

1594A/1595A Specifications

1594A/1595A General Specifications		
Measurement capability	4-wire PRT, thermistor, resistance, resistance ratio	
Input resistance range	0 to 500 k Ω	
Ratio range	0 to 10	
External reference resistor range	1 Ω to 10 k Ω	
Internal reference resistors	1 Ω , 10 Ω , 25 Ω , 100 Ω , and 10 k Ω	
PRT conversion types	ITS-90, PT-100, CVD-ABC, CVD-ALPHA, Polynomial	
Thermistor conversion types	R(T) Polynomial, T(R) Polynomial	
Display units	ratio (R_x/R_s), K, $^{\circ}$ C, $^{\circ}$ F, Ω	
Display resolution	0.1 to 0.000001	
Sample period (seconds) ¹	1, 2, 5, and 10	
Statistics	Average, Std Dev, SE of Mean, Max, Min, Difference, Peak-Peak, Delta, N	
Front panel channels	Four PRT/thermistor inputs (channels 2 & 4 can be configured for either R_x or R_s inputs)	
Rear panel channels	Two dedicated reference resistor inputs (R_s)	
Input terminals	DWF Connector, Tellurium Copper	
Data logging to internal memory	80,000 individual time- and date-stamped readings (~6 MB)	
Internal real-time clock	Yes	
Computer communications	RS-232, USB, IEEE-488, Ethernet	
Display type	Full VGA, LCD	
User interface languages	English, French, Spanish, German, Russian, Chinese, Japanese	
Resistance Ratio Accuracy, 95% Confidence Level, 1-yr	1594A	1595A
Ratio: 0.95 to 1.05	0.24 ppm	0.06 ppm
Ratio: 0.5 to 0.95, 1.05 to 2.0	0.64 ppm	0.16 ppm
Ratio: 0.25 to 0.5, 2.0 to 4.0	0.8 ppm	0.2 ppm
Ratio: 0.0 to 0.25	2.0×10^{-7}	5.0×10^{-8}
Ratio: 4.0 to 10.0	2.0 ppm	0.5 ppm
1594A/1595A Absolute Resistance Accuracy, 95% Confidence Level, 1-yr		
Resistance range (R_s /sensing current)		
0 Ω to 1.2 Ω (1 Ω , 10 mA)	Greater of 40 ppm or 0.000012 Ω	
0 Ω to 12 Ω (10 Ω , 3 mA)	Greater of 10 ppm or 0.000024 Ω	
0 Ω to 120 Ω (25 Ω , 1 mA)	Greater of 5 ppm or 0.000024 Ω	
0 Ω to 400 Ω (100 Ω , 1 mA)	Greater of 4 ppm or 0.00008 Ω	
0 k Ω to 10 k Ω (10 k Ω , 10 μ A)	Greater of 5 ppm or 0.000012 Ω	
10 k to 40 k Ω (10 k Ω , 10 μ A)	8 ppm	
40 k Ω to 100 k Ω (10 k Ω , 2 μ A)	20 ppm	
100 k Ω to 500 k Ω (10 k Ω , 1 μ A)	80 ppm	

1594A/1595A Internal Resistor Stability	24 hours	30 days
1 Ω	5 ppm	10 ppm
10 Ω	0.5 ppm	2 ppm
25 Ω	0.25 ppm	1 ppm
100 Ω	0.2 ppm	1 ppm
10 kΩ	0.25 ppm	1 ppm
1594A/1595A Temperature Measurement Noise - Typical Performance (standard error of the mean, °C) ²		
25Ω SPRT at 0°C	0.00002	
25Ω SPRT at 420°C	0.00006	
100Ω PRT at 0°C	0.00001	
100Ω PRT at 420°C	0.00003	
Thermistor at 25°C	0.000003	
1594A/1595A Measurement Current Accuracy (self-heating)		
0.001 mA to 0.005 mA	0.00005 mA	
0.005 mA to 0.02 mA	1 %	
0.02 mA to 0.2 mA	0.5 %	
0.2 mA to 2 mA	0.2 %	
2 mA to 20 mA	0.5 %	
1594A/1595A Mechanical Specifications		
Weight	7.5 kg (16.5 lbs)	
External Width x Height x Length	432 x 153 x 432 mm (17 x 6 x 17 inches)	
1594A/1595A Operating Specifications		
AC power requirements	100 V to 230 V ±10%, 50/60 Hz	
Specified operating temperature	15 °C to 30 °C	
Max operating temperature	5 °C to 40 °C	
Storage temperature	0 °C to 40 °C	
Operating relative humidity, 5°C to 30°C	10 % to 70 %	
Operating relative humidity, 30°C to 40°C	10 % to 50 %	
Storage relative humidity	0 % to 95 %, non-condensing	
Operating altitude	3000 m	
Warranty period	1-Year	
Report of Calibration ³	NVLAP accredited	

1 Two second sample rate required for full accuracy

2 Due to the subjective nature of measurement noise, it is not a guaranteed specification

3 The standard Report of Calibration includes resistance data from 1 Ω to 100 kΩ. A Report of Calibration may be ordered if resistance data from 100 kΩ to 500 kΩ is desired (see model numbers 1994 and 1995 in the ordering information table).



Ordering Information

Models

1594A	Super-Thermometer, 0.8 ppm
1595A	Super-Thermometer, 0.2 ppm

Each Super-Thermometer comes with a NVLAP-accredited certificate of calibration, user's guide (English, Spanish, French, German, Chinese, and Japanese) on CD-ROM, technical guide (English only) on CD-ROM, RS-232 to USB converter cable, regional power cord.

Accessories

1594-CASE	Case, 1594/95 Carrying
1594-HNDL	Handle, Frnt/Back Carrying
1594-SIDEHNDL	Kit, 1594/95 Side Carrying Handle
1594-HNDLCVR	Handle, Cover
Y159X	Kit, 1594/95 Rack Mount
1594-MUXCBL	Cable, 2590 Multiplexer
1594-MUXINPUT	Cable, 2590 Scanner Channel Input
2383-1	Cable, Serial to USB Converter

Probe Adapters

2571	Adapter, DWF to Spade Lugs, 1-Channel
2572-1	Adapter, 5-pin (F) DIN to Spade Lugs
2373	Adapter, INFO-CON to Spade Lug
2373-DIN	Adapter, Rnd INFO-CON to Spade Lug (914x)
2373-LSP	Adapter, Female Lemo to Spade Lug

Standard Resistors*

5430-25	Resistor, AC/DC Standard w/ Cal, 25 Ω 1-year stability, 2 ppm
5430-100	Resistor, AC/DC Standard w/ Cal, 100 Ω 1-year stability, 2 ppm
742A-25	Resistor, DC Standard, 25 Ω 1-year stability, 8 ppm
742A-100	Resistor, DC Standard, 100 Ω 1-year stability, 6 ppm

* See catalog or website for more information

Software

9938	Software, Met/Temp II
9935-S	Software, LogWare II, 2+-Chan, Single User
9935-M	Software, LogWare II, 2+-Chan, Multi User

Calibration Options

CAL-1594A	Recal With As-Found Data
CAL-1595A	Recal With As-Found Data
1994	Verification, Extended Range, 100-500 k Ohms, 1594A
1995	Verification, Extended Range, 100-500 k Ohms, 1595A
1960	Cal, Standard AC/DC Resistor

Total solutions in calibration

Fluke Calibration provides the broadest range of calibrators and standards, software, service, support and training in electrical, temperature, pressure, RF and flow calibration. Visit www.fluke.com/FlukeCal for more information about Fluke Calibration solutions.

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**Fluke Corporation,
Hart Scientific Division**
799 E. Utah Valley Drive
American Fork, UT 84003-9775 U.S.A.
Tel: (801) 763-1600
Fax: (801) 763-1010
www.hartscientific.com

**Fluke Corporation,
Hart Scientific Division
Fluke Europe B.V.**
PO Box 1186, 5602 BD
Eindhoven, The Netherlands
Tel: +31 (0) 40 2676 403
Fax: +31 (0) 40 2676 404
E-mail: hart.logistics@fluke.nl

All other countries:
Tel: +1 (801) 763-1600
Fax: +1 (801) 763-1010

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