

## HRRS 5kV and 10kV Series

High-voltage, high-performance, high-resistance decade substituter for all laboratory, test, and calibration needs.

**Features:**

- High accuracy - to .01%
- High stability - to 10 ppm/yr
- Excellent TC - as low as 5 ppm/°C
- Low current solid silver alloy contact switches
- Resistance from 10 Ω to 1 TΩ
- Low voltage coefficient - as low as 0.2 ppm/V
- Rack mounting available
- All units with 100 GΩ and 1 TΩ decades come in **-WT Watertight** case to minimize effects of humidity
- Special and custom configurations available

**NEW**



HRRS -WT Watertight Case (Recommended for all humid environments)

### SPECIFICATIONS

Resistance per step	Total decade resistance	Accuracy ** 18-28°C; <50% RH			HRRS-5kV		HRRS-10kV		Temperature coefficient (±ppm/°C)	Voltage coefficient (±ppm/V)	Stability (±ppm/yr)	Resistor type
		Q	B	F	Max voltage per step (V)	Maximum voltage (V)	Max voltage per step (V)	Maximum voltage (V)				
10 Ω	100 Ω	±(0.01%+2 mΩ)	±(0.03%+2 mΩ)	±(0.10%+2 mΩ)	2.5	25	2.5	25	15	-	10	Wirewound, non-inductive
100 Ω	1 kΩ	±(0.01%+2 mΩ)	±(0.03%+2 mΩ)	±(0.10%+2 mΩ)	8	80	8	80	5	-	10	
1 kΩ	10 kΩ	±0.01%	±0.03%	±0.10%	23	230	23	230	5	-	10	
10 kΩ	100 kΩ	±0.01%	±0.03%	±0.10%	70	700	70	700	5	-	10	
100 kΩ	1 MΩ	±0.01%	±0.03%	±0.10%	230	2300	230	2300	5	-	10	
1 MΩ	10 MΩ	±0.01%	±0.03%	±0.10%	1000	5000	1000	10,000	15	<1	25	
10 MΩ	100 MΩ	±0.03%	±0.10%	±1%	5000	5000	5000 (*10,000)	10,000	25	<1	50	High-voltage film
100 MΩ	1 GΩ	±0.10%	±0.20%	±1%	5000	5000	10,000	10,000	25	1	100	
1 GΩ	10 GΩ	±0.20%	±0.50%	±1%	5000	5000	10,000	10,000	25	1	500	
10 GΩ	100 GΩ	±0.50%	±1%	±1%	5000	5000	10,000	10,000	25	2	500	
100 GΩ	1 TΩ	±0.50%	±1%	±1%	5000	5000	10,000	10,000	100	5	500	
1 TΩ	10 TΩ	±3%	±5%	±10%	5000	5000	10,000	10,000	100	<20 (10 ppm typical)	500	

\*To apply up to 10 kV at 10 MΩ, set the 1 MΩ decade to its "10" position.

\*\* Tested at low voltages except 10 MΩ at 20 V, 1 GΩ at 100 V, ≥10 GΩ at 1000 V



HRRS 8-Decade High-Voltage Substituter non-WT



HRRS 5-Decade High-Voltage Substituter non-WT



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HRRS High-Voltage catalog pages/Aug. 2018

# High-Resistance High-Voltage Decade Substituter

## HRRS 5kV and 10kV Series

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### SPECIFICATIONS (CONTINUED)

#### Mechanical

Model	Dimensions (behind panel)	Weight (nominal)
3-4 Decade Benchtop	43.2 cm W x 13.33 cm H x 13.46 cm D (17" x 5.25" x 5.3")	3.4 kg (7.5 lbs)
5-6-7 Decade Benchtop	48.3 cm W x 22.2 cm H x 16.38 cm D (19" x 8.75" x 6.45")	7.7 kg (17 lbs)
8-9 Decade Benchtop	43.2 cm W x 31 cm H x 16.38 cm D (17" x 12.25" x 6.45")	7.7 kg (17 lbs)
3-4 Decade Rack mount	48.3 cm W x 13.33 cm H x 13.46 cm D (19" x 5.25" x 5.3")	3.4 kg (7.5 lbs)
5 to 9 Decade Rack mount	48.3 cm W x 31 cm H x 16.38 cm D (19" x 12.25" x 6.45")	7.7 kg (17 lbs)
-WT Case	50.2 cm W x 40 D x 18.8 H (19.78" x 15.77" x 7.41")	9.1 kg (20 lbs)

#### Zero resistance

<10 mΩ per decade

#### Environmental conditions

Operating Conditions: 10°C to 40°C; <50% RH

Storage conditions: -40°C to 70°C

#### Terminals

Two five-way binding posts on 2 special, low-leakage, Kel-F insulating sockets, and one metal ground binding post electrically connected to the case or front panel for -WT



HRRS 4-Decade High-Voltage Substituter with -RM Rack Mount

### ORDERING INFORMATION

Model	Total resistance	Number of decades	Resolution
HRRS*-3-10k**	11.1 MΩ	3	10 kΩ
HRRS*-3-100k**	111 MΩ	3	100 kΩ
HRRS*-3-1M**	1.11 GΩ	3	1 MΩ
HRRS*-3-10M**	11.1 GΩ	3	10 MΩ
HRRS*-3-100M**	111 GΩ	3	100 MΩ
HRRS*-3-1G**-WT	1.11 TΩ	3	1 GΩ
HRRS*-3-10G**-WT	11.1 TΩ	3	10 GΩ
HRRS*-4-1k**	11.11 MΩ	4	1 kΩ
HRRS*-4-10k**	111.1 MΩ	4	10 kΩ
HRRS*-4-100k**	1.111 GΩ	4	100 kΩ
HRRS*-4-1M**	11.11 GΩ	4	1 MΩ
HRRS*-4-10M**	111.1 GΩ	4	10 MΩ
HRRS*-4-100M**-WT	1.111 TΩ	4	100 MΩ
HRRS*-4-1G**-WT	11.11 TΩ	4	1 GΩ
HRRS*-5-100**	11.111 MΩ	5	100 Ω
HRRS*-5-1k**	111.11 MΩ	5	1 kΩ
HRRS*-5-10k**	1.111 GΩ	5	10 kΩ
HRRS*-5-100k**	11.111 GΩ	5	100 kΩ
HRRS*-5-1M**	111.11 GΩ	5	1 MΩ
HRRS*-5-10M**-WT	1.111 TΩ	5	10 MΩ
HRRS*-5-100M**-WT	11.111 TΩ	5	100 MΩ
HRRS*-6-10**	11.111 MΩ	6	10 Ω
HRRS*-6-100**	111.111 MΩ	6	100 Ω
HRRS*-6-1k**	1.111 GΩ	6	1 kΩ
HRRS*-6-10k**	11.111 GΩ	6	10 kΩ
HRRS*-6-100k**	111.111 GΩ	6	100 kΩ
HRRS*-6-1M**-WT	1.111 TΩ	6	1 MΩ
HRRS*-6-10M**-WT	11.111 TΩ	6	10 MΩ

Model	Total resistance	Number of decades	Resolution
HRRS*-7-10**	111.111 MΩ	7	10 Ω
HRRS*-7-100**	1.111 GΩ	7	100 Ω
HRRS*-7-1k**	11.111 GΩ	7	1 kΩ
HRRS*-7-10k**	111.111 GΩ	7	10 kΩ
HRRS*-7-100k**-WT	1.111 TΩ	7	100 kΩ
HRRS*-7-1M**-WT	11.111 TΩ	7	1 MΩ
HRRS*-8-10**	1,111.111 MΩ	8	10 Ω
HRRS*-8-100**	11.111 GΩ	8	100 Ω
HRRS*-8-1k**	111.111 GΩ	8	1 kΩ
HRRS*-8-10k**-WT	1.111 TΩ	8	10 kΩ
HRRS*-8-100k**-WT	11.111 TΩ	8	100 kΩ
HRRS*-9-10**	11.111 GΩ	9	10 Ω
HRRS*-9-100**	111.111 GΩ	9	100 Ω
HRRS*-9-1k**-WT	1.111 TΩ	9	1 kΩ
HRRS*-9-10k**-WT	11.111 TΩ	9	10 kΩ

\*To specify accuracy grade, replace \* with "Q," "B," or "F" as required.

\*\*To specify voltage, replace \*\* with either "5kV" or "10kV."

Remove -WT to specify metal housing. (not recommended for humid environments)

#### Options

- WT Watertight case
- RM: Rack mountable case for standard 19" rack
- K: Kelvin-type 4-terminal posts
- RO: Rear output



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