



BAROMETRIC



HYDRAULIC



PNEUMATIC



DIFFERENTIAL



CLEAN-
IN-PLACE



DEPTH



Pressure Measurement

Standard Products and Custom Solutions

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Pressure Transducers for all Applications

OMEGA pressure products are used in many critical applications in manufacturing, food processing, medicine, aerospace, and science, to name a few. Our highly qualified sales and application engineers are at your service to guide you through our extensive product range of products. Give us a call to discuss your application needs.

Build your next project with OMEGA

 PXM309 Transducers		Wind Turbine Applications: • Breaking, pitch and yaw control • Protection of nacelle housing • Hydraulic fluid monitoring
 PXM409 Differential Transducers		Automotive Applications: • Fuel injection pressure monitoring • Exhaust gas measurement • Transmission hydraulics pressures
 PX329 Transducers		Aerospace Applications: • Air intake monitoring on aircraft • Satellite launch systems monitoring • Ground support equipment
 PX409S Transducers		Laboratory Applications: • Clean-in-place transducers • Pressure gauges • Hydraulic fluid monitoring

- Automotive & Aerospace
- Oil & Gas
- Pharmaceuticals & Chemical
- Food & Beverage

- Water & Wastewater
- Energy Supply
- OEMs
- Shipbuilding

- Laboratories
- Manufacturing & Industrial Operation
- Universities & Educational Institutions

Visit omega.co.uk/pressure

Pressure Calibration Services

Calibrate your pressure transducers, gauges, and other high-pressure sensors to traceable industrial standards at the OMEGA calibration centre. Precise pressure measurements are vital to any process controls, in industries such as engineering, transport and utilities among others. However, the offset of your devices gradually drifts over time, leading to inaccurate readings. The answer is regular calibration in a certified lab.

If your pressure readings need to meet strict regulations, our dedicated Calibration Centre can provide the ISO 9001 quality, comprehensive documentation, and fast service you require. Contact our team today

- Pressure Transducer and Gauge Calibration
- Differential Pressure Calibration
- Calibrating Third Party Pressure Sensors
- A Skilled Team & ISO Quality Processes



The highly skilled technicians at our calibration centre work to certified, ISO 9001 standards to ensure your own quality requirements are met.

Contact us with your device specification to find out if we can help.

0800 488 488
sales@omega.co.uk

Pressure Calibration Kits

DPG4000



- Very High Accurate: $\pm 0.05\%$ FS
- RS232 Digital Communications Standard
- Temperature Compensated: 0 to 50°C
- Large, Backlit, 5-Digit Display

OMEGA's new pressure gauge calibration kits combine the high accuracy of DPG4000 Series digital pressure gauges with a pneumatic or hydraulic hand pump, providing an excellent solution for field calibration needs.

Kits include the DPG4000 digital gauge, hand pump, rugged carrying case, and a selection of fittings.

www.omega.co.uk/dpg4000-kit

CL310



- Highest Accuracy in Class to 0.015% of Reading
- Measure and Simulate T/Cs (13 Types), RTDs (13 Types), Ω , Current, Voltage, Frequency and Pressure; Source Pulse Trains
- Software is Included

The CL310 documenting multi-function calibrator delivers a feature set unmatched in high accuracy, hand-held calibrators in its price range. The CL310 delivers functions and accuracy associated with fixed installation, laboratory instruments, and has everything needed for virtually any calibration task.

www.omega.co.uk/cl310

Introduction to Pressure Sensors

A pressure transducer, often called a pressure transmitter, is a sensor that converts pressure into an analogue electrical signal. Although there are various types of transducers, one of the most common is the strain-gauge wheatstone bridge pressure transducer.

The conversion of pressure into an electrical signal is achieved by the physical deformation of strain gauges which are bonded into the diaphragm of the pressure transducer and wired into a wheatstone bridge configuration. Pressure applied to the transducer produces a deflection of the diaphragm which introduces strain to the gauges. The strain will produce an electrical resistance change proportional to the pressure.

The Electrical Output of Pressure Transducers

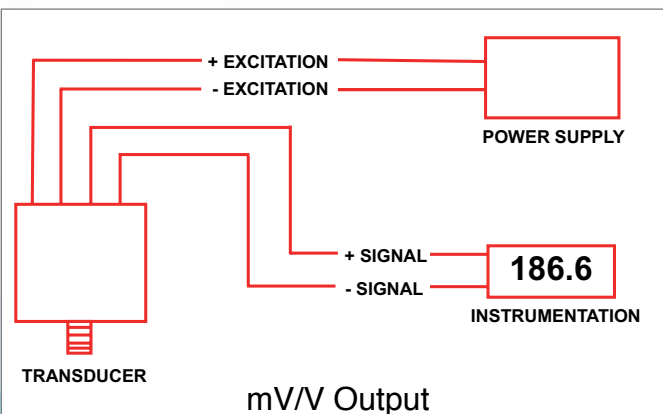
Pressure transducers are generally available with three types of electrical output; millivolt, amplified voltage and 4 to 10 mA. Below is a summary of the outputs and when they are best used.



Millivolt Output Transducers

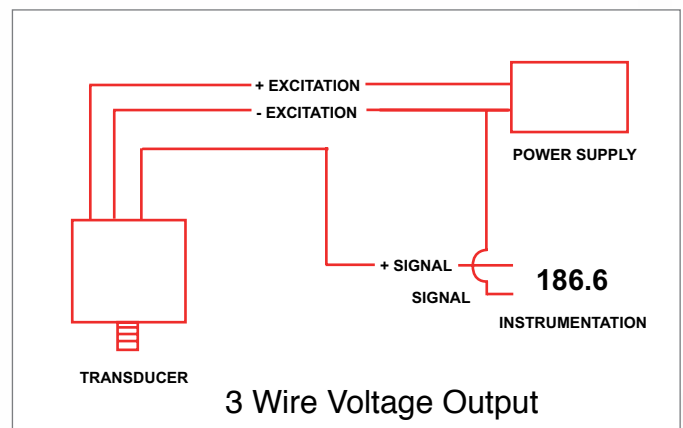
Transducers with millivolt output are normally the most economical pressure sensors. The output of the millivolt transducer is nominally around 30 mV. The actual output

is directly proportional to the pressure transducer input power or excitation. If the excitation fluctuates, the output will change also. Because of this dependence on the excitation level, regulated power supplies are suggested for use with millivolt transducers. Because the output signal is so low, the transducer should not be located in an electrically noisy environment. The distances between the transducer and the readout instrument should also be kept relatively short.



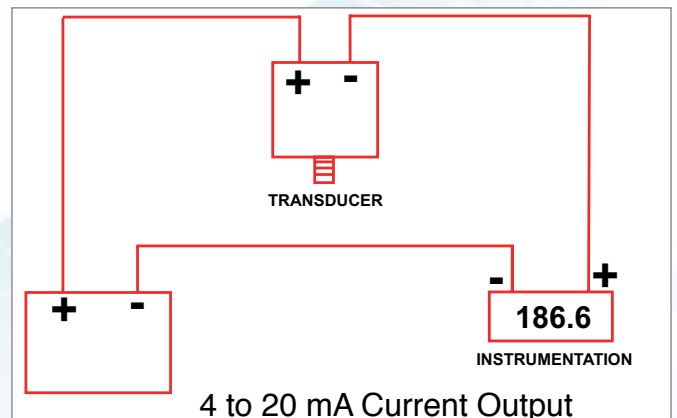
Voltage Output Pressure Transducers

Voltage output transducers include integral signal conditioning which provide a much higher output than a millivolt transducer. The output is normally 0 to 5 Vdc or 0 to 10 Vdc. Although model specific, the output of the transmitter is not normally a direct function of excitation. This means unregulated power supplies are often sufficient as long as they fall within a specified power range. Because they have a higher level output these transducers are not as susceptible to electrical noise as millivolt transducers and can therefore be used in more industrial environments.



4 to 20 mA Output Pressure Transmitters

These types of transducers are also known as pressure transmitters. Since a 4 to 20mA signal is least affected by electrical noise and resistance in the signal wires, these transducers are best used when the signal must be transmitted long distances. It is not uncommon to use these transducers in applications where the lead wire must be 1000 feet or more.



Choosing the Right Sensor for your Application

PC Board Mountable Pressure Transducers



PC board mountable pressure transducers are generally compact economical pressure transducers designed to mount on an electrical PC board and be integrated into other products.

General Purpose Transducers



General purpose wheatstone bridge pressure transducer are the most common since they are designed to fit the broadest set of applications.

Heavy Duty/Industrial Pressure Transmitters



Heavy Duty/Industrial digital pressure sensors feature a much more rugged enclosure than other transducers. They are designed to accommodate heavy industrial environments. They also often feature a scalable 4 to 20 mA

output that provides much greater immunity to electrical noise which is not uncommon in industrial environments.

Submersible Pressure Transducers



Submersible pressure transducers are designed to make precision level or depth measurements in fresh water or liquids for years in harsh industrial environments. They are also ideal for environmental monitoring of job sites and field locations.

Differential Pressure Transducer



Differential pressure transducers are designed to measure the pressure different between two media. The media can be wet (liquid) or dry (air). These transducers often are used in flow measurement too.

High Stability/High Accuracy Pressure Sensors



Most pressure transducers feature an accuracy of 0.25% of full scale or higher. High stability and high accuracy pressure transducers can offer errors as low as 0.05% of full scale, depending on model.

Although more expensive than general purpose transducers, they may be the only option if high precision is required.

Flush Diaphragm Pressure Transducers



With flush diaphragm pressure transducers, the diaphragm is flush to the process. This eliminates a cavity above the diaphragm that could collect fluid matter from the process. In certain applications, this may be

very undesirable. Those applications include monitoring the pressure of foods or liquids that have very high viscosity.

Special Purpose Transducers



OMEGA offers a variety of pressure transducers with special features. These include pressure transducers designed for pressure measurement in very high or low temperatures, submersible pressure

transducers, barometric pressure transducers and pressure transducers with digital communications output or wireless outputs.

Find the correct type of pressure transducer at omega.co.uk/pxconfig



Pressure Transducers, 0 to 10 Vdc Output

PXM309 Series

- 5-Point Traceable Calibration Certificate
- RoHS Compliant
- High Static Accuracy, $\pm 0.25\%$ FS BSL (Linearity, Hysteresis and Repeatability)
- -40 to $+85^{\circ}\text{C}$ Operating Temperature
- 0 to 10 Vdc Output
- Micro DIN, 1.5 m Cable or M12 Electrical Connections
- $G\frac{1}{4}$ ($\frac{1}{4}$ " BSPP) Male Pressure Fitting
- All Stainless Steel Wetted Parts with IP65 or IP67 Environmental Rating (depending upon model)

www.omega.co.uk/pxm309-10v

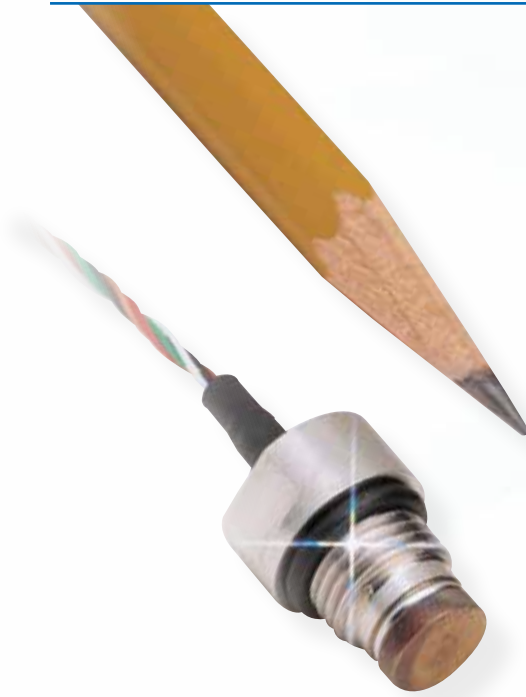
High (0.08%) Accuracy Pressure Transducers

PXM409 Series

- Pressure Transducer with 5-Point Traceable Calibration Certificate Included
- $G\frac{1}{4}$ ($\frac{1}{4}$ " BSPP) Thread Standard
- 0 to 100 mV, 0 to 10 Vdc, or 4 to 20 mA Outputs
- Gauge, Compound Gauge, Absolute, Vacuum and Barometric Pressure Ranges Available
- 316 Stainless Steel Wetted Parts
- Micro DIN, 1.5 m Cable or M12 Electrical Connections
- Broad Compensated Temperature Range
- 316 Stainless Steel Wetted Parts

www.omega.co.uk/pxm409





Sub-Miniature Transducer, mV Output with Flush Diaphragm

PXM600 Series

- All Stainless Steel Diaphragm and Threaded Side Wall Construction
- Rugged Stainless Steel Case
- Sub-Miniature Design
- Excitation: 5 Vdc @ 15 mA
- Output: 10 mV typical @ 5 Vdc
- Input Impedance: 350 Ω min
- Output Resistance: 350 Ω min
- Insulation Resistance: 5 M Ω @ 75 Vdc
- Accuracy: $\pm 1\%$ FS; Linearity and Hysteresis Combined

www.omega.co.uk/pxm600mu

Submersible Pressure Transducers

PXM709GW Series

- Precision Micro-Machined Silicon Sensor
- Lightning/Surge Protection Available on Amplified Models
- 316L SS Case and Diaphragm
- Fused Polyurethane Cable
- 0.20% Standard Accuracy or Optional 0.08% High Accuracy Models for Precise Depth Measurement
- Available in Gauge Pressure: Vented to Atmosphere Through the Cable; Sealed Gauge: Not Vented to Atmosphere; or Absolute Pressure: Vacuum Reference
- Custom Cable Lengths
- Now Available with M12 Connector

www.omega.co.uk/pxm709gw



Heavy-Duty Industrial Pressure Transmitters

PX51/PXM51

- High-Accuracy, Low-Cost Pressure Transmitters
- All Stainless Steel Construction
- Sealed SS Case for Harsh Environments
- Available in Gauge, Absolute, or Sealed Gauge Models
- Output/Excitation Voltages
4 to 20 mA or 0 to 5 Vdc Outputs: 10 to 32 Vdc max
0 to 10 Vdc Outputs: 16 to 32 Vdc max

www.omega.co.uk/px51-pxm51-series



Differential Pressure Transmitter, Ranges from ± 0.125 up to 75 mbar

PX274

- Pressure Differential Transmitter with up to 6 Field Selectable Ranges in a Single Unit
- Rugged IP-65 Enclosure with External Mounting Bracket
- Up to 10 PSID (689 mbar) Overpressure without Zero Shift
- Short Circuit and Reverse Polarity Protected
- Operating Temperature: -18 to 80°C



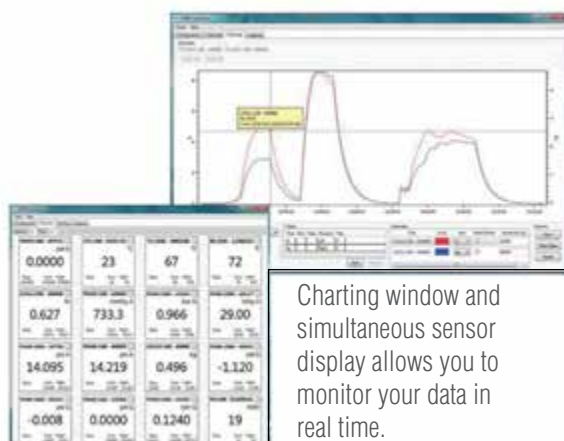
www.omega.co.uk/px274



High Pressure Transducer with USB output

PX51/PXM51-USB

- Sealed SS Case for Harsh Environments
 - High Speed! 1000 Readings/Second
 - Software Included Enables You to Chart, Log, Display, and Output Data for Analysis
 - Also Included are .NET APIs, and a Command Set for Command-Line Access
 - All Stainless Steel Body
 - Available in Gauge, Absolute, or Sealed Gauge Models
 - A 2 Metre Long USB Cable is Standard.
- Other Lengths Available



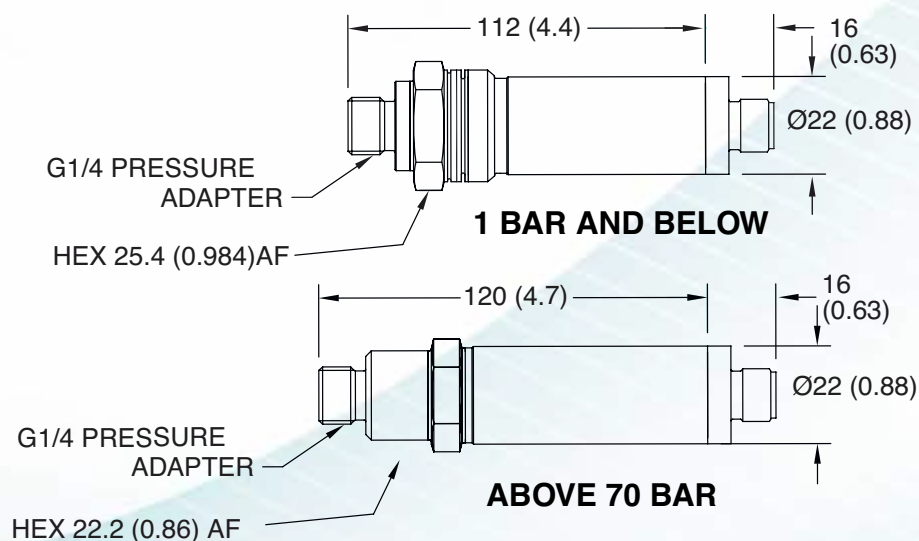
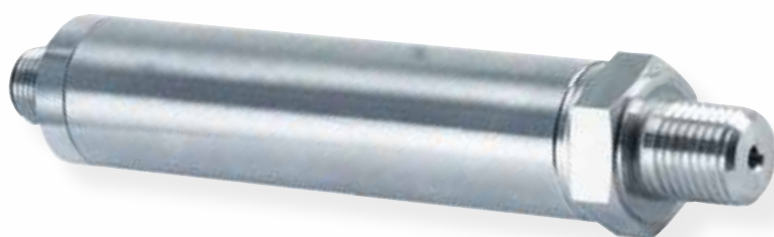
www.omega.co.uk/px51_pxm51-usbh

RS485 Output Silicon Pressure Transmitter

PX409-485

- Up to 640 Readings/Second
- 316L SS Wetted Parts
- High $\pm 0.08\%$ BSL Accuracy
- RS485 and Analogue Outputs
- Excellent Long Term Stability
- M12 Connection

www.omega.co.uk/px409-485_pxm409-485



Dimensions: mm (inches)
ø = Diameter



High Temperature Pressure Transducer

PXM4200-I

- Pressure Ranges from 1 bar Vacuum to 0 to 1500 bar
- High Operating Temperature up to 125°C
- Titanium Wetted Parts
- $\pm 0.25\%$ Accuracy
- 4 to 20 mA Output as Standard
- Output/Excitation Voltages
- Outstanding Performance and Stability
- PM1000 Digital Display Available

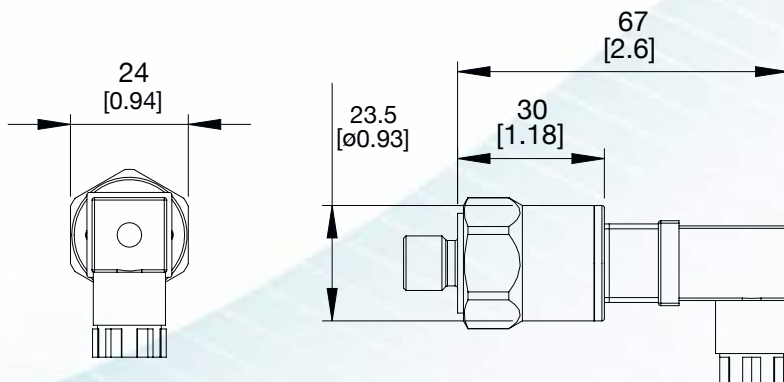
www.omega.co.uk/pxm4200-i

Compact Pressure Transmitters

PX119

- Ideal for OEM Applications with its Compact Design where an Accuracy of 0.5% is Suitable
- Minimal Thermal Drift
- Ideally Suited for Material Handling
- Pressure Range: 15 to 5000 psi (345 bar)
- Operating Temperature: -40 to 135°C

www.omega.co.uk/px119



Dimensions: mm (inches)
 $\varnothing$ = Diameter



General Purpose Pressure Transmitter

PXM309 Series

- 5-Point Traceable Calibration Certificate
- High Static Accuracy, $\pm 0.25\%$ FS BSL (Linearity, Hysteresis and Repeatability)
- -40 to +85°C Operating Temperature
- 4 to 20 mA Output
- Micro DIN, 1.5 m Cable or M12 Electrical Connections
- G $\frac{1}{4}$ (1/4" BSPP) Male Pressure Fitting
- Outstanding Performance and Stability
- Rugged Design for Industrial Applications

www.omega.co.uk/pxm309

Wet/Wet Differential Pressure Models

PXM409-WWDIFF

- Precision Micro-Machined Silicon Core
- High Stability, Low Drift
- 316L SS Wetted Parts
- Digital Dynamic Thermal Compensation Across Temperature and Pressure Range
- Customized Specifications Available



www.omega.co.uk/pxm409-wwdif



Corrosive Resistant, Low Differential Transducers

PX2300

- Wet/Wet Corrosive Environments
- 0.25% Accuracy
- IP65 (NEMA 4) Rating
- Ideal for Pressure Drop Across Filters
- From Dry Air to Corrosive Liquids
- High Working Pressure
- High Overpressure Ratings
- Rugged Design for Industrial Applications

www.omega.co.uk/PX2300

General Purpose Digital Pressure Gauge

DPGM8001

- 0.25% Full Scale Terminal Point Accuracy
- 5 Digit LCD Display with Large 12 mm Digits
- 20 Segment Bar Graph Display
- User-Selectable Engineering Units
- MIN/MAX Readings

www.omega.co.uk/DPG8001



Custom Pressure Configurator

Build Your Own Custom Pressure Transducer

- **Five Accuracies**
- **Ninety-Two Pressure Ranges**
- **Ten Electrical Outputs**
- **Four Thermal Ranges**
- **Fourteen Pressure Ports**
- **Five Electrical Terminations**



Over 1 Million Combinations!

OMEGA has developed a rapid delivery system for its Micro Machined Silicon product line. You can have your pick of pressure ports, electrical connections, pressure range and units, thermal range and accuracy and accessories like trim pots.

Our easy-to-use online configurator allows easy ordering

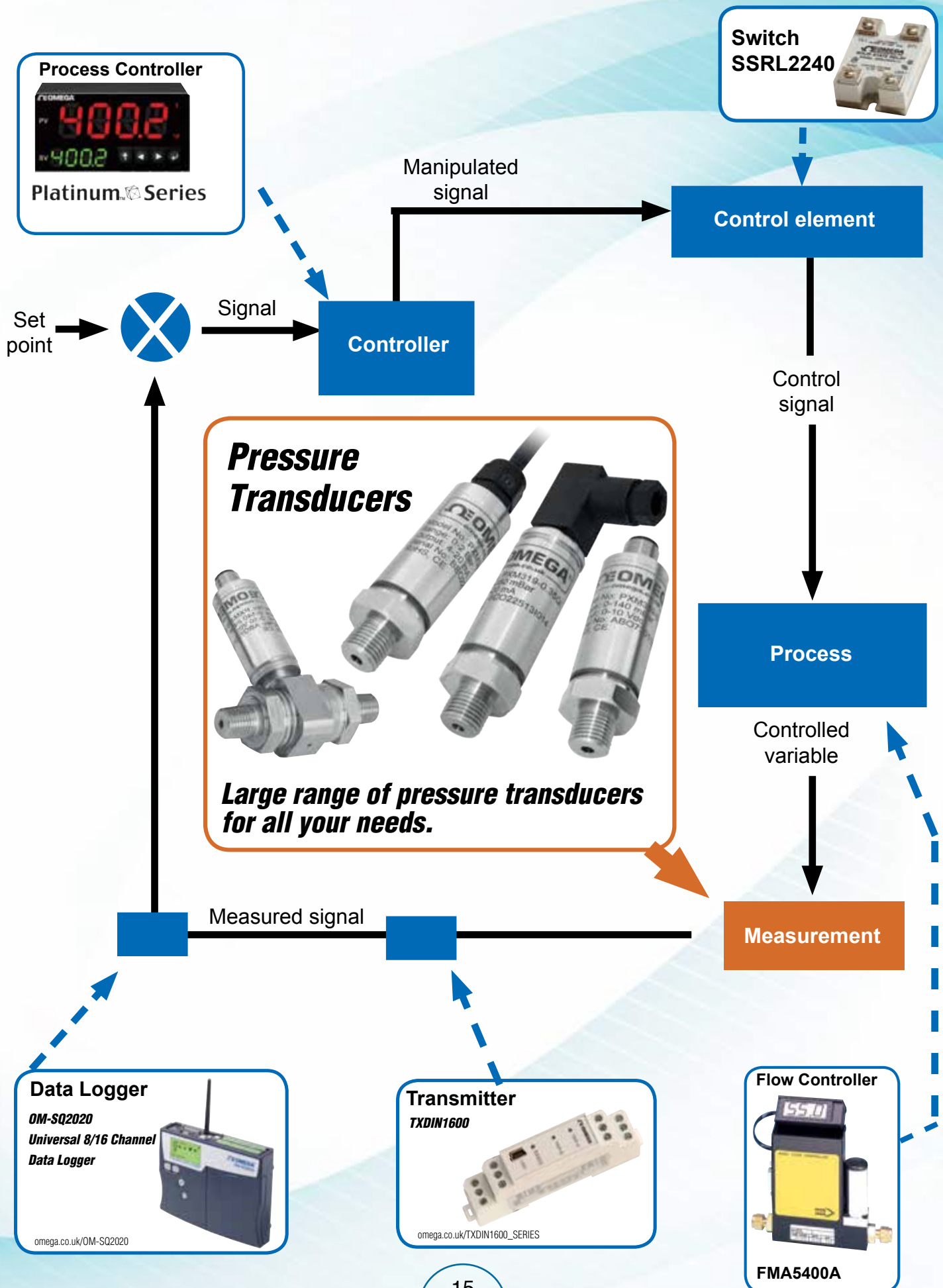
OMEGA can deliver reasonable quantities of almost any combination where you can select the transducer with the exact specifications for your project.

Select Type, Range & Units

FINAL CONFIGURATION  Final Part Number: MMS15A030V1P36T5A5CE £471 VIEW TO ORDER This image is a representation of the specified configuration. Actual appearance may vary. Review Configuration	FINAL CONFIGURATION  Final Part Number: MMS15A030V1P36T5A5CE £800 VIEW TO ORDER This image is a representation of the specified configuration. Actual appearance may vary. Review Configuration
FINAL CONFIGURATION  Final Part Number: MMS15A030V1P36T5A5CE £399 VIEW TO ORDER This image is a representation of the specified configuration. Actual appearance may vary. Review Configuration	FINAL CONFIGURATION  Final Part Number: MMS15A030V1P36T5A5CE £540 VIEW TO ORDER This image is a representation of the specified configuration. Actual appearance may vary. Review Configuration

Visit omega.co.uk/pxconfig and build your custom transducer

Process Control Loop with OMEGA



Pressure Selection Guide

Transducer	Accuracy %FS	Range Min	Range Max	Gauge	Absolute	Differential	Vacuum	Compound	Output	Special features
 PXM309	0.25	0-70 mbar	0-700 bar	x	x		x	x	V, mA	Rugged design for industrial applications (pneumatic & hydraulic)
 PXM409	0.08	0-25 mbar	0-345 bar	x	x		x	x	V, mA	Proven record in high performance commercial and aerospace application
 PXM409-USBH	0.08			x	x		x	x	USB	Connects directly to your computer
 PX409S	0.08			x	x		x		mV, V, mA	Clean-In-Place (CIP)
 PXM600	1	0-14 bar	0-700 bar	x	x				mV	Subminiature flush diaphragm
 PXM709GW 0.2 (Standard Accuracy) 0.08 (High Accuracy)	0.2 (Standard Accuracy) 0.08 (High Accuracy)	0-25 bar	0-70 bar	x	x				mA, V	Submersible transducers for depth measurement
 PX274	1	0.1 inH ₂ O	30 inH ₂ O	x		x			V, mA	IP-65 enclosure with external mounting bracket
 PX51-PXM51	0.25	0-1 bar	0-2068 bar	x	x				V, mA	IP-65 enclosure with external mounting bracket

Pressure Selection Guide

Transducer	Accuracy %FS	Range Min	Range Max	Gauge	Absolute	Differential	Vacuum	Compound	Output	Special features
PXM51-USB 	0.25	0-1 bar	0-2068 bar	x	x			USB	USB	Heavy duty, connects directly to your computer
PX409-485 	0.08			x	x		x	RS485	RS485	For laboratory, test or life science applications
PXM4200-I 	0.25	0-500 mbar	0-1000 bar	x			x	x	mA	Sapphire titanium diaphragm high operating temperature
PX119 	0.5	0-1 bar	0-345 bar	x	x			mV	mA	Miniature design, fit very small spaces
PXM409-WWDIF 	0.08	0-25 mbar	0-70 bar	x	x	x			mV, V, mA, USB	Automotive, or aerospace applications requiring a wet/wet transducer
PX2300 	0.25	0-70 mbar +/-35 mbar	0-6.9 bar			x			mA	Corrosive Environments Uni-directional or bi-directional range
DPGM8001 	0.25	-1 bar	0-1600 bar							

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