

Model HQS-RT, RTD Interface Module for use with Heise PTE-1 Handheld Calibrator



- *Measures temperature with most standard RTD probes*
- *Probe can be easily changed to meet application requirements.*
- *Factory-programmed for the most common RTD types*
- *User RTD curves can be programmed into calibrator memory, providing enhanced accuracy or compatibility with RTD types not factory-programmed into calibrator*
- *Supports 2, 3 and 4 wire RTDs*
- *Displays measurements in degrees Fahrenheit, Celsius, Kelvin and Rankine*
- *Provides precision resistance measurement*
- *Optional datalogging allows for onboard storage of temperature measurement values*

Now, the same calibrator that provides unparalleled capability in field pressure calibration provides a means to accurately measure temperature using standard RTD probes. The PTE-1, when used with the new HQS-RT interface module, provides extremely accurate measurement of temperature using standard RTD probes. These modules support 2, 3 and 4 wire RTDs. Virtually any common RTD probe can be plugged into the PTE-1 calibrator when it is used with an HQS-RT interface module. The system supports the most common RTDs without operator input of probe characterization data. Each HQS-RT1 comes factory-programmed with standard curves for Pt100 (both 385 and 392) as well as the Ni 120 and the Cu 10 temperature probes.

The HQS-RT2 module is designed to support higher resistance RTD probes and comes factory-programmed for use with a Pt 1000 RTD commonly used in HVAC applications. In addition, the HQS-RT series supports up to eight RTD characterization curves. As a result, the HQS-RT1 accommodates four user-defined RTD probes in addition to the Pt100 (385), Pt100 (392), Ni 120 and Cu 10 RTDs.

The HQS-RT2 can accommodate the Pt1000 RTD plus up to seven operator input RTD characterization curves. The ability to program specific curve characteristics into the module's memory also allows for optimization of accuracy for any standard probe. Higher accuracy temperature measurements can be achieved simply by entering the values for the specific probe in use, rather than the "generic" curve specified by the standard alpha coefficient.

Measurements can be displayed in degrees Fahrenheit, Celsius, Kelvin, Rankine or ohms. The setup menu allows the operator to choose configurations for 2, 3 or 4 wire RTD probes. In addition, the setup menu allows selection of 1, 0.1, 0.01 or 0.001 degree resolution.

The temperature measurement system includes the ability to automatically track minimum and maximum temperature values, tare out a temperature value to allow quick determination of a change of temperature and to damp temperature measurement values to eliminate or minimize the detection of minor temperature variation.

The PTE-1 calibrator, when equipped with optional datalogging and used with the HQS-RT, allows for datalogging of temperature values as well as the standard datalogging capabilities of pressure, current, voltage, flow, switch and leak test results.

Standard PTE capabilities such as leak detection, flow velocity and volume measurement can all be done with increased accuracy due to the ability to measure temperature. And, when used in conjunction with the HQS-RT module, the PTE calibrator can be used to test temperature switches.

PTE calibrators provide an unmatched combination of functionality, application-specific capability, ease of use and ruggedness. All this, in a single lightweight field-worthy portable calibrator. So, to simplify your calibration and test functions . . . specify the Heise PTE-1.

Model HQS-RT, RTD Interface Module for use with Heise PTE-1 Handheld Calibrator

SPECIFICATIONS

All specifications based on use of 4 wire RTD probe

Accuracy Not Including Contribution From RTD

Using HQS-RT1 Quick-Select™ Module

Pt100 (385 & 392)
 -200 to 550°C: ±0.15°C
 550 to 850°C: ±0.2°C

Ni 120
 -80 to 260°C: ±0.1°C

Cu 10
 -70 to 150°C: ±0.6°C

Ohms
 ±0.01% reading ±0.02 ohms

Using HQS-RT2 Module

Pt1000
 -184 to 275°C: ±0.15°C

Ohms
 ±0.01% reading ±0.2 ohms

Engineering Units:

Fahrenheit, Celsius, Kelvin, Rankine or ohms

Ohms Measurement Range:

HQS-T1 module: 0/400 ohms
 HQS-T2 module: 0/4000 ohms

Resolution:

Select from 1, 0.1, 0.01 and 0.001 degrees or ohms. Resolution for a given probe is dependent on the output of the probe. Maximum resolution is 1 part in 100,000 of full scale ohms output for the probe.

Resolution with HQS-RT1 Module

Probe	Resolution
Pt100	0.01°C or F
Ni 120	0.1°C or F
Cu 10	0.1°C or F
Pt1000	Not Applicable

Resolution with HQS-RT2 Module

Probe	Resolution
Pt1000	0.1°C or F

Ohms Measurement Resolution

HQS-RT1 module: 0.004 ohms
 HQS-RT2 module: 0.04 ohms

Field Programmability:

Optional PC-compatible software allows for in-field programming of non-factory provided RTD calibration curves. The RT series RTD interface module can store a total of eight RTD calibration curves.

Temperature Error:

Better than ±0.0005% of reading per degree Fahrenheit from a reference temperature of 70 ±3 degrees F

Operating Range Ambient*:

Standard: 32-120 degrees F
 (0 to 49°C)

Optional: -4-120 degrees F
 (-20 to 49°C)

*determined by base unit

Storage Limits:

-4 to +158°F (-20 to 70°C)

Relative Humidity Range:

10-90% non-condensing

CALIBRATOR BASE UNIT SPECIFICATIONS

Electric Measurement

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

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

Temperature effect on electrical measurement
 ±0.001% of span per degree F over compensated range of 20-120°F

PHYSICAL ATTRIBUTES

Connection to Probe:

Switchcraft TB4M

Display:

Alphanumeric LCD, 0.37 inch height per line, 2 lines with up to 16 characters per line

Display Update: 100 ms

Housing:

Molded high-impact ABS case, gray

Dimensions:

7.88 x 4.24 x 3.25 (l x w x h) inches nominal

Weight:

Base unit: 2.2 lbs
 HQS-RT: 0.2 lbs

Warm-up: 5 minutes to rated accuracy

Power Supply:

Internal: 9 Vdc alkaline batteries (2 required)

External: ac adapter 9 Vdc, 500 mA

Portable Operation: 30 hours minimum on two 9 Vdc alkaline batteries at 70 degrees F

Serial Communication:

RS232 output
 Baud Rate: 300, 1200, 2400, 9600

To Order Specify:

Model: HQS-RT1 or HQS-RT2

Available Accessories:

Class A Accuracy, 4 wire Pt100 RTD.
 Probe length: 12 inches

Probe Material: 304 Stainless Steel

With handle, 5 ft coiled cable and compatible Switchcraft TA4F male connector

Part Number	Diameter	Length
840X010-01	¼"	12"
840X010-02	¼"	12"
840X010-05	¼"	6"
840X010-06	¼"	6"

With 10 ft of 4 conductor, 22 AWG, stranded silver plated copper, teflon insulated inner and overall cable with compatible Switchcraft TA4F male connector

Part Number	Diameter	Length
840X010-03	¼"	12"
840X010-04	¼"	12"
828X136-01	Switchcraft TA4F male mating connector	

Module Calibration/Configuration Software

838X014-01	3½ inch disk
838X014-02	5¼ inch disk