APMi Series
Intrinsically Safe
Advanced Pressure Module
Expand
Your HPC50
Pressure Calibrator

Now Measure up to 4 Pressures at Once!

The CRYSTAL APMi intrinsically safe pressure modules, with integrated CPF® female connections offer the functionality and flexibility to read up to 4 pressure inputs with a single HPC50 calibrator. In addition to the two installed modules in the HPC50 Series, two APMi pressure modules can be connected to the device. This provides the flexibility to either expand the range of the HPC50, view all four pressure readings at the same time, or to read two different differential pressures.

The APMi is engineered to deliver the same high level of accuracy whether in the lab or in the field. When combined with the APMi pressure module and pump systems, the HPC50 is a powerful calibration tool.

Key Features

- Accuracies to 0.035% of Reading.
  Performance to meet almost any calibration and measurement task.
- Eight Ranges Available.
  Full coverage from vacuum to 10,000 psi /700 bar.
- Rugged Construction.
  Machined stainless steel housing. Engineered for rough field use—almost unbreakable.
- Self-Contained, Intelligent Module.
  Calibration data is stored in the module, so any module can be combined with any HPC50 calibrator. No need to "calibrate" the module to an indicator.

"When combined with the APMi pressure module, the HPC50 Series Calibrator is a powerful calibration tool."

Crystal APMi offers seamless integration with the Crystal HPC50 Series.
Active Temperature Compensation

Count on the same accuracy at any temperature, between -20 and 50°C.

Calibrate with Confidence Anywhere

Take measurements with up to 0.035% of reading accuracy. Crystal Engineering calibration facilities are A2LA accredited, (#2601.01) which is internationally recognized by ILAC.

Combine with Our Ready To Go Pump Systems

Combine the APMi pressure modules with the HPC50 calibrator and any of our pump systems. From small pneumatic hand pumps to a precision, hydraulic pressure comparator, we have the perfect kit for your application.
Specifications

Accuracy

psi (Gauge Pressure)

- 18 to 28°C
  - 0 to 30% of Range: ±(0.01% of Full Scale)
  - 30 to 110% of Range: ±(0.035% of Reading)
  - Vacuum*: ±(0.05% of Full Scale**)

- -20 to 50°C
  - 0 to 30% of Range: ±(0.015% of Full Scale)
  - 30 to 110% of Range: ±(0.050% of Reading)
  - Vacuum*: ±(0.05% of Full Scale**)

* Applies to 300 psi / 30 bar / 3 MPa and lower ranges only.
Vacuum Range = -14.5 psi / -1.0 bar / -1 MPa.
** Full Scale is the numerical value of the positive pressure range.

psiA (Absolute Pressure with HPC50 BARO Option)

- All absolute accuracies are equivalent to the gauge pressure accuracies, except as noted below.
  - 15 psi / 1 bar / 100 kPa Range: Gauge Accuracy + 0.005 psiA
  - 30 psi / 3 bar / 300 kPa Range: Gauge Accuracy + 0.005 psiA
  - 100 psi / 10 bar / 1MPa Range: Gauge Accuracy + 0.002 psiA

Includes all effects of linearity, hysteresis, repeatability, temperature, and stability for one year.
Exposure to environmental extremes of temperature, shock, and/or vibration may warrant a more frequent recertification period.
All models indicate vacuum, but vacuum specification applies only where specified.
Not recommended for continuous use at high vacuum. Refer to XP2i-DP data sheet for gauges that are intended for continuous high vacuum use.
The BARO option allows you to toggle between gauge and absolute pressure using the same APMi module.

Sensor

Wetted Materials (WRENCH TIGHT): 316 stainless steel and Viton® (internal o-ring)
(15 psi / 1 bar / 100 kPa)
316 stainless steel and Viton

Diaphragm Seal Fluid ................. Silicone Oil
Connection ......................... Crystal CPF Female

All welded, with a permanently filled diaphragm seal.
Metal to metal cone seal; O-ring can be removed if necessary.
1/4" male NPT adapter is included unless BSP or M20 is specified.
1/4" medium pressure tube system is compatible with HIP LM4 and LF4 Series, Autoclave Engr SF250CX Male and Female Series.

Output

Pressure Resolution ..................... up to 6 digits
Display Update ....................... up to 10 per second

Pressure resolution and display update are the maximum values available. The resolution of your Crystal device may be different.

Pressure Overload

Overload Alarm ............. "+OL" in display at 110% F.S.

Operating Temperature

Temperature Range ........... -20 to 50°C (-4 to 122°F)
< 95% RH, non-condensing. No change in accuracy over operating temperature range, except as noted in the accuracy specifications. Gauge must be zeroed to achieve rated specification.
Applies to all modules.

Storage Temperature

Temperature Range ........... -40 to 75°C (-40 to 167°F)

Enclosure

Dimensions ....................... 2.9 x 1.1 in (74.0 x 27.0 mm)
Weight .................................. 0.39 lbs (176.0 g)

Intrinsic Safety Approvals

Ex ia IIC T4/T3 Ga
FTZU 18 ATEX 0043X
Ex ia IIC T3 Ga
IECEx FTZU 18.0012X
Exia Intrinsically Safe and Non-Incendive for Hazardous Locations: Class I, Division 1, Groups A, B, C, and D; Temperature Code T4/T3. Class I, Zone 0, AEx ia IIC T4/T3 Ga.

Entity Parameters

Ui = 5.0 V
li = 740 mA
Pi = 880 mW
Ci = 9.2 µF
Li = 12 µH

Certifications

We declare that the APMi is in accordance with the Electromagnetic Compatibility Directive per our declaration(s).

This HPC50 is approved for use as a portable test instrument for Marine use and complies with DNV GL Rules for Classification of Ships, High Speed & Light Craft, and Offshore Units.
**Accuracies, Ranges, and Resolutions**

<table>
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<th>psi</th>
<th>bar</th>
<th>kPa/MPa</th>
<th>Overpressure</th>
<th>psi</th>
<th>kg/cm²</th>
<th>inHg</th>
<th>inH₂O</th>
<th>mmHg</th>
<th>mmH₂O</th>
<th>kPa</th>
<th>bar</th>
<th>mbar</th>
<th>MPa</th>
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<td>1BAR</td>
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<td>0.001</td>
<td>0.01</td>
<td>0.01</td>
<td>0.1</td>
<td>0.001</td>
<td>0.00001</td>
<td>0.1</td>
<td>0.00001</td>
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<tr>
<td></td>
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<td>3.0 x</td>
<td>0.001</td>
<td>0.00001</td>
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<td>0.00001</td>
<td>0.1</td>
<td>0.00001</td>
<td>0.01</td>
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<td>0.00001</td>
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<td>0.1</td>
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<tr>
<td></td>
<td></td>
<td>3.0 x</td>
<td>0.001</td>
<td>0.00001</td>
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<td>0.01</td>
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<tr>
<td></td>
<td></td>
<td>2.0 x</td>
<td>0.001</td>
<td>0.00001</td>
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<td>0.001</td>
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<tr>
<td></td>
<td></td>
<td>1.5 x</td>
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<td>1.5 x</td>
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</table>

Resolutions shown are the maximum resolutions available. The resolution of your Crystal device may be different.

* CPF adaptor fitting is not included. 1/4" medium pressure tube system is compatible with HIP LM4 and LF4 Series, Autoclave Engr SF250CX Male and Female Series. See our CPF data sheet for additional adapter fittings.

**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>P/N</th>
<th>Fitting</th>
<th>Interface Cable Length</th>
<th>Sample Part Numbers</th>
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<tbody>
<tr>
<td>APMi</td>
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<td>NPT</td>
<td>1 m / 3.3 ft (omit)</td>
<td>APMi30PSI with a 1/4&quot; NPT male pressure fitting and 1 meter cable.</td>
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<td>G 1/4 B</td>
<td>3 m / 10 ft (3M)</td>
<td>APMi700BAR-BSP-3M with a 1/4&quot; BSP male pressure fitting and 3 meter cable.</td>
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<td>M20x1.5</td>
<td>10 m / 33 ft (10M)</td>
<td>APMi10MPA-M20-10M with an M20x1.5 male pressure fitting and 10 meter cable.</td>
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</tbody>
</table>
Accessories and Replacement Parts

**MPM-1/4MPT CPF Male to 1/4" Male NPT Fitting**
Included as standard

**MPM-1/4BSPM CPF Male to 1/4" Male BSP Fitting**
Included with -BSP

**MPM-M20x1.5M CPF Male to M20 Male Adapter**