

High-Accuracy, High-Stability Resistance Standards

SRL Series

Extremely high accuracy & stability, sealed, on-site resistance standards requiring no oil or temperature bath. The SRL Series is available in a wide range of off-the-shelf and custom values.

- Very high stability
- Very low temperature coefficient
- No need for stabilization in a temperature-controlled bath

- Wide choice of values and custom values - 1 mΩ to 10 TΩ
- Combination units available
- Calibration report at 3 temperatures - Temperature chart and α and β provided (see sample below)
- Very low hysteresis
- Direct plug-in unit for most DMM's - Fluke, Keysight, and others



SRL-10 kΩ High-Accuracy Resistance Standard

AVAILABLE UNITS

Temperature Calibration Chart		
Model: SRL-10		
SN: -9.3E-08		Report No: Beta: -1.9E-08
Measured value at 23°C: 10.000 004 9 Ω		
Temperature (°C)	Resistance Ω	Deviation from Nominal (ppm)
18.0	10.000 004 9 Ω	0.5
18.5	10.000 005 3 Ω	0.5
19.0	10.000 005 6 Ω	0.6
19.5	10.000 005 9 Ω	0.6
20.0	10.000 006 0 Ω	0.6
20.5	10.000 006 1 Ω	0.6
21.0	10.000 006 0 Ω	0.6
21.5	10.000 005 9 Ω	0.6
22.0	10.000 005 6 Ω	0.6
22.5	10.000 005 3 Ω	0.5
23.0	10.000 004 9 Ω	0.5
23.5	10.000 004 4 Ω	0.4
24.0	10.000 003 8 Ω	0.4
24.5	10.000 003 1 Ω	0.3
25.0	10.000 002 3 Ω	0.2
25.5	10.000 001 4 Ω	0.1
26.0	10.000 000 4 Ω	0.0
26.5	9.999 999 4 Ω	-0.1
27.0	9.999 998 2 Ω	-0.2
27.5	9.999 996 9 Ω	-0.3
28.0	9.999 995 6 Ω	-0.4

Date: **20-Mar-2019** Traceable to SI
By: **JOS**

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SRL-10GΩ High-Accuracy Resistance Standard



SRL-Series High-Accuracy Resistance Standard Combination Unit

SPECIFICATIONS

Retrace:

1 Ω to 19 MΩ: Permanent shift in resistance value is <2 ppm for 23°C to 0°C to 23°C cycle, and 23°C to 40°C to 23°C cycle

Calibration Report:

Initial SI traceable calibration data provided in 0.5°C increments for temperature range of 18°C to 28°C.

Operating Temperature:

Temperature range of 18°C to 28°C

Calibration Conditions:

At 23°C, low power, traceable to SI
 <1 MΩ: Five-wire
 1 MΩ - 20 MΩ: Three-wire
 ≥100 MΩ: Two-wire plus Guard

Terminals:

Gold-plated, tellurium-copper, low-thermal-emf binding posts on standard 3/4 inch spacing. A **GROUND** terminal is provided on all units.

Dimensions:

for 1 mΩ: 16 cm H x 9 cm Dia (6.3" x 3.55")

10 mΩ to 20 MΩ:

8.6 cm H x 10.5 cm W x 12.7 cm D (3.4" x 4.15" x 5")

100 MΩ and higher:

10.5 cm H x 18 cm W x 10.5 cm D (4.15" x 7.1" x 4.15")

SRL-DMM:

12 cm H x 8.6 cm W x 9.5 cm D (4.75" x 3.4" x 3.75")

Weight:

for 1 mΩ: 0.9 kg (2 lbs)

all others: 0.73 kg (1.6 lb)

Other available terminals:

- DMM direct input compatibles
- BNC, Triax, and custom connectors

Transit Case:

(see page 3)



SPECIFICATIONS

Nominal Value	Model Number	Initial Adjustment	Stability per year (max change)	TC 18-28°C from 23 °C α and β supplied with each unit	Max Applied Power			Typical change at 1 kHz	Terminals
					0 ppm change*	1 ppm change**	3 ppm change**		
1 m Ω	SRL-0.001	± 100 ppm	± 50 ppm	± 25 ppm/°C				<100 ppm	4 bp's + gnd
10 m Ω	SRL-0.01	± 5 ppm	± 15 ppm	± 5 ppm/°C	25 mW	50 mW	200 mW		
100 m Ω	SRL-0.1	± 5 ppm	± 12 ppm	± 2 ppm/°C	50 mW	100 mW	250 mW		
190 m Ω	SRL-0.19	± 5 ppm	± 12 ppm	± 2 ppm/°C	50 mW	100 mW	250 mW		
200 m Ω	SRL-0.2	± 5 ppm	± 12 ppm	± 2 ppm/°C	50 mW	100 mW	250 mW		
1 Ω	SRL-1	± 2 ppm	± 8 ppm	± 0.5 ppm/°C	175 mW	350 mW	850 mW		
1.9 Ω	SRL-1.9	± 2 ppm	± 8 ppm	± 0.3 ppm/°C	175 mW	350 mW	850 mW		
10 Ω	SRL-10	± 2 ppm	± 8 ppm	± 0.3 ppm/°C	100 mW	200 mW	500 mW		
19 Ω	SRL-19	± 2 ppm	± 8 ppm	± 0.3 ppm/°C	100 mW	200 mW	500 mW		
25 Ω	SRL-25	± 2 ppm	± 8 ppm	± 0.3 ppm/°C	100 mW	200 mW	500 mW		
50 Ω	SRL-50	± 2 ppm	± 8 ppm	± 0.3 ppm/°C	100 mW	200 mW	500 mW		
100 Ω	SRL-100	± 2 ppm	± 6 ppm	± 0.3 ppm/°C	100 mW	200 mW	500 mW		
400 Ω	SRL-400	± 2 ppm	± 6 ppm	± 0.3 ppm/°C	100 mW	200 mW	500 mW		
1 k Ω	SRL-1K	± 2 ppm	± 6 ppm	± 0.3 ppm/°C	100 mW	200 mW	500 mW		
1.9 k Ω	SRL-1.9K	± 2 ppm	± 6 ppm	± 0.2 ppm/°C	100 mW	200 mW	500 mW		
10 k Ω	SRL-10K	± 2 ppm	± 4 ppm	± 0.15 ppm/°C	100 mW	200 mW	500 mW		
19 k Ω	SRL-19K	± 2 ppm	± 4 ppm	± 0.2 ppm/°C	100 mW	200 mW	500 mW		
50 k Ω	SRL-50K	± 2 ppm	± 4 ppm	± 0.2 ppm/°C	100 mW	200 mW	500 mW		
100 k Ω	SRL-100K	± 2 ppm	± 6 ppm	± 0.2 ppm/°C	100 mW	200 mW	500 mW		
190 k Ω	SRL-190K	± 2 ppm	± 8 ppm	± 0.2 ppm/°C	100 mW	200 mW	500 mW		
1 M Ω	SRL-1M	± 2 ppm	± 8 ppm	± 0.2 ppm/°C	100 mW	200 mW	500 mW		
1.9 M Ω	SRL-1.9M	± 2 ppm	± 9 ppm	± 0.3 ppm/°C	100 mW	200 mW	500 mW		
10 M Ω	SRL-10M	± 2 ppm	± 9 ppm	± 0.3 ppm/°C	500 V	1000 V	2500 V		
19 M Ω	SRL-19M	± 2 ppm	± 10 ppm	± 0.4 ppm/°C	1000 V	2000 V	5000 V		
100 M Ω	SRL-100M	± 10 ppm	± 20 ppm	± 5 ppm/°C	2000 V	4000 V	5000 V		
1 G Ω	SRL-1G	$\pm 0.1\%$	± 200 ppm	± 23 ppm/°C	5000 V				
10 G Ω	SRL-10G	$\pm 0.1\%$	± 500 ppm	± 25 ppm/°C	5000 V				
100 G Ω	SRL-100G	$\pm 0.3\%$	± 500 ppm	± 25 ppm/°C	5000 V				
1 T Ω	SRL-1T	$\pm 0.5\%$	± 500 ppm	± 50 ppm/°C	5000 V				
XXX Ω	SRL-XXX	customer-selected value and power specifications							

* negligible effect of self-heating; do not exceed voltage limits where given.

** non-permanent self-heating change; exceeding power given for 3 ppm change may cause a permanent change in the resistance. Please contact IET for high power ratings or for use of the SRL above the power listed in the 3 ppm change column.

ORDERING INFORMATION

Standard model	Select from table above
Custom value	SRL-XXX
DMM direct plug-in	Add -DMM at the end of part number
Transit case for SRL units	SRC-100, for 2 units SRC-10-n, for n units

-N Option

Dual N-type terminal connections with ground terminal to fully shielded metal case. Inner enclosure can be separately driven with guard voltage.



TRANSIT CASES

Optional **Model SRC-100** or **SRC-10-n** lightweight transit cases provides mechanical protection and insulation from temperature

changes during transportation or shipping. It is suitable for transporting and storing two or more units.



*SRC-100 Transit Case
for 2 units*



*SRC-10-n Transit Case
for n units (5 units shown)*

CUSTOM SRL



SRL-DMM Version: Available in any value as a direct plug-in for most DMM's; this avoids external leads and noise pickup. (Part number SRL-XXX-DMM Model, e.g. SRL-10K-8508)



SRL-1M/1Triax

