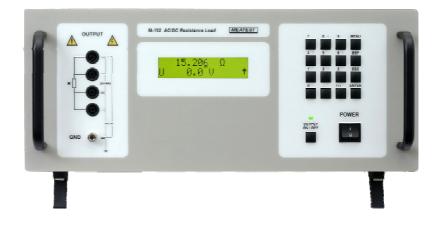
## M192

# AC/DC Real-Resistance Loads



## **HIGHLIGHTS**

- Resistance range 15 Ω 300 kΩ
- Maximum load 3 kW, 250 V<sub>rms</sub>
- 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<sub>rms</sub>. 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 $\Omega$  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.

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## **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

Maximum dissipation power Maximum voltage Reaction time in CP and CC modes (M192A only) M192: 15 Ω - 4.7 kΩ, 64 discrete values M192A: 15 Ω - 300 kΩ, continuous range 3000 W 250 V<sub>rms</sub> 30 - 100 ms

AC: 0.2 % of value + 0.2 V

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#### 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 mΩ	0.2 + 30 mΩ	0.2 + 30 mΩ
100.00 - 299.999 Ω	O.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 kΩ	0.1	0.1	2.0
30.1 – 100.0 kΩ	0.2	0.2	N/A
101 – 300 kΩ	0.5	2.0	N/A

Test voltage measurement	DC/AC voltage range	1.0 – 299.9 V	
(M192A only)	Frequency range	DC – 10 kHz	
	Measurement accuracy	DC: 0.1 % 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 kΩ	997.0 kΩ	854.0 kΩ
10 kΩ	10.00 kΩ	10.00 kΩ	9.97 kΩ	9.21 kΩ	3.15 kΩ
100 kΩ	100.0 kΩ	99.8 kΩ	91.7 kΩ	27.0 kΩ	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	$> 2~G\Omega$ at 1000 $V_{\rm dc}$		
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)		