ENGLISH

MM300

CAT III 1m

INSTRUCTION MANUAL

Manual-Ranging Digital Multimeter

- DATA HOLD
- AUDIBLE CONTINUITY
- BATTERY TEST
- DIODE TEST

600V ≂
10A ⎓
2MΩ

CE

cETLus LISTED
Intertek

CAT III 600V

KLEIN TOOLS®

For Professionals. Since 1857™

GENERAL SPECIFICATIONS

Klein Tools MM300 is a manual ranging multimeter that measures AC/DC voltage, DC current, and resistance. It can also test batteries, diodes, and continuity.

- **Operating Altitude:** 6562 ft. (2000m)
- **Relative Humidity:** <80% non-condensing
- **Operating Temp:** 32°F to 104°F (0°F to 40°C)
- **Storage Temp:** 14°C to 140°F (-10°C 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:** 6.04" x 3.07" x 1.78" (153.4 x 78.0 x 45.2 mm)
- **Weight:** 8.1 oz. (230 g)
- **Calibration:** Accurate for one year
- **Standards:** Conforms to: UL STD 61010-1, 61010-2-030, 61010-2-033.

  Certified to: CSA STD C22.2 # 61010-1, 61010-2-030, 61010-2-033.

  IEC EN 61010-1, 61010-2-030, 61010-2-033, 61326-1.
- **Pollution degree:** 2
- **Accuracy:** ± (% of reading + # of least significant digits)
- **Drop Protection:** 3.3 ft. (1m)
- **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.*
- **Electromagnetic Environment:** IEC EN 61326-1. This equipment meets requirements for use in basic and controlled electromagnetic environments like residential properties, business premises, and light-industrial locations.

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)	200.0V	0.1V	±(1.2% + 10 digits) 50 to 60Hz
	600V	1V	
DC Current (A DC)	200.0µA	0.1µA	±(1.0% + 5 digits)
	20.00mA	10µA	
	200.0mA	100µA	±(1.2% + 5 digits)
	10.00A	10mA	±(3.0% + 5 digits)
Resistance	200.0Ω	0.1Ω	±(1.0% + 5 digits)
	2000Ω	1Ω	
	20.00kΩ	0.01kΩ	
	200.0kΩ	0.1kΩ	
	2000kΩ	1kΩ	±(1.5% + 5 digits)
Battery Test	9V	10mV	±(1.0% + 2 digits)
	1.5V	10mV	±(1.0% + 2 digits)

- **Diode Test:** Approx. 1mA, open circuit voltage 2.0V DC
- **Continuity Check:** Audible signal <100Ω
- **Battery Test:** 9V (6mA); 1.5V (100mA)
- **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

ENGLISH

⚠ 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.
- 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)**
Ω	**Resistance (in Ohms)**	⏚	**Ground**
▶|	**Diode**	•))	**Audible Continuity**
⎓	**Fuse (with rating below symbol)**	⧈	**Double Insulated Class II**

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

H	**Data Hold**	•))	**Audible Continuity**
▶|	**Diode**	▭	**Low Battery**
↯	**Dangerous levels**		

FEATURE DETAILS

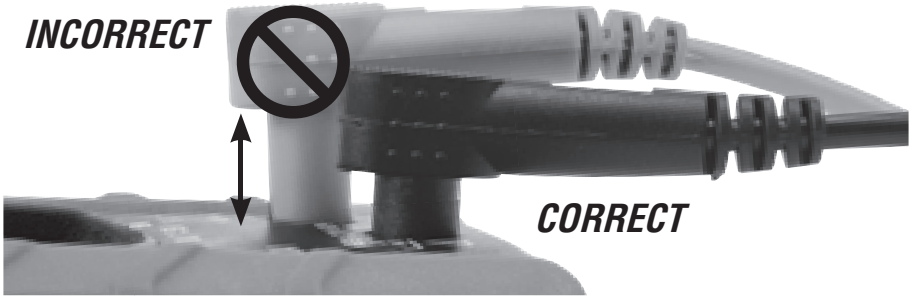
NOTE: There are no user-serviceable parts inside meter.

1. 2000 count LCD display
2. Function selector switch
3. "10A" jack
4. "COM" jack
5. "VΩ" jack
6. "HOLD" (Data Hold) button

OPERATING INSTRUCTIONS

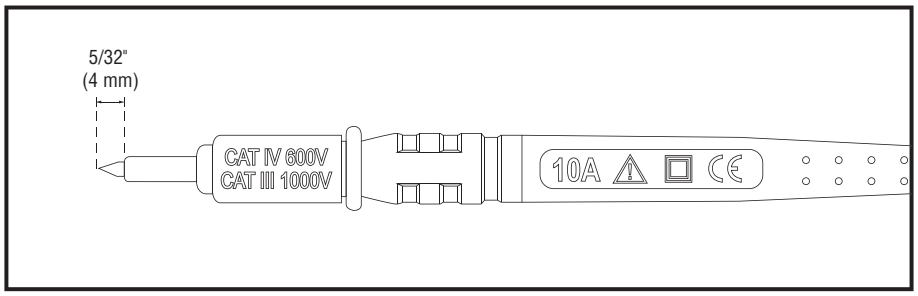
CONNECTING TEST LEADS

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.



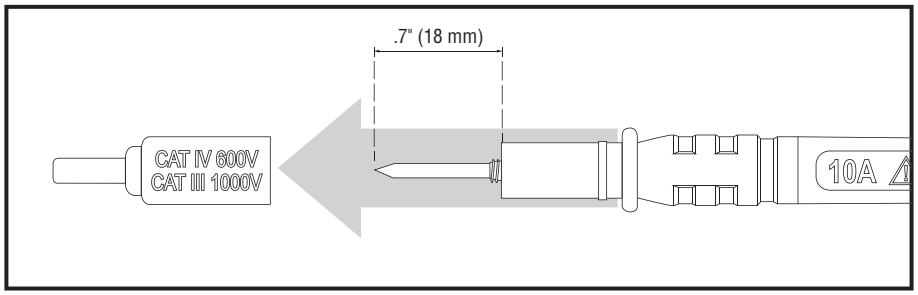
TESTING IN CAT III / CAT IV MEASUREMENT LOCATIONS

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.



OPERATING INSTRUCTIONS

AC VOLTAGE (LESS THAN 600V)

1. Insert RED test lead into VΩ jack (5), and BLACK test lead into COM jack (4), and rotate function selector switch (2) to the highest V AC ($\tilde{V}$) setting (600V).
2. Measure voltage and rotate the function selector switch to successively lower V AC ($\tilde{V}$) settings to obtain higher resolution measurements.

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

DC VOLTAGE (LESS THAN 600V)

1. Insert RED test lead into VΩ jack (5), and BLACK test lead into COM jack (4), and rotate function selector switch (2) to the highest V DC ($\overline{\overline{V}}$) setting (600V).
2. Measure voltage and rotate the function selector switch to successively lower V DC ($\overline{\overline{V}}$) settings to obtain higher resolution measurements.

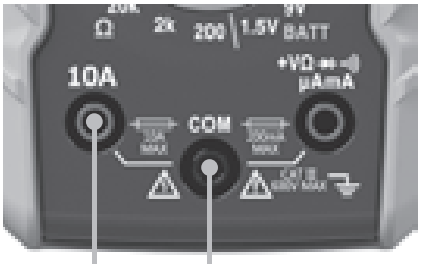
NOTE: *When in a voltage setting and the test leads are open, readings of order mV may appear on the display. This is noise and is normal. By touching the test leads together to close the circuit the meter will measure zero volts.*

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

OPERATING INSTRUCTIONS

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.



DC CURRENT LESS THAN 200mA

2. For mA DC currents less than 200mA, insert RED test lead into VΩ jack (5), and BLACK test lead into COM jack (4), and rotate function selector switch (2) to the highest mA DC setting (200mA).

3. 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.The meter will auto-range to display the measurement in the most appropriate range.

NOTE: *If measuring mA, the function selector switch (2) may be rotated to successively lower mA DC settings to obtain higher resolution measurements.*

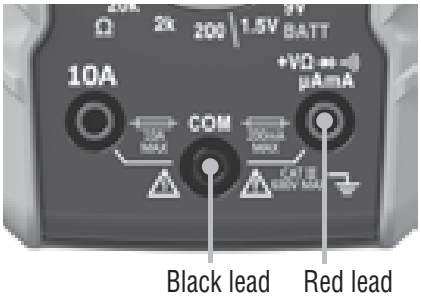
⚠ ***Do not attempt to measure more than 10A.***

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

OPERATING INSTRUCTIONS

RESISTANCE MEASUREMENTS

1. Insert RED test lead into VΩ jack (5), and BLACK test lead into COM jack (4), and rotate function selector switch (2) to the highest Ω setting (2MΩ).
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.

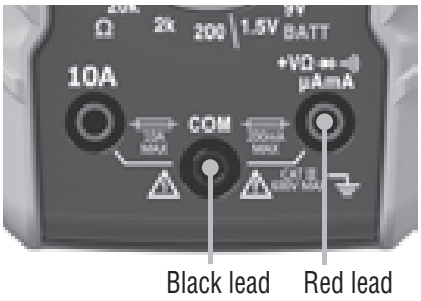


NOTE: *When in a Resistance setting and the test leads are open (not connected across a resistor), or when a failed resistor is under test, the display will indicate O.L. This is normal.*

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

CONTINUITY

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



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

OPERATING INSTRUCTIONS

DIODE TEST

1. Insert RED test lead into VΩ jack (5) and BLACK test lead into COM jack (4), and rotate function selector switch (2) to the 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.

BATTERY TEST

1. Insert RED test lead into VΩ 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.

DATA HOLD

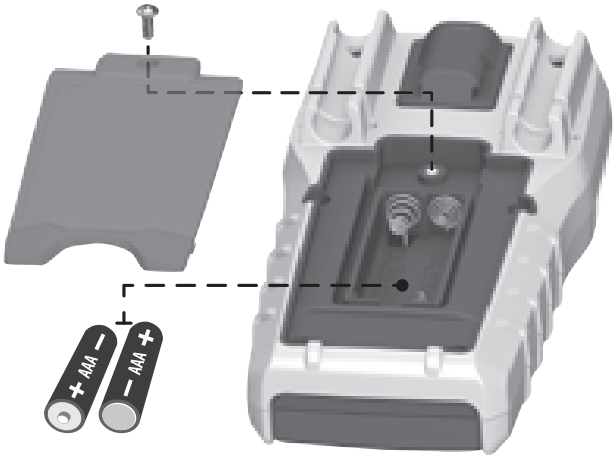
Press Data Hold button (6) to hold the measurement on the display. Press again to release the display and return to live measuring.

MAINTENANCE

BATTERY REPLACEMENT

When indicator is displayed on LCD, 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.



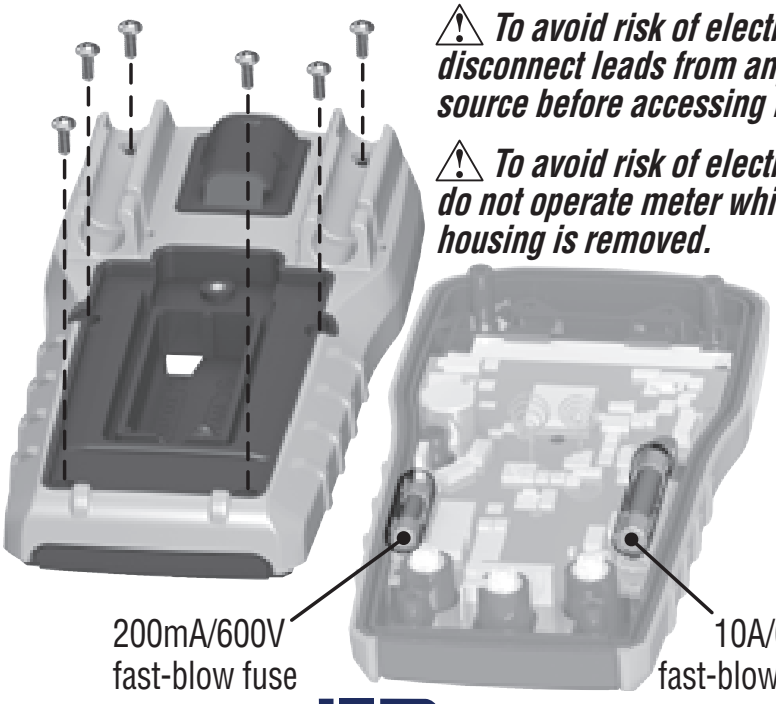
⚠ ***To avoid risk of electric shock, disconnect leads from any voltage source before removing battery door.***

⚠ ***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 VΩ jack (5), or more than 10A is applied to the 10A jack (3). To access fuses:

1. Remove 6 screws from back of meter and remove back housing.
2. Replace blown fuse(s) with:
   VΩ (µA/mA) jack (5): 200mA/600V fast-blow (Klein Cat. No. 69031)
   10A jack (3): 10A/600V fast-blow (Klein Cat. No. 69032)
3. Replace back housing and fasten securely with screws.



⚠ ***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.***

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.

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** or **www.erecycle.org** for additional information.