

AC/DC Current Probe

Instruction Manual

Introduction

The AC/DC Current Probe is based on Hall Effect technology and is designed to be used in conjunction with multimeter for ac and dc current measurements.

Installing The Battery

Warning

To avoid electrical shock, unclamp the Current Probe from any conductor, and disconnect the multimeter before installing or replacing the battery.

1. Set the range switch in **OFF** position.
2. Remove the screw on the battery cover, then remove the battery cover.
3. Install the battery (9V, 6F22 or equivalent) according to the polarity indication in the battery compartment.
4. Reinstall the battery cover and the screw.

Safety Information

To ensure safe operation and service of the Current Probe, follow these instructions:

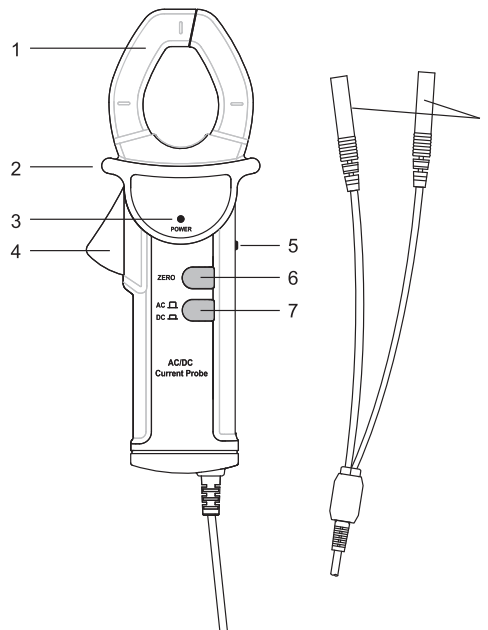
1. Adhere to local and national safety codes. Use protective equipment to prevent shock and arc blast injury when working near hazardous live conductors.
2. Do not hold the Current Probe anywhere beyond the tactile barrier.
3. Before each use, inspect the Current Probe. Look for cracks or missing portions of the Current Probe housing or output cable insulation. Pay particular attention to the insulation surrounding the jaws. Do not use the Current Probe if it is damaged.
4. To avoid electric shock, do not touch any naked conductor with hand or skin, do not ground yourself.
5. Use caution when working with voltages above 60 V dc, 30 V ac rms or 42 V ac peak. Such voltages pose a shock hazard.
6. Do not use the Current Probe if it operates abnormally.
7. Before use, verify the Current Probe's operation by measuring a known current.
8. Do not operate the Current Probe around explosive gas, vapor, or dust.

9. Unclamp the Current Probe from any conductor, and disconnect the multimeter from the current probe before opening battery cover or portion of case.
10. If the LED lights red after the Current Probe is turned on, the battery is low and should be replaced immediately.
11. **CAT III** - Measurement Category III is for measurements performed in the building installation. Examples are measurements on distribution boards, circuit breakers, wiring, including cables, bus-bars, junction boxes, switches, socket-outlets in the fixed installation, and equipment for industrial use and some other equipment, for example, stationary motors with permanent connection to the fixed installation.
Do not use the Current Probe for measurements within Measurement Categories IV.

Electrical Symbols

- ~ Alternating Current
- ≡ Direct Current
- ⎓ Both direct and alternating current
- ⚠ Caution, risk of danger, refer to the operating manual before use.
- ⚡ Caution, risk of electric shock.
- ⊥ Earth (ground) Terminal
- CE Conforms to European Union directives
- ☐ The equipment is protected throughout by double insulation or reinforced insulation.

Instruction



1. Jaw

Used to clamp the conductor to be measured.

2. Tactile Barrier

Used to prevent finger from touching the conductor under test. Do not hold the Current Probe anywhere beyond the tactile barrier.

3. LED

It lights after the Current Probe is turned on.

If the battery's voltage is high enough, the LED lights green.

If the battery's voltage is not high enough, the LED lights red indicating that the battery is low and should be replaced immediately.

4. Trigger

Used to open/close the jaws.

5. Range Switch

Used to turn on/ off the Current Probe as well as to select the desired range.

There are 4 positions for the switch, setting the switch to any one of the two "OFF" positions turns off the Current Probe. The other two positions are:

40A range position — output sensitivity of 10mV/A

400A range position — output sensitivity of 1mV/A

6. ZERO Button

Before dc current measurement, press this button for several seconds for zeroing.

7. AC/DC Button

Used to select dc or ac function, as indicated by the marks beside this button.

8. Output Plug

Insert the two output plugs to the voltage input terminals of the multimeter before measurement. (The black output plug must be connected to the "COM" terminal of the multimeter.)

Electrical Specifications

Max. Measurable Current: 400A

Max. Overload Capability: 600A DC/AC rms

Max. Working Voltage: 600V AC rms, CAT III

Output Sensitivity: 40A range: 10mV/A
400A range: 1mV/A

Output Voltage: DC 0 ~ ±400mV

Output Impedance: 2 ~ 3kΩ

Zero Point Error: 0.0 ± 0.2mV for all ranges when there is no current being measured

(Note: Before dc current measurement, press and hold down the ZERO button for several seconds for zeroing.)

Accuracy Specification:

Accuracy is specified for a period of 1 year after calibration and at 25°C ± 1°C, with relative humidity up to 75%.

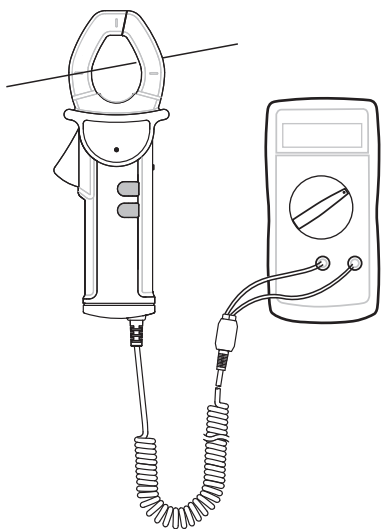
Accuracy is specified from 5% to 100% of range.

Range	Sensitivity	Resolution	Accuracy	
			DC Current	AC Current
40A	10mV/A	0.1A	0 ~ 4A: $\pm(3.0\% \text{ of reading} + 0.1A)$ 4A ~ 40A: $\pm(2.5\% \text{ of reading} + 0.1A)$	
400A	1mV/A	0.1A	$\pm(2.5\% \text{ of reading} + 0.5A)$	

Frequency Response: 50Hz ~ 60Hz

Temperature Coefficient: $\pm 0.3\%$ of reading / °C

Operation Instruction



1. Set the multimeter to the desired dc voltage range.

Note: Do not set the multimeter to ac voltage range because the internal circuit of the Current Probe changes the ac current signal into dc voltage during ac current measurement.

2. Insert the Current Probe's two output plugs to the voltage input terminals of the multimeter. (**Note:** The black output plug must be connected to the "COM" terminal of the multimeter.)
3. Set the Current Probe to the desired range with the range switch, the LED lights.
4. Select ac or dc current measurement with the AC/DC button according to the indication of the marks beside the AC/DC button of the Current Probe.
5. Before dc current measurement, press and hold down the ZERO button of the Current Probe for several seconds for zeroing.
6. Press the trigger and clamp the jaws around the conductor to be measured. Make sure that the jaws are perfectly closed.

Note:

- a. Each time only one conductor should be clamped.
- b. The conductor should be in the center of the jaws and should be perpendicular to the Current Probe.

7. Read the voltage reading on the display of the multimeter. Then calculate the current of the conductor by using the formula:

$$I = \frac{\text{Reading}}{\text{Sensitivity}}$$

(In this formula, I is the current of the conductor, **Reading** is the voltage reading of the multimeter, **Sensitivity** is the sensitivity of the selected range of the Current Probe.)

Note:

1. Do not input voltage to the output plugs of the Current Probe.
2. For DC current measurements, the display of the multimeter will also indicate the measured current's direction. A positive reading (negative sign "-" doesn't appear) indicates that the current direction is from the Current Probe's front to its back. (Tip: Current direction is the opposite of electron flow direction.)
3. Each time after you finish a measurement and remove the jaws from the conductor under test, there may be a residual reading on the display. This reading must be subtracted from the measurement you just performed.

General Specifications

Max. Jaw Opening: 33mm

Max. Conductor Size: $\varnothing 28\text{mm}$

Power/Low Voltage Indication:

When the battery's voltage is enough, the LED lights green.

When the battery's voltage is less than about 7.5V, the LED lights red indicating that the battery is not high enough and should be replaced immediately.

Battery: 9V, 6F22 or equivalent

Operating Temperature: 0°C ~ 40°C, < 75%RH

Storage Temperature: -20 °C ~ 60°C, < 85%RH

Size: 186×73×40 (for main body only)

Weight: about 300g (including battery)

Maintenance

Except replacing battery, never attempt to repair or service the Current Probe unless you are qualified to do so and have the relevant calibration, performance test, and service instructions.

The Current Probe should be stored in dry place when not in use. Don't store it in intense electromagnetic field environment.

Periodically wipe the case with a damp cloth and detergent, do not use abrasives or solvents.

If you don't use the Current Probe for a long time, remove the battery from it.

Note

1. This manual is subject to change without notice.
2. Our company will not take the other responsibilities for any loss.
3. The contents of this manual can not be used as the reason to use the Current Probe for any special application.

DISPOSAL OF THIS ARTICLE

Dear Customer,
If you at some point intend to dispose of this article, then please keep in mind that many of its components consist of valuable materials, which can be recycled. Please do not discharge it in the garbage bin, but check with your local council for recycling facilities in your area.

