination</b>	PX459 for Imperial for M12 Connector
	PXM459 for Metric for M12 Connector
<b>Range</b> <i>(Examples of range per unit per type. Please View All Models for all available ranges per pressure type. Explore Configurator for Custom Ranges)</i>	10W for Imperial Pressure 0 to 10 in H2O
	001 for Imperial Pressure 0 to 1 psi
	030 for Imperial Pressure 0 to 30 psi
	750 for Imperial Pressure 0 to 750 psi
	1.0K for Imperial Pressure 0 to 1000 psi
	32B for Imperial Barometric (Absolute Pressure) 0 to 32 inHg
	025H for Metric Pressure 0 to 25 mbar
	001B for Metric Pressure 0 to 1 bar
	350B for Metric Pressure 0 to 350 bar
	16H for Metric Barometric (Absolute Pressure) 550 to 1100 mBar
1,100H for Metric Barometric (Absolute Pressure) 0 to 1100 hPa	
<b>Pressure Type</b>	G for Gage Pressure Ranges 10W to 5.0K or 025H to 350B
	A for Absolute Pressure Ranges 005 to 5.0K or 350H to 350B
	B for Barometric Pressure Ranges 32B/16B26B or 32H/16H26H
	V for Vacuum Pressure Ranges 015 to 10W or 001B to 025H
	CG for Compound Gauge Pressure Ranges 015 to 10W or 001B to 025H
	SG for Sealed Gage Pressure Ranges 100 to 5.0K or 007 to 350B
<b>Output Signal</b>	485-5V for RS485 with 0 to 5 Vdc Output
	485-I for RS485 with 4 to 20 mA Output

Accessories	
Model No.	Description
M12.8-S-F-FM	The M12 connectors can be attached to existing sensor or extension cables with a 6 to 8 mm cable diameter in the field by means of screw type connections 
CN7-485-USB-1	Mini-node communication signal converter converts RS485 to USB 

Comes complete with 5-point NIST-traceable calibration and free downloadable software.

**Ordering Examples:** PXM459-010BG485-5V, 10 bar gage transducer with RS485 and 0 to 5 Vdc outputs, M12 electrical connection, and G-¼ male pressure port.

Mating connector M12.8-S-F-FM (sold separately).

PXM459-350HA485-I, 350 mbar absolute pressure transducer with RS485 and 4 to 20 mA outputs, M12 electrical connection, and G-¼ male pressure port.

Comes complete with 5-point NIST-traceable calibration and free downloadable software.

**Ordering Examples:** PX459-100G485-5V, 100 psi gage transducer with RS485 and 0 to 5 Vdc outputs, M12 electrical connection, and ¼-18 NPT male pressure port.

Mating connector M12.8-S-F-FM (sold separately).

PX459-5.0KA485-I, 5000 psi absolute pressure transducer with RS485 and 4 to 20 mA outputs, M12 electrical connection, and ¼-18 NPT male pressure port.