Handheld Pressure Calibrator
HPC600

Pressure ranges
HPC600-2A  2 bara / 30 psia
HPC600-2C  2 bar / 30 psi
HPC600-10A 10 bara / 150 psia
HPC600-10C 10 bar / 150 psi
HPC600-020C 20 bar / 300 psi

High accuracy
±0.020% of reading +0.015% F.S.

True field calibration
Fully temperature compensated

Unique built-in electrical pump
HPC600 has a built-in automatic pressure system, based on an electrical pressure and vacuum pump.

Complete 4-20 mA loop calibrator
HPC600 features a complete mA loop calibrator, measure, source, sing and 24 volt loop supply.

Comprehensive set of features
Wide selection of useful functions and features. Damping, leak test, error calculation, min/max, switch test, etc.

Thermometer
High accuracy thermometer, Pt100 sensor.

External pressure modules
Many different pressure modules, accuracy up to 0.01% F.S.

The JOFRA HPC600 calibrator features a built-in electrical pump system, for generation of pressure and vacuum, with a touch of a single key!

Besides the unique pump system, the HPC600 offers a complete suite of features and functions, making it an ideal tool and calibrator.

A true multifunction solution, designed to save time, money and space... HPC600 is a pressure indicator, a pressure calibrator, a complete mA loop calibrator, including 24 volt supply, a voltmeter, a thermometer and a pressure/vacuum generator. All in a ruggedized housing, with an easy intuitive operating system, in the palm of your hand.

The HPC600 is delivered as a ready-to-test system, complete with hose, fittings, and padded soft case, equipped to meet any need for pressure calibration. International traceable calibration certificate, including vacuum and electrical parameters are a part of the standard delivery, to make the HPC600 solution truly ready-to-use.

The HPC600 can be used in a very broad range of applications from simple tool type jobs to complex calibration jobs in custody transfer systems. A time and money saver!

HPC600 is designed to meet high accuracy pressure calibration applications and is a multifunction tool. The HPC600 offers features such as user configurable information display, 15 different pressure units, transmitter supply, mA input/output, % error calculation, voltage measurement, serial communication, and external pressure module capability. The accuracy of the HPC600 calibrators is specified in % of reading to ensure an even better accuracy and wider applicable pressure range.

The HPC600 is temperature compensated from -10 to 50°C / 14 to 122°F for on-site operation. It is a truly superior pressure calibrator for laboratory and field use, bringing laboratory accuracy into the field.

The JOFRA APM series of pressure modules extends the application base of the HPC calibrators by allowing calibrations in additional ranges.

ISO 9001 Manufacturer
Specification Sheet
SS-HPC600
**Temperature measurement**
High accuracy temperature measurement port by use of the optional Pt100 sensor. A superb instrument for easy and convenient temperature measurement.

**Intuitive menu system**
Combination of “soft keys” and cursor keypad ensures an easy operation.

**ON / OFF**
Auto shut-off to expand battery life time (user programmable).

**Pressure connections**
1/8” Combined NPT/BSP female, 300 series stainless steel. 1/4” NPT male and 1/4” BSP female adapters are supplied as standard.

**Clear graphical display**
Large backlit graphical display shows current status and mode, 1, 2 or 3 measurement windows, to suit your applications and demands.

**Pressure connections**
1/8” Combined NPT/BSP female, 300 series stainless steel. 1/4” NPT male and 1/4” BSP female adapters are supplied as standard.

**Electrical connections**
HPC calibrators are well equipped and include inputs for mA, voltage, including 24 VDC supply for mA transmitters, and source and sink for mA loop calibration and test.

**Pressure venier adjuster (Volume adjuster)**
To fine tune pressure or vacuum output.

**Vent valve / pressure vacuum selector**
Serial interface
RS232 connection for JOFRA APM pressure module or a computer.

Units
15 different pressure engineering units.

JOFRA APM pressure module
The JOFRA APM external pressure modules extend the range of the JOFRA HPC. There are more than 35 models available with gauge, absolute, differential, and vacuum pressure references, in metric and imperial engineering units.

The modules are engineered for in-plant, field, or laboratory use. They are ready-to-use with the JOFRA HPC and the protocol allows for immediate recognition and use of the module once it is plugged into the calibrator.

Full set of features
Perform semi-automatic pressure switch tests, leak test, % error calculation, switch in HART resistor or other calibrations tasks through the outstanding functions and features of the HPC600.

<table>
<thead>
<tr>
<th>APM Mk.II Type</th>
<th>Pressure range</th>
<th>12 month accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bar</td>
<td>PSI</td>
</tr>
<tr>
<td>From</td>
<td>To</td>
<td>From</td>
</tr>
<tr>
<td>Differential</td>
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<td></td>
</tr>
<tr>
<td>025MD</td>
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<tr>
<td>075MD</td>
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<td>Compound</td>
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<td>002C</td>
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<tr>
<td>007C*</td>
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<td>7</td>
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<tr>
<td>020C*</td>
<td>-0.820</td>
<td>20</td>
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<tr>
<td>035C*</td>
<td>-0.820</td>
<td>35</td>
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<tr>
<td>Gauge</td>
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<td>001G*</td>
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<tr>
<td>002G*</td>
<td>0</td>
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<tr>
<td>007G*</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>020G*</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>035G*</td>
<td>0</td>
<td>35</td>
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<tr>
<td>070G*</td>
<td>0</td>
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<td>700G*</td>
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<td>700</td>
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<tr>
<td>Absolute</td>
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<tr>
<td>001A</td>
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<tr>
<td>003A</td>
<td>0.025</td>
<td>3.5</td>
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<tr>
<td>007A*</td>
<td>0.070</td>
<td>7</td>
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<tr>
<td>020A*</td>
<td>0.070</td>
<td>20</td>
</tr>
</tbody>
</table>

* Stainless steel isolated pressure sensor

Specified temperature range 18°C to 28°C / 65°F to 82°F
F.S. (full scale) is the numerical value of the positive pressure range. Accuracy includes hysteresis, nonlinearity, repeatability and reference standard uncertainty. 1 Year typical long-term stability, operated inside the rated temperature span and pressure range. Requiring frequently zeroing (Gauge/diff.) or entering of reference pressure (Absolute).
## FUNCTIONAL SPECIFICATIONS

### Pressure; gauge / compound ranges
- bar: -0.82 to 2, 10 or 20
- psi: -12 to 30, 150 or 300

### Pressure; absolute ranges
- bara: 0.2 to 2 or 10
- psia: 3 to 30 or 150

### Engineering units (built-in)
User selectable: 15 units
(bar, mbar, MPa, kPa, inHg@0°C, mmHg@0°C, mmH2O@4°C, mmH2O@20°C, psi, inH2O@0°C, inH2O@20°C, inH2O@60°F, cmH2O@4°C, cmH2O@20°C)

### Pressure accuracy reference temp. (18 to 28°C / 65 to 82°F)
- All pressure ranges: ±0.020% RDG + 0.015% F.S.
- Vacuum: ±0.025% F.S.
F.S. (full scale) is the numerical value of the positive pressure range.
Accuracy includes hysteresis, nonlinearity, repeatability and reference standard uncertainty. 1 Year typical long-term stability, operated inside the rated temperature span and pressure range. Requiring frequently zeroing (gauge/compound) or entering of reference pressure (absolute).

### Pressure accuracy ambient temp. (-10 to 50°C / 14 to 122°F)
- All pressure ranges: ±0.030% RDG + 0.015% F.S.
- Vacuum: ±0.035% F.S.
F.S. (full scale) is the numerical value of the positive pressure range.
Accuracy includes hysteresis, nonlinearity, repeatability and reference standard uncertainty. 1 Year typical long-term stability, operated inside the rated temperature span and pressure range. Requiring frequently zeroing (gauge/compound) or entering of reference pressure (absolute).

### Display
- LCD: Graphical (with light)
- Display resolution: 5 digits
- Display update: 3 times per second

### RS232 communication interface
- Connector: LEMO
- Serial: 0-5 VDC, 9600 baud, 8 data, no parity, 1 stop
- Protocol: ASCII command language

### Input / output (18 to 28°C / 65 to 82°F)
- mA range, input, output and sink: 0 to 24 mA
- mA accuracy, input: ±0.015% RDG + 2 µA
- mA accuracy, output/sink: ±0.015% RDG + 2 µA
- Transmitter supply: 24 VDC ±10%
- Voltage measurement: 0 to 30 VDC
- Voltage accuracy: ±0.015% RDG + 2mV
- RTD range (ohms): 84 to 140 Ω
- RTD accuracy: ±0.015% RDG + 0.02 Ω
- RTD range (temp.): -40 to 155°C / -40 to 311°F
- RTD accuracy @ 0°C/32°F: ±0.10°C/0.18°F
- HART® resistor: 250 Ω
- Peak hold capture: 50 milliseconds
- Switch test input: 5V (<1mA)
- Temperature effect outside 18 to 28°C / 65 to 82°F: ±0.001% F.S./°C.

### Media compatibility
- Dry, clean, non corrosive gasses

### Environmental
- Operating temperature: -10 to 50°C / 14 to 122°F
- Storage temperature: -20 to 60°C / -4 to 140°F
- Ingress protection rating: IP56

### Pressure connection
- All calibrators: 1/8” BSP/NPT female (combined)
- Adapters to 1/4” NPT female and 1/4” BSP male are included as standard.

### Pressure overload
- Overload alarm: “OL” in display at approx. +20% F.S.

### Power supply
- Battery: 8 x 1.5 VDC Alkaline
- Battery type: AA, LR6, MN1500, AM3
- Battery lifetime: More than 300 pump cycles to 10 bar/150 psi
- Low battery indicator: Yes

### Instrument dimensions (LxWxH)
- Calibrator: 203x102x61 mm / 8x4x2.4 in
- HPC600 weight (incl. battery): 920 g / 32.5 oz
- Calibrator, shipping: 560x350x180 mm / 22x13.8x7 in
- Calibrator weight, shipping: 3.2 kg / 113 oz

### Miscellaneous
**Function / Feature** | **HPC600**
--- | ---
Single sensor high accuracy pressure calibrator | ✓
Automatic electrical pressure / vacuum pump system | ✓
mA measurement | ✓
mA output / source & sink | ✓
Voltage measurement | ✓
24 VDC transmitter supply | ✓
High speed pressure switch test | ✓
Temperature measurement with external RTD sensor | ✓
JOFRA APM pressure module connector | ✓
RS232 communication | ✓
On-line calculation of sensor error % | ✓
Automatic leak test timer function | ✓
High speed min/max hold | ✓
Display contrast adjustment | ✓
Instrument setup lock | ✓
Storage of 5 setups | ✓
Setup of number of display windows / measurement channels | ✓
Setup of temperature sensor RTD type | ✓
Select display high or low resolution | ✓
Setup of backlight timer | ✓
HART resistor on/off | ✓
Normal or dampened display update rate | ✓

4 instruments combines into 1
HPC600 a true multi function calibrator
HPC600 PRESSURE RANGES

This table shows the resolutions that can be obtained by the HPC calibrators throughout all engineering units.

<table>
<thead>
<tr>
<th>Engineering unit</th>
<th>Factor</th>
<th>2.0 bar / 30 psi</th>
<th>10 bar / 150 psi</th>
<th>20 bar / 300 psi</th>
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<tbody>
<tr>
<td>psi</td>
<td>1</td>
<td>30.000</td>
<td>150.00</td>
<td>300.00</td>
</tr>
<tr>
<td>bar</td>
<td>0.06894757</td>
<td>2.0684</td>
<td>10.3421</td>
<td>20.684</td>
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<tr>
<td>mbar</td>
<td>68.94757</td>
<td>206.84</td>
<td>1034.21</td>
<td>2068.4</td>
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<tr>
<td>kPa</td>
<td>6.894757</td>
<td>206.84</td>
<td>1034.21</td>
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<td>MPa</td>
<td>.00689476</td>
<td>0.2068</td>
<td>1.03421</td>
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<td>kg/cm²</td>
<td>0.07030697</td>
<td>2.1092</td>
<td>10.5460</td>
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<td>cmH₂O@4°C</td>
<td>70.3089</td>
<td>2109.3</td>
<td>10546.3</td>
<td>21093</td>
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<tr>
<td>cmH₂O@20°C</td>
<td>70.4336</td>
<td>2113.0</td>
<td>10565.0</td>
<td>21130</td>
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<tr>
<td>mmH₂O@4°C</td>
<td>703.089</td>
<td>21093</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>mmH₂O@20°C</td>
<td>704.336</td>
<td>21130</td>
<td>n/a</td>
<td>n/a</td>
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<td>inH₂O@4°C</td>
<td>27.68067</td>
<td>830.42</td>
<td>4152.1</td>
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<td>inH₂O@20°C</td>
<td>27.72977</td>
<td>831.89</td>
<td>4159.5</td>
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<tr>
<td>inH₂O@60°F</td>
<td>27.70759</td>
<td>831.23</td>
<td>4156.1</td>
<td>8312.3</td>
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<tr>
<td>mmHg@0°C</td>
<td>51.71508</td>
<td>1551.5</td>
<td>7757.3</td>
<td>15515</td>
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<tr>
<td>inHg@0°C</td>
<td>2.03602</td>
<td>61.081</td>
<td>305.40</td>
<td>610.81</td>
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<tr>
<td>Burst pressure</td>
<td>20 bar / 300 psi</td>
<td>20 bar / 300 psi</td>
<td>40 bar / 600 psi</td>
<td></td>
</tr>
<tr>
<td>Proof pressure</td>
<td>4 bar / 60psi</td>
<td>14 bar / 200 psi</td>
<td>28 bar / 400 psi</td>
<td></td>
</tr>
</tbody>
</table>

Proof pressure - maximum allowable pressure without a shift in calibration
Burst pressure - sensor damaged or destroyed, some risk of personnel injury
Absolute ranges - the data for the 2 bar / 30 psi and 10 bar / 50 psi ranges also applies to the absolute pressure versions of those ranges.
ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Order number</th>
<th>Description</th>
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<tbody>
<tr>
<td>HPC</td>
<td>Type</td>
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<tr>
<td>600</td>
<td>Model</td>
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<tr>
<td>002A</td>
<td>Pressure range</td>
</tr>
<tr>
<td>002C</td>
<td>0.2 bar / 3 psi to 2 bar / 30 psi absolute</td>
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<td>002C</td>
<td>-0.82 bar / -12 psi to 2 bar / 30 psi gauge/compound</td>
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<tr>
<td>010A</td>
<td>0.2 bar / 3 psi to 10 bar / 150 psi absolute</td>
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<tr>
<td>010C</td>
<td>-0.82 bar / -12 psi to 10 bar / 150 psi gauge/compound</td>
</tr>
<tr>
<td>020C</td>
<td>-0.82 bar / -12 psi to 20 bar / 300 psi gauge/compound</td>
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</table>

<table>
<thead>
<tr>
<th>Calibration certificate</th>
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<table>
<thead>
<tr>
<th>Accessories (Optional)</th>
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<tbody>
<tr>
<td>B</td>
</tr>
<tr>
<td>I</td>
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<tr>
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<table>
<thead>
<tr>
<th>Sample order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPC 600 010C G BIT</td>
</tr>
</tbody>
</table>

STANDARD DELIVERY (HPC Calibrator)
- HPC600 calibrator
- Padded soft carrying case
- Traceable calibration certificate (NIST) with pressure vacuum and electrical performance
- 8 x 1.5 volt batteries
- Adapter to 1/4" NPT male from 1/8" NPT male*
- Adapter to 1/4" BSP female from 1/8" NPT male*
- Quick connector set and 1 meter / 3 feet hose
- Test leads: red and black
- User manual

ACCESSORIES
Rechargeable battery kit - Option B
The HPC600 is available with a set of 8 rechargeable AA batteries and a charger for 4 batteries.

Interface kit - Option I
Special LEMO to Sub D, RS232 interface cable for HPC600.

Temperature sensor - Option T
To utilize the thermometer utility of the HPC600, a ruggedized handheld temperature sensor is available. The sensor comes as a ready-to-use probe with handle and coiled cable with LEMO connector for HPC600. The sensor is built with a high accuracy Pt100 element, accuracy ±0.15°C / ±0.27°F. Sensor dimensions, without handle and cable, Ø4x200 mm/stainless steel.

Complete calibration systems
The HPC600 is delivered as a ready-to-test system, complete and equipped to meet your pressure calibration needs.
JOFRACAL calibration software

JOFRACAL calibration software ensures easy calibration of RTD’s, thermocouples, transmitters, thermowithes, pressure gauges and pressure switches. JOFRACAL can be used with all JOFRA calibration instruments. JOFRACAL does not support the 20 bar version. For date of availability contact your local representative. When used with ASM-800 signal multi scanner, JOFRACAL can perform a simultaneous semi automatic calibration on up to 24 pressure and/or temperature devices under test in any combination.

JOFRACAL software controls the complete calibration procedure, stores the results and provides a calibration audit trail through hard-copy certificates. All calibration data are stored for each sensor to monitor drift and optimise recalibration intervals. A scheduler feature allows planning of future calibrations.

Dirt, moisture or liquid?

If particles or liquid is expected in the system to be calibrated, we recommend using our “cleaning filter”. The filter is attached with out use of tools, the build in o-rings ensure a tight system. The clear see-through design, makes it easy to see when cleaning is needed.

Part number 127887