

HATS-Y Series

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

- Steps from 1 MΩ to 100 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.](#)



10 MΩ HATS-Y Transfer Standard

The HATS-Y 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.

SPECIFICATIONS

Step Size	100 kΩ	1 MΩ	10 MΩ	100 MΩ
Adjustment Accuracy	±10 ppm	±20 ppm	±20 ppm	±100
Transfer Accuracy	±2 ppm	±2 ppm	±2 ppm	±30 ppm
Stability ppm/year	±10 ppm	±15 ppm	±20 ppm	±30 ppm
Stability long term	±30 ppm	±30 ppm	±30 ppm	±50 ppm
Temperature Coefficient	±1 ppm/°C	±3 ppm/°C	±5 ppm/°C	±5 ppm/°C
Matching				
Adj. Acc.	±10 ppm	±10 ppm	±10 ppm	±20 ppm
TC	±1 ppm	±3 ppm	±3 ppm	±5 ppm
Calibration Uncertainty	±5 ppm	±10 ppm	±10 ppm	±15 ppm

Calibration Conditions: 23°C, with meter guard applied to COM and ground applied to G, at low power, traceable to SI. 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 10 W for entire unit, whichever limit applies first. 3500 V peak, between any terminal and case.

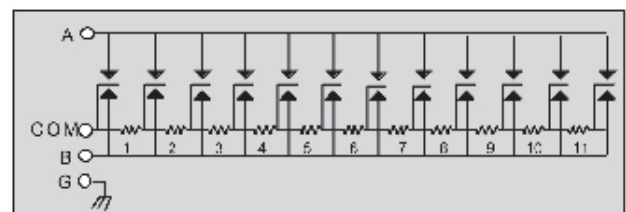
Operation: (Switch 0 is left most switch). To set standard to R/10, set Switch 0 down, Switch 1 up, switch 2 down and so on; Switch 11 off.

To set standard to 10R, set Switch 0 down, Switch 10 up, all other switches off.

To set standard to 1R, set Switches 0 and 6 down, Switches 3 and 9 up, all other switches off.

Dimensions: 35.6 cm W x 16.5 cm H x 10.2 cm D (14" x 6.5" x 4").

Weight: 5 kg (11 lb.).



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
HATS-Y-10M	10 MΩ/Step Transfer Standard

OPTIONS

- RM Rack mountable case for standard 19" rack