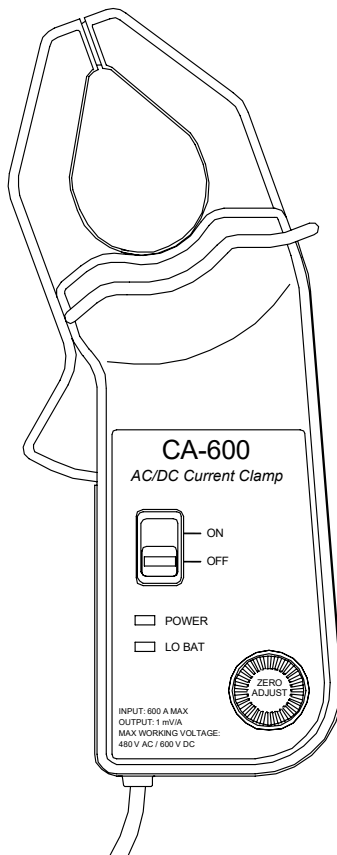


TA019 600 A Current Clamp

User's Guide




Introduction

The TA019 Current Clamp is an accessory that allows your oscilloscope or multimeter to measure electrical currents up to 600 A DC/AC, with a frequency response up to 400 Hz. When measuring current with this clamp, there is no need to break a circuit or disturb the insulation.






Safety information


A **WARNING** identifies conditions or practices that could result in injury or death.
A **CAUTION** identifies conditions or practices that could result in damage to the product or equipment to which it is connected.

 **WARNING**


To prevent injury or death, use the product only as instructed. The protection provided by the product may be impaired if used in a manner not specified by the manufacturer.

The symbols used on this instrument are:


	Dangerous voltage
	Caution: refer to accompanying documents
	Equipment protected by double insulation (Class II)
	Alternating current
	Direct current


 **WARNING**


The TA019 current probe has a tactile barrier provided for user safety. To prevent injury or death, do not hold the current probe beyond the tactile barrier when in use.


 **WARNING**

The TA019 current probe is marked with its maximum voltage rating, which applies when clamped over an uninsulated conductor. To prevent injury or death, do not use the current probe on an uninsulated conductor operating outside the probe's marked voltage protection levels.

 **WARNING**

To prevent injury or death, if the probe has a  symbol or is not marked with any symbol, always de-energize any uninsulated conductor before you install or remove the probe.

A current probe with the  symbol may be safely installed on or removed from an uninsulated conductor while the conductor is energized (live).

 **WARNING**

This current clamp is not CAT rated and must not be used for measuring mains electricity.

**WARNING**

Individual protective equipment should be used if HAZARDOUS LIVE parts in the installation where measurement is to be carried out could be accessible.

**CAUTION**

To avoid damage to the probe and inaccurate readings, do not use a current probe on a circuit that exceeds the probe's maximum rated frequency or the maximum rated current at the measurement frequency.

All current probes have a maximum current rating which may be derated depending on the measurement frequency in accordance with the following table:

Probe	Probe maximum current by frequency	Auto power-off	Power supply/ battery	Connection
TA019	600 A pk max, 50 to 400 Hz	N/A	Battery	BNC

Application procedures

Connect the BNC plug to the input of any oscilloscope (or other voltage measuring instrument) with an input impedance of at least 10 k Ω .

Slide the power switch from **OFF** to **ON**. The green LED will light to indicate that the clamp is switched on.

- (a) For current measurement below 200 A, set the oscilloscope range to 200 mV
- (b) For current measurements above 200 A, set the oscilloscope range to 2 V.

Select DC coupling on the oscilloscope if measuring DC, or AC coupling if measuring AC. Turn the **ZERO ADJUST** knob on the clamp until the oscilloscope reads zero.

Clamp the jaws around the current-carrying conductor.

Read the oscilloscope display, interpreting millivolts as amperes.

DC measurements

The output is positive when the current flows from the front to the back of the clamp. A hysteresis effect can occur so that the clamp cannot be zeroed in the usual way. To eliminate this effect, open and close the jaws several times and then zero again. When there is a strong stray magnetic field, it is best to zero the clamp approximately 50 to 100 mm (2 to 4 inches) from the conductor to be measured. The conductor itself will have no influence at this distance. Then clamp the jaws around the conductor and measure the current.

A useful practice for measuring low currents is to loop an appropriate number of turns of the conductor through the jaws. The actual current is the measured value divided by the number of turns.

Battery

The unit is powered by a 9 V 6LR61 battery.

Battery life indication:

A red warning lamp, labelled **LO BAT**, illuminates when the device is on and the battery is due replacement.

Neither the green power indicator lamp, labelled **POWER**, or the red warning lamp, labelled **LO BAT**, illuminate when the device is turned on and the battery has expired.

Changing the battery:

1. Ensure the clamp is disconnected from the oscilloscope and measuring node before battery replacement.
2. Remove the screw securing the battery compartment cover to the rear of the unit.
3. Slide open the battery compartment cover to remove it from the unit.
4. Remove the battery from its compartment and unclip it from the connector.
5. Clip the new battery to the connector and locate it within the battery compartment.
6. Slide the battery compartment cover back into place, over the battery and connector, and replace the screw.

Specifications

General	
Conductor diameter	30 mm maximum
Low battery indicator	Red LED
Battery type	9 V, NEDA 1604, 6F22, 006P
Weight	290 g typical
Dimensions	178 mm (H) x 70 (W) x 33 (D)
Output	Coaxial cable with BNC(m) plug
Electrical (at 23 ± 5 °C, 70% R.H. maximum)	
Accuracy	
Measurement range	0 to 600 A DC/AC
DC current 0 to 600 A:	$\pm(2\% \text{ reading} + 2 \text{ A})$
AC current (50 to 400 Hz)	
0 to 400 A:	$\pm(2\% \text{ reading} + 2 \text{ A})$
400 to 500 A:	$\pm(3\% \text{ reading} + 2 \text{ A})$
500 to 600 A:	$\pm(6\% \text{ reading} + 2 \text{ A})$
System accuracy	Current clamp accuracy + oscilloscope accuracy
Load resistance	10 k Ω typical
Rated output	0 to 600 mV (AC and DC) for 0 to 600 A input

Environment

This product is for indoor or outdoor use, in dry locations only.



WARNING

To prevent injury or death, do not use in wet or damp conditions, or near explosive gas or vapor.



CAUTION

To prevent damage, always use and store your unit in appropriate environments as below:

Probe	Operating temperature	Storage temperature	Operating humidity	Storage humidity	Pollution degree	Max. altitude
			(non-condensing)			
TA019	0 to 50 °C	−20 to +70 °C	5 to 70 %RH	5 to 80 %RH	2	2000 m

Care of the product

The product contains no user-serviceable parts. Repair, servicing and adjustment require specialized test equipment and must only be performed by Pico Technology or an approved service provider. There may be a charge for these services unless covered by the Pico one year warranty.

Inspect the probe and all connectors and cables before use for signs of damage.



WARNING

To prevent electric shock do not tamper with or disassemble the probe, case parts, or connectors.

Cleaning: Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents. Dirt or moisture in the terminals can affect readings.



Warranty and returns

Your probe is supplied with a one-year return-to-manufacturer warranty. You may also return your probe for any reason within 14 days of purchase for a refund. For terms and conditions, visit picotech.com/about.

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