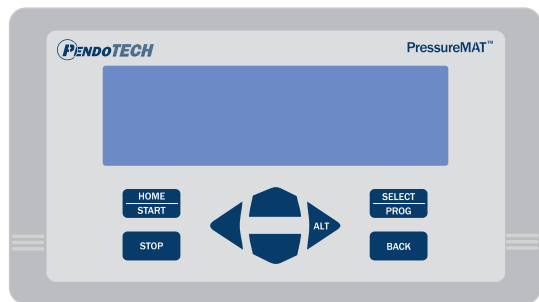# PENDOTECH

Adding Value To Your Process

PressureMAT™ Sensor Monitor

- Designed for PendoTECH Single Use Pressure Sensors
- Perfect for use with filtration and chromatography processes, as well as bioreactor pressure monitoring
- Data output capability to a PC or control system
- User configurable min/max set-points with alarm output signal
- Panel mount option with IP66/NEMA4X Front Panel
- High Resolution (HR) model available for low pressure applications that achieves 10x the accuracy of the standard unit
- IQ/OQ Protocol available
- Range of regulatory approvals (CE, UL)

The PressureMAT™ is a monitor, alarm, and transmitter unit designed for use with the PendoTECH Single Use Pressure Sensors. This lightweight, portable unit can easily be moved around a lab or pilot plant to the location where pressure measurement is required. The monitors use state of the art, solid state electronics, which require no calibration or maintenance. The output options, simplify integration to PCs or higher level control systems and a relay switch enables interfacing with pumps and valves. Options include models with up to four pressure sensor inputs. The PMAT3 and PMAT4 model can optionally display Delta-Pressure of P1-P2 or trans-membrane pressure (TMP) for filtration processes. These calculated values can also have alarm set-points and the values can be transmitted.

Monitor - the process pressure is displayed on the LCD display. There is one-touch zero tare to atmospheric pressure.

Alarm - minimum and maximum pressures are entered on the key pad and if the process pressure goes below the minimum setting or above the maximum setting, the system will go into alarm state. The alarm state that may be tied to the relay output help safeguard the integrity of a process.

Transmitter - the transmitter function delivers a 4-20 milliamp output signal corresponding to the pressure reading on the display. The RS-232 data output to a PC is available for data collection to the PMAT Data Acquisition Software.
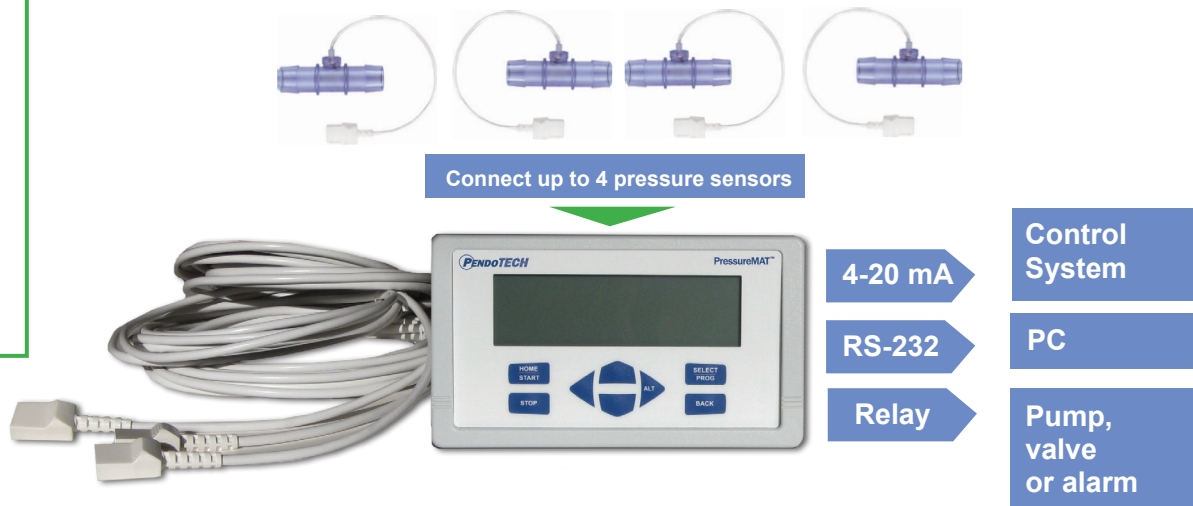
Applications - there are numerous applications in biopharmaceutical production processes where the system can be used to monitor pressure, including filtration, chromatography processes, and bioreactor monitoring.

Now Available! PressureMAT™ S

For 1 sensor only in a compact design

PressureMAT™ - for Monitoring up to Four Sensors

Connect up to 4 pressure sensors

4-20 mA → Control System

RS-232 → PC

Relay → Pump, valve or alarm

PENDOTECH
Adding Value To Your Process

PressureMAT™ Unit Includes:

- PressureMAT Unit
- Cable(s) for connection of pressure sensor(s) - 12ft / 4 meters
- Power Supply with blades for country
- Connectors for field wiring
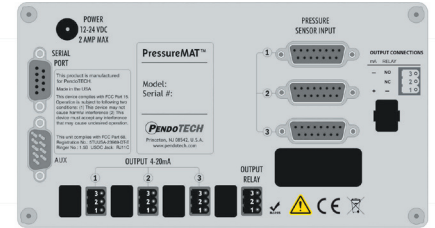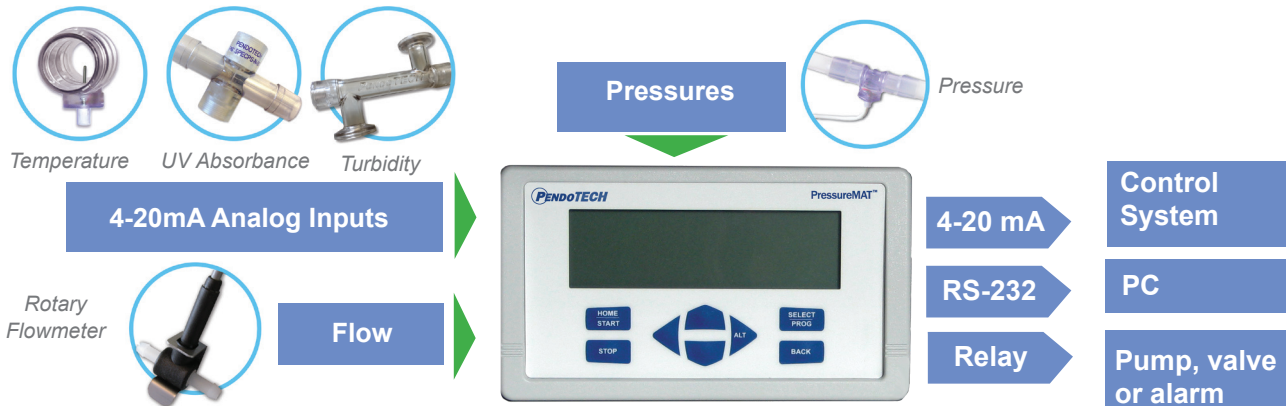- Mounting Screws
- CD with User Guide
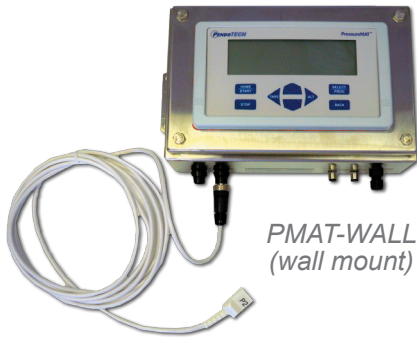
Illustration: Back panel schematic of PMAT3

System Specifications

System Component	Specifications
Enclosure	WxHxD: 7.86" x 4.47" x 2.25" (19.96 x 11.35 x 5.72 cm) PMAT-S: 4.70" x 4.70" x 2.25" Approximate weight: 1.3 lbs (0.65 kg), Material: ABS Plastic (11.94 x 11.94 x 5.72cm) NEMA 4X front panel; panel and wall mount optional Approx weight: 0.86 lbs (0.39 kg)
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	2.5 mm 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 -7.0 to 75.0 psi; (-0.483 bar to 5.171 bar) PMAT2HR & PMAT-SHR -0.7 to 7.5 psi (-0.0483 bar to .510 bar) 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: • Normally CLOSED or OPEN via wiring • 28 Volt AC/DC Maximum • 1 amp closure, 2 amps maximum current • 20 mS 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 75 psi (-0.689 bar to 5.171 bar); PMAT2HR & PMAT-SHR -1 to 3 psi (-0.069 bar to 0.207 bar) Accuracy: 0.1% of full scale Sourcing with Maximum Load: 400 ohms Load Impedance: Zero Ohm minimum resistance, 22 mA maximum output
RS232 Output	Data output to a PC at frequency up to 1/sec.; 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

Also Available the PressureMAT™ Plus

Temperature   *UV Absorbance*   *Turbidity*

4-20mA Analog Inputs

Rotary Flowmeter

Flow

Pressures

Pressure

PENDOTECH   **PressureMAT™**

HOME START   ALT   SELECT PROG
STOP   BACK

4-20 mA   →   **Control System**

RS-232   →   **PC**

Relay   →   **Pump, valve or alarm**

PENDOTECH

Adding Value To Your Process

A variety of water-tight enclosures available:

PMAT-WALL
(wall mount)

PMAT-WALL-2
(wall mount for pressure
and conductivity monitor)

PMAT-BNCH-IP-L
(benchtop model)

PMAT-STND

PMAT-S-DIN: DIN rail
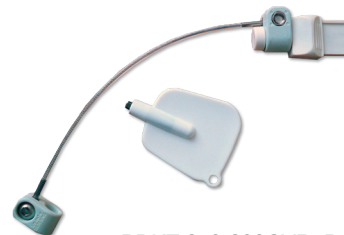mounting kit for PMAT

PMAT-STND-MFLS:
PressureMAT stand to mount on
top of Masterflex L/S Pump

*PMAT
Cart*

PDKT-650-950: Pressure Checker pressure sensor and
monitor verification tool

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

Pneumatic pinch valve with signal
from PressureMAT and power
supplied via connector on rear
for remote control of valve

Electric pinch valve with
signal from PressureMAT and
power supplied via connector on
rear for remote control of valve

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

Comes with
universal power supply

Model Number	Number of Inputs	Number of Outputs	Outputs
PMAT-S*	1	2	1 Relay / 1 Analog
PMAT-SHR*	1	2	1 Relay / 1 Analog
PMAT2	2	4	2 Relays / 2 Analog or 4 Relays
PMAT2HR	2	4	2 Relays / 2 Analog or 4 Relays
PMAT3	3	4	3 Analogs / 1 Relay (for all sensors)
PMATF3**	3	4	3 Analogs / 1 Relay (for all sensors)
PMAT4A	4	4	4 Analogs
PMAT4R	4	4	4 Relays

*Comes standard with remote tare input   ** 3 pressure sensor inputs with hardware filter

Software	
PMATP-GUI	Data Acquisition and Trending Software for PressureMAT and CMONT with 2 USB/serial cables to connect to a PC
PDKTP-DLOG	PressureMAT Internal Data Logger (not available with PMAT-S)
Stands	
PMAT-STND	PressureMAT Benchtop Stand for all models
PMAT-STND-MFLS	PressureMAT stand to mount on top of Masterflex L/S Pump
PMAT-STND-WM5	PressureMAT stand to mount on top of Watson Marlow 500 Series (green) Pump
Water Tight Enclosures	
PMAT-WALL	PressureMAT water-tight wall mount box with water-tight cable connections
PMAT-BNCH-IP-L	PressureMAT water-tight bench top stainless steel box with water-tight cable connections for PMAT on left side
PMAT-WALL2	PressureMAT water-tight wall mount box with water-tight cable connections - holds 2 PressureMATs
PMAT-WALL-S	PressureMAT-S single channel water-tight wall mount box with water-tight cable connections for PMAT
Cables	
PDKTP-RS232U	RS232 Cable for PressureMAT data output (6 feet / 2M) for USB input to PC
PMAT-650-298	Cable adaptor with D15 for Single Use Pressure Sensor for PMAT (12ft/4M)
PMAT-EXT-12F	Pressure Sensor Extension Cable (12ft)
Accessories	
PDKT-650-950	Pressure Checker pressure sensor and monitor verification tool, psi
PDKT-650-950B	Pressure Checker pressure sensor and monitor verification tool, millibar
PMAT-TCA	Test cable assembly for PressureMAT accuracy check (allows millivolt signal input to simulate sensor input)
PDKT-650-298CVR	Pressure sensor cable dust cover / zero simulator for PressureMAT
PMAT-S-DIN	DIN rail mounting kit for PMAT-S
PMAT-IQ/OQ	Installation qualification/operation qualification protocol documentation
PMAT-PANEL	PressureMAT Panel Mount Upgrade Kit- 2 gaskets (one and a spare), 4 mounting brackets,4 screws, sensor cable, connector (one for each input), and power input connector
PMAT-PWR	PendoTECH PressureMAT Power supply with circular barrel connector, 12VDC, 1amp with plugs blades for destination
PDKT-PVE2-PMAT-S	Pinch Valve Pair- 24VDC supply & relay input for each normally closed valve- Small for 1/8inch ID
PDKT-PVE2-PMAT-M	Pinch Valve Pair- 24VDC supply & relay input for each normally closed valve- Medium for 1/4inch ID
PDKT-PVE-PMAT-S	Pinch Valve- 24VDC supply & relay input for normally closed valve- Small for 1/8inch ID
PDKT-PVE-PMAT-M	Pinch Valve- 24VDC supply & relay input for normally closed valve- Medium for 1/4inch ID