

ENGLISH

MM325

INSTRUCTION MANUAL

Manual-Ranging Digital Multimeter

- LEAD ALERT PROTECTION
- DATA HOLD
- AUDIBLE CONTINUITY
- BATTERY TEST
- DIODE TEST
- AUTO POWER-OFF

600V \approx

10A \equiv

2M Ω

\checkmark
2m



CE UK
CA



Intertek
5000573

CAT III
600V



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GENERAL SPECIFICATIONS

Klein Tools MM325 is a manual-ranging multimeter that measures AC/DC voltage, DC current, and resistance. It can also test batteries, diodes, and continuity.

- **Environment:** Indoors. DO NOT expose to moisture, rain, or snow.
- **Operating Altitude:** 6562 ft. (2000m)
- **Relative Humidity:** <80% non-condensing
- **Operating Temp:** 32° to 104°F (0° to 40°C)
- **Storage Temp:** 14° to 140°F (-10° to 60°C)
- **Accuracy:** Values stated at 65° to 83°F (18° to 28°C)
- **Temp Coefficient:** 0.1 x (Quoted Accuracy) per °C above 28°C or below 18°C, corrections are required when ambient working temp is outside of Accuracy Temp range
- **Dimensions:** 6.41" x 3.13" x 1.83" (162.7 x 79.4 x 46.6 mm)
- **Weight:** 8.8 oz. (250 g)
- **Calibration:** Accurate for one year
- **Standards:** IEC EN 61010-1, 61010-2-030, 61010-2-033.
IEC EN 61326-1, 61326-2-2.
Conforms to UL STD.61010-1, 61010-2-030, 61010-2-033.
Certified to CSA STD.C22.2 NO. 61010-1, 61010-2-030, 61010-2-033.
- **Pollution degree:** 2
- **Accuracy:** ± (% of reading + # of least significant digits)
- **Drop Protection:** 6.6 ft. (2m)
- **Safety Rating:** CAT III 600V, Class 2, Double insulation

CAT III: *Measurement category III is applicable to test and measuring circuits connected to the distribution part of the building's low-voltage MAINS installation.*

Specifications subject to change.

ELECTRICAL SPECIFICATIONS

Function	Range	Resolution	Accuracy
DC Voltage (V DC)	200.0mV	0.1mV	±(0.5% + 3 digits)
	2000mV	1mV	
	20.00V	0.01V	
	200.0V	0.1V	±(0.8% + 3 digits)
	600V	1V	
AC Voltage (V AC) 50 to 60Hz	200.0V	0.1V	±(1.0% + 3 digits)
	600V	1V	±(1.2% + 5 digits)
DC Current (A DC)	200.0μA	0.1μA	±(1.0% + 5 digits)
	20.00mA	10μA	
	200.0mA	100μA	
	10.00A	10mA	±(2.0% + 5 digits)
Resistance	200.0Ω	0.1Ω	±(0.8% + 3 digits)
	2000Ω	1Ω	
	20.00kΩ	0.01kΩ	
	200.0kΩ	0.1kΩ	±(1.0% + 3 digits)
	2000kΩ	1kΩ	
Battery Test	9V	10mV	±(1.0% + 2 digits)
	1.5V	1mV	

- **Diode Test:** Approx. 1.0mA, open circuit voltage 2.0V DC
- **Continuity Check:** Audible signal <50Ω
- **Battery Test:** 9V (approx. 20mA, 450Ω load);
1.5V (approx. 15mA, 100Ω load)
- **Sampling Frequency:** 2 samples per second
- **Overload:** "OL" indicated on display, overload protection
600V RMS in all settings
- **Polarity:** "-" on display indicates negative polarity
- **Display:** 3 ½ digit, 2000 Count LCD











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WARNINGS

To ensure safe operation and service of the meter, follow these instructions. Failure to observe these warnings can result in severe injury or death.

- Before each use verify meter operation by measuring a known voltage or current.
- Never use the meter on a circuit with voltages that exceed the category based rating of this meter.
- Do not use the meter during electrical storms or in wet weather.
- Do not use the meter or test leads if they appear to be damaged.
- Use only with CAT III or CAT IV rated test leads.
- Probe assemblies to be used for MAINS measurements should meet EN61010-031 standard, rated CATIII 600V, 10A or better.
- Ensure meter leads are fully seated, and keep fingers away from the metal probe contacts when making measurements.
- Do not open the meter to replace batteries while the probes are connected.
- Use caution when working with voltages above 25V AC RMS or 60V DC. Such voltages pose a shock hazard.
- To avoid false readings that can lead to electrical shock, replace batteries when a low battery indicator appears.
- Do not attempt to measure resistance or continuity on a live circuit.
- Always adhere to local and national safety codes. Use personal protective equipment to prevent shock and arc blast injury where hazardous live conductors are exposed.

SYMBOLS ON METER

AC	Alternating Current	DC	Direct Current
	Resistance (in Ohms)		Ground
	Diode		Audible Continuity
	Fuse (with rating below symbol)		Double Insulated Class II
	Backlight		Read Instructions
	Warning or Caution: To ensure safe operation and service of this meter, follow all warnings and instructions detailed in this manual.		
	Risk of Electrical Shock: Improper use of this meter can lead to risk of electrical shock. Follow all warnings and instructions detailed in this manual.		

SYMBOLS ON LCD

	Data Hold		Audible Continuity
	Diode		Low Battery
	Hazardous Voltage		Auto Power-Off

FEATURE DETAILS



NOTE: There are no user-serviceable parts inside meter.

- 1. 2000 count LCD display
- 2. Function selector switch
- 3. "10A" jack
- 4. "COM" jack
- 5. "VΩ" jack
- 6. "HOLD" (Data Hold) button
- 7. Backlight button
- 8. Lead Alert LEDs


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FUNCTION BUTTONS

ON/OFF

Power-ON: Rotate the Function Selector switch ② from the OFF setting to any measurement setting.

Power-OFF: Rotate the Function Selector switch ② to the OFF setting.

Auto Power-OFF: By default, the meter will automatically Power-OFF after 15 minutes of inactivity. Reactivate meter by pressing any button. To deactivate the automatic Power OFF feature, power the meter ON with the "HOLD" button ⑥ depressed. When automatic Power OFF is deactivated, the Auto Power-OFF symbol  will not be visible in the display.

HOLD (DATA HOLD)

Press the "HOLD" button ⑥ to hold the measurement on the display. Press again to release the display and return to live measuring.

BACKLIGHT

Press and hold the Backlight button ⑦ for more than one second to turn the backlight on or off. Backlight automatically turns off after approximately 3 minutes.

LEAD ALERT LEDs

When the Function Selector switch ② is rotated to a measurement setting, the Lead Alert LEDs ⑧ will illuminate green to ensure that the test leads are inserted into the appropriate jacks. The lights will automatically turn off after 2 minutes. To disable the Lead Alert LEDs ⑧, power the meter ON while holding the Backlight button ⑦.

NOTE: Lead Alert function will reactivate by default when the meter powers OFF or when the Function Selector switch is rotated.

OPERATING INSTRUCTIONS

CONNECTING TEST LEADS

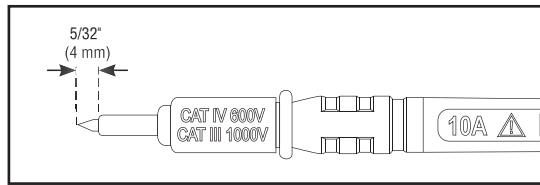
Do not test if leads are improperly seated. Results could cause intermittent display readings. To ensure proper connection, firmly press leads into the input jack completely.



OPERATING INSTRUCTIONS

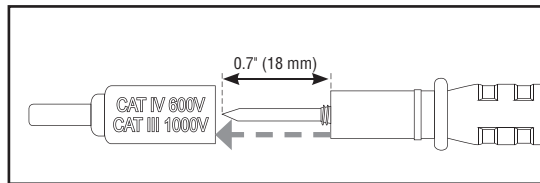
TESTING IN CAT III / CAT IV MEASUREMENT LOCATIONS

Ensure the test lead shield is pressed firmly in place. Failure to use the CAT III / CAT IV shield increases arc-flash risk.



TESTING IN CAT II MEASUREMENT LOCATIONS

CAT III / CAT IV shields may be removed for CAT II locations. This will allow testing on recessed conductors such as standard wall outlets. Take care not to lose the shields.

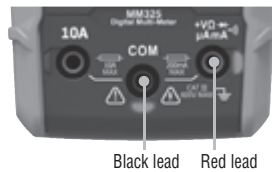


AC VOLTAGE (LESS THAN 600V)

1. Insert RED test lead into V Ω jack ⑤, and BLACK test lead into COM jack ④, and rotate Function Selector Switch ② to the highest V AC (V~) setting (600V).
2. Measure voltage and rotate the Function Selector Switch to successively lower V AC (V~) settings to obtain higher resolution measurements.

NOTE: The hazardous voltage indicator h will appear for voltages $>30\text{V}$.

NOTE: Do not attempt to measure more than 600V or 200mA.



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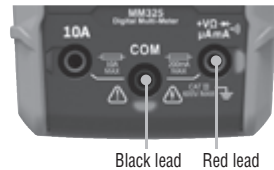
DC VOLTAGE (LESS THAN 600V)

1. Insert RED test lead into V Ω jack ⑤, and BLACK test lead into COM jack ④, and rotate Function Selector Switch ② to the highest V DC (V $\overline{\text{---}}$) setting (600V).
2. Measure voltage and rotate the Function Selector Switch to successively lower V DC (V $\overline{\text{---}}$) settings to obtain higher resolution measurements.

NOTE: When in a voltage setting and the test leads are open, readings of order mV may appear on the display. This is noise and is normal. By touching the test leads together to close the circuit the meter will measure zero volts.

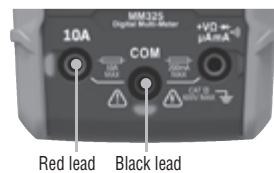
NOTE: The hazardous voltage indicator h will appear for voltages >30V.

NOTE: Do not attempt to measure more than 600V or 200mA.



DC CURRENT 200mA to 10A

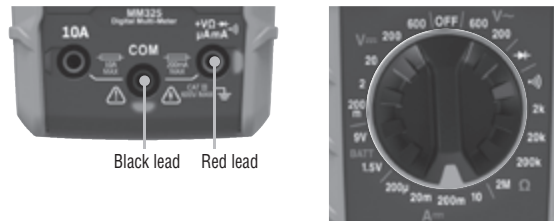
1. For DC currents more than 200mA and less than 10A, insert RED test lead into 10A jack ③, and BLACK test lead into COM jack ④, and rotate Function Selector Switch ② to the 10A DC setting.



OPERATING INSTRUCTIONS

DC CURRENT LESS THAN 200mA

1. For mA DC currents less than 200mA, insert RED test lead into V Ω jack (5), and BLACK test lead into COM jack (4), and rotate Function Selector Switch (2) to the highest mA DC setting (200mA).



2. To measure current: Remove power from circuit, open circuit at measurement point, connect meter in-series in the circuit using the test leads, and apply power to circuit.

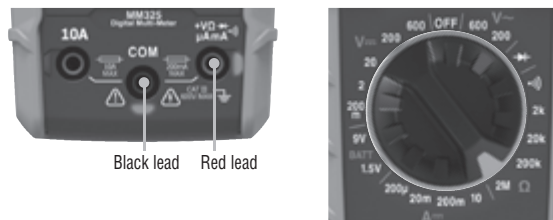
NOTE: If measuring mA, the Function Selector Switch (2) may be rotated to successively lower mA DC settings to obtain higher resolution measurements.

⚠ Do not attempt to measure more than 10A.

⚠ When measuring currents greater than 6A, a measurement time of 30 seconds followed by 10 minutes of recovery time is recommended.

RESISTANCE MEASUREMENTS

1. Insert RED test lead into V Ω jack (5), and BLACK test lead into COM jack (4), and rotate Function Selector Switch (2) to the highest Ω setting (2M Ω).
2. Remove power from circuit.
3. Measure resistance by connecting test leads to circuit and rotating the Function Selector Switch (2) to successively lower Ω settings to obtain higher resolution measurements.



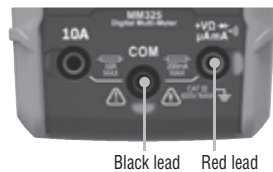
NOTE: When in a Resistance setting and the test leads are open (not connected across a resistor), or when a failed resistor is under test, the display will indicate O.L. This is normal.

⚠ DO NOT attempt to measure resistance on a live circuit.

OPERATING INSTRUCTIONS

CONTINUITY

1. Insert RED test lead into V Ω jack (5) and BLACK test lead into COM jack (4), and rotate Function Selector Switch (2) to the \Rightarrow setting.
2. Remove power from circuit.
3. Test for continuity by connecting conductor or circuit with test leads. If resistance is measured less than 100 Ω , an audible signal will sound and display will show a resistance value indicating continuity. If circuit is open, display will show "OL".



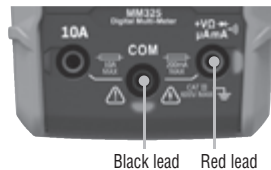
Black lead Red lead



⚠ DO NOT attempt to measure continuity on a live circuit.

DIODE TEST

1. Insert RED test lead into V Ω jack (5) and BLACK test lead into COM jack (4), and rotate Function Selector Switch (2) to the \rightarrow setting.
2. Touch test leads to diode. A reading of 200-700mV on display indicates forward bias, OL indicates reverse bias. An open device will show OL in both polarities. A shorted device will show approximately 0mV.

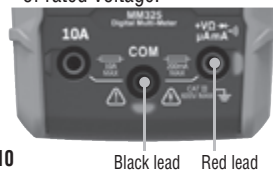


Black lead Red lead



BATTERY TEST

1. Insert RED test lead into V Ω jack (5) and BLACK test lead into COM jack (4), and rotate Function Selector Switch (2) to the 1.5V or 9V battery test setting.
2. Connect BLACK lead to negative, and RED lead to positive terminal of battery.
3. Measure voltage on display, batteries in good condition should be within approx. 10% of rated voltage.



Black lead Red lead



MAINTENANCE

BATTERY REPLACEMENT

When the  indicator is displayed, the batteries must be replaced.

1. Remove screw from battery door.
2. Replace 2 x AAA batteries (note proper polarity).
3. Replace battery door and fasten securely with screw.

 **To avoid risk of electric shock, disconnect leads from any voltage source before removing battery door.**

 **To avoid risk of electric shock, do not operate meter while battery door is removed.**

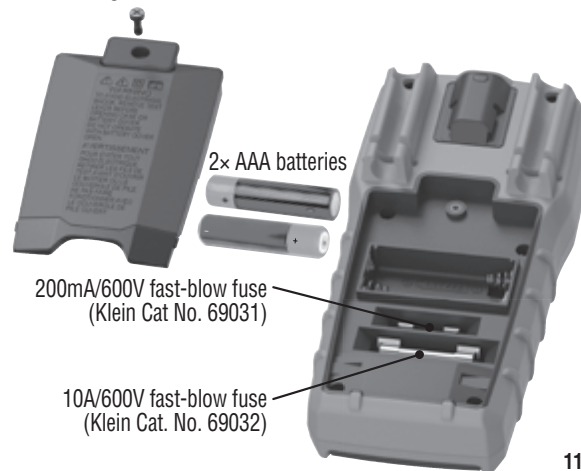
FUSE REPLACEMENT

A fuse may blow if more than 200mA is applied to the V Ω jack (5), or more than 10A is applied to the 10A jack (3). To access fuses:

1. Remove screw from battery door.
2. Replace blown fuse(s) with:
 - V Ω (μ A/mA) jack (5):** 200mA/600V fast-blow, interrupting rating 1kA (Klein Cat. No. 69031)
 - 10A jack (3):** 10A/600V fast-blow, interrupting rating 10kA (Klein Cat. No. 69032)
3. Replace battery door and fasten securely with screw.

 **To avoid risk of electric shock, disconnect leads from any voltage source before accessing fuses.**

 **To avoid risk of electric shock, do not operate meter while back housing is removed.**



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CLEANING

Be sure meter is turned off and wipe with a clean, dry lint-free cloth. ***Do not use abrasive cleaners or solvents.***

STORAGE

Remove the batteries when meter is not in use for a prolonged period of time. Do not expose to high temperatures or humidity. After a period of storage in extreme conditions exceeding the limits mentioned in the General Specifications section, allow the meter to return to normal operating conditions before using.

FCC & IC COMPLIANCE

for FCC compliance information.
Canada ICES-003 (B) / NMB-003 (B)

WARRANTY

DISPOSAL / RECYCLE



Do not place equipment and its accessories in the trash. Items must be properly disposed of in accordance with local regulations. Please see www.epa.gov/recycle for additional information.