

PIE PM-50 Series

Wireless Diagnostic Pressure Module



- **Calibrate with Confidence**
LEDs indication of Pressure Sensor Health, Connectivity, & Battery Level.
- **Accuracy**
Accuracy of $\pm 0.035\%$ of Span with the main sensor.
Barometric pressure accurate to ± 0.01 psi.
- **Ultra Compact**
Streamlined design enhances mobility. Carry multiple modules with ease while maintaining a clutter-free setup for more efficient calibration tasks.
- **Wireless Precision, Bluetooth Compatible**
The PM-50 Series provides wireless connectivity, allowing seamless communication with our handheld process calibrators. Connect directly to process pressure instruments without cumbersome cables or tubing, for greater flexibility and mobility during calibration tasks.
- **Wired Connections**
For plant environments where Bluetooth is restricted, the modules also support cabled connections, ensuring compatibility with strict industrial requirements while maintaining the same high-performance standards.



Pocket size
pressure module

Practical Instrument Electronics

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Improve Your Pressure Calibrations

PIE Bluetooth-compatible pressure modules are designed to bring greater efficiency and flexibility to your calibration workflow. These advanced modules seamlessly connect to our handheld process calibrators and to Android & iPhones running the PIE Pressure App enabling wireless pressure measurements with high accuracy and reliability. Say goodbye to cumbersome cables and enjoy the freedom to work more efficiently in the field or lab.

With a rugged yet compact design, these modules are small enough to fit in tight spaces while still delivering industry-leading performance. The wireless connectivity allows for greater mobility and ease of use, making calibration tasks more convenient than ever.

- **Calibrate with Confidence**

The PM-50 modules feature a built-in colored light indicator to provide real-time status updates at a glance. A green light confirms the module is functioning properly, ensuring confidence in your measurements. If the module detects a potential overpressure condition, the light changes to yellow or red, alerting users to take immediate action. This intuitive visual feedback enhances safety and helps users quickly assess module health without needing additional diagnostic tools. Accuracy of $\pm 0.035\%$ of Span with the main sensor. Atmospheric pressure accurate to ± 0.01 psi.

- **Ultra Compact**

Our PM-50 pressure modules are designed with a compact, space-saving form factor, making them ideal for field and bench applications where portability is key. Despite their small size, they deliver the same high accuracy and performance you expect, fitting easily into toolkits and tight workspaces. This streamlined design enhances mobility, allowing technicians to carry multiple modules with ease while maintaining a clutter-free setup for more efficient calibration tasks.

- **Wireless Precision, Bluetooth Compatible**

The PM-50 Series provides wireless connectivity, allowing seamless communication with our handheld process calibrators. This eliminates the need for cumbersome cables, giving technicians greater flexibility and mobility during calibration tasks. When accessing your pressure instruments requires climbing up a ladder, you can attach a PM-50 Module directly to the port then and take your readings wirelessly while standing safely on the ground. For plant environments where Bluetooth is restricted, the modules also support cabled connections, ensuring compatibility with strict industrial requirements while maintaining the same high-performance standards.

Mount the pressure module directly to a pump without any wires!



PIE 50 Series Phone App - Android & iOS

- **Connect without wires for simplified calibrations**
Connect without wires to cell phones with PIE Pressure App.
Simultaneously display two pressure modules in your choice of pressure units for each.
Toggle between gauge pressure and absolute pressure readings.
Measure differential pressure by choosing which wireless module is High and which is Low.
- **Smart**
Patented self diagnostics (Patent 11,815,364) make it easy to confirm that the pressure module is functional and ready to use.
- **Adaptable pressure readings**
Measure gauge pressure or absolute pressure with a single module. External sensor connects to your pressure devices while an internal sensor measures atmospheric pressure. Both pressures are automatically compared to display absolute pressure.
- **32 Engineering Units:**
PSI • inches, feet, mm, cm and meter of H₂O @ 4°C, 20°C & 60°F inches, meter, cm and mm of Hg @ 0°C; • torr • kg/cm² • kg/m²
Pa • hPa • kPa • MPa • Bar • mBar • ATM • oz/in² • lb/ft²



Built-In Sensor Diagnostics

- **Trust all your pressure measurements**
Patented self diagnostics (Patent 11,815,364) make it easy to confirm that the pressure module is functional and ready to use.
Easy to identify 'healthy' or 'calibration needed' LED indicators quickly notify you of a potential problem.

Instantly see the module status with LEDs

- **Multi color LEDs show the status of the pressure sensor, battery level, and Bluetooth connection**
Handy guide on the pressure module describes the LED indicators.



Wired Connection to Calibrator



Wireless Connection to Calibrator



PIE 50 Series Specifications

(Unless otherwise indicated all specifications are rated from a nominal 23°C, 70% RH for 1 year from calibration)

General	
Operating Temperature Range	-20 to 60 °C (-5 to 140 °F)
Storage Temperature Range	-30 to 60 °C (-22 to 140 °F)
Temperature effect	$\leq \pm 0.005$ %/°C of Full Scale
Relative Humidity Range	10 % ≤RH ≤90 % (0 to 35 °C), Non-condensing 10 % ≤RH ≤ 70 % (35 to 60 °C), Non-condensing
Common Mode	50/60 Hz, 100 dB
Normal Mode Rejection	50/60 Hz, 50 dB
Noise	$\leq \pm \frac{1}{2}$ Least Significant Digit from 0.1 to 10 Hz
Size	Length 4.055 inches (103 mm) Diameter 1.2 inches (30.5 mm)
Weight	4.45 oz (0.126 kg)
Battery	NiMH
Battery Life	8 Hours
Low Battery	LED indication of battery level at turn on. Battery level displayed on connected calibrator or phone app.
Protection against misconnection	Over-pressure protection to 2x Maximum pressure. Red LED indicates OVERPRESSURE or out of range conditions.
Accuracy of main sensor	± 0.035 % of Span
Accuracy of Barometric Sensor	± 0.01 psi

Media Compatibility

Non-isolated sensors: clean, dry, non-corrosive, non-condensing gases only

Isolated sensors: any media compatible with 316L SS

32 Engineering Units:

PSI • inches, feet, mm, cm and meter of H₂O @ 4°C, 20°C & 60°F • inches, meter, cm and mm of Hg @ 0°C; torr • kg/cm² • kg/m² • Pa • hPa • kPa • MPa • Bar • mBar • ATM • oz/in² • lb/ft²



Palm sized. Easy to mount directly to instruments.



Carry multiple modules to any location in the field.

Hand Pumps, Tubing & Fitting Kits

- **Generate pressure with a full set of hand pumps**

Choose from a selection of hand pumps, tubing & fittings made in the USA by Ralston Instruments. All pumps have two pressure ports - one port & hose go to the PIE pressure module and the other to the pressure input of your instrument. Each pump comes with the Quick-Test hose (020-0229).

Pneumatic Scissor Hand Pump

020-0237

0 to 650 psi



Hydraulic Scissor Hand Pump

020-0238

0 to 5,000 psi



Pneumatic Pressure/Vacuum Pump

020-0226

0 to 125 psi & 0 to 23 inches vacuum



Quick-test™ Hoses - 020-0229

Microbore hoses provide a very quick, low volume, high pressure (up to 6900 psi) way of connecting any pressure instrumentation to the hand pump and pressure module.



Pressure Fitting Kit - 020-0228

Adapts from Quick-test™ hose to 1/4" male & female NPT, 1/8" male & female NPT and 1/4" tube fitting.



Pressure Fitting - 020-0227

Adapts from Quick-test™ hose with cap to 1/8" male NPT for mounting on pressure module or pressure instrument.

PIE Pressure kits include the pump, two hoses and a basic fitting to get you started when you buy a PIE pressure module.

PKIT3 020-0232: includes 020-0226 Pressure/Vacuum Pump, two 020-0229 Hoses & 020-0227 fitting

PKIT4 020-0239: includes 020-0237 Pneumatic Scissor Pump, two 020-0229 Hoses & 020-0227 fitting

PKIT5 020-0240: includes 020-0238 Hydraulic Scissor Pump, two 020-0229 Hoses & 020-0227 fitting

PIE 50 Series Specifications

Resolution for each Module in each pressure unit

RANGE	30	100	300	500	1500
PSI	30.000	100.00	300.00	500.00	1500.0
inW20C	831.89	2773.0	8318.9	13864.9	41595
inW4C	830.42	2768.1	8304.2	13840.3	41521
inW60F	831.23	2770.8	8312.3	13853.8	41561
ftW20C	69.324	231.08	693.24	1155.41	3466.2
ftW4C	69.202	230.67	692.02	1153.36	3460.1
ftW60F	69.269	230.90	692.69	1154.48	3463.4
mmW20C	21130.1	70434	211301	352168	1056504
mmW4C	21092.7	70309	210927	351545	1054634
mmW60F	21113.2	70377	211132	351886	1055659
cmW20C	2113.01	7043.4	21130.1	35216.8	105650
cmW4C	2109.27	7030.9	21092.7	35154.5	105463
cmW60F	2111.32	7037.7	21113.2	35188.6	105566
mW20C	21.1301	70.434	211.301	352.168	1056.50
mW4C	21.0927	70.309	210.927	351.545	1054.63
mW60F	21.1132	70.377	211.132	351.886	1055.66
inHg0C	61.081	203.60	610.81	1018.01	3054.0
mHg0C	1.55145	5.1715	15.5145	25.8575	77.572
cmHg0C	155.145	517.15	1551.45	2585.75	7757.2
mmHg0C	1551.45	5171.5	15514.5	25857.5	77572
torr	1551.45	5171.5	15514.5	25857.5	77572
kg/cm2	2.10921	7.0307	21.0921	35.1535	105.460
kg/m2	21092.1	70307	210921	351535	1054604
Pa	206843	689476	2068427	3447379	10342136
hPa	2068.43	6894.8	20684.3	34473.8	103421
kPa	206.843	689.48	2068.43	3447.38	10342.1
MPa	0.206843	0.6895	2.06843	3.44738	10.3421
Bar	2.06843	6.8948	20.6843	34.4738	103.421
mBar	2068.43	6894.8	20684.3	34473.8	103421
ATM	2.04138	6.8046	20.4138	34.0230	102.069
oz/in2	480.000	1600.0	4800.00	8000.00	24000.0
lb/ft2	4320.00	14400	43200.00	72000.0	216000

Ordering Information

Description of PM-50 Pressure Module

Part No

Isolated, Gauge & Absolute 0.000 to 30.000 psi / 0.00000 to 2.10000 Bar	PM50-30i-GA
Isolated, Gauge & Absolute 0.000 to 100.000 psi / 0.0000 to 6.8948 Bar	PM50-100i-GA
Isolated, Gauge & Absolute 0.000 to 300.000 psi / 0.0000 to 20.6843 Bar	PM50-300i-GA
Isolated, Gauge & Absolute 0.000 to 500.000 psi / 0.0000 to 34.4738 Bar	PM50-500i-GA
Isolated, Gauge & Absolute 0.000 to 1500.0 psi / 0.000 to 103.421 Bar	PM50-1500i-GA

Included:

Calibration Card signed & dated	
A/C USB-C Charger	020-0109
USB-C to USB-C Cable	020-0107

Accessories

Optional

PM-50 4 Pack Carrying Case	020-0238
PM-50 cable to PIE 820-Elite, 830 & 850	020-0108
Certified Test Data (must be requested at time of Order)	CertTest Data-2

Optional Hand Pumps, Tubing & Fitting Kits

AP0V 0-300 PSI/20.7 bar Pneumatic Scissor Hand Pump	020-0224
HP0V 0-3000 PSI/206.9 bar Hydraulic Scissor Hand Pump	020-0225
DPPV 0-125 PSI/8.6 bar Pressure, 23"/584 mm Hg Vacuum hand pump	020-0226
1/8" male NPT x Male Quick-Test™ Fitting with Cap	020-0227
Adapter kit (1/8" MNPT&FNPT; 1/4" MNPT, FNPT & Tube Adapter)	020-0228
Quick-Test™ 6900 psi/475 bar hose, 3ft (1 m)	020-0229
PKIT1 (020-0224 Pneu Scissor Pump, 020-0229 Hose & 020-0227 fitting)	020-0230
PKIT2 (020-0225 Hydr Scissor Pump, 020-0229 Hose & 020-0227 fitting)	020-0231
PKIT3 (020-0226 Press/Vac Pump, 020-0229 Hose & 020-0227 fitting)	020-0232



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