



HIGHLIGHTS

- Resistance and Capacitance
- Four package types for various applications
- Custom nominal values and terminals upon request
- Low time constant

DESCRIPTION

MTE series resistance and capacitance standards are designed for calibration of ohmmeters, LCR meters and insulation testers. Alternatively, MTE standards can be used as transfer standards, keeping traceability between primary and secondary laboratories.

MTE standards come in four terminal configurations to fit every application. OPEN and SHORT standards for zero calibration of LCR meters as well as custom nominals and terminal configurations are available upon request.

Package types

Package type	Application	Terminals	Example
HV	megohmmeters, insulation testers	3x banana socket with extra insulation (2W measurement + case ground)	
A	ohmmeters, multimeters	4x banana socket	
B	LCR bridges – wired connection	4x female BNC	
C	LCR bridges – direct connection	4x male BNC	

SPECIFICATION

Specifications below describe 1-year absolute accuracy of this product including long-term stability, linearity and reference standard measurement uncertainty as well as ambient conditions within specified limits.

GENERAL DATA

Reference temperature	+21 °C – +25 °C
Operating temperature	0 °C – +50 °C
Dimensions (W x H x D)	125 x 60 x 105 mm

Resistance

Construction	up to 1 MΩ: Foil resistor above 1 MΩ: Ceramic resistor
Frequency range	DC – 20 kHz
Available packages	up to 1 MΩ: A, B and C above 1 MΩ: HV; DC applications only
Reference voltage	1 kV for range 10 MΩ - 10 GΩ
Voltage coefficient	0.5 ppm / V (typical) for range 10 MΩ - 10 GΩ

MTE RP Resistance Standards

Nominal value	Max. deviation	Uncertainty DC, 1-year	Temperature coefficient	Rating ^{†1}
100 mΩ	0.1 %	0.05 %	10 ppm / K	3 W
1 Ω	0.05 %	0.01 %	1 ppm / K	3 W
10 Ω	0.01 %	0.005 %	1 ppm / K	300 mW
100 Ω	0.01 %	0.005 %	1 ppm / K	300 mW
1 kΩ	0.01 %	0.005 %	1 ppm / K	300 mW
10 kΩ	0.01 %	0.005 %	1 ppm / K	50 V
100 kΩ	0.01 %	0.005 %	1 ppm / K	150 V
1 MΩ	0.01 %	0.005 %	1 ppm / K	500 V
10 MΩ	0.05 %	0.01 %	100 ppm / K	2.5 kV
100 MΩ	0.5 %	0.1 %	100 ppm / K	2.5 kV
1 GΩ	1 %	0.3 %	100 ppm / K	5 kV
10 GΩ	3 %	0.5 %	100 ppm / K	5 kV

^{†1} Maximum dissipation power at 23 °C or maximum voltage

Capacitance

Construction	up to 100 nF: Multi-layer mica capacitor above 100 nF: PP film capacitor
Maximum voltage	30 V _{rms}
Available packages	B and C

MTE CP Capacitance Standards

Nominal value	Max. deviation	Frequency range	Uncertainty at 1 kHz, 1-year	Temperature coefficient	Dissipation factor
10 pF	2 %	20 Hz – 20 kHz	0.1 %	30 ppm / K	< 0.005
100 pF	0.5 %	20 Hz – 20 kHz	0.05 %	30 ppm / K	< 0.005
1 nF	0.1 %	20 Hz – 20 kHz	0.02 %	30 ppm / K	< 0.0005
10 nF	0.1 %	20 Hz – 10 kHz	0.02 %	30 ppm / K	< 0.0005
100 nF	0.1 %	20 Hz – 10 kHz	0.02 %	30 ppm / K	< 0.0005
1 μF	0.5 %	20 Hz – 10 kHz	0.02 %	30 ppm / K	< 0.005
10 μF	0.5 %	20 Hz – 10 kHz	0.1 %	30 ppm / K	< 0.005
100 μF	0.5 %	20 Hz – 10 kHz	0.1 %	30 ppm / K	< 0.005