CDM250
DM2510
DM2510G

Digital Multimeters

Digital Multimeters for testing electronic products, power supplies, audio visual equipment, automative electronics, and control systems.

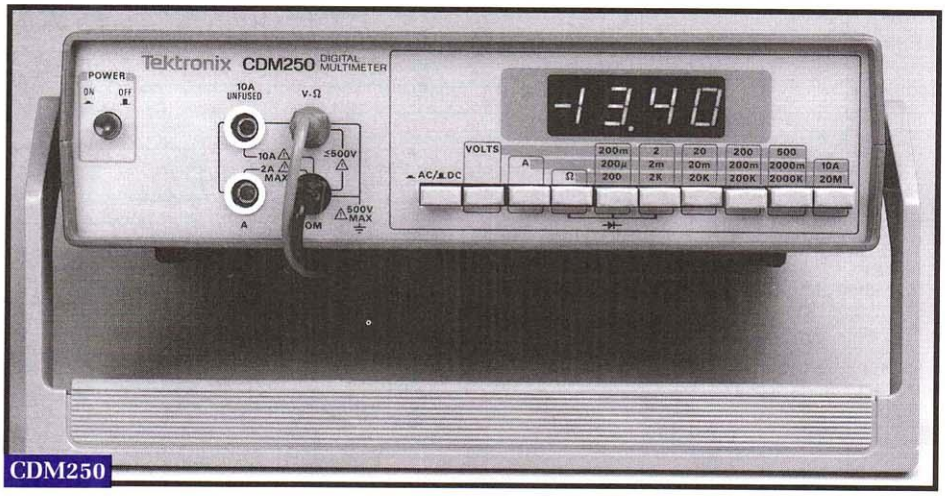
CDM250

Digital Multimeter

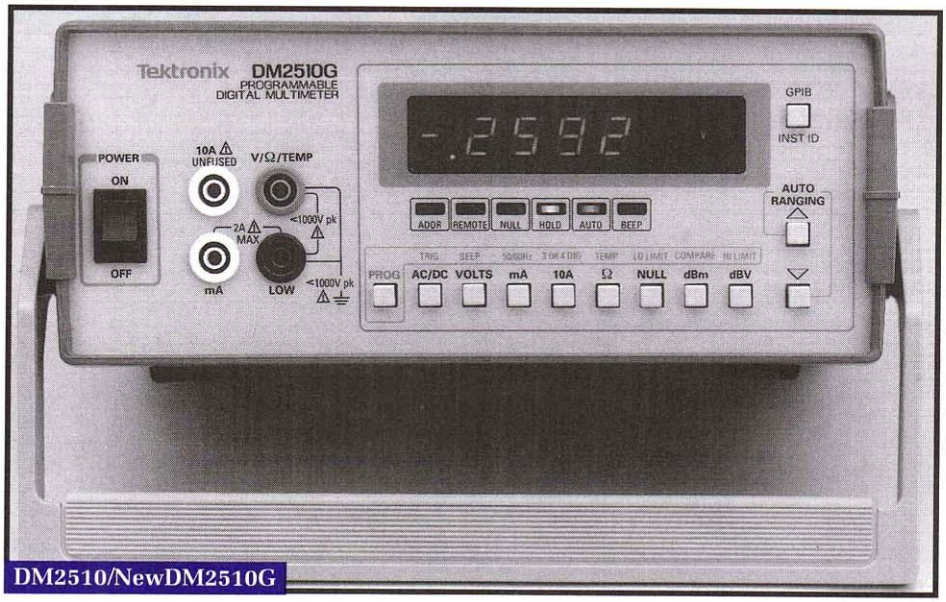
- AC/DC Volts (500 V Range)
- Ohms (20 MΩ Range)
- Current (10 A Range)
- Overload Protection
- UL Listed, CSA Certified

DM2510/DM2510G

- Programmable
- GPIB (DM2510G)
- DC Volts (1000 V Range)
- AC Volts (500 Range, rms)
- dB Function (AC Voltage ranges)
- DC/AC Current (10 A Range)
- Resistance (20 Ω Range
- Temperature
- Autoranging (except temperature)
- Null Function
- Hold Mode
- Trigger Function
- Compare Mode/Beeper Mode (HI to LO Limits)
- Fast and Normal Mode



CDM250



DM2510/NewDM2510G

CDM250

The CDM250 Digital Multimeter displays measurements in digital form on a 3 1/2-digit LED display. Sine wave alternating voltages and currents are displayed in rms values. Test Leads are included.

DM2510 Programmable Digital Multimeter

The DM2510 is a programmable, six-function, autoranging digital multimeter. You can use it to measure DC and AC voltage and current, plus resistance and temperature. It has a NULL function to make measurements with an offset value, plus a HOLD mode and a TRIGGER function. COMPARE mode compares the current measurement with user-selectable high and low limits; a beeper can be set to sound when the measurement is beyond the specified limits.

DM2510G Programmable Digital Multimeter with GPIB Interface

The DM2510G, a programmable six-function autoranging digital multimeter, has a GPIB interface for remote operation and programming. This instrument is for use with a GPIB controller, such as the Tektronix RIC386 or a computer with a GPIB card on board.

Applications include education, design, service and manufacturing. Use for testing electronic products, power supplies, audio visual equipment, automative electronics and control systems.

TD

Call Direct – Product available within 24 hours, (through TekDirect only). Call 1-800-426-2200. Also available through an Authorized Tektronix Distributor (listed on page 540).

To order, contact your local sales office (listed on the inside back cover) or call the National Marketing Center at 1-800-426-2200, Ext. 99.

Digital Multimeters

CDM250
DM2510
DM2510G

STANDARD SPECIFICATIONS

	CDM250	DM2510/G
DC Volts		
Ranges	200 mV, 2 V, 20 V, 200 V, 500 V	*200 mV, 2 V, 20 V, 200 V, 1000 V
Accuracy	±(0.5% of reading +1 count)	See Table 6 on this page
Response Time	3 seconds maximum	<0.3 seconds to 1% of step
Step Response Time	—	<50 ms to 0.05% of step
Input Resistance	10 MΩ	10 MΩ ±0.5%
Max. Input Voltage	500 VDC (DC + peak AC)	LOW to GND, V/Ω/TEMP to GND, and V/Ω/TEMP to LOW: 1000 VDC
CMRR	>100 dB (50/60 Hz)	≥100 dB @ DC, ≥80dB @ 50/60 Hz
NMRR	>50 dB (50/60 Hz)	≥50 dB @ 50/60 Hz (+0.2 Hz)
Max. Resolution	See Table 1 on this page	10 µV
AC Volts		
Ranges	200 mV, 2 V, 20 V, 200 V, 500 V	*200 mV, 2 V, 20 V, 200 V, 500 V (rms)
Accuracy	±(1.0% of reading +4 counts) (18° to 28°C)	See Table 7 on page 386
Response Time	8 seconds maximum	<0.3 seconds to 1% of step
Input Resistance	10 MΩ, paralleled by <100 pF	2 MΩ ±1%, paralleled by <50 pF
Max. Input Voltage	350 VAC rms 500 V (DC + peak AC)	Front panel, V/Ω/Temp to LOW: 500 V rms or 600 VDC Front panel, V/Ω/Temp to GND and LOW to GND: 1000 V pk
CMRR	>60 dB (50/60 Hz)	≥60 dB @ 50/60 Hz (with 1 kΩ unbalance)
Max. Resolution	Same as Table 1 on this page	10 µV
Crest Factor	—	3:1 for 0.1% additional error
dB (True rms AC Volts)		
Accuracy	—	See Table 8 on page 386
Max. Resolution	—	0.01 dB
Response Time	—	<0.3 seconds to 1% of step
Input Resistance	—	2 MΩ ±1%, paralleled by <50 pF
Max. Input Voltage	—	V/Ω/TEMP to LOW: 500 V rms or 600 VDC V/Ω/TEMP to GND, LOW to GND: 1000 V pk
DC Current		
Ranges	200 µA, 2 mA, 20 mA, 200 mA, 2 A, 10 A	*200 µA, 2 mA, 20 mA, 200 mA, 2 A, 10 A
Accuracy	See Table 2 on this page	See Table 9 on page 386
Response Time	3 seconds maximum	<50 ms to 0.05% of step
Max. Open-Circuit Input Voltage	500 V (DC + AC peak)	650 V pk, mA to LOW
Max. Input Current	2 A fused, 10 A unfused	2 A any range, mA to LOW 10 A unfused, A to LOW
Max. Floating Voltage	N/A	10 A, mA or LOW to GND: 1000 V pk
Max. Resolution	0.1 µA	10 nA
Input Resistance	See Table 3 on this page	See Table 10 on page 386
AC Current		
Ranges	200 µA, 2 mA, 20 mA, 200 mA, 2 A, 10 A	*200 µA, 2 mA, 20 mA, 200 mA, 2 A, 10 A
Accuracy	±(1.5% of reading +4 counts) (18° to 28°C) 45 Hz to 500 Hz	See Table 11 on page 387
Response Time	8 seconds maximum	<0.3 seconds to 1% of step
Input Resistance	See Table 4 on this page	See Table 12 on page 387
Max. Open Circuit Input Voltage	650 V pk, A to COM	650 V pk, mA to LOW
Max. Input Current	2 A fused with 4 A high-energy fuse; 10 A unfused	2 A any range, mA to LOW; 10 A unfused, A to LOW
Crest Factor	—	3:1 for 0.1% additional error

Table 1 – DC Volts: Resolution

Range	Resolution
200 mV	±100 µV
2 V	±1 mV
20 V	±10 mV
200 V	±100 mV
500 V	±1 V

Table 2 – DC Current: Accuracy

Range	Accuracy
200 µA	±(1.0% of reading + 1 count)
2 mA	±(1.0% of reading + 1 count)
20 mA	±(1.0% of reading + 1 count)
200 mA	±(1.0% of reading + 1 count)
10 A	±(1.0% of reading + 3 counts)

Table 3 – DC Current: Input Resistance

Range	Resistance
200 µA	1.0 kΩ
2 mA	100 Ω
20 mA	10 Ω
200 mA	1 Ω
2000 mA	0.1 Ω
10 A	0.01 Ω

Table 4 – AC Current: Input Resistance

Range	Resistance
200 µA	1.0 kΩ
2 mA	100 Ω
20 mA	10 Ω
200 mA	1 Ω
2000 mA	0.1 Ω
10 A	0.01 Ω

Table 5 – Resistance: Accuracy

Range	Accuracy
200 Ω	±(0.75% of reading + 4 counts)
2 kΩ	±(0.75% of reading + 1 count)
20 kΩ	±(0.75% of reading + 1 count)
200 kΩ	±(0.75% of reading + 1 count)
2000 kΩ	±(0.75% of reading + 1 count)
20 MΩ	±(1.5% of reading + 5 counts)

Table 6 – DC Volts: Accuracy

Range	Accuracy: 18° to 28° C	Accuracy 0° to 18° C or 28° to 40° C
200 mV	±(0.03% + 0.015%)	±(0.1% + 0.04%)
2 V	±(0.03% + 0.01%)	±(0.08% + 0.02%)
20 V	±(0.03% + 0.015%)	±(0.1% + 0.025%)
200 V	±(0.03% + 0.01%)	±(0.08% + 0.02%)
1000 V	±(0.03% + 0.02%)	±(0.08% + 0.02%)
	±(% of reading + % of full scale) 41/2 digits, auto or manual ranging	

Continued on next page.

CDM250 DM2510 DM2510G Digital Multimeters

STANDARD SPECIFICATIONS CONTINUED

	CDM250	DM2510/G
Resistance		
Ranges	200 Ω, 2 kΩ, 20 kΩ, 200 kΩ, 2 MΩ, 20 MΩ	*200 Ω, 2 kΩ, 20 kΩ, 200 kΩ, 2 MΩ, 20 MΩ
Accuracy	See Table 5 on page 385	See Table 13 on page 387
Response Time	5 s (200 Ω to 2000 kΩ ranges); 15 s (20 MΩ range)	< 0.2 s (200 Ω to 2 MΩ ranges); < 2 s (20 MΩ range)
Max. Input Voltage (accidental)	500 V (DC + peak AC)	300 V peak (all ranges)
Max. Resolution	0.1 Ω	10 mΩ
Max. Open Circuit Voltage	3.2 V max (200 Ω); 0.6 V max (2 kΩ to 20 MΩ)	< 11 V
Temperature Measurement	—	See Table 14 on page 387
Reading Rate	—	4.5 digits (normal) >3 times per second 3.5 digits (fast) >25 times per second
Warm-Up Time	10 minutes	30 minutes; 60 minutes after high humidity storage
Programmable	No	Yes
Computer Interface	—	GPIB (DM2510G only, on rear panel)
Safety	UL Listed, CSA Certified	ETL, CSA Certified
Environmental Requirements		
Ambient Temperature		
Operating	0°C to +50°C	0°C to +40°C
Nonoperating	–20°C to +60°C	–10°C to +60°C
Relative Humidity		
Operating	0% to 75%	0% to 75%
Nonoperating	0% to 80%	0% to 80%
Physical Characteristics		
Size (W x H x D)	240 mm x 64 mm x 190 mm 9.5 in. x 2.5 in. x 7.5 in.	240 mm x 105 mm x 198 mm 9.5 in. x 4.2 in. x 8.0 in.
Weight	1.6 kg (3.5 lb)	2.4 kg (5.2 lb)
Power Requirements		
Line Voltage	90 to 110 VAC, 108 to 132 VAC, 180 to 220 VAC, 216 to 250 VAC	90 to 110 VAC, 108 to 132 VAC, 198 to 242 VAC, 216 to 250 VAC
Line Frequency	50 to 60 Hz	50 to 60 Hz
Maximum Power Consumption	8 VA, 7 W	35 VA, 30 W

Autoranging

Table 7 AC Volts: Accuracy

Input Frequency	Accuracy 18° to 28° C	Accuracy 0° to 18° C or 28° to 40° C
20 Hz to 100 Hz	±(0.8% + 0.05%)	±(1.1% + 0.075%)
100 Hz to 10 kHz	±(0.3% + 0.05%)	±(0.6% + 0.075%)
10 kHz to 20 kHz	±(0.6% + 0.05%)	±(0.9% + 0.075%)
20 kHz to 50 kHz	±(1.0% + 0.05%)	±(1.3% + 0.075%)

±(% of reading + % of full scale)
41/2 digits, auto or manual ranging

Table 8 – dB Function: Accuracy

Range, dBV	Range, dBm	Accuracy 18° to 28° C	Accuracy 0° to 18° C or 28° to 40° C	Frequency
-34 to +54	-32 to +56	±0.3 dB	±0.4 dB	20 Hz to 20 kHz
-54 to -34	-52 to -32	±0.6 dB	±0.8 dB	20 kHz to 10 kHz
-60 to -54	-58 to -52	±1.0 dB	±1.5 dB	20 kHz to 10 kHz

41/2 digits, auto or manual ranging

Table 9 – DC Current: Accuracy

Range	Accuracy 18° to 28°C	Accuracy 0° to 18°C or 28° to 40°C
200 µA–2 A	±(0.06% + 0.01%)	±(0.2% + 0.025%)
10 A	±(0.3% + 0.05%)	±(0.6% + 0.075%)

±(% of reading + % of full scale)
41/2 digits, auto or manual ranging

Table 10 – DC Current: Input Resistance

Range	Resistance
200 µA	1.0 kΩ (mA to LOW)
2 mA	100 Ω (mA to LOW)
20 mA	10.2 Ω (mA to LOW)
200 mA	1.2 Ω (mA to LOW)
2 A	0.26 Ω (mA to LOW)
10 A	0.06 Ω (A to LOW)

Digital Multimeters

Table 11 – AC Current: Accuracy

Frequency (input > 200 counts)	Accuracy 18° to 28° C	Accuracy 0° to 18° C or 28° to 40° C
200 µA – 2 A Range:		
20 Hz to 100 Hz	±(0.8% + 0.05%)	±(1.1% + 0.075%)
100 Hz to 10 kHz	±(0.3% + 0.05%)	±(0.6% + 0.075%)
10 A Range:		
20 Hz to 10 kHz	±(0.8% + 0.05%)	±(1.1% + 0.075%)

±(% of reading + % of full scale)
41/2 digits, auto or manual ranging

Table 12 – AC Current: Input Resistance

Range	Resistance
200 µA	1.0 kΩ (mA to LOW)
2 mA	100 Ω (mA to LOW)
20 mA	10.2 Ω (mA to LOW)
200 mA	1.2 Ω (mA to LOW)
2 A	0.26 Ω (mA to LOW)
10 A	0.06 Ω (A to LOW)

Table 13 – Resistance: Accuracy

Range	Accuracy 18° to 28° C	Accuracy 0° to 18° C or 28° to 40° C	Source Current	Vmax
200 Ω	±(0.05% + 0.02%)	±(0.25% + 0.04%)	1.0 mA	10 V
2 kΩ	±(0.05% + 0.01%)	±(0.25% + 0.03%)	1.0 mA	10 V
20 kΩ	±(0.05% + 0.02%)	±(0.25% + 0.04%)	10 µA	10 V
200 kΩ	±(0.05% + 0.01%)	±(0.25% + 0.03%)	10 µA	10 V
2 MΩ	±(0.1% + 0.02%)	±(1.0% + 0.04%)	0.1 µA	2.0 V
20 MΩ	±(0.1% + 0.01%)	±(1.0% + 0.03%)	0.1 µA	2.0 V

±(% of reading + % of full scale)
41/2 digits, auto or manual ranging

Table 14 – Temperature: Accuracy

Range	Accuracy 18° to 28° C	Accuracy 0° to 18° C or 28° to 40° C	P6602 Probe Status
–62°C to +150°C	±0.6°C	±1.5°C	Calibrated
+150°C to +240°C	±1.6°C	±2.5°C	Calibrated
–62°C to +150°C	±3.5°C	±4.5°C	Uncalibrated
+150°C to +240°C	±6.0°C	±7.0°C	Uncalibrated

ORDERING INFORMATION

CDM250
Digital Multimeter ..... TD **$345**
Includes: DMM Test Leads (1 pair Black/Red) (196-3200-00), Operator's Manual (070-6736-00), US power cord (standard) and one year warranty.

DM2510
Digital Multimeter ..... TD **$595**
Includes: 1 pair DMM Test Leads (196-3200-01); Instruction Manual (070-8479-00), US power cord (standard) and one year warranty.

DM2510G
Programmable Digital Multimeter with GPIB Interface ..... TD **$695**
Includes: 1 pair DMM Test Leads (196-3200-01); Instruction Manual (070-8479-00), US power cord (standard) and one year warranty.

WARRANTY-PLUS SERVICE OPTIONS
Opt. M7 – Calibration Service
CDM250 ..... **+$43**
DM2510 ..... **+$125**
DM2510G ..... **+$140**

Opt. M9 – Repair Protection
CDM250 ..... **+$63**
DM2510 ..... **+$75**
DM2510G ..... **+$90**

INTERNATIONAL POWER PLUG OPTIONS
Standard – U.S. Power Cord: 120 V, 60 Hz ..... **NC**
Opt. A1 – Universal Euro: 220 V, 50 Hz (020-0859-00) ..... **NC**
Opt. A2 – United Kingdom: 240 V, 50 Hz (020-0861-00) ..... **NC**
Opt. A3 – Australian: 240 V, 50 Hz (020-0861-00) ..... **NC**
Opt. A4 – North American: 240 V, 60 Hz (020-0862-00) ..... **NC**
Opt. A5 – Switzerland: 220 V, 50 Hz (020-0863-00) ..... **NC**

OPTIONAL ACCESSORIES
Temperature Probe – Order P6602 ..... **$335**
GPIB Interface Cable – For DM2510G.
Order 012-0991-01 ..... TD **$170**
GPIB Reference Manual – For DM2510G.
Order 070-8630-00 ..... **$25**

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Call Direct – Product available within 24 hours, (through TekDirect only). Call 1-800-426-2200. also available through an Authorized Tektronix Distributor (listed on page 540).

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