



HIGHLIGHTS

- Resistance range 15 Ω – 300 k Ω
- Maximum load 3 kW, 250 V_{rms}
- Temperature coefficient < 10 ppm/K
- Real CR mode, simulated CP and CC modes
- RS232 and GPIB interface

DESCRIPTION

M192A is accurate high power resistance decade for testing of power supplies and batteries up to 3000 W and 250 V_{rms}. Being a resistance decade rather than an electronic load, resistance function uses real resistance so it can be used with AC power sources as well. See datasheet for typical frequency responses. On top of that, M192A version has built-in test signal meter using which constant power and constant current functions can be simulated. Other advantages of the M192A are extended range up to 300 k Ω and continuous resistance range rather than fixed values.

All decades' functions can be remotely controlled via RS232 or GPIB interface. This way you can introduce calibration/test stage directly into production line of any resistance based sensor and reduce time required for final quality tests dramatically.

SPECIFICATION

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

Resistance

Resistance range summary	M192: 15 Ω – 4.7 k Ω , 64 discrete values M192A: 15 Ω – 300 k Ω , continuous range
Maximum dissipation power	3000 W
Maximum voltage	250 V _{rms}
Reaction time in CP and CC modes (M192A only)	30 – 100 ms

Ranges, resolution, 1 year accuracy [% of value]

Range	DC, 0 – 120 Hz	120 Hz – 1 kHz	1 – 10 kHz
15.000 – 99.999 Ω	0.1 + 30 m Ω	0.2 + 30 m Ω	0.2 + 30 m Ω
100.00 – 299.999 Ω	0.1	0.1	0.2
300.0 – 999.9 Ω	0.1	0.1	0.2
1000.0 – 2999.9 Ω	0.1	0.1	0.2
3000 – 9999 Ω	0.1	0.1	2.0
10.00 – 29.99 k Ω	0.1	0.1	2.0
30.1 – 100.0 k Ω	0.2	0.2	N/A
101 – 300 k Ω	0.5	2.0	N/A

Test voltage measurement (M192A only)

DC/AC voltage range	1.0 – 299.9 V
Frequency range	DC – 10 kHz
Measurement accuracy	DC: 0.1 % of value + 0.2 V AC: 0.2 % of value + 0.2 V

Typical frequency response of M192A

DC	100 Hz	1 kHz	10 kHz	100 kHz	1 MHz
15 Ω	15.00 Ω	15.00 Ω	15.00 Ω	15.03 Ω	15.15 Ω
100 Ω	100.00 Ω	100.01 Ω	100.02 Ω	99.97 Ω	91.5 Ω
330 Ω	330.00 Ω	330.02 Ω	330.03 Ω	329.73 Ω	301.30 Ω
1000 Ω	1000.0 Ω	1000.0 Ω	999.9 k Ω	997.0 k Ω	854.0 k Ω
10 k Ω	10.00 k Ω	10.00 k Ω	9.97 k Ω	9.21 k Ω	3.15 k Ω
100 k Ω	100.0 k Ω	99.8 k Ω	91.7 k Ω	27.0 k Ω	N/A

GENERAL DATA

Reference temperature	+18 °C – +28 °C
Operating temperature	+5 °C – +45 °C
Storage temperature	-10 °C – +60 °C
Temperature coefficient	< 10 – 25 ppm / K
Terminal – housing isolation	> 2 G Ω at 1000 V _{dc}
Power supply	115/230V - 50/60 Hz
Dimensions (W x H x D)	460 x 190 x 440 mm
Weight	15 kg
Interfaces	RS232, IEEE488 (option)