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IN 0.025%
ACCURACY!

LCD Digital Indicator Type ST-2H Pressure, Temperature, Voltage and Current Measurement

Standard Features

- **Dual display – simultaneous measurement and display of pressure, temperature, voltage or current in any combination**
- **Accuracy ratings of $\pm 0.1\%$, $\pm 0.05\%$ and ± 0.025 F.S. (pressure)**
- **Pressure ranges from 0.25 inches of water to 10,000 psi**
- **Interchangeable pressure and temperature modules**
- **Multiple engineering units – 12**
- **High static DP measurement capability**
- **Temperature measurement with most common RTDs and thermocouples**
- **Programmable damping**
- **Tare capability**
- **Display hold**
- **RS232 two way communications**

- **Standard NIST traceable certificate of calibration**

Optional Features

- **24 Vdc power supply**
- **Data logging – Automatic, manual and delayed actuation**
- **Data logging formatted for cert generation and computer based maintenance record keeping**
- **Relays – hi/lo programmable configurations – N/O and N/C**
- **Battery power – 5 AA NiCads with built-in charger**

The ST-2H is the perfect bench companion product to the Heise PTE-1 field handheld calibrator. This bench top (or panel mounting) package shares the same pressure and temperature modules and interfaces with



the same software packages as the Heise PTE-1. An intuitive, menu-driven user interface puts all of the ST-2H's power at the simple press of a key. It uses the HQS (Heise Quick-Select™) modular sensor system to provide the ultimate in measurement flexibility.

PRODUCT SPECIFICATIONS

PHYSICAL SPECIFICATIONS

Dimensions

10.9 in. (L) x 6.74 in. (W) x 4.0 in. (H)

Panel Cutout

6.56 in. x 3.53 in.

Weight

Max. 4.08 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

Standard banana jacks

BASE UNIT OPERATING SPECIFICATIONS

Operating Temperature Range

32° 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 counts (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.)

Backlit Display

Built-in NiCad Rechargeable Battery Pack

Built-in 24Vdc Loop Power Supply

Handle

Panel Mounting Brackets

Power Requirements

Standard: ac adapter provided for 110Vac/60 Hz

Available: ac adapter provided for 220Vac/50 Hz

ac adapter provided for 100Vac/60 Hz

Optional: Built-in rechargeable NiCad Battery Pack*

* (Life: 20 hours nominal without backlit LCD, 2 hours nominal with backlit LCD. Activating RS232 results in approximately 30% reduction in battery life.)

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

$\pm 0.04\%$ 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

HQS-2

Pressure Types

Gauge, absolute, compound and 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: $\pm 0.04\%$ 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

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.

Reference Bulletin ST-2H

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

TEMPERATURE INTERFACE MODULES

HQS-RT1 and HQS-RT2 interface modules allow the ST-2H 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 ST-2H 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.

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

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 | 3.0* | mBar |
| 100 | 5.0* | kPa |
| 150 | 10* | mPa |
| 200 | 15* | mmHg |
| 250 | 25* | cmH ₂ O |
| 300 | 50* | mmH ₂ O |
| 500 | 100* | kg/cm ² |
| 600 | 150* | User Selectable |
| 1000 | 200* | |
| 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. H₂O (HQS-1) or psi (HQS-2) are also available. Consult factory.

* Non-isolated, for clean dry gas only

TO ORDER

Base Unit

- Specify Model: ST-2H
- Specify Power Requirements: 110, 220 or 100Vac
- Specify Options: (Datalogging, Backlit Display, etc.)

Sensor Modules

- Type (HQS-1 or HQS-2)
- Pressure Range and Unit of Measure (see range chart)
- Pressure Type (see specifications)
- Accuracy (see specifications)

8) Specify Options

- "zero temperature error over compensated range" (HQS-2 only)
- Optional fitting (see specifications)
- Clean for Oxygen Service (HQS-2, 0/10-1/10,000 psi only)

Temperature Interface Module

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

Accessories

- Specify required accessories

ELECTRICAL SPECIFICATIONS

Electrical Sourcing Specification:
24 Vdc at 25mA.

Electrical Measurement Specification:

| Input volts | Accuracy |
|-------------|--------------|
| 0/10 Vdc | ±0.025% F.S. |
| 0/30 Vdc | ±0.10% F.S. |
| Input (mA) | Accuracy |
| 0/20mA | ±0.03% F.S. |
| 0/50mA | ±0.05% F.S. |

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

Temperature Effects Electrical Measurement:

±0.001% of span per °F over the compensated range.

INTERFACE AND DATA LOGGING

RS232 Serial Interface: with 9-pin D type at 300, 1200, 2400, 9600 baud.

Field Calibration: Calibration module and proper pressure and electrical standards are required.

Optional Data Logging Capacity:

Standard measurements: 714 records
Date/time stamped measurements: 384 records.

Optional Certification Generation Firmware:

Stores 10 complete sets of the calibration data including 10 "as found" and 10 "as left" data sets.

ACCESSORIES

AC Adaptors: Provide 9 Vdc output.

| Part Number | Adapts From |
|-------------|---------------|
| 831X016-01 | 110 Vac, 60Hz |
| 831X016-02 | 100 Vac, 50Hz |
| 831X016-03 | 230 Vac, 50Hz |

Calibration Quick-Select Module: For calibration of base unit electronics.

Part Number: CQS.

System Protection Module: Protects base unit when only one measurement is required.

Part Number: HQS-XS.

Cable Assembly: Connects base unit to 9-pin female serial port on computer.

Part Number: 838X011-01.

Adapter 9-Pin to 25-Pin: Serial port connector on computer.

Part Number: 838X012-01.

Hoses: Provide 1/2-20 UNF internal fittings. For use with pumps and general process connections.

Part Number: 840X007-01 – 3 ft hose.

Part Number: 840X007-02 – 5 ft hose.

1/8 NPT external fitting adaptor to convert hose connector from 1/2-20 to NPT.

Part Number: 840X006-01.

ST-2H DIMENSION DRAWINGS

