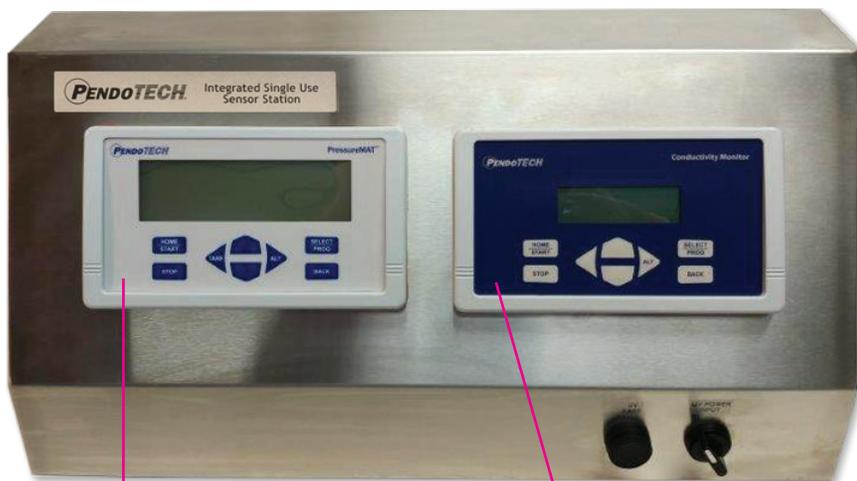


Integrated Single Use Sensor Station



Consolidate Single Use Process Measurements into a Single Station

Measurement options include:

- Pressure
- Conductivity
- UV or Turbidity (wavelength range 240-1100nm)
- Flow
- pH

Perfect for chromatography processes where single use technology is required. All sensors are single use, however, they can be cleaned and reused. Sensors for pressure, conductivity, UV/turbidity and flow come calibrated and ready to use; the optional pH may require a calibration step depending on accuracy requirements.

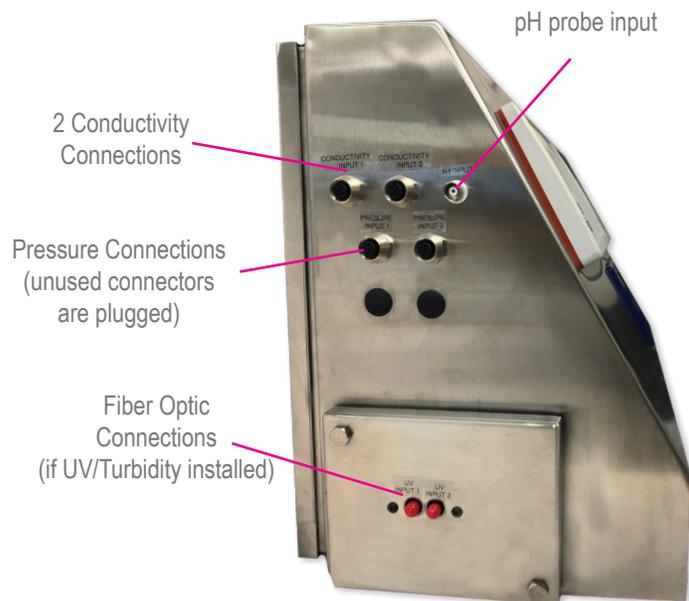
PendoTECH® PressureMAT®
 [a range of models available depending on sensor options]

PendoTECH Conductivity/
 Temperature monitor

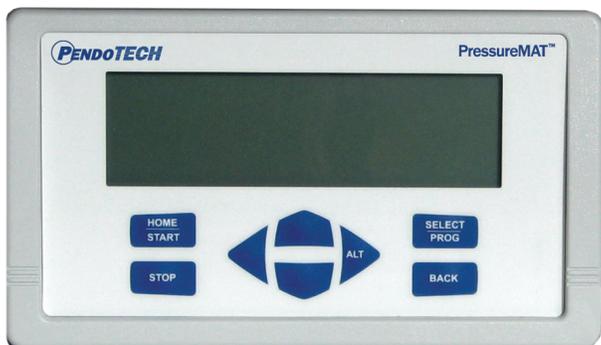


Panel Mount pH meter if
 pH option installed

Power and Tare Control if
 UV or Turbidity Installed



Includes power supply and all sensor interface cables



PressureMAT® & PressureMAT PLUS Options

PressureMAT & PressureMAT PLUS models are limited to 4 inputs. You can select your ideal model from the configuration options in the table below to meet your process requirements. There are a range of options to accommodate pressure sensor inputs, flow meter inputs and the optional internally installed UV/Turbidity and pH units. The flow meter, UV/Turbidity and pH readings all appear on the PressureMAT display for easy viewing of all data at the same location. This facilitates the data to be transferred along with the data from the CMONT conductivity sensor monitor to the PendoTECH PMATP-GUI PC data acquisition software.

CONFIG #	MODEL NUMBER	PRESSURE INPUTS	FLOW INPUTS	UV/TURBIDITY INPUT	PH INPUT
1	PMAT4R	4	none	none	none
2	PMAT2A	2	none	1	1
3	PMAT2A	2	none	2	none
4	PMAT2P	2	1	1	none
5	PMAT2P	2	1	none	1
6	PMAT2F	2	2	none	none
7	PMAT3A	3	none	1	none
8	PMAT3A	3	none	none	1
9	PMAT3P	3	1	none	none

Single Use Pressure Sensors

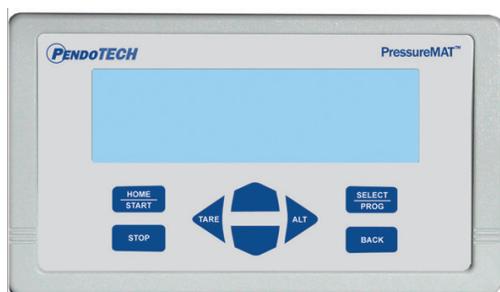
PendoTECH Single Use Pressure Sensors™ measure static and dynamic pressure of gases and liquids in your processes accurately and cost effectively. They come in a range of sizes including a luer, hosebarb from 1/8 inch to 1 inch and a variety of sanitary flange options. They feature the PendoTECH High Accuracy Pressure (MEMS-HAP™) chips and no calibration is required. The sensors connect to monitors via an integral connector. They can be non-invasively tested in-place with the PendoTECH PressureCHECKER™.





PendoTECH Single Use Conductivity Sensors™ & Conductivity Monitor

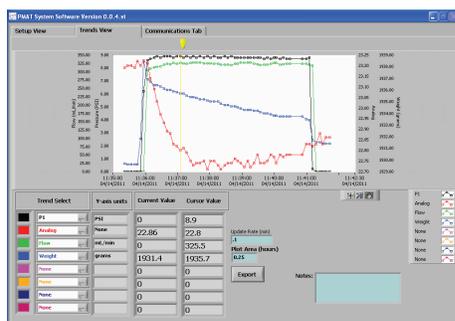
PendoTECH's Single-Use Conductivity Sensors™ and Conductivity Monitor are used for highly accurate conductivity and temperature measurements without the need for sensor calibration. All sensors have a pre-determined cell constant which is entered into the monitor. The sensor monitor reads conductivity and temperature for two sensors. The monitor features temperature compensation that normalizes conductivity readings to 25°C and it has a RS232 output for data collection to a PC.



PendoTECH PressureMAT & CMONT Data Acquisition Software

The PendoTECH PressureMAT® (PMAT) monitor/transmitter that is used to read the PendoTECH Pressure Sensors comes with a data port as a standard feature. PendoTECH has created a customized software package that can trend the data real-time and collect the data to a file that can be opened by programs such as Excel. The software has settings to choose the PressureMAT model from a list and it can optionally perform calculated values such as DeltaP and trans-membrane pressure, which are used for certain filtration applications. The PendoTECH CMONT Conductivity/Temperature sensor monitor has a data port, and its data can either be logged to the software in conjunction with the PressureMAT data or only have its data logged. Additionally, the PC software can log data from one scale.

RS232



RS232



UV Absorbance & Turbidity

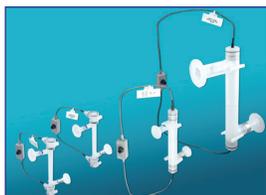
PendoTECH's Single-Use UV Absorbance and Turbidity measurement units can measure and collect data from the bioprocess fluid streams while it is processing, resulting in less disruption to bioprocessing operations compared to off-line measurements. PendoTECH's Single Use UV Flow Cells, coupled with a unit's compact photometer with fiber optic cables, can measure the UV absorbance at 280nm in filtration and chromatography applications without product contact. Additionally, the single wavelength LED light source in the unit is available in other popular wavelengths of 300nm and 260nm and most other wavelengths in the UV-VIS-NIR range. Our Turbidity Flow Cells and 880nm photometer can measure the turbidity of un-clarified material from a bioreactor or fermentor, or measure a liquid after it flows through a filter to provide consistent monitoring of filter performance. For Turbidity measurement, PendoTECH's Single Use Flow Cells fit in a Flow Cell Stand that shields ambient light interference. The single use cells are cost-effective for disposable applications, but also may be repeatedly cleaned and reused. The measurement units have no display so via their transmitter feature they integrate to a device with an input to display the measured value such as a PressureMAT PLUS. For increased versatility there is a dual wavelength unit available and two different measurements can be made with one flow cell.



LEVIFLOW® Single Use Flow Meters & PendoTECH LEVIFLOW Sensor Monitor



The LEVIFLOW® single-use flowmeters are for ultrasonic flow measurements in many different applications in the Biopharm Industry. Two piezoelectric transducers, mounted in the sensor housing, generate and receive an ultrasonic wave. The wave going in direction of the flow (with-stream wave) is accelerated and the wave going against the flow direction (against-stream wave) is slowed down. The two waves are processed by the PendoTECH Leviflow® Sensor Monitor. The difference of the transit time of both waves is proportional to the velocity of the fluid. The monitor has a digital LED display for the flow reading. Its digital frequency output can be interfaced to the PressureMAT PLUS models with a frequency input where the same value that's on the LED display will be displayed on the PressureMAT display.



The flow meters come in a range of sizes from 6 mL/min to 80 L/min and have a high precision flow measurement of better than 1%. No calibration is required because each one is pre-calibrated during manufacturing and the data is stored on the flow meter cable connector and is read by the monitor. The standard configuration of the LEVIFLOW single-use flow meters consists of a flow sensor and the PendoTECH LEVIFLOW Sensor Monitor with a digital signal processor (DSP) for processing the sensor signals.

PendoTECH Rotary Flow Meter



The PendoTECH Single Use Rotary Flow Meter comes in two sizes: of 1/4 inch and 1/2 inch hosebarb. They can measure in a range of 100 mL/min to 20 L/min and have an accuracy of +/- 5%. The internal rotor blades reflect an infrared light beam and each rotation measured is converted to an electrical pulse that is received by the frequency input channel on the PressureMAT PLUS. Each rotor has a K factor printed on it which is its calibration factor and this is entered into the monitor and is used to convert the pulses to the flow rate.

pH Meter



There is BNC probe input on the left side of the panel where the pH probe connects to the box.

The pH monitor has a wide range of useful features and programmable options. For probe calibration there is a 2 point calibration mode and calibration data is retained in non-volatile memory when the unit is powered off. It has a simple, easy to read user interface with a water resistant front panel.

Any standard pH probe that has a BNC circular connector can be used. PendoTECH offers several in-line options that are both single use and re-usable. The single use model can be calibrated before use, then inserted into the flow cell and optionally disposed of after use. It can also be re-used. For the cells designed for re-use, there is one for Lab/Development with either a luer, 1/8 inch hose barb, or 1/4 inch hose barb; and one for Pilot scale with a 3/4 inch sanitary flange. In both designs, the probe can be removed from the cell for calibration with buffers using the pH meter calibration menu. The lab scale probe slides past an o-ring seal to give the probe tip access to the fluid path and the hold-up volume is less than 1mL. The Pilot scale probe has a 12mm OD and is secured in the flow cell via a compression fitting. The compression ferrules are made from PTFE so they can be repositioned or removed from the probe entirely.

Single Use Probe and Flow Cell



Reusable Probe & Flow Cells

Lab/Development Acrylic Flow Cell shown for 12mm OD probes (comes with a blank to block off one opening)



Available with different fitting options

Compression fitting to secure probe

Low hold-up volume fluid path

1/2inch hole for mounting



Pilot Scale

pH	
PT-PH1	PendoTECH Single Use pH probe with BNC connector for Single Use Cell with 3/4inch sanitary flange
PT-PH1-CB	Cable for PendoTECH Single use pH probe with BNC connectors, 10ft
PT-PH1-CELL	Flow Cell for PendoTECH Single Use pH Probe, 3/4inch sanitary flange inlet/outlet, PA12 Nylon
PT-PH1-CELL-025	Flow Cell for PendoTECH Single Use pH Probe, 1/4inch hose barb inlet/outlet, PA12 Nylon
PFC-RUA-L	Lab Scale flow cell for 12mm OD probes with compression fitting- luer
PFC-RUA-012	Lab Scale flow cell for 12mm OD probes with compression fitting- 1/8inch barb
PFC-RUA-025	Lab Scale flow cell for 12mm OD probes with compression fitting- 1/4inch barb
PFC-RUA-B	Blank for Lab Scale flow cell for 12mm OD probes
PH-PILOT-CC	pH pilot scale flow cell, polysulfone with 3/4inch sanitary flange inlet/outlets with 12mm OD pH probe
PH-PILOT-CP	12mm OD pH probe for flow cell

pH Monitor specifications

System Component	Specifications
Measuring Range (pH)	0.00 to 14.00 pH, 0.01 pH resolution, ± 0.01 accuracy
Measuring Range (ORP/mV)	-1999mV to 1999mV, 1mV resolution, ± 2 mV accuracy
Enclosure	NEMA 4X IP65, ABS case with push-button control pad

Conductivity Monitor Specifications (Model: CMONT)

System Component	Specifications
Enclosure	WxHxD: 7.86inch x 4.47inch x 2.25inch (19.96 x 11.35 x 5.72cm) Approximate weight: 1.34lbs (0.61kg), Material: ABS Plastic NEMA 4X front panel; panel and wall mount optional
Keypad	8 button keypad with LEXAN® overlay
Display	4 line backlit LCD
Power Inlet	D9 15-24 volts DC, 4 watts (powered by wall supply) Pin 1- ground; Pin 4- +24V
Sensors Input (s)	D15 female; Temperature Pin 7 (-), Pin 2 (+); Conductivity Pin 9 (high), Pin 12 (low)
Analog Output(s)	D15 male (screw terminal adaptor included as shown on right) Conductivity 4-20mA Range: 0-100mS Temperature 4-20mA Range: 0-70°C Accuracy: 0.1% of full scale Sourcing with Maximum Load: 400ohms
RS232 Output	Data output to a PC at frequency up to 1/sec.
Regulatory Compliances	RoHS and REACH Compliant CE Mark EN613261:2013; EN61010-1:2010



4-20 mA Signals	
+	-
C1 1	2
C2 3	4
T1 5	6
T2 7	8



PressureMAT® Monitor Specifications

System Component	Specifications
Enclosure	WxHxD: 7.86inch x 4.47inch x 2.25inch (19.96 x 11.35 x 5.72cm) Approximate weight: 1.3 lbs (0.65 kg), Material: ABS Plastic IP66 / NEMA 4X front panel; panel and wall mount optional PMAT-S: 4.70inch x 4.70inch x 2.25inch (11.94 x 11.94 x 5.72cm) Approx weight: 0.86 lbs (0.39kg)
Keypad	8 button keypad with LEXAN® overlay
Display	8 line LCD backlit blue, pressure displayed as X.X psi/X.XX bar; PMAT2HR & PMAT-SHR X.XXX psi/X.XXX bar
Power Inlet	2.5mm Circular Power Jack (center post positive) or D9 12-24 volts DC, 4 watts (powered by wall supply)
Pressure Sensors Input (s) Models offered with 1-4 inputs	Range of -11.5 to 75.0psi; (-0.793bar to 5.171bar) PMAT2HR & PMAT-SHR -0.7 to 7.5psi (-0.0483bar to 0.510bar) Configured for PendoTECH Single Use Pressure Sensors™, Connector: DA15 (includes 12 ft reusable cables)
Relay Outputs(s) [Up to 4 outputs available as a combination of Relay and Analog outputs]	Specifications for relay used for the alarm output: <ul style="list-style-type: none"> • Normally CLOSED or OPEN via wiring • 1amp closure, 2amps maximum current • 28 Volt AC/DC Maximum • 20 millisecond max turn on/off time • Screw terminal connector
Analog Output(s) [4-20 mA] [up to 4 outputs available as a combination of Relay and Analog outputs]	Screw terminal connector 4-20 mA Range: -10 to 75psi (-0.689bar to 5.171bar); PMAT2HR & PMAT-SHR -1 to 3psi (-0.069bar to 0.207bar) Accuracy: 0.1% of full scale Sourcing with Maximum Load: 400ohms Load Impedance: Zero Ohm minimum resistance, 22 mA maximum output
RS232 Output	Data output to a PC at frequency up to approx every 2 seconds Optional Internal Data Logger: Part# PDKTP-DLOG (logger not available with PMAT-S)
Regulatory Compliances	CE Mark EN61326-1:2013; EN61010-1:2010; EN/ISO13489-1:2009; EN60204-1:2009 FCC Part 15 Class B verified FCC Part 68 5TUUSA-23969-DT-E RoHS and REACH Compliant UL Listed

PendoTECH Single Use Pressure Sensor Data Sheet: https://www.pendotech.com/wp-content/uploads/2020/12/Pressure_Sensors_Spec_Sheet.pdf

PendoTECH Single Use PressureMAT Data Sheet: https://www.pendotech.com/wp-content/uploads/2020/08/PressureMAT_Spec_Sheet.pdf

PendoTECH Single Use Conductivity Sensor Data Sheet: https://www.pendotech.com/wp-content/uploads/2020/08/Conductivity_datasheet.pdf

PendoTECH Single Use Rotary Flow Meter Data Sheet: https://www.pendotech.com/wp-content/uploads/2020/08/PendoTECH_SingleUse_RotaryFlowmeter.pdf

PendoTECH UV Absorbance Sensor & Monitor Data Sheet: https://www.pendotech.com/wp-content/uploads/2020/08/UV_datasheet.pdf

PendoTECH Turbidity Flow Cell & Measurement Unit Data Sheet: https://www.pendotech.com/wp-content/uploads/2020/08/Turbidity_Cell_Info.pdf

PMAT-BNCH-COMBO-PH	PressureMAT, CMONT, and pH Monitor with UV Optional water-tight bench top stainless steel box with water-tight cable connections on left side
PMAT-BNCH-COMBO	PressureMAT, CMONT with UV Optional water-tight bench top stainless steel box with water-tight cable connections on left side