

RS-CS-LS Series

Economical, indispensable tools for a variety of uses in engineering, design, troubleshooting, or service. These small, rugged substituters can satisfy most requirements.

Features:

- Direct reading — No fumbling with multiple slide or rotary switches
The IET family of digital substituters uses convenient side-by-side thumbwheel switches. Simply dial in the desired values and use.
- Standard accuracies of 1%, 0.1%, and 0.05% available.
- Broad choice of standard and optional models.
A full line of standard substituters satisfies most requirements.
- Direct readings eliminate potential mistakes that come from rotary or slide-switch boxes.
- For easy value readings, ranges are separated by color-coded switches and numbers.
- The units are small, rugged, and portable.
- Combination units, such as Resistance and Capacitance Substituter (RCS-500), are available.

Options:

- Shielded case with grounding post
- Panel mounting
- Protection fuse

See also:

- [Decade box product guide](#)
- [LCR meter product guide](#)

R-Box

RS Series: Digital Resistance Substituter



Available from 0.01 Ω to 299,999,999.9 Ω (RS-200 Shown)

C-Box

CS Series: Digital Capacitance Substituter



Available from 1 pF to 999.999 9 μF (CS-300 Shown)

L-Box

LS Series: Digital Inductance Substituter



Available from 1 μH to 99.999 99 H (LS-400 Shown)

RC-Box

RCS Series: Digital Resistance-Capacitance Substituter



Combines RS and CS units in one box (RCS-500 Shown)



Standard Models

RS Series -- Standard Models

Model	RS-200	RS-201	RS-200W	RS-201W	RS-200-2W	RS-201W-2W	RS-RTD	RCS-500	RCS-502
Type	Resistance	Precision Resistance	Wide-Range Resistance	Wide-Range Precision Resistance	High-Power Resistance	High-Power Wide-Range Resistance	RTD Simulator	Resistance/Capacitance	Precision Resistance/Capacitance
Accuracy*	$\pm(1\% + 25 \text{ m}\Omega)$	$\pm(0.1\% + 25 \text{ m}\Omega)$	$\pm(1\% + 36 \text{ m}\Omega)$	$\pm(0.1\% + 36 \text{ m}\Omega)^{**}$	$\pm(1\% + 25 \text{ m}\Omega)$	$\pm(0.1\% + 36 \text{ m}\Omega)^{**}$	$\pm(0.1\% + 25 \text{ m}\Omega)$	Combines RS-200 and CS-300	Combines RS-201 and CS-301
Decades	7		9		7	9	6		
Range	0 to 9,999,999 Ω		0 - 99,999,999.9 Ω		0 - 9,999,999 Ω	0 - 99,999,999.9 Ω	0-9,999.99 Ω		
Resolution	1 Ω		0.1 Ω		1 Ω	0.1 Ω	0.01 Ω		
Ratings***	0.5 W (rising to 2.5 W at step 9)				2 W (rising to 10 W at step 9)		0.5 W		
Residual	$\leq 0.39 \Omega$ ($\leq 0.056 \Omega/\text{decade}$)		$\leq 0.5 \Omega$ ($\leq 0.056 \Omega/\text{decade}$)		$\leq 0.39 \Omega$	$\leq 0.5 \Omega$	$\leq 0.34 \Omega$		
Components	Metal-film resistors; Manganin wire $\leq 0.9 \Omega$								
Mechanical	A		B		A	B	A	C	

CS Series -- Standard Models

Model	CS-300	CS-301	CS-301L	CS-300H
Type	Capacitance	Precision Capacitance	Precision, Low Capacitance	High Capacitance
Accuracy*	$<10 \mu\text{F}$: $\pm(4\% + 3 \text{ pF})$ $\geq 10 \mu\text{F}$: $\pm 7\%$	$<10 \mu\text{F}$: $\pm(1\% + 3 \text{ pF})$ $\geq 10 \mu\text{F}$: $\pm 7\%$	$\pm(1\% + 3 \text{ pF})$	$<10 \mu\text{F}$: $\pm(4\% + 3 \text{ pF})$ $\geq 10 \mu\text{F}$: $\pm 7\%$
Decades	6		7	
Range	0 to 99.999 9 μF		0 - 9.999 999 μF	0 - 999.999 9 μF
Resolution	100 pF		1 pF	100 pF
Ratings***	100 V (25 V for 10 - 100 μF)		100 V	100 V (25 V for 10 - 1000 μF)
Residual	$\leq 42 \text{ pF}$ ($\leq 7 \text{ pF}/\text{decade}$)		$\leq 49 \text{ pF}$ ($\leq 7 \text{ pF}/\text{decade}$)	
Components	1-900 pF: mica 0.001 - 0.9 μF : Polypropylene 1-9 μF : Polyester 10-900 μF : Tantalum			
Test Cond.	1 kHz; 1 Vrms; for $\geq 10 \mu\text{F}$: 120 Hz, series model; 23°C			
Mechanical	B			

LS Series -- Standard Models

Model	LS-400A	LS-400	LS-400L
Type	Inductance	High Inductance	Low Inductance
Accuracy*	$\pm(2\% + 0.5 \mu\text{H})$		
Decades	3	4	6
Range	0 to 999 mH	0 - 9.999 H	0-999.999 mH
Resolution	1 mH	1 mH	1 μH
Frequency Response	See http://www.ietlabs.com/ls-series-inductance-decade-box.html		
Residual	$\leq 0.17 \Omega$; $\leq 1 \mu\text{H}$ ($\leq 0.056 \Omega/\text{decade}$)	$\leq 0.23 \Omega$; $\leq 1 \mu\text{H}$ ($\leq 0.056 \Omega/\text{decade}$)	$\leq 0.34 \Omega$; $\leq 1.5 \mu\text{H}$ ($\leq 0.056 \Omega/\text{decade}$)
Components	Toroidal Inductors		
Test Cond.	1 kHz, 0.1 Vrms; series model; 23°C		
Mechanical	B		C

***Accuracy:**

After subtraction of residual impedance
Traceable to SI

****Accuracy for RS-201W & RS-201W-2W:**

$<10 \text{ M}\Omega$: as shown above
 $\geq 10 \text{ M}\Omega$: 0.2%

*****Rating:**

Subject to switch maximum dielectric strength of 750 Vdc peak or 550 Vrms, switching

Switches:

10-position thumbwheel switches
make-before-break

Maximum switch voltage:

750 Vdc peak or 550 Vrms, switching

Mechanical:

A: 8.1 x 7.9 x 5.6 cm; 184 g (3.2" x 3.1" x 2.2"; 6.5 oz)
B: 12.1 x 7.9 x 5.6 cm; 235 g (4.7" x 3.1" x 2.2"; 8.3 oz)
C: 18.8 x 8.4 x 6.4 cm; 410 g (7.4" x 3.3" x 2.5"; 14 oz)

Optional Models

