



# DM391/DM393

## Digital Multimeter

### FULLY LOADED & BUILT FOR SAFETY!

- All inputs, ranges and functions protected to 1000V CAT III!
- Access to battery and fuses without breaking calibration seals!
- Measures temperature! (DM393 only)
- Measures:
  - Capacitance
  - Frequency/Duty Cycle
  - Resistance
  - AC/DC Voltage
  - AC/DC Current
  - Continuity
  - Diode Bias
- Features Include:
  - 4,000 count back-lit display
  - Data Hold & Relative Mode
  - Ruggedized
  - Autoranging
  - Auto power off
  - Five year limited warranty
- The DM393 is True RMS



# DM391/DM393 • Digital Multimeter

## Specifications

Range	Resolution	Accuracy	
		DM391	DM393
400mV	100µV	0.5% + 2	0.5% + 2
4V	1mV		
40V	10mV		
400V	100mV		
1000V	1V	0.75% + 3	0.75% + 3

NMRR : >60db @ 50/60 Hz  
 CMRR (COMMON MODE REJECTION RATIO) : >120 db @ DC, 50/60 Hz, Rs=1kΩ  
 Input Impedance : 10MΩ, 30 pF nominal (50 MΩ, 100 pF nominal for 400 mV range)

### AC Voltage

Range	Resolution	Accuracy		
		40 Hz-400 Hz		1 kHz-20 kHz
		DM391	DM393	DM393
400mV	100µV	0.75% + 3	0.75% + 3	2.0% + 3
4V	1mV			
40V	10mV	0.75% + 3	0.75% + 3	2.0% + 3
400V	100mV	1.0% + 5	1.0% + 5	2.0% + 5* <sup>1</sup>
1000V	1V	1.0% + 5	1.0% + 5	-

CMRR (COMMON MODE REJECTION RATIO) : >60db @ DC Hz, Rs = 1 kΩ  
 Input Impedance : 10 MΩ, 30 pF nominal (50 MΩ, 100 pF nominal for 400 mV range)

\*<sup>1</sup>-Accuracy for 400 Hz to 1 kHz

### DC Current

Range	Resolution	Accuracy	
		DM391	DM393
400µA	0.1µA	1.0% + 2	1.0% + 2
4000µA	1µA		
40mA	10µA		
400mA	100µA		
4A	1mA	1.5% + 5	1.5% + 5
10A	10mA		

### AC Current

Range	Resolution	Accuracy		
		40 Hz - 400 Hz		400 Hz - 10 kHz
		DM391	DM393	DM393
400µA	0.1µV	1.0% + 5	1.0% + 5	1.5% + 5
4000µA	1µV			
40mA	10µV			
400mA	100µV			
4A	1mA	1.5% + 10	1.5% + 10	2.0% + 10
10A	10mA			

### Resistance

Range	Resolution	Accuracy	
		DM391	DM393
400Ω	0.1Ω	1.0% + 5	1.0% + 5
4000Ω	1Ω		
40kΩ	10Ω	0.5% + 3	0.5% + 3
400kΩ	100Ω		
4MΩ	1kΩ	1.0% + 5	1.0% + 5
10MΩ	10kΩ	1.5% + 10	1.5% + 10

Open Circuit Voltage: < 1.3V DC

### Continuity

Audible threshold:	the beeper sounds if the measured resistance is lower than 10Ω, and turns off when greater than about 60Ω
Response time:	< 1 msec.

### Diode Test

Range	Accuracy	Test Current (Typical)	Open Circuit Voltage
4V	2%	0.25mA	< 1.5V DC

### Capacitance

Range	Resolution	Accuracy	
		DM391	DM393
40nF	10pF	2.5% + 10	2.5% + 10
400nF	100pF		
4µF	1nF		
40µF	10nF		
100µF	100nF		

\*<sup>1</sup>Accuracy with film capacitor or better Using Δ Mode

### Frequency and Duty Cycle

Range	Resolution	Accuracy		Remark
		DM391	DM393	
5Hz	0.001Hz	0.05% + 3	0.05% + 3	Minimum frequency: 0.5Hz  Sensitivity: 5Hz-1MHz > 250mV 1MHz-10MHz > 350mV
50Hz	0.01Hz			
500Hz	0.1Hz			
5kHz	1Hz			
50kHz	10Hz			
500kHz	100Hz			
5MHz	1kHz			
10MHz	10kHz			
0.1% to 99.9%	0.1%	0.5Hz to 500kHz (pulse width > 2 µsec.) (0.1% + 0.05% per kHz + 1 count) for 5 V input (Logic signals only)		

### Temperature (DM393)

Range	Resolution	Accuracy
-40°C to -10°C (-40°F to 14°F)	1°C 1°F	(3% ± 5°F) 3% ± 5°C
-10°F to 400°F (14°F to 752°F)	1°C 1°F	(1% ± 3°F) 1% ± 3°C
400°C to 1300°C (752°F to 2372°F)	1°C 1°F	(3% of reading) 3% of reading

\* This specification is effective at the ambient temperature of 73.4°F (23°C)

### Frequency Counter Sensitivity

Range	Minimum Sensitivity (RMS Sine Wave)	
	40Hz to 10kHz	10Hz to 20kHz
V (4V to 1000V)	500mV	500mV
µA (400µA to 4mA)	> 15% F.S. of AC range	Not Specified
mA (40mA to 400mA)	> 15% F.S. of AC range	Not Specified
A (4.0A to 10A)	> 45% F.S. of AC range	Not Specified

### Burden Voltage (A, mA, µA)

Function	Range	Burden Voltage (typical)
mA/µA	400µA	150µV/µA
	4000µA	150µV/µA
	40mA	3.3mV/mA
	400mA	3.3mV/mA
10A	4A	0.03V/A
	10A	0.03V/A

### Standard Accessories:

Repl. Fuse 440 mA ..... AF38  
 Repl. Fuse 11 A ..... AF39

### Optional Accessories:

Temperature Probe ..... ATT29A  
 Temperature adapter ..... ATT70  
 Soft Carrying Case ..... AC319

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