KLEIN TOOLS CL360 200A AC Open Jaw Fork Meter Instruction Manual

Contents [hide

CL360 200A AC Open Jaw Fork Meter

Product Information

The Klein Tools CL360 is a digital open jaw fork meter that is capable of measuring AC/DC voltage, continuity, resistance, and AC current via the fork. It uses true root mean square (TRMS) measurement technology and has an integrated non-contact voltage (NCV) tester to detect the presence of voltage. The meter has a CAT III 600V and CAT II 1000V rating and comes with test leads and shields for safe usage in different measurement locations.

Product Usage Instructions

Connecting Test Leads

1. Firmly press the test leads into the input jack completely to ensure proper connection.
2. Do not test if leads are improperly seated as it may cause intermittent display readings.

Testing in CAT III/CAT IV Measurement Locations

1. Ensure the test lead shield is pressed firmly in place.
2. Failure to use the CATIII/CATIV shield increases arc-flash risk.

Testing in CAT II Measurement Locations

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

AC Current (Less Than 200A)

1. Rotate the Function Selector switch to the AC current A setting.
2. Place the open jaw fork around the wire ensuring that the wire passes perpendicularly through the center of the open jaw fork in line with the arrow markings.
3. The current measurement will be shown in the display.
4. Disconnect test leads when measuring with the open-jaw fork.

AC Voltage (Less Than 600V)

1. Insert the RED test lead into V jack and BLACK test lead into COM jack.
2. Rotate function selector switch to the AC voltage V setting.
   Note AC on the display.
3. Apply test leads to the circuit to be tested to measure AC voltage.
4. The measurement will be presented in the display.
5. 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.
6. By touching the test leads together to close the circuit, the meter will measure zero volts.

DC Voltage (Less Than 1000V)

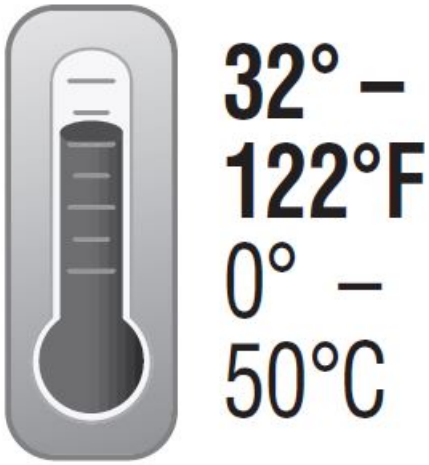
1. Insert the RED test lead into V jack and BLACK test lead into COM jack.
2. Rotate function selector switch to the DC voltage V setting. Note DC on the display.
3. Apply test leads to the circuit to be tested to measure voltage.
4. The meter will auto-range to display the measurement in the most appropriate range.

Continuity

1. Insert the RED test lead into V jack and BLACK test lead into COM jack.
2. Rotate function selector switch to the Continuity setting. The Continuity icon will appear on the display.
3. Remove power from circuit.
4. Test for continuity by connecting conductor or circuit with test leads.
5. If resistance is measured less than 10, an audible signal will sound and display will show a resistance value indicating continuity.
6. If circuit is open display will show OL.

True RMS Measurement Technology

- AUTO-RANGING
- DATA HOLD
- NON-CONTACT VOLTAGE TESTER
- AUDIBLE CONTINUITY



GENERAL SPECIFICATIONS

Klein Tools CL360 is an automatically ranging true root mean square (TRMS) digital open jaw fork meter that measures AC current via the fork, AC/DC voltage, continuity, and resistance via test-leads, and can detect the presence of voltage via the integrated non-contact voltage (NCV) tester.

- **Operating Altitude**: <6562 ft. (2000m)
- **Relative Humidity:** <80% non-condensing
- **Operating Temp:** 32° to 122°F (0° to 50°C)
- **Storage Temp:** -4° to 140°F (-20° to 60°C)
- **Dimensions:** 8.39″ x 2.12″ x 1.38″ (213 x 54 x 35 mm)
- **Weight:** 7.3 oz. (208 g) including batteries
- **Calibration:** Accurate for one year
- **Standards:** IEC EN 61010-1, 61010-2-032, 61010-2-033. IEC EN 61326-1, 61326-2-2.
    - **Conforms to:** UL 61010-1, UL 61010-2-032, UL 61010-2-033.
    - **Certified to:** CAN/CSA C22.2 NO. 61010-1, 61010-2-032, 61010-2-033.
- **Accuracy:** ± (% of reading + # of least significant digits) 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 the ambient working temp is outside of Accuracy Temp range
- **Batteries:** 2 x 1.5V AAA Alkaline (included)
- **Drop Protection:** 9.8 ft. (3m)
- **Ingress Protection:** IP40 dust resistant
- **Pollution Degree:** 2
- **Safety Rating:**
    - **Jaw & Housing:** CATIV 600V / CATIII 1000V
    - **Electrical & Protection Circuit:** CATIII 600V / CATII 1000V
    - **Class 2, Double insulation**
        - **CAT II:** Measurement Category II is applicable to test and measure circuits connected directly to

utilization points (socket outlets and similar points) of the low-voltage MAINS installation.
    - **CAT III:** Measurement category III is applicable to test and measure circuits connected to the distribution part of the building's low voltage MAINS installation.
    - **CAT IV:** Measurement category IV is applicable to test and measure circuits connected at the source 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 are subject to change.

ELECTRICAL SPECIFICATIONS

- **Input Impedance:** 10M
- F**requency Range:** 40 to 400Hz
- **Maximum Input:** 600V AC RMS or 1000V DC Accuracy specified from 5% to 100% of the measuring range

Function	Range	Resolution	Accuracy
AC Voltage (V AC)	600.0V	0.1V	±(1.2% + 3 digits)

- **Input Impedance:** 10M
- **Maximum Input:** 600V AC RMS or 1000V DC Accuracy specified from 5% to 100% of the measuring range

DC Voltage (V DC)	6.000V	0.001V	±(0.8% + 3 digits)
	60.00V	0.01V	
	600.0V	0.1V	
	1000V	1V	±(1.0% + 5 digits)

- **Frequency Range:** 50 to 60Hz Accuracy specified from 5% to 100% of the measuring range

AC Current (A AC)	0.2 – 2.0A	0.1A	±(1.8% + 2 digits)
	2.1 – 5.0A	0.1A	±(1.8% + 3 digits)
	5.1 – 200.0A	0.1A	±(1.8% + 5 digits)

- **Maximum Input:** 600V AC RMS or 1000V DC

Resistance	600.0O	0.1O	±(1.2% + 2 digits)
	6.000kO	1O	±(1.0% + 2 digits)
	60.00kO	10O	
	600.0kO	100O	
	6.000MO	1kO	±(1.2% + 2 digits)
	60.00MO	10kO	±(1.5% + 5 digits)

OTHER MEASUREMENT APPLICATIONS

- **Continuity Check:** Audible signal <10, test current <1.5mA
- **Non-Contact Voltage Testing (NCV):** Audible & Visual indicators sound/illuminate for >70V AC RMS at distances <10mm from the source
- **Auto Power off:** After 15 minutes of inactivity
- **Backlight Auto off:** After 3 minutes of inactivity
- **Overload:** Buzzer sounds continuously for voltage >600VAC or >1000VDC, “OL” indicated on display for voltage >610VAC or >1010VDC
- **Sampling Frequency:** 3 samples per second
- **Polarity:** “-” on display indicates negative polarity
- **Display:** 3-5/6 digit, 6000 Count LCD

WARNINGS

To ensure the 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 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.

- 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.
- To avoid the risk of electric shock, disconnect leads from any voltage source before removing the battery door.
- To avoid the risk of electric shock, do not operate the meter while the battery door is removed.

WARNINGS – NCV FUNCTION

- When NCV Function is initiated, a blinking or steady red glow and an audible beep indicate voltage present. If no indication, the voltage could still be present.
- Before and after each use of the NCVT, verify operation by testing a known working circuit that is within the rating of this unit.
- Never assume neutral or ground wires are de-energized. Neutrals in multi-wire branch circuits may be energized when disconnected and must be retested before handling.
- **The NCV tester WILL NOT detect voltage if**:
    - The wire is shielded.
    - The operator is not grounded or is otherwise isolated from effective earth ground.
    - The voltage is DC.
- **The NCV tester MAY NOT detect voltage if:**
    - The user is not holding the tester.
    - The user is insulated from the tester with a glove or other materials.
    - The wire is partially buried or in a grounded metal conduit.
    - The tester is at a distance from the voltage source.
    - The field created by the voltage source is blocked, dampened, or otherwise interfered with.
    - The frequency of the voltage is not a perfect sine wave between 50 and 500Hz.
    - The tester is outside of operation conditions (listed in the Specifications section).
- The operation may be affected by differences in socket design and insulation thickness and type; the tester may not be compatible with some types of standard or tamper-resistant (TR) electrical outlets.
- Do not apply to uninsulated hazardous live conductors.
- Detection above 50V is specified under “normal” conditions as specified below. **The tester may detect at a different threshold at different conditions, or may not detect at all unless:**
    - The tip of the tester is within 0.25″ of an AC voltage source radiating unimpeded.
    - The user is holding the body of the tester with his or her bare hand.
    - The user is standing on or connected to earth’s ground.
    - The air humidity is nominal (50% relative humidity).
    - The tester is held still. 4

SYMBOLS ON METER

~	Alternating Current (AC)	⎓	Direct Current (DC)
Ω	Resistance (ohms)	•))	Audible Continuity
⚠	Warning or Caution	⚠	Risk of Electrical Shock
ϟ	Suitable for uninsulated hazardous live conductors		
⧈	Double Insulated Class II	⏚	Ground
V	Voltage	A	Amperage

SYMBOLS ON LCD

AC	Alternating Current (AC)	DC	Direct Current (DC)
V	Voltage (Volts)	A	Amperage (Amperes)
•))	Continuity	H	Data Hold
NCV	Non-Contact Voltage Testing	ϟ	High Voltage
Ω	Resistance (Ohms)	▯	Low Battery
Auto	Auto-Ranging	◔	Auto-Power Off
k	kilo (value x 10^3)	M	Mega (value x 10^6)
−	Negative Reading		

FEATURE DETAILS – METER

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

1. 6000-count LCD display
2. Function selector switch
3. Open jaw fork
4. “COM” jack
5. “V” jack
6. NCV (Non-Contact Voltage Testing) Button
7. NCV (Non-Contact Voltage Testing) Sensor
8. NCV (Non-Contact Voltage Testing) visual indicator
9. Data Hold / Backlight button
10. Arrow markings
11. Battery door (back)

FUNCTION BUTTONS

ON/OFF

To power ON the meter, rotate the Function Selector switch 2 from the OFF setting to any measurement setting. To power OFF the meter, rotate the Function Selector switch 2 to the OFF setting. By default, the meter will automatically power OFF after 15 minutes of inactivity. If the meter automatically powers OFF while in a measurement setting, press any button to power ON the meter. To deactivate the power OFF functionality press and hold the “NCV” button 6 before powering ON from the OFF setting. When auto power OFF is deactivated, the Auto Power Off icon will not be visible in the display.

DATA HOLD / BACKLIGHT

Press the Hold/Backlight button 9 to hold the current reading on the LCD. Press again to return to live to measure. Press and hold to turn the ON or OFF the backlight. **NOTE:** The backlight will automatically turn OFF after 3 minutes of inactivity.

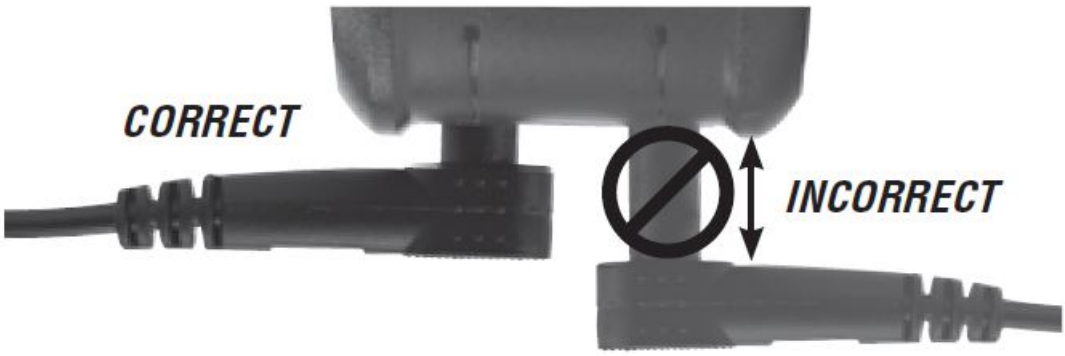
NON-CONTACT VOLTAGE TESTING

Press and hold the NCV button 6 to test for AC voltage using the integrated non-contact voltage tester. Approach the conductor under test leading with the sensing antenna 7 . The meter delivers audible and visual warning signals 8 when AC voltage is detected.
Non-contact voltage tester only detects AC voltages >70V AC RMS.

OPERATING INSTRUCTIONS

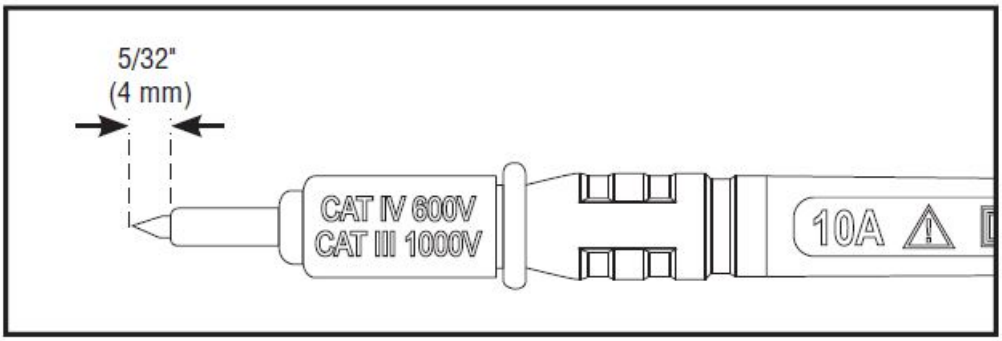
CONNECTING TEST LEADS

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

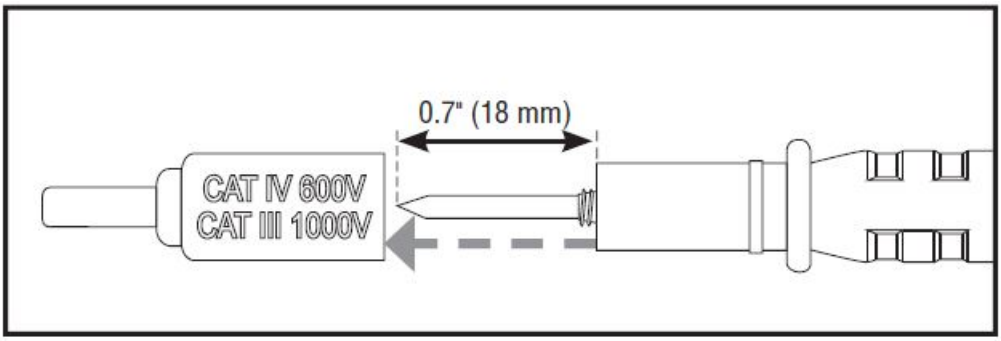
Ensure the test lead shield is pressed firmly in place. Failure to use the CATIII / CATIV shield increases arc-flash risk. 5/32″ (4 mm)



TESTING IN CAT II MEASUREMENT LOCATIONS

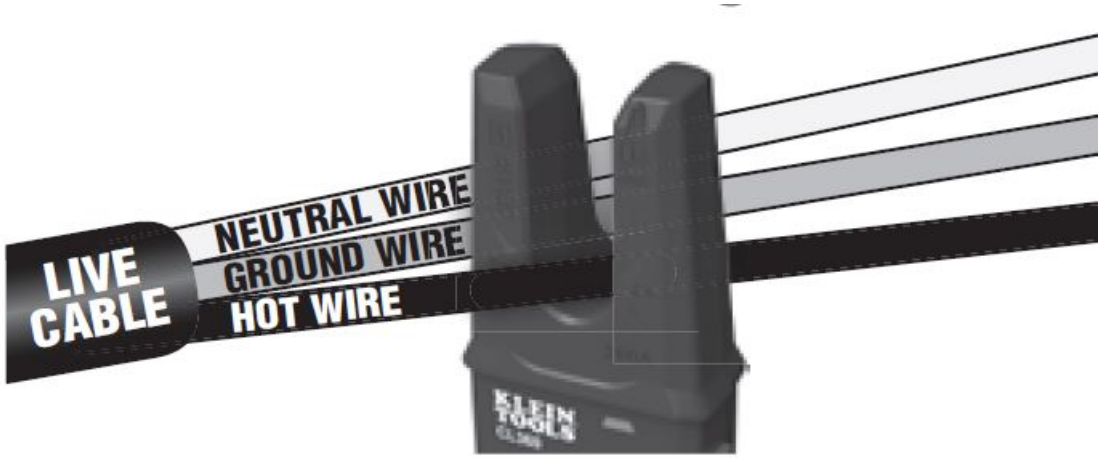
CAT III / CAT IV shields may be removed for CAT II locations. This will allow testing on recessed conductors such as standard wall outlets. Take care not to lose the shields.

0.7″ (18 mm)



AC CURRENT (LESS THAN 200A)

AC Current is measured by positioning the open jaw fork 3 around a current-carrying wire. When measuring, care should be taken to ensure that the wire passes perpendicularly through the center of the open jaw fork in line with the arrow markings 10.



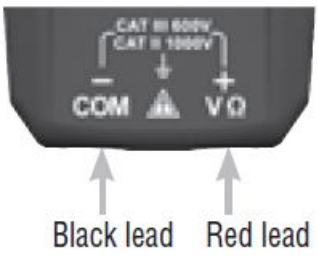
To measure current:

1. Rotate the Function Selector switch 2 to the AC current A setting.

2. Place open jaw fork 3 around the wire. The current measurement will be shown on the display. Disconnect test leads when measuring with the open-jaw fork.

AC VOLTAGE (LESS THAN 600V)

1. Insert RED test lead into V jack 5 , and BLACK test lead into COM jack 4 , and rotate function selector switch 2 to the AC voltage V setting. Note “AC” on the display. Black lead Red lead

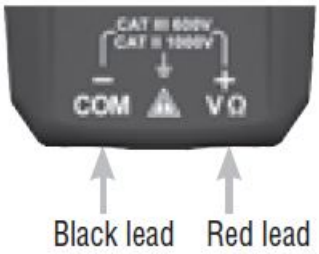


2. Apply test leads to the circuit to be tested to measure AC voltage, the measurement will be presented in the display.

   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.

DC VOLTAGE (LESS THAN 1000V)

1. Insert RED test lead into V jack 5 , and BLACK test lead into COM jack 4 , and rotate function selector switch 2 to the DC voltage V setting. Note “DC” on the display. Black lead Red lead

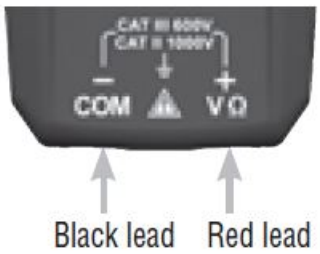


2. CONTINUITY Apply test leads to the circuit to be tested to measure voltage. The meter will auto-range to display the measurement in the most appropriate range.

NOTE: If “” appears on the LCD, the test leads are being applied to the circuit in reverse. Swap the position of the leads to correct this
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.

CONTINUITY

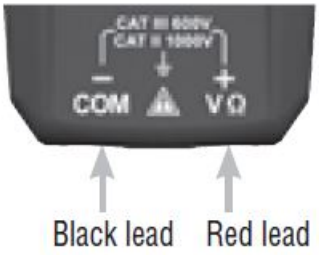
1. Insert RED test lead into V jack 5 , and BLACK test lead into COM jack 4 , and rotate function selector switch 2 to the Continuity setting. The Continuity icon will appear on the display.
2. Remove power from circuit.
3. Test for continuity by connecting conductor or circuit with test leads. If resistance is measured less than 10, 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.

RESISTANCE MEASUREMENTS

1. Insert the RED test lead into V jack 5, BLACK test leads into COM jack 4 , and rotate function selector switch 2 to the Resistance Ω setting. The Resistance icon will appear on the display.
2. Remove power from the circuit.
3. Measure resistance by connecting test leads to the circuit. The meter will auto-range to display the measurement in the most appropriate range.



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 the resistance on a live circuit.

MAINTENANCE

BATTERY REPLACEMENT

When the Low Battery indicator is displayed on the LCD, batteries must be replaced.

1. Loosen the screw to remove the battery door.
2. Remove and recycle exhausted batteries.
3. Install two new AAA 1.5V batteries (note proper polarity).
4. Replace the battery door and tighten the screw. is displayed on the LCD,

To avoid the risk of electric shock, disconnect leads from any voltage source before removing the battery door. To avoid the risk of electric shock, do not operate the meter while the battery door is removed.

CLEANING

Be sure the 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 the 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 use.

WARRANTY www.kleintools.com/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.

CUSTOMER SERVICE

KLEIN TOOLS, INC.
450 Bond Street
Lincolnshire, IL 60069
1-800-553-4676
customerservice@kleintools.com
www.kleintools.com

Documents / Resources

	KLEIN TOOLS CL360 200A AC Open Jaw Fork Meter [pdf] Instruction Manual CL360, CL360 200A AC Open Jaw Fork Meter, 200A AC Open Jaw Fork Meter, AC Open Jaw Fork Meter, Open Jaw Fork Meter, Jaw Fork Meter, Fork Meter, Meter

References

- Reduce, Reuse, Recycle | US EPA
- Klein Tools - For Professionals since 1857 | Klein Tools
- Warranty | Klein Tools
- Netzwerk-Distributor | NetPeppers GmbH
- Startseite