

FLUKE®

Hart Scientific®

Portability and functionality for temperature calibration in the field

Field Metrology Wells from Fluke's Hart Scientific Division offer accuracy, portability, and speed for nearly all field temperature calibration applications. These units are packed with functionality and are remarkably easy to use. Field Metrology Wells are lightweight, small, and quick to reach temperature set points, yet they are also stable, uniform, and precise. This industrial product line is perfect for transmitter loop calibration, comparison calibration, or a simple check of a thermocouple sensor. There is no need to carry additional tools into the field with the "process" option of a built-in readout for resistance, voltage, and 4-20 mA current, 24 V loop power, and on-board documentation.

High performance for industrial environment

- Compact size and light weight enable easy portability to the field
- Cools to -25 °C in 15 minutes and heats to 660 °C in 15 minutes for improved time between test points
- Accurate temperature measurements from -25 °C to 660 °C
- Specifications guaranteed in an ambient range of 13 °C to 33 °C
- Operating conditions of 0 °C to 50 °C

Metrology performance

- Stability to ± 0.01 °C
- Radial uniformity to ± 0.01 °C
- Axial uniformity at 40 mm (1.6 in) to ± 0.04 °C
- Built-in reference thermometer accuracy to ± 0.01 °C eliminates the need to carry a separate process calibrator

Turnkey solution

- Automated calibration routines for consistent calibrations
- On-board documentation eliminates the need for a separate computer

Easy to use

- Large LCD display is easy to see even in poorly lighted environments
- Function keys and easy-to-navigate menus
- Visual and audible stability indicator lets you know when you are ready to calibrate
- Pre-programmed calibration routines take the guesswork out of what to do
- One-button push to set the temperature
- Reference readout accepts "plug-and-play" smart connector

9140 Series Field Metrology Wells





Measure reference PRT and UUT values for comparison calibration.

Typical applications

- Loop calibration of temperature transmitters
- Thermocouple calibration or verification
- Calibrations of RTDs or PRTs
- Testing of thermostatic switches
- Verification of industrial thermometers

Summary Specifications

Specification	9142/9142-P	9143/9143-P	9144/9144-P
Range (23 °C amb.)	-25 °C to 150 °C	33 °C to 350 °C	50 °C to 660 °C
Accuracy	± 0.2 °C (full range)	± 0.2 °C (full range)	± 0.35 °C at 420 °C ± 0.5 °C at 660 °C
Process version accuracy	± 0.01 °C at -25 °C ± 0.02 °C at 155 °C	± 0.02 °C at 50 °C ± 0.04 °C at 350 °C	± 0.02 °C at 50 °C ± 0.07 °C at 660 °C
Stability	± 0.01 °C (full range)	± 0.02 °C at 33 °C ± 0.03 °C at 350 °C	± 0.03 °C at 50 °C ± 0.05 °C at 660 °C
Radial uniformity	± 0.01 °C (full range)	± 0.01 °C at 33 °C ± 0.02 °C at 350 °C	± 0.02 °C at 50 °C ± 0.15 °C at 660 °C
Axial uniformity at 40 mm (1.6 in)	± 0.05 °C (full range)	± 0.04 °C at 33 °C ± 0.2 °C at 350 °C	± 0.05 °C at 50 °C ± 0.4 °C at 660 °C
Immersion depth	150 mm (6 in)		
Heating time (max)	23 min	5 min	15 min
Cooling time	15 min to -25 °C	14 min to 100 °C	25 min to 100 °C
Size (HWD)	290 x 185 x 295 mm (11.4 x 7.3 x 11.6 in)		
Weight	8.2 kg (18 lbs)	7.3 kg (16 lbs)	7.7 kg (17 lbs)
RTD inputs (process version)	2-, 3-, 4-wire RTD. Resistance range of 0 to 400 ohms. Ni-120, PT-100 (385), PT-100 (3926), PT-100 (JIS), or Res		
TC inputs (process version)	Type J, K, T, E, R, S, B, L, U, N, C, and mV		
mA specs (process version)	Range: 0-24 mA with 24-28 VDC loop power mA Accuracy: 0.02 % of rdg + 0.002 mA		



Ordering Information

- 9142-X Metrology Well, Low-Temp Field, -25 °C
- 9142-X-P Metrology Well, Process Low-Temp Field, -25 °C
- 9143-X Metrology Well, Mid-Temp Field, 350 °C
- 9143-X-P Metrology Well, Process Mid-Temp Field, 350 °C
- 9144-X Metrology Well, High-Temp Field, 650 °C
- 9144-X-P Metrology Well, Process High-Temp Field, 650 °C

X in the above model numbers to be replaced with A (misc. imperial holes), B (comparison imperial holes), C (0.25 inch holes), D (metric comparison holes), E (metric misc. holes), F (metric comparison holes with 0.25 inch hole)

Included accessories:

- Well insert
- Power cord
- 9930 Interface-it software
- NVLAP, NIST-traceable certificate of calibration
- Test leads (process option only)
- Spare probe connector (process option only)
- User's manual

For more information, contact your local Fluke distributor or representative. Information is also available on the web at www.hartscientific.com (for Europe, visit www.fluke.eu).

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