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Find the *Heise HQS-2* at our website: ***Click HERE***

PTE-1 Handheld Pressure Calibrator



CE FM APPROVED

LOOK FOR THIS AGENCY MARK ON OUR PRODUCTS

FEATURES

- *Zeroes the displayed pressure(s)*
- *Monitors and displays on-demand the maximum and minimum pressure values measured*
- *Tares the display to eliminate a pressure preload*
- *Allows selection of pressure or electrical measurements on each port*
- *Checks and displays remaining battery life*
- *Tests for leaks in terms of either cc/min or pressure decay over time*

The Heise PTE-1 handheld system introduces a new era in pressure calibration standards. This unique instrument measures pressure, temperature, flow, vacuum, leak, current, voltage and change-of-state for switch testing. A fully equipped PTE-1 system provides all calibration capabilities needed in virtually all pressure measurement and test applications.

Each handheld system consists of a base unit and one or two Quick-Select™ pressure modules. An array of pressure modules is available to cover ranges from 0.25 inches H2O through 10,000 psi. Modules can be inter-changed quickly and easily without the use of tools. In addition to pressure measurement, Quick-Select interface modules are also available to allow the PTE-1 to measure temperature with common RTDs or thermocouple devices.

The Quick-Select Pressure Module

Each base unit can accommodate two pressure sensor modules simultaneously. Select from multiple modules which can be interchanged in seconds without the use of tools. When installed in the base unit, a pressure module becomes an integral part of the measurement system, thereby protecting the sensor from damage.

The Quick-Select Pressure Module.

Quick-Select pressure modules are available in full-scale ranges from 0.25 inches H2O through 10,000 psi. Gauge, vacuum, absolute, differential or compound pressure ranges are available.

Each base unit can accommodate two pressure sensor modules simultaneously. Select from multiple modules which can be interchanged in seconds without the use of tools. When installed in the base unit, a pressure module becomes an integral part of the measurement system, thereby protecting the sensor from damage. Any combination of Quick-Select pressure modules may be used or interchanged as needed in the lab or field.

The HQS-1.

The HQS-1 Quick-Select low pressure module is based on a proprietary, Ashcroft Inc. engineered, variable-capacitance sensor. This sensor is available in ranges from 0/0.25 to 0/200 inches H2O. HQS-1 Quick-Select pressure modules are available in accuracies from ±0.1% to ±0.06% of span. These Quick-Select pressure modules are available for gauge, differential and compound measurement requirements.

The variable-capacitance sensing element in the HQS-1 incorporates a micromachined silicon diaphragm. Silicon provides optimum repeatability with minimal hysteresis. The sensor is extremely stable, since the sputtered metal capacitance plates are molecularly bonded to the silicon. This design allows for the elimination of epoxies and other types of bonding and adhesive agents from the sensor assembly.

The HQS-1 sensor is also extremely rugged. It can withstand extreme overpressure without significant error or calibration offset. In addition, the sensor is capable of withstanding significant shock and vibration without damage or loss of measurement output integrity.

The HQS-2.

The HQS-2 Quick-Select pressure module incorporates a piezoresistive, micromachined silicon sensor. These sensors are available in ranges from 0/100 inches H2O through 0/10,000 psi and are also offered in absolute, vacuum and compound variants.

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PTE-1 Handheld Pressure Calibrator

HQS-2 sensors are available for gauge and absolute pressure or vacuum measurement. 316 SS sensor isolation is provided on all ranges for applications involving fluids or corrosive gases.

HQS-2 Quick-Select pressure modules are available in a variety of accuracies from ±0.1% of span through ±0.025% of span.

Also Measure Temperature…

The HQS-RT1, HQS-RT2 and HQS-TC1 interface modules allow the PTE-1 to measure temperature with common RTD or thermocouple temperature measurement devices.

The Base Unit.

The base unit provides access to the complete capabilities of the PTE-1 calibration system. These capabilities extend far beyond those of precision pressure measurement. The base unit contains a wide variety of application-specific firmware as well as the ability to measure both current and voltage inputs. In addition, this unit has the ability to interface the system with a computer, data acquisition system or dumb terminal via the standard RS-232 interface.

Each base unit can accommodate two Quick-Select pressure modules simultaneously. In addition, the modules can be interchanged quickly and easily for on-the-fly system configuration as application requirements change.



PRODUCT SPECIFICATIONS

HEISE®

Model No.: PTE-1

Dimensions: 7.88 in. (L) x 4.24 in. (W) x 3.25 in. (H)

Weight: Max. 2.2 lbs. w/2 pressure modules installed

Case Material: High impact ABS

Sensor Module Capacity: 2 bays for Heise HQS "Quick Select®" sensor modules

Display: 2 line LCD, 0.037 in. height per line. Can display simultaneous readings from 2 modules

Electrical Connection: Miniature recessed banana jacks (one set of test leads provided with each PTE-1)

Operating Temp. Range: Standard: 32° to 120°F
Optional: –4 to 120°F

Storage Temperature: –4° to 158°F

Update Rate: 130 ms (nominal) with one sensor installed

Resolution: ±0.002% of span, 60,000 count (max)

Warm-Up: 5 minutes for rated accuracy

Electrical Measurements: 0-20mA or 0-30 Vdc

Input:	**(volts)**	**Accuracy**
	0/10 Vdc	±0.025% fs
	0/30 Vdc	±0.10% fs
	0-20mA	±0.03% fs

Temperature Effect Electrical Measurement: ±0.001% of span per °F over comensated range

Serial Interface: Type: RS-232
Baud Rate: 300, 1200, 2400, 9600

Serial Interface: Both Quick-Select pressure modues and base unit electronics can be calibrated in the field.

OPTIONAL FEATURES

- *Datalogging with Hi-Lo Relay Feature* – Datalogging manually or automatically stores up to 715 measured values for upload to PC. Includes upload utility software. Hi-Lo relay feature allows programming of setpoints for activation of alarms or control valves. (Hi-Lo not available with FM approval.)
- *Enhanced LCD*
  For –4 to 120°F operating range
  FM Approval – Class 1, Div. 1, Groups A,B,C & D (Not available with CE Mark)
- *CE Mark*
  EMI/RFI immunity rating (not available with FM approval)

BASE UNIT PHYSICAL SPECIFICATIONS

Dimensions
7.88 in. (L) x 4.24 in. (W) x 3.25 in. (H)

Weight
Max. 2.2 lbs. w/2 pressure modules installed

Case Material
High impact ABS

Sensor Module Capacity
2 bays for Heise HQS "Quick Select®" sensor modules

Display
2 line LCD, 0.37 in. height per line. Can display simultaneous readings from 2 modules

Electrical Connection
Miniature recessed banana jacks (one set of test leads provided with each PTE-1)

BASE UNIT OPERATING SPECIFICATIONS

Operating Temperature Range
Standard: 32° to 120°F
Optional: –4 to 120°F

Storage Temperature
–4° to 158°F

Update Rate
130 ms (nominal) with one sensor installed

Resolution
±0.002% of span, 60,000 count (max)

Warm-Up
5 minutes for rated accuracy

Electrical Measurements
0-20mA or 0-30 Vdc

Input (volts)	**Accuracy**
0/10 Vdc	±0.025% fs
0/30 Vdc	±0.10% fs
0-20mA	±0.03% fs

Temperature Effect Electrical Measurement:
±0.001% of span per °F over comensated range

Serial Interface
Type: RS-232
Baud Rate: 300, 1200, 2400, 9600

Serial Interface
Both Quick-Select pressure modues and base unit electronics can be calibrated in the field.

Options
Datalogging with Hi-Lo Relay Feature – Datalogging manually or automatically stores up to 715 measured values for upload to PC. Includes upload utility software. Hi-Lo relay feature allows programming of setpoints for activation of alarms or control valves. (Hi-Lo not available with FM approval.)
Enhanced LCD – For –4 to 120°F operating range
FM Approval – Class 1, Div. 1, Groups A,B,C & D (Not available with CE Mark)
CE Mark – EMI/RFI immunity rating (not available with FM approval)

Power Requirements
Standard: (2) 9 Vdc Alkaline Batteries (provides up to 30 hours operation per set)
Optional: 110 or 220 Vac transformer to power calibrator from line power

Certification
N.I.S.T. Traceable certification document provided for base display unit and sensor modules

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PTE-1 Handheld Pressure Calibrator



PRESSURE SENSOR MODULE SPECIFICATIONS

HQS-1 MODULE
Pressure Types
Gauge, differential & compound
Available Ranges
(See Chart)
Available Accuracies
±0.06 (0/2-0/200 in. H_2O), ±0.07 (0/0.25-0/1 in. H_2O) or 0.1% of Span
Compensated Temperature Range
20°F to 120°F
Temperature Effect
±.004% of Span per °F over compensated range (from reference temperature range of 70° ±3°)
Repeatability
±0.01% of span (range 0/1 in. H_2O or higher)
±0.02% of span (ranges below 0/1 in. H_2O)
Sensitivity
±0.002% of span (typical)
Media Compatibility
Clean, dry, non-conductive, non-corrosive gas
Under/Overpressure Capability
–15 to 50 psi
Maximum Static (line) Pressure
100 psi
Process Connection
Standard: ⅛ NPT female
Other Options
FM Approved (for use with FM approved base unit)
CE Mark (for use with CE Mark rated base unit)

HQS-2 MODULE
Pressure Types
Gauge, absolute, compound & vacuum
Available Ranges
(See Chart)
Available Accuracies
±0.025, 0.05 or 0.1 % of Span (±0.025 & 0.05% not available on 0/10,000 psi range)
Compensated Temperature Range
20°F to 120°F
Temperature Effect
Standard: ±.004% of Span per °F over the compensated range (from reference temperature range of 70° ±3°)
Optional: No additional error due to temperature over the compensated range
Sensitivity
±0.002% of span (typical)
Repeatability
±0.01% of span
Media Compatibility
Any medium compatible with 316 SS isolation.
Optional: Cleaned for Oxygen Service
Overpressure Capability
200% for ranges up to 1000 psi
150% for ranges over 1000 psi
Process Connection
Standard: ⅛ NPT female
Optional: ⅛ NPT female with flush port
Welded VCR fitting with standard finish
Other Options
FM Approved (for use with FM approved base unit)
CE Mark (for use with CE Mark rated base unit)



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PTE-1 Handheld Pressure Calibrator

TEMPERATURE INTERFACE MODULES

HQS-RT Series (RTD)

HQS-RT1 and HQS-RT2 interface modules allow the PTE-1 to measure temperature with an RTD:

HQS-RT1: Accommodates Pt100, Ni120, Cu120 and other common 2, 3 or 4 wire probes with resistance outputs of 400 ohms or less.

HQS-RT2: Accommodates Pt1000 and other common 2, 3 or 4 wire probes with resistance outputs of 4000 ohms or less.

Selectable Units of Measure

°C, °F, °K, °R and ohms

Input Receptacle

Accepts TA4F type RTD connector

RTD Probes Available

Pt-100 probes, 6″ or 12″ length, with or without handle. DIN Class A accuracy. Includes mating TA4F connector. Consult factory for details and availability.

Options

FM Approved (for use with FM approved base unit) (CE Mark not available)

HQS-TC1 (Thermocouple)

The HQS-TC1 interface module allows the PTE-1 to measure temperature with a thermocouple:

Compatibility

Programmed to provide direct temperature readout from types J, K, T, E, R, S, B & N thermocouples or direct millivolt readout from any thermocouple.

Reference Junction

Automatic internal or manual external

Resolution

Automatic or manually selectable, up to .01°

Units of Measure

Selectable; °C, °F, °K, °R and millivolts

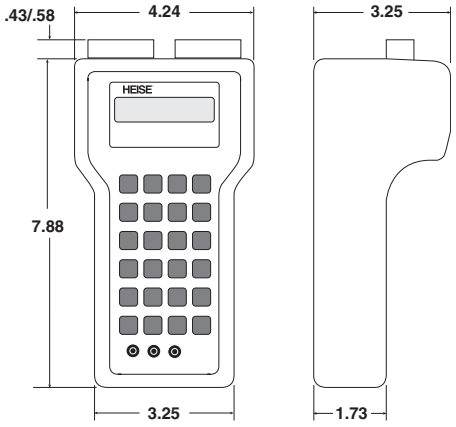
Receptacle

Accepts “miniature thermocouple connector”, Omega® type SMP

Options

FM Approved (for use with FM approved base unit) (CE Mark not available)

DIMENSIONS



STANDARD RANGES

HQS-2 psi (gauge & absolute pressure)	HQS-1 ″H_2O (gauge/ differential pressure)	Other Engineering Units**
5	0.25*	psi in. H_2O in. Hg ftSW Bar mBar kPa mPa mmHg cmH_2O mmH_2O kg/cm^2 User Selectable
10	0.5*	
15	1.0*	
20	2.0*	
25	3.0*	
30	5.0*	
50	10*	
60	15*	
100	25*	
150	50*	
200	100*	
250	150*	
300	200*	
500		
600		
1000		
1500		
2000		
2500		
3000		
5000		
6000		
7500		
10,000		
vacuum		
5		
10		
15		
compound		
±5	±0.125*	
±10	±0.25*	
±15	±0.5*	
–15/+30	±1.0*	
–15/+60	±1.5*	
	±2.5*	
	±5.0*	
	±7.5*	
	±12.5*	
	±25*	
	±50*	
	±75*	
	±100*	

**Note: Engineering units identified above are accessible through the unit select feature. However, readout will default to the primary unit of measure on start-up. Sensor modules scaled in primary units other than in. H_2O (HQS-1) or psi (HQS-2) are also available. Consult factory.

* Non-isolated, for clean dry gas only

ACCESSORIES

POWER SUPPLIES

831X016-01	AC adapter to run system off line power (110 Vac, 60 Hz)
831X016-02	AC adapter to run system off line power (100 Vac, 50 Hz)
831X016-03	AC adapter to run system off line power (220 Vac, 50 Hz)
831X019-01	AC adapter to run system off line power (220 Vac, 50 Hz, for CE mark)

ELECTRICAL ACCESSORIES

LPSIIa	Loop Power Supply (powers 4-20mA current loops)
SM-1	Voltage Adapter (Converts voltages of 10/250 Vac and 10/400 Vdc to levels acceptable to calibrator electronics; used to test “live” switches)

CARRYING, TRANSPORT & PROTECTIVE CASES

864X071-01	Contoured Form-Fitting Protective Instrument Case with Shoulder Strap
864X068-01	Heavy Duty, Watertight, Instrument Carrying/Transport Case*
864X069-01	Soft Carrying Case*

*Holds base unit, 5 sensors and tools

HOW TO ORDER

Base Display Unit

1) Specify Model: PTE-100
2) Specify Options: (Datalogging, Enhanced LCD, FM Approval, CE Mark)

Sensor Modules

3) Type (HQS-1 orHQS-2)
4) Pressure Range and Unit of Measure (see range chart)
5) Pressure Type (see specifications)
6) Accuracy (see specifications)
7) Specify Options
   a) “Zero temperature error over compensated range” (HQS-2 only)
   b) Optional fitting (see specifications)
   c) Clean for Oxygen Service (HQS-2 only)
   d) FM approval or CE Mark

Temperature Interface Module

8) Type (HQS-RT1, HQS-RT2 or HQS-TC1)
   a) Specify FM approval if required
9) RTD Probe Type (when required. Consult factory for probe P/N)

Accessories

10) Specify required accessories

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