TEK

Part No. 070-8479-00
Product Group 3M

THE DM2510 & DM2510G

PROGRAMMABLE
DIGITAL MULTIMETERS

Instruction Manual

Tektronix®
COMMITTED TO EXCELLENCE

Welcome

This instruction manual contains the following sections:

- *Before You Begin* describes the DM2510 Digital Programmable Multimeter and provides safety information. It also provides instructions to ensure that you use the correct fuse and line voltage settings.
- *At A Glance* provides a description of the DM2510 and its functions.
- *Operations in Detail* provides procedures for using the DM2510's more complex features.
- *Troubleshooting* contains fixes for common problems. It also provides information on how to send your instrument to Tektronix for servicing.
- *Specifications* contains specifications for the DM2510.
- *Accessories* describes the standard and optional accessories available for the DM2510.

NOTE

The ONLY difference between the DM2510 and the DM2510G is that the DM2510G has a GPIB interface. All information specified for the DM2510 in this manual is also correct for the DM2510G.

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Before You Begin

About the Digital Programmable Multimeter

The Tektronix DM2510 is a programmable six-function autoranging digital multimeter. You can use it to measure DC and AC voltage and current, resistance, and temperature (Tektronix P6602 temperature probe required).

The DM2510 has the following features:

- software calculated versions of the AC voltage ranges (dBm and dBV)
- a NULL function to make measurements with an offset value
- a HOLD mode and a TRIGGER function
- a COMPARE mode that compares the current measurement with user-selectable HI and LO LIMITS
- a BEEPER mode that sounds a beeper when a measurement is beyond the user-selectable HI and LO LIMITS
- FAST and NORMAL mode measurement
- 50 and 60 Hz measurement modes
- autoranging capability on all measurement functions except temperature
- a locking, multiposition handle that folds under the instrument

If you need more information about your Tektronix DM2510 Digital Programmable Multimeter or other Tektronix products, contact the nearest Tektronix sales office or distributor, consult the Tektronix product catalog, or, in the U. S., call the Tektronix National Marketing Center toll-free at 1-800-426-2200.

Safety

You may be eager to begin using your Tektronix DM2510, but please take a moment to review these safety precautions. We provide them to protect both you and the instrument.

Symbols and Terms

These two terms appear in this manual:

- **CAUTION** statements identify conditions or practices that could result in damage to equipment.
- **WARNING** statements identify conditions or practices that could result in personal injury or loss of life.

These two terms appear on equipment:

- *CAUTION* indicates a personal injury hazard not immediately accessible as one reads the marking or a hazard to property including the equipment itself.
- *DANGER* indicates a personal injury hazard immediately accessible as one reads the marking.

This symbol appears in this manual:

Static-Sensitive Devices

These symbols appear on equipment:

DANGER
High Voltage

Protective
Ground (Earth)
Terminal

ATTENTION
Refer to
manual

Specific Precautions

Observe all of these precautions to ensure your personal safety and to prevent damage to the DM2510 or connected equipment.

Power Source — The DM2510 power source must not apply more than 250 V rms between the supply conductors or between either supply conductor and ground. A protective ground connection, through the grounding conductor in the power cord, is essential for safe system operation.

Grounding the Digital Programmable Multimeter — The DM2510 is grounded through the power cord. To avoid electric shock, plug the power cord into a properly wired receptacle where a qualified service person has verified earth ground. Do this before making connections to the input or output terminals of the DM2510.

Without the protective ground connection, all parts of the DM2510 are potential shock hazards. This includes knobs and controls that may appear to be insulators.

Use the Proper Power Cord — Use only the power cord and connector specified for your product. Use only a power cord that is in good condition.

Use the Proper Fuse — To avoid fire hazard, use only the fuse specified in the *Selecting the Fuse* section or one that is identical in type, voltage rating, and current rating.

Do Not Remove Covers or Panels — To avoid personal injury, do not operate the DM2510 without the panels or covers in place.

Do Not Operate in Explosive Atmospheres — The DM2510 provides no explosion protection from static discharges or arcing components. Do not operate the DM2510 in an atmosphere of explosive gasses.

Electric Overload — Never apply a voltage to a connector on the DM2510 that is outside the range specified for that connector.

Selecting the Line Voltage

The voltage switches on the rear panel of the instrument allow proper line voltage selection.

CAUTION

In order to avoid damaging the DM2510, ensure that it is set to operate on the correct line voltage for your area.

Determine the voltage that is available from your main power supply. The DM2510 can operate with line voltages of 100, 120, 220, or 240 VAC. The power source must not supply more than 250 V rms between the supply conductors or between either supply conductor and ground.

Set the switches as shown in Table 1.

Table 1: Line Voltage Switch Selections

Line Voltage	Top Switch	Bottom Switch
100	▲	▲
120	▲	b
220	b	▲
240	b	b

Selecting the Line Frequency

CAUTION

In order to avoid damaging the DM2510, ensure that it is set to operate on the correct line frequency for your area.

Determine the frequency that is available from your main power supply. The DM2510 can operate with line frequencies of 50 or 60 Hz. Use this procedure to set the line frequency of your instrument.

- ☐ **Step 1:** Plug in the power cord.
- ☐ **Step 2:** Turn on the power.
- ☐ **Step 3:** Press **PROG**.
- ☐ **Step 4:** Press **50/60Hz**.
- ☐ **Step 5:** Press either of the **AUTO RANGING** buttons to select the proper line frequency.

Selecting the Fuse

CAUTION

In order to avoid damaging the DM2510, ensure that it has the correct fuse for the line voltage.

The DM2510 requires an MDL 0.25 A, 250 V slow-blow fuse if it is operated with a line voltage of 100 V or 120 V. The instrument requires an MDL 0.125 A, 250 V slow-blow fuse if it is operated with a line voltage of 220 V or 240 V. This information can be found on the rear panel, above the power receptacle and next to the fuse box. Use this procedure to ensure that the DM2510 has the proper fuse.

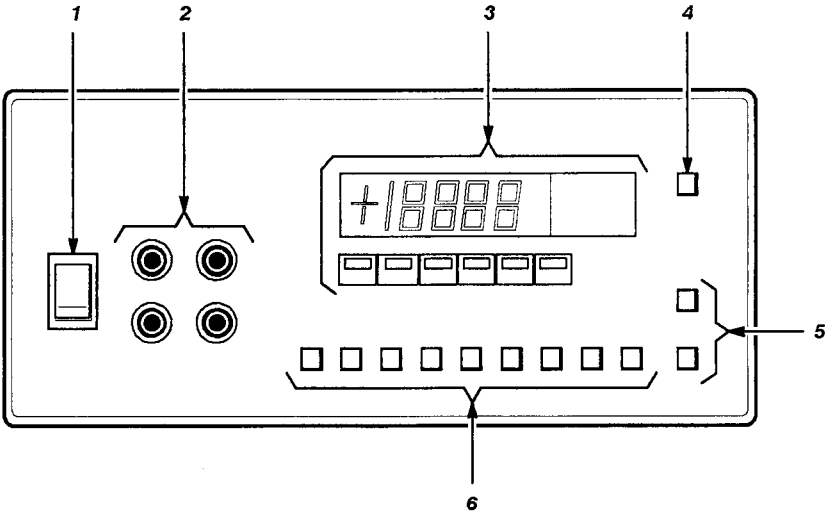
- ☐ **Step 1:** Remove the power cord.

- ☐ **Step 2:** Using a small screwdriver, open the fuse holder cap.
- ☐ **Step 3:** Examine the fuse to ensure that it is appropriate for your line voltage. Replace it with an appropriate one if it is not.
- ☐ **Step 4:** Using a screwdriver, replace the fuse holder cap.

At a Glance

This section describes the controls on the front and rear panels of the DM2510 Digital Programmable Multimeter.

Front Panel



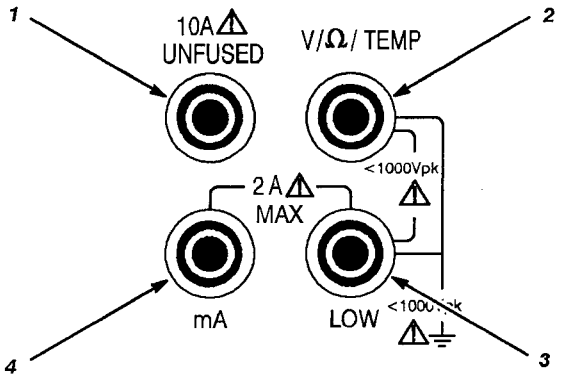
1. The power switch toggles the instrument power.
2. The inputs accept electric signals for the DM2510 to measure. See page 8 for details.
3. The readouts provide information on the size and type of the input being measured. They also provide some rudimentary GPIB information. See page 9 for more information on readouts.
4. The **GPIB INST ID** button calls up the instrument's primary GPIB address and displays it on the numerical readout. See the *Operations in Detail* section on page 19 for more information on the GPIB feature.

5. The **AUTO RANGING** buttons control the range of the numerical readout. The first push of either the upper or lower button will disable the autoranging feature. Then the upper button selects the next higher measurement range and the lower button selects the next lower measurement range. To re-enable the autoranging feature, press both buttons simultaneously. One of the status LEDs indicates whether autoranging is on or off.

   When in HOLD mode, the **AUTO RANGING** buttons select various setup options.

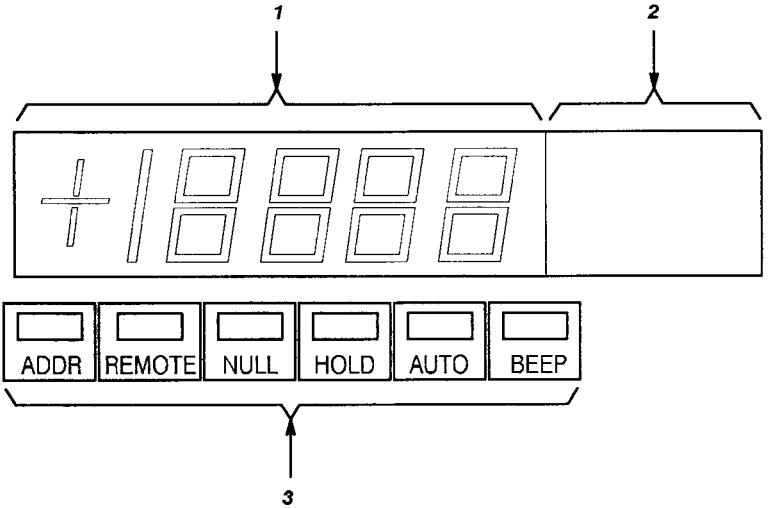
6. The function buttons determine what the instrument measures (mA, V, dBm, and so on). For more information on individual function buttons and their uses, see page 10.

Inputs



1. Use the **10 A UNFUSED** terminal to make current measurements up to 10 A.
2. Use the **V/Ω/TEMP** terminal to make voltage, resistance, and temperature measurements.
3. Use the **LOW** terminal as common for all measurements.
4. Use the **mA** terminal to make current measurements up to 2 A.

Readouts



1. The numerical readout shows up to four and a half digits (19999) and also indicates polarity with a + or −.

2. The mode readout area indicates the current measurement mode with the following readouts.

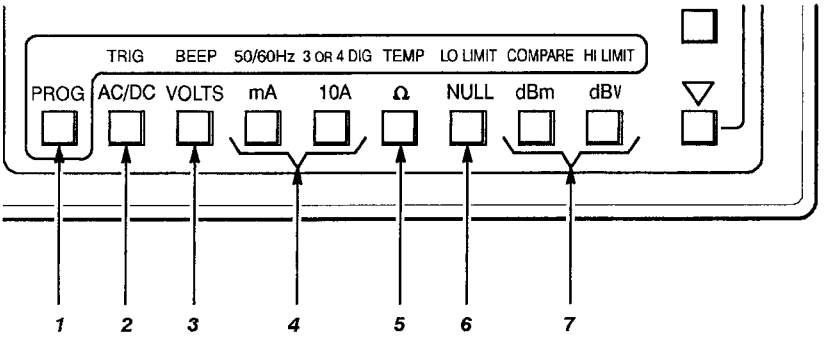
   - current – μA, mA, A
   - voltage – mV, V, dBm, dBV
   - resistance – Ω, kΩ, MΩ, and a diode symbol (to indicate diode measurement capability)
   - temperature – °C
   - AC measurement modes – ~

3. The status LEDs indicate the present state of various instrument functions.

   - **ADDR** turns on when the instrument is GPIB addressed (when it is either talking or listening to the GPIB port). For more information on the GPIB interface, see page 19.

- **REMOTE** turns on when the instrument is in the GPIB remote state. For more information on the GPIB interface, see page 19.
- **NULL** indicates whether NULL mode is on or off. See page 15 for details.
- **HOLD** indicates whether HOLD mode is on or off. When in HOLD mode, all function buttons change to their secondary function.
- **AUTO** indicates whether autoranging is active or not. See page 8 for details.
- **BEEP** turns on when the instrument is in beeper mode. See page 17 for details.

Function Buttons



1. PRIMARY: The **PROG** button sets the instrument in HOLD mode, activates the HOLD LED, and allows access to DM2510 programmable features. When in HOLD mode, all function buttons change to their secondary function.

   SECONDARY: Pressing the **PROG** button when already in HOLD mode returns the instrument to RUN (normal operation) mode.

2. PRIMARY: The **AC/DC** button switches between AC and DC measurement mode.

SECONDARY: When in HOLD mode, the **AC/DC** button triggers the instrument to take one measurement and then automatically return to HOLD mode.

3. PRIMARY: The **VOLTS** button sets the instrument in voltage measurement mode.

   SECONDARY: When in HOLD mode, use the **VOLTS** button to initiate beeper mode selection. See page 17 for more details.

4. PRIMARY: The **mA** and **10 A** buttons set the instrument in current measurement mode, in either the mA or A range.

   SECONDARY: When in HOLD mode, use the **mA** button to initiate 50/60 Hz mode selection. The numerical readout will display "50 H" or "60 H" to indicate the present mode. Then use either of the **AUTO RANGING** buttons to switch between 50 and 60 Hz mode.

   When in HOLD mode, use the **10 A** button to initiate 3 or 4 digit mode selection. The numerical readout will display "3.5 d" or "4.5 d" to indicate whether the instrument is currently displaying three and a half or four and a half digits. Then use either of the **AUTO RANGING** buttons to switch between three and a half digits and four and a half digits.

5. PRIMARY: The Ω button sets the instrument in resistance measurement mode.

   SECONDARY: When in HOLD mode, the Ω button sets the instrument in temperature measurement mode. The DM2510 can make temperature measurements in one range: from −62°C to+250°C. If a measurement is out of this range or if you are attempting a temperature measurement without the proper probe, the numerical readout will show "OPEn."

   NOTE

   To make temperature measurements with the DM2510, you must use a Tektronix P6602 Temperature Probe. See the Accessories section for ordering information.

6. PRIMARY: The **NULL** button turns the NULL mode on or off. See page 15 for details.

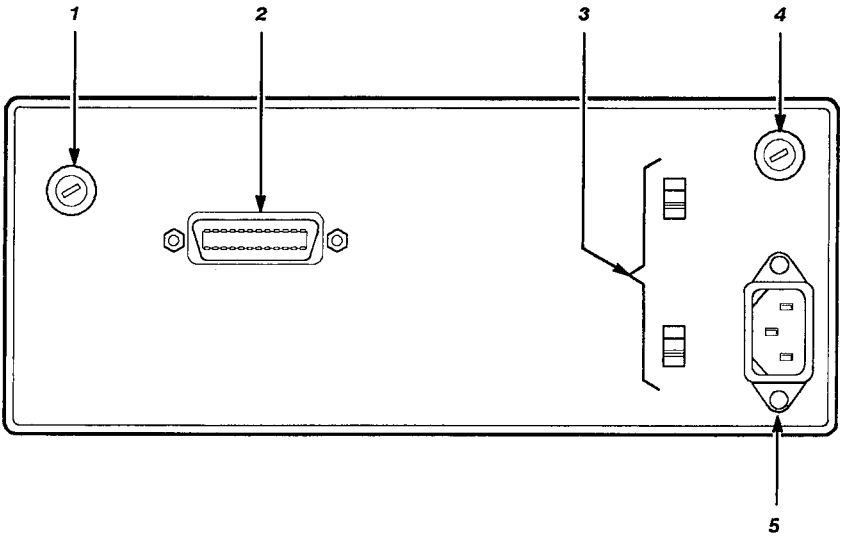
SECONDARY: When in HOLD mode, use the **NULL** button to initiate LO LIMIT selection. See page 17 for more details.

7. PRIMARY: The **dBm** and **dBV** buttons set the instrument in dB measuring mode.

   SECONDARY: When in HOLD mode, use the **dBm** button to put the instrument in compare mode. See page 17 for details.

   When in HOLD mode, use the **dBV** button to initiate HI LIMIT selection. See page 17 for details.

Rear Panel



1. The current input fuse is an added safety feature. It prevents overload of the instrument while measuring current in excess of 2 A. See page 5 for fuse replacement procedures.

2. The GPIB interface port allows you to control the DM2510G remotely. See page 19 for details.

NOTE

Only the DM2510G rear panel has these GPIB fixtures. On the DM2510, this portion of the rear panel is blank.

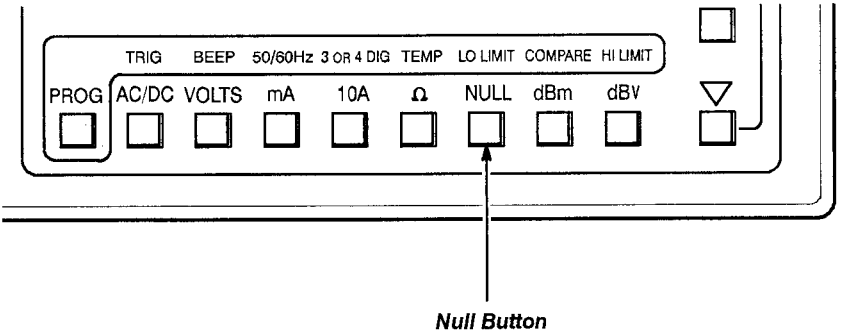
3. The voltage selector switches control the line voltage acceptance settings. See page 4 for details.
4. This is the fuse holder cap. See page 5 for fuse replacement procedures.
5. This is the power input jack.

Operations in Detail

This section describes three of the DM2510's advanced features: NULL mode, the HI/LO/COMPARE/BEEP system, and the GPIB interface.

NULL Mode

The DM2510 has a NULL mode, which is accessible for all measurement functions. You can activate NULL mode simply by pressing the **NULL** button.



Null Button

To use NULL mode to make a relative measurement, follow this procedure.

☐ **Step 1:** Set up the DM2510 to measure the output of your test device. NULL mode will work for current, voltage, resistance, or temperature measurements.

☐ **Step 2:** Connect the probes to your test device. The DM2510 will begin measuring output. Obtain a stable readout of the output you desire before continuing.

☐ **Step 3:** Press the **NULL** button. The readouts will clear momentarily and the NULL LED will turn on to indicate that NULL mode is active. The readouts will then show the relative value of subsequent measurements.

For example, if the test device's output was 1 A when you pressed the **NULL** button and it drops to 945 mA, the DM2510 readout will indicate −55 mA.

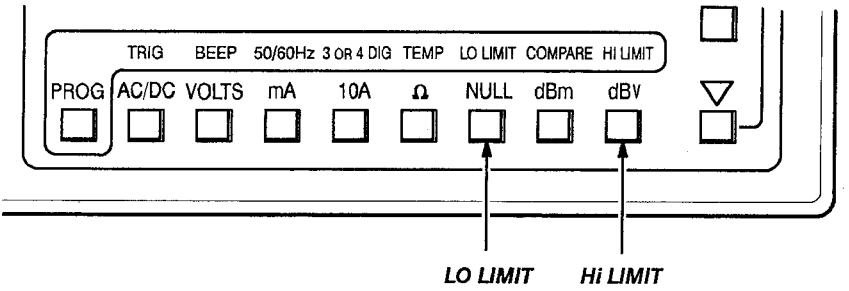
☐ **Step 4:** To disable NULL mode, simply press the **NULL** button again. The instrument will return to normal measurement and the NULL LED will turn off.

NOTE

NULL mode will not work when the instrument is in overrange condition. The numerical readout will briefly display "????" before returning to normal operation.

HI, LO, COMPARE, and BEEP

The DM2510 provides a system for specifying HI and LO measurement limits. You can then use COMPARE and/or BEEP mode to indicate when your measurements exceed these limits. The buttons that control these features are on the right side of the DM2510's front panel.



Setting HI and LO LIMIT

Use the following procedure to set HI and LO LIMIT.

☐ **Step 1:** Set up the DM2510 to measure the output of your test device. You can set HI and LO LIMIT for current, voltage, resistance, or temperature measurements.

WARNING

Do not change measurement mode until you have completed your HI and LO measurements. When you change measurement mode, the DM2510 will "forget" the HI and LO LIMITs for that mode.

☐ **Step 2:** Press **PROG**. The numerical readout will freeze, and the HOLD LED will turn on.

☐ **Step 3:** Press the **NULL** button. While in HOLD mode, this button allows you to set the LO LIMIT.

☐ **Step 4:** Use the **AUTO RANGING** buttons to set the LO LIMIT. Hold down the button to quicken limit selection. The numerical readout will show your selection.

☐ **Step 5:** After you have set the LO LIMIT, press the **dBV** button. While in HOLD mode, this button allows you to set the HI LIMIT.

☐ **Step 6:** Use the **AUTO RANGING** buttons as in Step 4 to set the HI LIMIT.

☐ **Step 7:** Press **PROG** to return to RUN mode. The HOLD LED will turn off.

COMPARE and BEEP

After setting the HI and LO LIMITs, you have two options for determining when a measurement exceeds those limits: COMPARE mode or BEEP mode. COMPARE mode uses the numerical readout to inform you of the state of the present measurement, while BEEP mode will cause the instrument to beep when the present measurement exceeds the HI or LO LIMIT.

Use the following procedure to activate COMPARE mode.

☐ **Step 1:** Press **PROG**. The numerical readout will freeze and the HOLD LED will turn on.

☐ **Step 2:** Press the **dBm** button. This button's secondary function allows you to select COMPARE mode. The instrument will erase the present measurement from the numerical readout and replace it with "ComP."

☐ **Step 3:** Press either of the **AUTO RANGING** buttons to activate COMPARE mode. The instrument will replace "ComP" with a "Lo," "HI," or "PASS." This indicates that the instrument is now set in COMPARE mode.

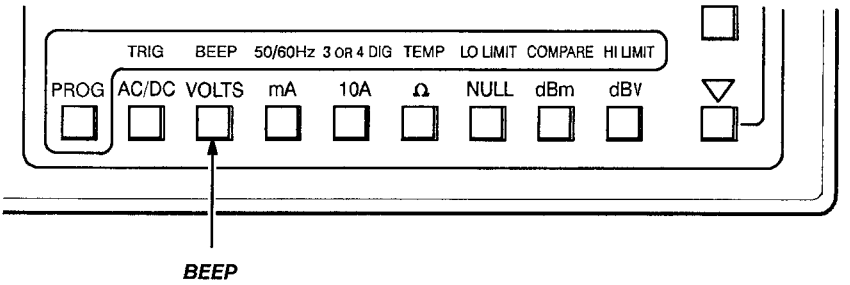
☐ **Step 4:** Press **PROG** and begin making measurements. The numerical readout will display "PASS" if a measurement is between the HI and LO LIMITs, "Lo" if a measurement is below the LO LIMIT, or "HI" if the measurement is above the HI LIMIT.

To deactivate COMPARE mode, simply repeat the procedure.

Use the following procedure to activate BEEP mode.

☐ **Step 1:** Press **PROG**. The numerical readout will freeze, and the HOLD LED will turn on.

☐ **Step 2:** Press the **VOLTS** button. This button's secondary function allows you to select BEEP mode. The numerical readout will display "bEEP."



☐ **Step 3:** Press either of the **AUTO RANGING** buttons to activate BEEP mode. The numerical readout will erase "bEEP" and display the last measurement taken. The BEEP LED will turn on.

☐ **Step 4:** Press **PROG** and begin making measurements. The instrument will display measurements normally, but will beep when the measurement exceeds the HI or LO LIMITs.

To deactivate BEEP mode, simply repeat the procedure.

Continuity Measurements

The DM2510 has one built-in HI/LO/BEEP setting: the continuity measurement mode. This mode sets the instrument to measure resistance, sets the HI limit at 10 Ω, the LO limit at 0 Ω, and activates BEEP mode.

To activate continuity measurement mode, follow this procedure.

☐ **Step 1:** Turn your instrument off and on again to clear the HI and LO LIMIT memory.

☐ **Step 2:** Press the Ω button to select resistance measurement mode.

☐ **Step 3:** Press, *in order*, **PROG**, **VOLTS**, **AUTO RANGING ▲** and **PROG** again.

☐ **Step 4:** Now make your continuity measurements. The instrument will beep when continuity (resistance < 10 Ω) is achieved.

GPIB Interfacing

The DM2510G instrument has a GPIB interface port for remote operations and programming. For a full description of DM2510G GPIB procedures, see the *DM2510G Programmer Manual.*

Troubleshooting

This section contains two basic troubleshooting diagrams and repackaging information.

Troubleshooting Diagrams

The following diagrams will help you identify basic problems with your instrument setup. They do not provide instructions for or recommend instrument disassembly. If these diagrams fail to solve your problem, send your instrument to the nearest Tektronix service outlet.

Use the first diagram if the DM2510 digital display remains blank after power-up. Use the second diagram if the digital display provides incorrect data.

NOTE

These troubleshooting diagrams assume that any other test equipment you use (oscilloscope, test device, calibration generator, and so on) is operating properly. Before you assume a problem exists with the DM2510, check all other test equipment.

Diagram 1: Digital Display Blank

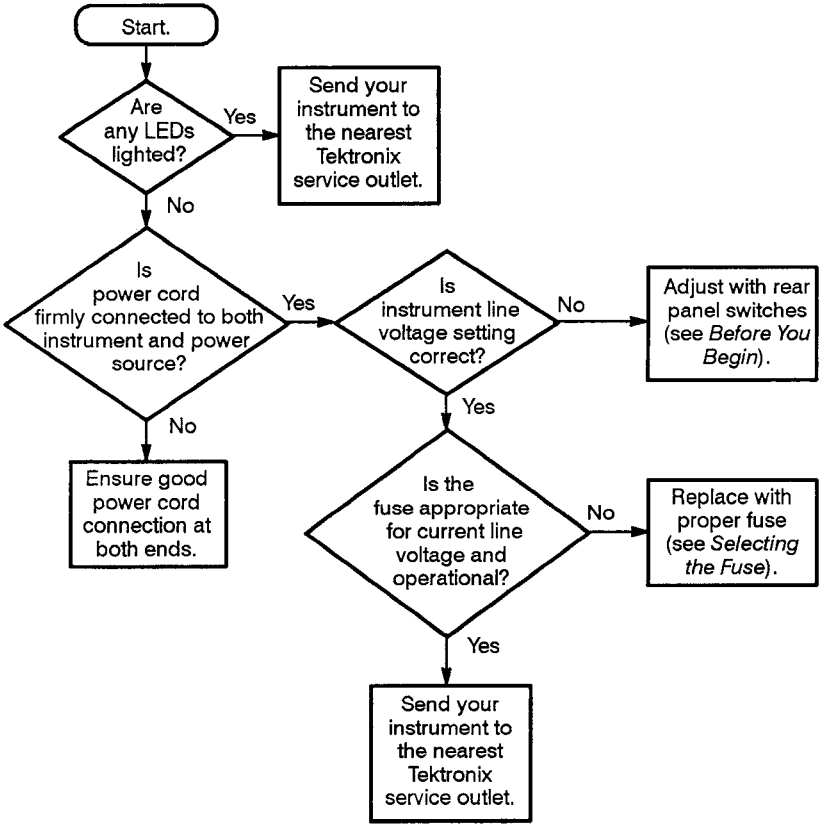
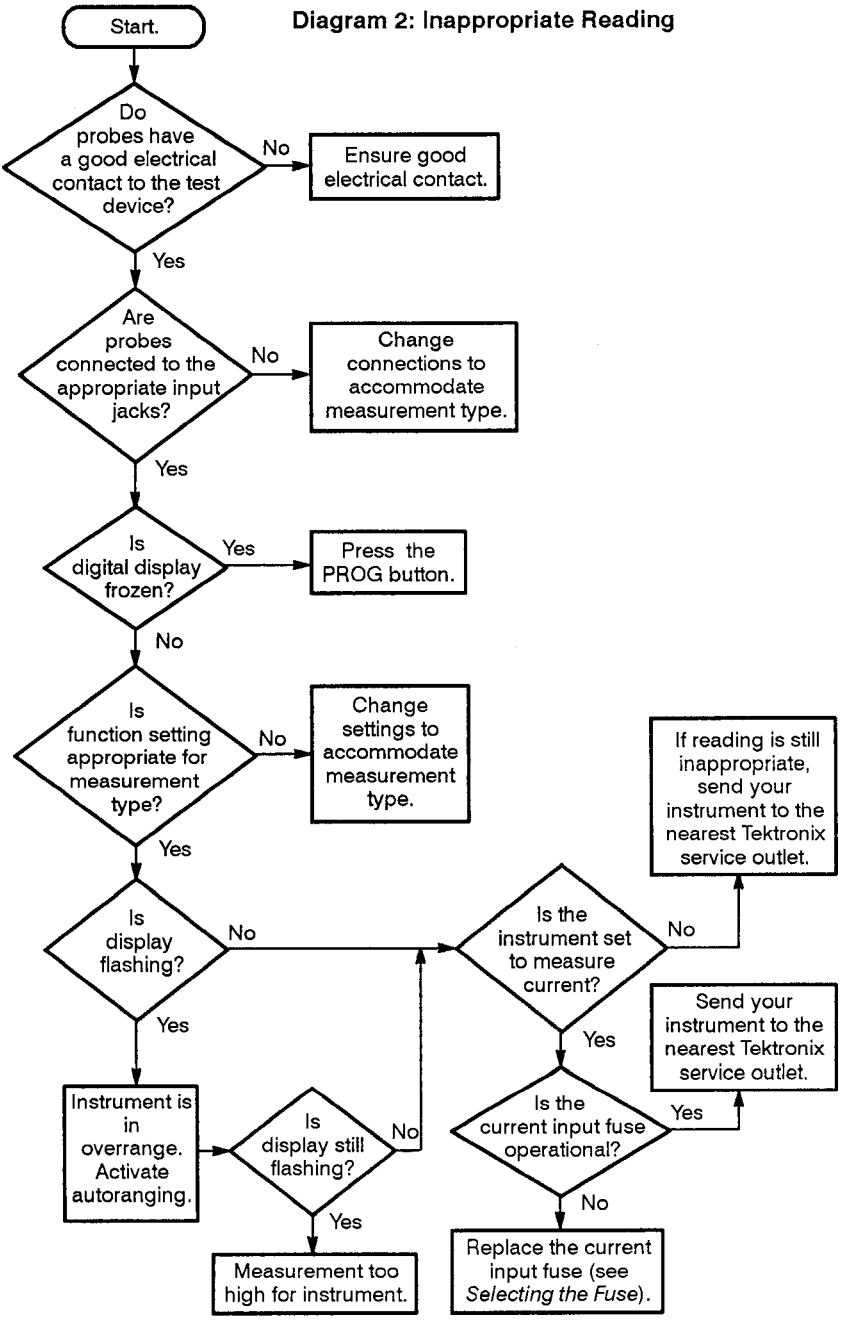


Diagram 2: Inappropriate Reading



Repackaging for Shipment

We recommend that you save the original carton and packing material in case you must return your instrument for repair or service. If the original materials are unfit or unavailable, then repackage the instrument in the following manner:

1. Use a corrugated cardboard shipping carton with a test strength of at least 125 kg (275 lbs) and an interior size at least 15 cm (6 in) greater than the instrument size in all dimensions. See *Specification* for instrument dimensions.

2. Enclose the following information:

   - the owner's name and address
   - the name and phone number of a contact person
   - the serial number of the instrument
   - the reason for returning the instrument
   - a complete description of the service required

3. Completely wrap the instrument with polyethylene sheeting or its equivalent to protect the outside finish and keep harmful substances out of the instrument.

4. Cushion the instrument on all sides with three inches of padding material or urethane foam, tightly packed between the carton and the instrument.

5. Seal the shipping carton with an industrial stapler or strapping tape.

6. Mark the address of your local Tektronix service outlet and your return address on the shipping carton.

Specifications

This section contains a table of DM2510 warranted characteristics and a dimensional drawing.

Warranted Characteristics

The following tables show characteristics of the DM2510 that are guaranteed by warranty. The tables are organized according to measurement function.

NOTE

Except where otherwise noted, accuracy specifications are given in ±(% of reading + % of full scale). All accuracy specifications are valid to 4.5 digits in either auto or manual ranging. For specifications to 3.5 digits, add ± 1 display count.

Table 2: DC Voltage Function Accuracy

Range	18 – 28° C	0 – 18° C or 28 – 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%)

Table 3: Other DC Voltage Function Specifications

Characteristic	Measurement
CMRR (with 1 kΩ unbalance)	≥ 100 dB @ DC, ≥ 80 dB @ 50/60 Hz
NMRR	≥ 50 dB @ 50/60 Hz (±0.2 Hz)
Maximum Resolution	10 µV
Step Response Time	< 50 ms to 0.05% of step
Input Resistance	10 MΩ ±0.5%
Maximum Input Voltage	LOW to GND, V/Ω/TEMP to GND, and V/Ω/TEMP to LOW: 1000 V peak

Table 4: AC Voltage Function Accuracy

Input Frequency	18 – 28° C	0 – 18° C or 28 – 40°C
20 Hz – 100 Hz[1]	±(0.8%+ 0.05%)	±(1.1%+ 0.075%)
100 Hz – 10 kHz[1]	±(0.3%+ 0.05%)	±(0.6%+ 0.075%)
10 kHz – 20 kHz[2]	±(0.6%+ 0.05%)	±(0.9%+ 0.075%)
20 kHz – 50 KHz[3]	±(1.0%+ 0.05%)	±(1.3%+ 0.075%)

[1] For input > 200 counts, 200 mV to 200 V ranges; > 50 counts, 500 V range.
[2] For input > 500 counts, 200 mV to 200 V ranges; > 250 counts, 500 V range.
[3] For input > 2000 counts, 200 mV to 200 V ranges; > 500 counts, 500 V range.

Table 5: Other AC Voltage Function Specifications

Characteristic	Measurement
CMRR (with 1 kΩ unbalance)	≥ 60 dB @ 50/60 Hz
Maximum Resolution	10 μV
Step Response Time	< 0.3 s to 1% of step
Input Impedance	2 MΩ ± 1%, paralleled by < 50 pF
Maximum Input Voltage	V/Ω/TEMP to LOW: 500 Vrms or 600 VDC V/Ω/TEMP to GND and LOW to GND: 1000 V peak
Crest Factor	3:1 for 0.1% additional error

Table 6: dB Functions Accuracy

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

0 dBm = 1 mW in a 600 ohm load, 0 dBV = 1 Vrms.

Table 7: Other dB Functions Specifications

Characteristic	Measurement
Maximum Resolution	0.01 dB
Response Time	< 0.3 s to 1% of step

Table 7: Other dB Functions Specifications (Cont.)

Characteristic	Measurement
Input Impedance	2 MΩ ±1%, paralleled by < 50 pF
Maximum Input Voltage	V/Ω/TEMP to LOW: 500 Vrms or 600 VDC V/Ω/TEMP to GND, LOW to GND: 1000 V peak

Table 8: Resistance Function Accuracy

Range	18 – 28°C	0 – 18°C or 28 – 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

Table 9: Other Resistance Function Specifications

Characteristic	Measurement
Response Time	< 0.2 s, 200 Ω to 2 MΩ ranges, <2 s in 20 MΩ range
Maximum Input Voltage (All Ranges)	300 V peak
Maximum Resolution	10 mΩ
Maximum Open-Circuit Voltage	<11 V

Table 10: DC Current Function Accuracy

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

Table 11: Other DC Current Function Specifications

Characteristic	Measurement		
Response Time	< 50 ms to 0.05% of step		
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)
Maximum Open-Circuit Input Voltage	650 V peak, mA to LOW		
Maximum Input Current	2 A at any range, mA to LOW 10 A unfused, A to LOW		
Maximum Floating Voltage	10 A, mA, or LOW to GND: 1000V peak		
Maximum Resolution	10 nA		

Table 12: AC Current Function Accuracy

Frequency (input > 200 counts)	18 – 28°C	0 – 18°C or 28 – 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%)

Table 13: Other AC Current Function Specifications

Characteristic	Measurement		
Crest Factor	3:1 for 0.1% additional error		
Response Time	< 0.3 s to 1% of step		
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)
Maximum Open-Circuit Input Voltage	650 V peak, mA to LOW		
Maximum Input Current	2 A at any range, mA to LOW 10 A unfused, A to LOW		
Maximum Floating Voltage	10 A, mA, or LOW to GND: 1000V peak		

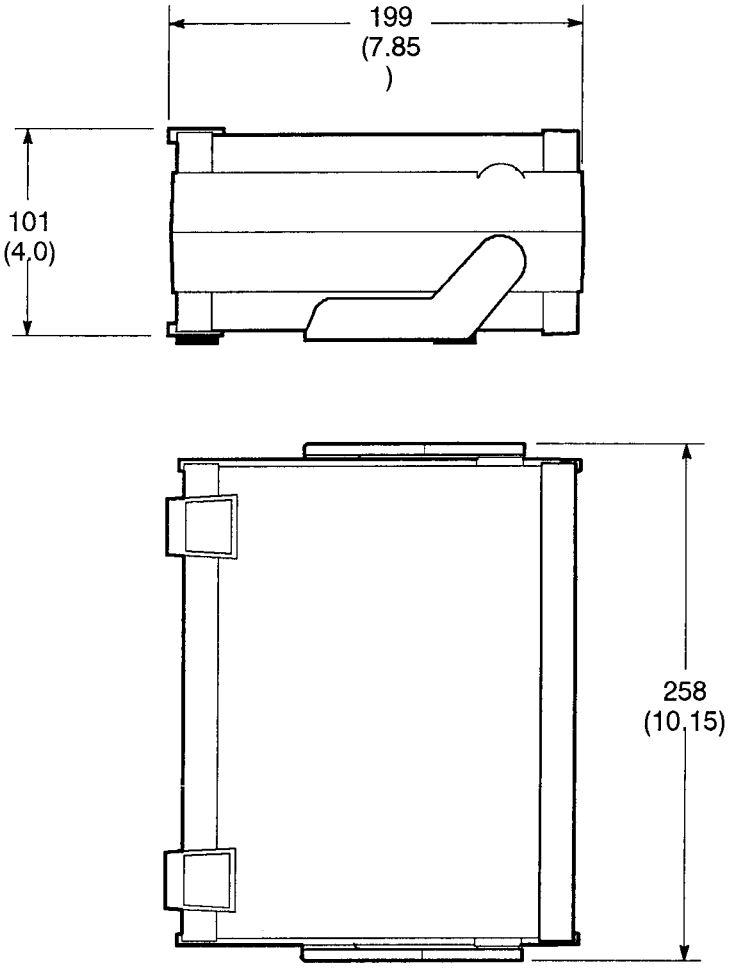
Table 14: Temperature Function Accuracy

Range	18 – 28°C	0 – 18°C or 28 – 40°C	Probe Status
−62°C to +150°C +150°C to 240°C	±0.6°C ±1.6°C	±1.5°C ±2.5°C	instrument calibrated to P6602 probe
−62°C to +150°C +150°C to 240°C	±3.5°C ±6.0°C	±4.5°C ±7.0°C	any P6602 probe

Table 15: Miscellaneous Specifications

Characteristic	Measurement	
Reading Rate	4.5 digits (normal) 3.5 digits (fast)	>3 times per second >25 times per second
Power Consumption	25 VA, 20 W	
Warm−Up Time	30 minutes (60 minutes after storage in high humidity environment)	
Temperature	operating: 0 to +40°C non−operating: −10 to +60°C	
Humidity	<75%, 0 to +40°C <45% above +40°C	

DM2510 Dimensions



Dimensions are in mm (Inches)
Weight of the instrument is 2.4 kg
(5.2 lb)

Accessories

Standard accessories come with the DM2510. If you wish to purchase additional accessories, either optional or standard, see a Tektronix products catalog, contact your local Tektronix field representative, or, in the U. S., call the Tektronix National Marketing Center toll-free at 1-800-426-2200.

Standard Accessories

- *DM2510 Digital Programmable Multimeter Instruction Manual* (Tektronix part number 070-8479-00)
- power cord option A0 North American 120 V/6 A, 60 Hz (Tektronix part number 161-0248-00)
- red and black test lead set (Tektronix part number 196–3200–01)

Optional Accessories

- *DM2510G Programmer Manual*
  (Tektronix part number 070-8630–00)
  (Standard accessory with the DM2510G.)
- GPIB interface cable, 1 m, double-shielded (Tektronix part number 012-0991-01)
- P6602 temperature probe (Tektronix part number 010–6602–00)

Power Cord Options

In addition, you may wish to order other power cords. Table 16 illustrates power cord options.

Table 16: Voltage, Fuse,[a] and Power-Cord Data

Plug Configuration	Category	Power Cord and Setting	Frequency Setting/ Voltage Range	Tektronix Part Number
	U.S. Domestic Standard	U.S. 120 V 15 A	60 Hz 90 V to 132 V	161-0248-00
	Option A1	EURO 240 V 10-16 A	50 Hz 180 V to 250 V	161-0104-06

[a]All options listed come with a factory-installed fuse with the following specifications: 5A, 250 V AGC/3AG Fast-blow (UL 198.6). The fuse holder used is AGC/3AG.