

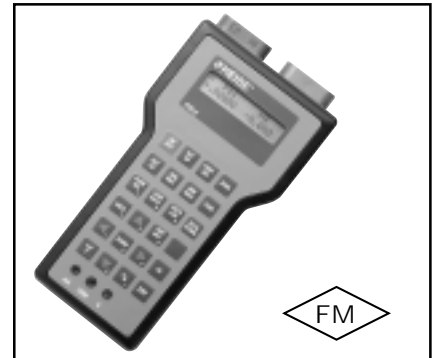


NOW AVAILABLE
IN 0.025%
ACCURACY!

Handheld LCD Digital Calibrator Type PTE-1 Pressure, Temperature, Voltage and Current Measurement

- **Interchangeable pressure and temperature modules**
- **Pressure measurement accuracies of $\pm 0.025, 0.05$ and 0.10%**
- **Pressure ranges from 0.25~H₂O to 10000 psi**
- **Supports most standard RTD probes and thermocouples**
- **Min/max, tare, flow, leak, programmable damping, percent function, trip detect, all standard**
- **High static DP measurement capability**
- **Optional:
FM Approval for Class I, Div. 1,
Groups A, B, C & D hazardous areas
Datalogging, Hi/low alarm relays**

The Heise® PTE-1 is a calibration system with a vast array of capabilities. 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 RS232 interface.



PRODUCT SPECIFICATIONS

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, 0.037 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)

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

$\pm 0.002\%$ of span, 60,000 count (max)

Warm-Up

5 minutes for rated accuracy

Electrical Measurements

0-50 mA or 0-30 Vdc

Options

Datalogging with Hi-Lo Relay Feature – Datalogging manually or automatically stores up to 643 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) 9Vdc 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

PRESSURE SENSOR MODULE SPECIFICATIONS

HQS-1

Pressure Types

Gauge, differential & compound

Available Ranges

(See Chart)

Available Accuracies

± 0.06 (0/2-0/200 in. H₂O), ± 0.07 (0/0.25-0/1 in. H₂O) or 0.1% of Span

Compensated Temperature Range

20°F to 120°F

Temperature Effect

$\pm 0.004\%$ of Span per °F over compensated range (from reference temperature range of 70° $\pm 3^\circ$)

Repeatability

$\pm 0.01\%$ of span (range 0/1 in. H₂O or higher)

$\pm 0.02\%$ of span (ranges below 0/1 in. H₂O)

Sensitivity

$\pm 0.002\%$ 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: 1/8 NPT female

Optional: G 1/8 British standard

Other Options

FM Approved (for use with FM approved base unit)

CE Mark (for use with CE Mark rated base unit)

HQS-2

Pressure Types

Gauge, absolute, compound & vacuum

Available Ranges

(See Chart)

Available Accuracies

$\pm 0.025, 0.05$ 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: $\pm 0.004\%$ of Span per °F over the compensated range (from reference temperature range of 70° $\pm 3^\circ$)

Optional: No additional error due to temperature over the compensated range

Repeatability

$\pm 0.01\%$ of span

Sensitivity

$\pm 0.002\%$ of span (typical)

Media Compatibility

0/5 psi range only: Clean, dry, non-conductive, non-corrosive gas

0/10-0/10,000 psi ranges: Any medium compatible with 316 SS isolation.

Optional: Cleaned for Oxygen Service (0/10-0/10,000 psi ranges only)

Overpressure Capability

200% for ranges up to 1000 psi

150% for ranges over 1000 psi

Process Connection

Standard: 1/8 NPT female

Optional: 1/8 NPT female with flush port

(ranges 10 psi and over)

G 1/8 British standard

G 1/8 British standard with flush port

(ranges 10 psi and over)

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)

Reference Bulletin PTE-1

MADE IN U.S.A.



TEMPERATURE INTERFACE MODULES

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.

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

HQS-TC1

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.



**Model PTE-1 with
HQS-RT1 and RTD
Probe installed**



**Model PTE-1 with
HQS "Quick
Select" Modules**

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

ACCESSORIES

110Vac/60 Hz ac Adapter

220Vac/50 Hz ac Adapter

Contoured protective case

Soft carrying case

Hard carrying case

Field Link 2 Software package – to create certification documents from datalogged data

LPSIIa External 24vdc Loop Power Supply – to power transducers and pressure switch test circuit

SM-1 Voltage Adapter – allows PTE-1 to be used to check "live" pressure switches

STANDARD RANGES

HQS-2 psi (gauge and absolute pressure)	HQS-1 H ₂ O (gauge/ differential pressure)	Other Engineering Units**
5	0.25	psi
10	0.5*	in. H ₂ O
15	1.0*	in. Hg
30	2.0*	ftSW
50	3.0*	Bar
60	5.0*	mBar
100	10*	kPa
150	15*	mPa
200	25*	mmHg
250	50*	cmH ₂ O
300	100*	mmH ₂ O
500	150*	kg/cm ²
600	200*	User Selectable
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*	

* Non-isolated, for clean dry gas only

**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. H₂O (HQS-1) or psi (HQS-2) are also available. Consult factory.

OPERATING CHARACTERISTICS

Damping: (Measurement Averaging) Programmable averaging from zero through 16 consecutive readings

Warm-Up: 5 minutes for rated accuracy (max.)

ELECTRICAL MEASUREMENT SPECIFICATION

Input (volts)	Accuracy
0/10 Vdc	±0.025% fs
0/30 Vdc	±0.10% fs
0/20mA	±0.03% fs
0/50mA	±0.05% fs

Auto-ranging 10/30Vdc and 20/50mA

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

SERIAL INTERFACE

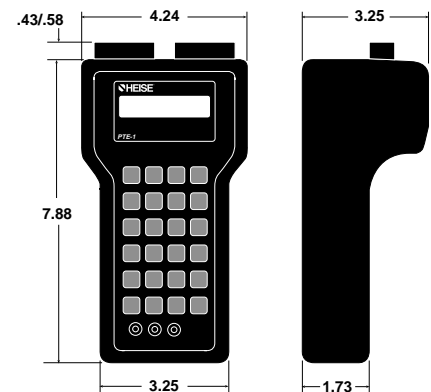
Type: RS-232

Baud Rate: 300, 1200, 2400, 9600

CALIBRATION

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

DIMENSIONS



TO ORDER

Base Display Unit

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

Sensor Modules

- 3) Type (HQS-1 or HQS-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, 0/10-1/10,000 psi only)
- d) FM approval or CE Mark

Temperature Interface Module

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

Accessories

- 10) Specify required accessories