

## HATS-Y Series

Make accurate calibrations and transfer measurements over **three decades** of resistance with the HATS-LR Series.

- Steps from 1 MΩ to 10 MΩ
- Transfers from 0.1 MΩ to 100 MΩ
- 11 precisely matched resistors
- High transfer accuracy - better than 2 ppm

### The Benefits of Using Transfer Standards

In order to perform calibrations with a high degree of accuracy, reference standards must be employed at every range or decade of the measuring or calibration instrumentation. Clearly, this can be difficult and costly since these standards must be highly stable and their precise values must be known with a high degree of certainty and sufficient resolution. To minimize the cost and difficulty, more practical means of performing such calibrations would be to use transfer standards.

If one has a single standard that is calibrated by a national laboratory, one can then compare the transfer standards to the certified standard by ratio techniques. See p. 5 for a full tutorial.

### SPECIFICATIONS

**Resistor Type:** Wirewound, hermetically sealed, low inductance.

**Step Size:** 100 kΩ, 1 MΩ, or 10 MΩ.

**Accuracy:**

Initial:	<b>100 kΩ</b>	<b>1 MΩ</b>	<b>10 MΩ</b>
	±10 ppm	±15 ppm	±20 ppm

**Long Term:** <±20 ppm for 1 year;  
<±30 ppm for 2 years;

**Transfer :** <±2 ppm.

**Matching:**

**Accuracy:** within 10 ppm

**Temperature Coefficient:** within 5 ppm/°C.

**Temperature Coefficient :** <±5 ppm/°C.

**Calibration Accuracy:** ±10 ppm or better for all steps;



10 MΩ HATS-Y Transfer Standard

The HATS-LR Series of transfer standards consist of 11 matched resistors, of value R, which may be connected in series or parallel combinations to produce any number of values such as R/10, R, and 10R, all with the *same* known deviation, thereby allowing progressive transfers to higher and lower decades. For example, the 1 MΩ transfer standard may be used to transfer calibrations across 100 kΩ, 1 MΩ and 10 MΩ.

The HATS-LR Series (p. 33) of transfer standards may be used for resistances 100 kΩ and under.

These transfer standards may also be employed as very precise and stable voltage dividers.

**Calibration Conditions:** 23°C, with meter guard applied to **COM** and ground applied to **G**, at low power, traceable to NIST. Initial calibration data supplied with instrument.

**Leakage Resistance:** >10 TΩ from terminal to case.

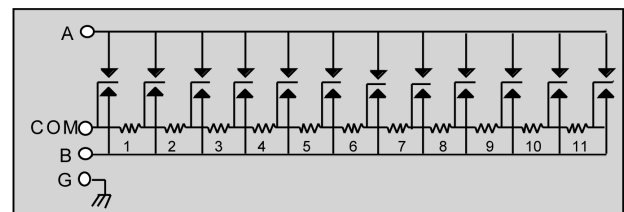
**Power Coefficient:** <±0.05 ppm/mW per resistor.

**Maximum Applied Input:** 2500 V, or 1 W per resistor, or 5 W for entire unit, whichever limit applies first. 3500 V peak, between any terminal and case.

**Dimensions:** 43.2 cm W x 14.2 cm H x 13.5 cm D (17" x 5.6" x 5.3").

**Weight:** 3.6 kg (8 lb.).

**Functional Schematic:**



### ORDERING INFORMATION

- HATS-Y-100K 100 kΩ/Step Transfer Standard
- HATS-Y-1M 1 MΩ/Step Transfer Standard
- HATS-Y-10M 10 MΩ/Step Transfer Standard

### OPTIONS

- RM Rack mountable case for standard 19" rack

