



Specification
MM94 TRMS Digital Multimeter



ELECTRICAL

All specified accuracies are at 23°C ± 5°C, <70% R.H. for 1 year.

Temperature coefficient:

0.1 x (specified accuracy) per °C. (0°C to 18°C, 28°C to 50°C).

All accuracies below are expressed as ± (percentage of reading + digits)

DC Voltage

Range	Resolution	Input impedance	Accuracy
600mV	0.01mV	10MΩ	0.08% + 5
6V	0.0001V	11MΩ	
60V	0.001V	10MΩ	
600V	0.01V		
1000V	0.1V		

Overload protection: 1000V DC or 750V AC rms



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AC Voltage (True RMS)

Range	Resolution	Input impedance	Accuracy			
			HFR1 selected 45 to 60Hz	HFR2 selected		
				45Hz to 500Hz	500Hz to 1kHz	1kHz to 2kHz
600mV	0.01mV	10MΩ	2.0% + 20	1.0% + 20	1.5% + 20	N/A
6V	0.0001V	11MΩ				
60V	0.001V	10MΩ		2.0% + 20	1.5% + 20	2.0% + 20
600V	0.01V					
750V	0.1V					

AC coupled true rms AC voltage accuracy is specified from 2% to 100% of range.

Crest factor: 3 at full scale, 6 at half scale

High frequency reject filter -3dB points: HFR1 at 1kHz, HFR2 at 100kHz

Peak hold accuracy (45Hz to 500Hz): 60V to 750V AC ± (3.0% rdg + 500 dgts)

Peak hold response time: 1ms

Overload protection: 1000V DC or 750V AC rms

AC + DC Voltage (True RMS)

Range	Resolution	Input impedance	Accuracy			
			45Hz to 500Hz	500 Hz to 1 kHz	1 kHz to 2 kHz	
600mV	0.01mV	10MΩ	1.5% + 30	2.0% + 30	N/A	
6V	0.0001V	11MΩ				
60V	0.001V	10MΩ		1.5% + 30	2.0% + 30	2.5% + 30
600V	0.01V					
750V	0.1V					



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AC coupled true rms AC voltage accuracy is specified from 2% to 100% of range.

Crest factor: 3 at full scale, 6 at half scale

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Current

Range	Resolution	Voltage burden	Accuracy		
			DC	AC (true rms)	AC+DC (true rms)
				45 Hz to 1 kHz	
600μA	0.01μA	500mV	0.5% + 10	1.5% + 20	2.0% + 30
6000μA	0.1μA	2V			
60mA	0.001mA	500mV			
400mA	0.1mA	2V	1.0% + 10	2.5% + 20	3.0% + 30
20A Note 1	1mA		2.0% + 10		

AC coupled true rms AC current accuracy is specified from 2% to 100% of range.

Crest factor: 3 at full scale, 6 at half scale

Peak hold accuracy on AC current ranges (45Hz to 500 Hz):

± (3.5% rdg + 500 dts)

Peak hold response time: 1ms

Input protection: 0.5 A/1000 V fast blow ceramic fuse on 600μA to 400mA ranges
20A/600V fast blow ceramic fuse on 20 A range

Note 1: Apply currents >10 A for 30 seconds maximum, then allow a 10 minute cooling period.



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Resistance

Range	Resolution	Open circuit voltage	Accuracy
600Ω	0.01Ω	-3.0V dc	0.3% + 20
6kΩ	0.0001kΩ		
60kΩ	0.001kΩ		
600kΩ	0.01kΩ		
6MΩ	0.0001MΩ		
60MΩ	0.001MΩ		1.0% + 10
			3.0% + 20

Overload protection: 600V DC or AC rms

Conductance (6000 counts only)

Range	Resolution	Open circuit voltage	Accuracy
60nS	0.01nS	-0.7V dc	1.0% + 10

Overload protection: 600V DC or AC rms

Capacitance (6000 counts only)

Range	Resolution	Accuracy
6nF	0.001nF	3.0% + 30
60nF	0.01nF	3.0% + 10
600nF	0.1nF	
6μF	0.001μF	
60μF	0.01μF	
600μF	0.1μF	
6mF	0.001mF	5.0% + 10

Overload Protection: 600V DC or AC rms



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Frequency

Range	Resolution	Trigger level	Accuracy
60Hz	0.001Hz	>1.5V	0.1% + 10
600Hz	0.01Hz		
6kHz	0.0001kHz		
60kHz	0.001kHz		
600kHz	0.01kHz		
6MHz	0.0001MHz	>2.5V, <5V	0.1% + 10
10MHz	0.001MHz		

Minimum input: >6Hz
 Minimum pulse width: >100 ns
 Duty cycle limits: >30% and <70%
 Overload protection: 600V DC or AC rms.

Duty Cycle

Range	Resolution	Resolution	Pulse width	Accuracy (5V logic)
5% to 95%	40Hz to 1kHz	0.1%	>10µs	2.0% + 10
10% to 90%	1kHz to 10kHz			
20% to 80%	10kHz to 20kHz			

Overload protection: 600V DC or AC rms



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Temperature (Type K Thermocouple)

Range	Resolution	Accuracy
0°C to 400°C	0.1°C	1.0% + 1°C
-50°C to 0°C, 400°C to 1300°C		2.0% + 3°C
32°F to 750°F	0.1°F	1.0% + 2°F
-58°F to 32°F, 750°F to 2372°F		2.0% + 6°F

Overload protection: 30V DC or AC rms

Continuity

Range	Resolution	Response time	Open circuit voltage	Audible indication
600Ω	0.01Ω	100 ms approx.	-3.0V dc	<40Ω

Overload protection: 600V DC or AC rms

Diode Test


Range	Resolution	Test current	Open circuit voltage	Audible indication	Accuracy
2V	0.1 mV	0.5 mA typical	3.0V dc typical	<0.05V dc	2.0% + 10

Overload protection: 600 V DC or AC rms



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GENERAL

Display: Liquid crystal display
 Digital, 60000 counts, updates 2/sec
 Polarity: Automatic, positive implied, '-' for negative polarity indication
 Overrange: (OL) or (-OL) is displayed
 Bar-graph, 60 segments, updates 20/sec
 Power: 9V, PP3 alkaline batteries (IEC 6LR61, NEDA 1604A)
 Battery life: 50 hours typical with alkaline
 Low battery indication: The LCD will display 
 Auto power off: After 30 minutes
 Fuses: 0.5 A/1000V 6.3x32mm fast blow ceramic fuse
 20 A/600V 10x38mm fast blow ceramic fuse
 Dimensions: 198 x 90 x 44mm
 Weight: Approx. 400g, including battery
 Includes: TL16 test leads, TT1P Type K thermocouple, 9V PP3 battery (installed), instructions

ENVIRONMENTAL

Temperature & Humidity (Operating): 0°C to 50°C <70% R.H.
 (Storage): -20°C to 60°C <80% R.H.
 Altitude: up to 2000m
 Pollution degree: 2, indoor use

SAFETY

Conforms to BS EN 61010-1, BS EN 61010-2-033, CAT IV 600V, CAT III 1000V
 Class II, double insulation

EMC

Conforms to BS EN 61326-1



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SPECIFICATION FOR TL16 TEST LEADS

Maximum voltage: 1000V AC/DC
 Maximum current: 10A continuous
 Connector: 4mm banana plug with fixed shroud
 Environmental
 Temperature (Operating & Storage): 0°C to 40°C
 Altitude: up to 2000m
 Pollution degree: 2

Safety

Conforms to BS EN 61010-031,
 CAT IV 600V, CAT III 1000V, 10A (Probe tip caps fitted)
 CAT II 1000V, 10A (Probe tip caps removed)
 Class II, double insulation



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