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# FLUKE®

## i800

# AC/DC Current Clamp

## Instruction Sheet

### Introduction





The i800 AC/DC Current Clamp (“the Clamp”) has been designed for use with multimeters, recorders, power analyzers, safety testers, etc. for accurate non-intrusive ac current measurement.

Using the latest transformer technology, the Clamp range can measure currents from 100 mA to 800 A and is available with current or voltage outputs.

The Clamp complies with the safety standards EN61010-2-032 for input and output circuits.

### Symbols

The table below lists the symbols used on the Clamp and/or in this manual.

Symbol	Description
	Do not dispose of this product as unsorted municipal waste. Go to Fluke’s website for recycling information.
	Important Information. See manual.
	Hazardous Voltage. Risk of electric shock.
	Double insulation.

## ***Safety Instructions***

Please read this section carefully. It will make you familiar with the most important safety instructions for handling the Clamp. In this instruction sheet, a **Warning** identifies conditions and actions that pose hazard(s) to the user. A **Caution** identifies conditions and actions that may damage the Clamp or the test instruments.

### **Warning**

**The Clamp may only be used and handled by qualified personnel. To avoid electric shock or personal injury, follow these precautions:**

- **Do not use the Clamp if damaged. Always connect to display device before it is installed around the conductor.**
- **If the Clamp is not used as specified by the manual, protection provided by the Clamp may be impaired.**
- **Do not clamp around a conductor before connecting current to the measuring equipment.**
- **Do not disconnect the output from the measuring equipment while the Clamp is still around a conductor.**
- **Connect the Clamp output to measuring equipment having safety receptacles.**
- **Do not use prior to consulting local and national safety codes and use of protective equipment is recommended.**
- **Do not hold the Clamp beyond the tactile barrier.**

## **SIAC™ (Security Internal Anti Short Circuit)**

SIAC™ (Security Internal Anti Short Circuit), patent applied for, provides protection against short circuits between adjacent primary conductors when clamped around conductors. This mechanism ensures that the magnetic circuit separates at the bottom of the jaw prior to the jaw opening at the top.

A detent action produced by SIAC™ can be felt when opening the jaws. This detent action should always be present in use. If the jaws open smoothly, service is indicated and the Clamp should be inspected at the nearest Fluke Service Center. See “Contacting Fluke”.

## **Operating Instructions**

### **Warning**

**To avoid electric shock or personal injury when using the Clamp:**

- **Ensure that your fingers are behind the tactile barrier as shown in Figure 1.**
- **Do not use the Clamp if any part, including the lead and connector(s), appears to be damaged or if a malfunction of the instrument is suspected.**
- **Clamp around the current carrying conductor ensuring good contact between the jaw faces. Center the cable between the Clamp jaws.**

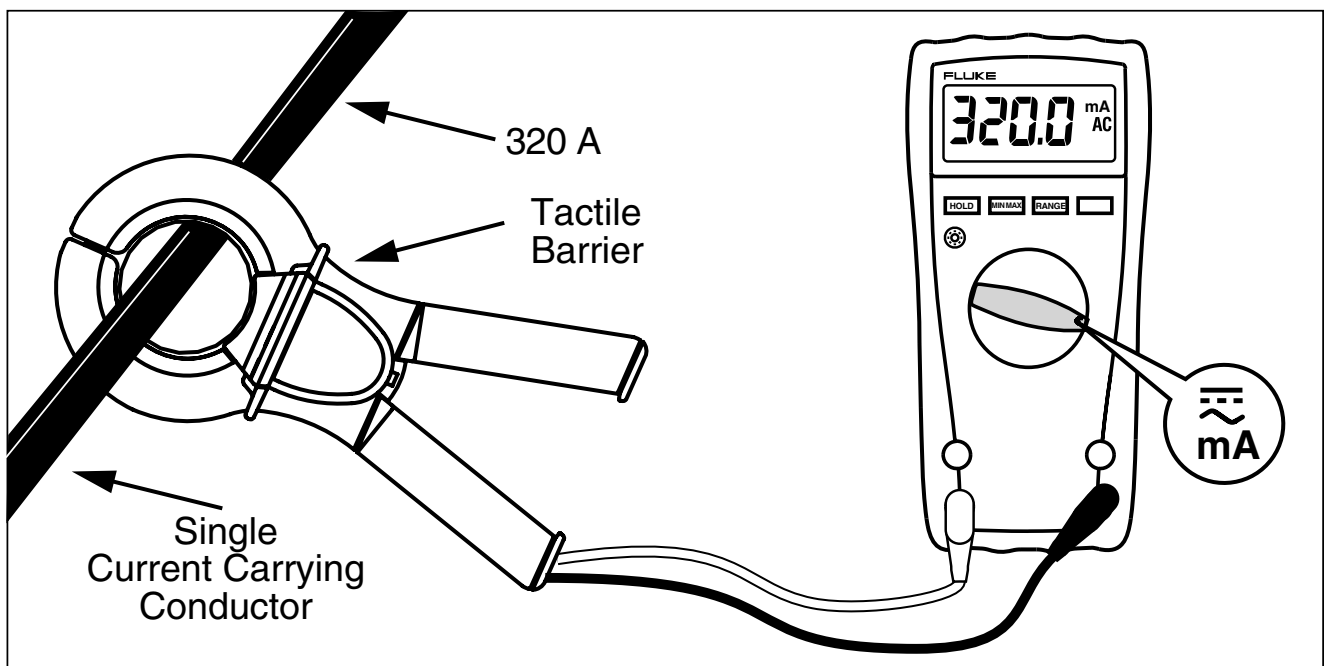
### *Note*

*The arrow on the labels shows the direction of the current flow from the source to the lead. In order to have a correct phase relationship between the primary current and the clamp output, care must be taken regarding the direction of current flow.*

### Note

*Wire size and the position of the wire within the probe jaws does not affect measurement accuracy.*

- Multimeter readings displayed in milliamperes (mA) can be read directly as amperes of conductor current. Readings displayed in amperes (A) must be multiplied times 1000 to obtain the amperes of conductor current.



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**Figure 1. Current Measurement**

## **Meter Readings**

When the Clamp is connected to a compatible current meter and clamped around a single current-carrying conductor, the meter reading will be one 1000th of the actual current in the conductor. For example, a 5 A input current will be transformed into a 5 mA output current (see Figure 1). When measuring current in an ac line cord, the jaws should be clamped around only one conductor (the black or hot wire in a three wire cord). If the jaws are clamped around both current carrying conductors, the currents will cancel and produce a zero reading. If the probe is clamped around two wires carrying current in the same direction, the sum will be read. Reversing one of the wires causes the difference to

The actual current in the conductor is 400 mA divided by 10-turns, or 40 mA.

## ***Maintenance***

### ***Performance Test***

Verify Probe accuracy by measuring the output of a 20 A ( $\pm 0.2\%$ ), 60 Hz current source (Fluke 5100B and 5220A or equivalent). When used with a compatible DMM with  $\pm 0.75\%$  or better ac current accuracy (Fluke 8060A or equivalent), the probe should measure 20.00 A  $\pm$  0.40 A (20.00 mA,  $\pm$  0.40 mA). There are no calibration adjustments in the Clamp.

### ***Cleaning***

Clean the case periodically by wiping it with a damp cloth and detergent. Do not use abrasive cleaners or solvents. Do not immerse the Clamp in liquids.

## ***Specifications***

### ***Electrical Characteristics***

Current Range	800 A rms
Continuous Measuring Range	100 mA to 800 A rms
Overload Capability for 1 Hour, 33 % Duty Cycle	1500 A rms (50/60 Hz)
Output Sensitivity	1 mA / A
Turns Ratio	1000:1
Accuracy (at 100 A, 2 kHz, +25 °C)	$\pm 1\%$ of reading
Load Impedance	$\leq 20 \Omega$
Phase Shift at 2 kHz	$\pm 1$ degree
Frequency Range	30 Hz to 10 kHz (-3 dB)
Working Voltage	

Weight	650 g
Cable Length	1.6 meters
Overload Conditions	Operation above 1200 A should be limited to frequencies below 1 kHz
Duty Cycle	1500 A at 50 / 60 Hz for 1 hour, 33 % duty cycle (20 min ON, 40 min OFF).

### ***Safety Standards***

EN 61010-1: 2001

EN 61010-2-032: 2002

EN 61010-031: 2002

600 V rms, Category III, Pollution Degree 2

Use of the clamp on uninsulated conductors is limited to 600 V ac rms or dc and frequencies below 1 kHz.

CAT III equipment is designed to protect against the transients in the equipment in fixed equipment installations, such as distribution panels, feeders and short branch circuits, and the lighting systems in large buildings.

### ***EMC Standards***

EN 61326 :1998 +A1, A2, & A3

## **LIMITED WARRANTY AND LIMITATION OF LIABILITY**

This Fluke product will be free from defects in material and workmanship for one year from the date of purchase. This warranty does not cover fuses, disposable batteries, or damage from accident, neglect, misuse, alteration, contamination, or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on Fluke's behalf. To obtain service during the warranty period, contact your nearest Fluke authorized service center to obtain return authorization information, then send the product to that Service Center with a description of the problem.