

PendoTECH Single Use Pressure Sensors™

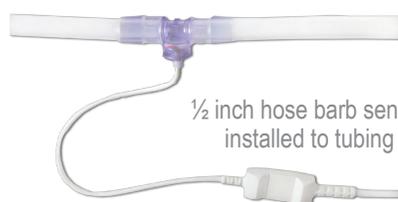
PendoTECH Single Use Pressure Sensors measure static and dynamic pressure of gases and liquids in your processes accurately and cost effectively. They are perfect for filtration and chromatography processes, monitoring of glass and disposable bioreactors, filling operations and more. They feature the PendoTECH High Accuracy Pressure (MEMS-HAP™) chips inside. The sensors connect to monitors via a 12-foot (3.7 m) reusable cable via integral connector. Suitable monitors include PressureMAT™ monitor/transmitter, a PendoTECH Process Control System, or other pre-qualified third party monitors. They can be non-invasively tested in-place with the PressureCHECKER™ device. They are the alternative low-cost solution for use with tubing to the existing stainless steel pressure transducers on the market.

- Available with diameters from 1/16 to 1 inch (0.16 to 2.5 cm) inner diameter
- May be repeatedly cleaned and re-used
- Operating range from -7 to 75 psi (-0.48 to 5.2 bar)
- Unobstructed flow path & no dead legs provides dramatically reduced hold-up volume versus stainless steel transducers or gauges
- 100% tested for accuracy and leaks during manufacturing
- Available in polycarbonate or caustic resistant polysulphone material of construction
- All fluid path materials meet USP Class VI requirements
- Certificate of quality included with lot certification; individual NIST Calibration Certificates are optional
- Manufactured in a FDA Registered, ISO 13485 certified facility; Class 100,000 clean room
- Compatible with gamma irradiation
- May be non-invasively tested in-place via test port



Hose Barb & Sanitary Flange Sensors

Optimally adapts to tubing or is available with sanitary flange. The barb process scale sensors have a hose barb fitting that can securely adapt to tubing. The design imparts no obstruction on the fluid path that can cause a pressure drop and there is no dead-leg at the point where the pressure is measured. The hose-barb design features no mold parting-line where the tubing is secured, which can be a source of leaks. The single barb design provides space for the hose to relax behind the barb, causing the tie-wrap to work like a drawstring. If more security than a tie-wrap is desired, other options are available. Anti-rotation ribs, lock the tubing, preventing it from loosening from a twisting motion.



1/2 inch hose barb sensor
installed to tubing



1/2 inch flange to barb
sensor



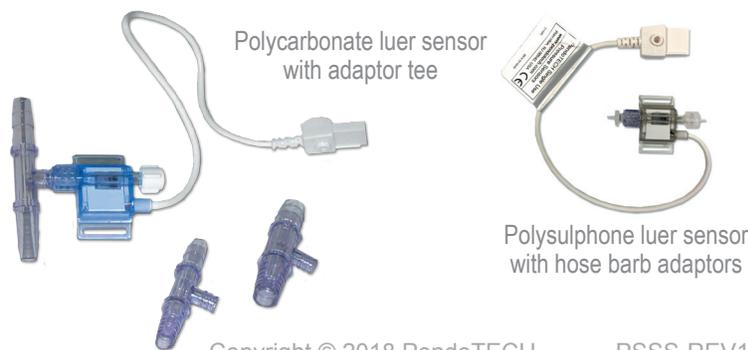
1 inch flange/flange
sensor



- Fluid path view
- No dead-legs
- No obstructions

Luer Sensors

They have male/female luer lock inlet/outlet ports and come with a cap on the female luer port for dead-end applications. With the universal luer fitting, they can be adapted to processes in different manners. They can be used in-line at low flow rates (1/16 or 1/8 inch tubing) by using luer to barb adaptors (see picture on far right). The polycarbonate version is available sterile for aseptic connection to a bioreactor after it has been autoclaved. Testing has indicated that accurate process pressure readings are obtained in the tee configurations. They can also be connected directly to the vent port on some filters.



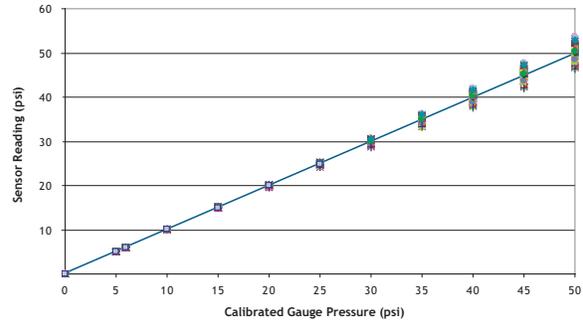
Polycarbonate luer sensor
with adaptor tee

Polysulphone luer sensor
with hose barb adaptors



Each pressure sensor comes individually packaged and labeled in a Tyvek® pouch.

PendoTECH Pressure Sensor Data as Measured with a PendoTECH Process Control System (Data from 100 Sensors)



Data from 100 random sensors manufactured with the PendoTECH High Accuracy Pressure chips (MEMS-HAP).



NEW! All sensors available with water-tight panel-mount connector for OEM applications. Minimum order quantity 100.



Custom adaptor cables that connect the sensors to monitors/pumps with RJ12 phone cable inputs are available.

Connector Detail:

BINDER Series 620 part number 99 9209 00 04
With degree of protection IP67

PIN	SIGNAL
1	Excit +
2	Sig -
3	Sig +
4	Excit -

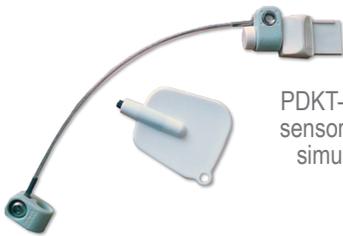
Detail	Specifications
Accuracy	Better than +/- 2% of <i>reading</i> in the range of 0 to 6 psi (0 to 0.41 bar); Better than +/- 3% of <i>reading</i> in the range of 6 to 30 psi (0.41 to 2.07 bar); In range of 30 to 60 psi (2.07 to 4.14 bar) typically better than +/- 5% of reading
Pressure range	-7 to 75 psi (-0.48 to 5.2 bar)
Biocompatibility	All materials in contact with product fluid path meet USP Class VI requirements, both pre and post gamma exposure
Manufacturing Environment	FDA Registered, ISO 13485 certified facility; Class 100,000 clean room
Gamma Irradiation	Up to 50 kiloGrays
Operating temperature	2° C to 50° C (other ranges with process qualification)
Storage temperature	-25° C to 65° C
Input/Output impedance	270 Ohms to 400 Ohms
Excitation voltage	2.5 to 10 volts DC
Sensor Output	0.2584 mV/psi/Volt
Natural Frequency	> 200 Hz in saline
Connector	Custom molded 4 pin connector; signal +/- and excitation +/-
Packaging	White Tyvek® and clear pouch with easy-open chevron seal; box of 25 sensors in polyethylene bags (except sterile sensors are not in polybags)



PMAT-EXT-12F: Pressure Sensor Extension Cable (12ft)



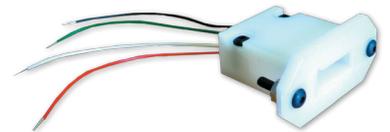
PDKT-650-950: PressureChecker pressure sensor and monitor verification tool, psi



PDKT-650-298CVR: Pressure sensor cable dust cover / zero simulator for PressureMAT



PDKT-V3PS-000: Polysulfone 3-way stopcock



PDKT-650-298BH: Pressure Sensor Bulkhead Connector with 6 inch Flying Leads

Ordering Information*^

LUER ORDERING INFO	
PRESS-S-000	Single Use Pressure Sensor, polycarbonate, with luer - Sterile
PREPS-N-000	Single Use Pressure Sensor, non-sterile, polysulfone, with luer
PDKT-103-03	1/4 inch x 1/4 inch (0.64 x 0.64 cm) polycarbonate adaptor tee with luer port
PDKT-104-03	3/8 inch x 3/8 inch (0.95 x 0.95 cm) polycarbonate adaptor tee with luer port
PDKT-105-03	1/2 inch x 1/2 inch (1.28 x 1.28 cm) polycarbonate adaptor tee with luer port
PDKT-V3PS-000	Polysulfone 3-way stopcock with M/F luer inlet /outlet F branch

REUSABLE CABLE	
PDKT-650-298	Reusable shielded cable for sensor- 12 foot (3.7 meters) maximum length with colored leads. If sensors are to be used with 3rd party monitor or pump system with RJ12 phone connector, add suffix to the part #: Scilog: SC; GE Midgee: MG; Pall Minim: MN;
PMAT-TCA	Test cable assembly for PressureMAT accuracy check (allows millivolt signal input to simulate sensor input)

* Sensors (except PRESS-S-000) are available with the individual serial numbers and individual NIST Calibration Certificates in addition to the lot certification. Depending on the calibration range required, the suffix -B or -30 or -60 is added to the part number. Contact PendoTECH for more information on this service.

^ All sensors available with BINDER IP67 connector. Add -W suffix to part number; minimum order quantity is 100.

HOSE BARB & SANITARY FLANGE (ALL NON-STERILE) ORDERING INFO

POLYSULFONE		
PREPS-N-	012	1/8 inch
	025	1/4 inch
	038	3/8 inch
	050	1/2 inch
	075	3/4 inch
	100	1 inch
	5-5	3/4 inch sanitary flange
	1-1	1 inch sanitary flange
	1-100	1 inch SF to 1 inch HB
	5-038	3/4 inch SF to 3/8 inch HB
5-050	3/4 inch SF to 1/2 inch HB	
POLYCARBONATE		
PRESS-N-	025	1/4 inch
	038	3/8 inch
	050	1/2 inch
	075	3/4 inch
	100	1 inch

NOTICE: NOT FOR ABOVE 75 PSIG (5.2 BAR). Each prospective user must test the sensor for its proposed application to determine its suitability for the purpose intended prior to incorporating the sensor into any process or application. The sensor is not designed, intended or authorized for use as components in life support or medical devices. Product is not designed for any application in which the failure of the product could result in personal injury, death or property damage. For warranty see www.pendotech.com/warranty. ACDP Status: Compliant with EMA 410 Rev 3 Guidelines.