

FLUKE®

317/319

Clamp Meter

Users Manual

PN 4092877

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Clamp Meter

Introduction

The Fluke 317 and 319 are hand-held, battery-operated clamp meters (the Product) that measure:

- ac and dc current
- ac and dc voltage
- resistance
- continuity
- frequency

The Product ships with:

- test leads
- soft case
- three AAA batteries (installed)
- 317/319 User Manual

How to Contact Fluke

To contact Fluke, call one of these telephone numbers:

- Technical Support USA: 1-800-44-FLUKE (1-800-443-5853)
- Calibration/Repair USA: 1-888-99-FLUKE (1-888-993-5853)
- Canada: 1-800-36-FLUKE (1-800-363-5853)
- Europe: +31 402-675-200
- Japan: +81-3-6714-3114
- Singapore: +65-738-5655
- Anywhere in the world: +1-425-446-5500

Or, visit Fluke's website at www.fluke.com.

To register your product, visit <http://register.fluke.com>.

To view, print, or download the latest manual supplement, visit <http://us.fluke.com/user/support/manuals>.

Safety Information

Warning

To prevent possible electrical shock, fire, or personal injury:

- Use the Product only as specified, or the protection supplied by the Product can be compromised.
- Limit operation to the specified measurement category, voltage, or amperage ratings.
- Do not touch voltages >30 V ac rms, 42 V ac peak, or 60 V dc.
- Carefully read all instructions.
- Do not exceed the Measurement Category (CAT) rating of the lowest rated individual component of a Product, probe, or accessory.
- Do not use the Product around explosive gas, vapor, or in damp or wet environments.
- Use only correct measurement category (CAT), voltage, and amperage rated probes, test leads, and adapters for the measurement.
- Do not work alone.

- Do not apply more than the rated voltage, between the terminals or between each terminal and earth ground.
- Comply with local and national safety codes. Use personal protective equipment (approved rubber gloves, face protection, and flame-resistant clothes) to prevent shock and arc blast injury where hazardous live conductors are exposed.
- Replace the batteries when the low battery indicator shows to prevent incorrect measurements.
- Keep fingers behind the finger guards on the probes.
- Measure a known voltage first to make sure that the Product operates correctly.
- Do not use and disable the Product if it is damaged.
- Connect the common test lead before the live test lead and remove the live test lead before the common test lead.
- Read all safety Information before you use the Product.
- Remove all probes, test leads, and accessories that are not necessary for the measurement.
- Before each use, examine the Product. Look for cracks or missing pieces of the clamp housing or output cable insulation. Also look for loose or weakened components. Carefully examine the insulation around the jaws.

- **Do not use test leads if they are damaged. Examine the test leads for damaged insulation, exposed metal, or if the wear indicator shows. Check test lead continuity.**
- **Disconnect power and discharge all high-voltage capacitors before you measure resistance, continuity, capacitance, or a diode junction.**
- **Do not hold the Product anywhere above the tactile barrier. See Figure 1.**
- **Do not use the current sensor if the wear indicator in the jaw opening is not visible. See Figure 2.**










For safe operation and maintenance of the product:

- **Remove batteries to prevent battery leakage and damage to the Product if it is not used for an extended period.**
- **Be sure that the battery polarity is correct to prevent battery leakage.**
- **Repair the Product before use if the battery leaks.**
- **Have an approved technician repair the Product.**
- **Remove the input signals before you clean the Product.**
- **Do not operate the Product with covers removed or the case open. Hazardous voltage exposure is possible.**

Symbols


Table 1 shows the symbols used in this manual or on the Product.

Table 1. Symbols

Symbol	Explanation
	Risk of danger. Important information. Refer to manual.
	Hazardous voltage. Risk of electric shock.
	Application and removal from hazardous live conductors permitted.
	Double insulated
	Low battery
	Earth ground
	Alternating current
	Direct current
	Do not dispose of this product as unsorted municipal waste. Go to Fluke's website for recycling information.
CE	Conforms to relevant European Union directives.
CAT III	Equipment is designed to protect against transients in equipment in fixed equipment installations, such as distribution panels, feeders and short branch circuits, and lighting systems in large buildings.


Specifications

General Specifications

Digital Display	6000 count resolution
Low Battery Indication	Shows  when the batteries are below their required voltage
Power Source.....	Three AAA IEC LR03 batteries
Clamp Opening Size.....	37 mm (1.45 in)
Jaw Diameter	37 mm (1.45 in)
Dimensions (L x W x H)	162.4 x 58.25 x 30.5 mm (6.39 x 2.29 x 1.20 in)
Weight.....	Approximately 384 g (13.5 oz) (batteries included)
Display Resolution.....	6000 Counts
Auto Range	Available in Ohms
Safety.....	CE, EN/IEC 61010-1 and IEC 61010-2-032
Measurement Category	600 V CAT III

Electrical Specifications

The accuracy specification is defined as $\pm(\% \text{ reading} + \text{digits})$ at $23\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$.

Function	Parameter	317	319
 A (A ac)	Range	40.00 A 600.0 A	40.00 A 600.0 A 1000 A
	Resolution	0.01 A 0.1 A	0.01 A 0.1 A 1 A
	Accuracy	1.6 % ± 6 digit (50-60 Hz) [40 A] 2.5 ± 8 digit (60-500 Hz) [40 A] 1.5 % ± 5 digit (50-60 Hz) [600 A] 2.5 ± 5 digit (60-500 Hz) [600 A]	1.6 % ± 6 digit (50-60 Hz) [40 A] 2.5 ± 8 digit (60-500 Hz) [40 A] 1.5 % ± 5 digit (50-60 Hz) [600/1000 A] 2.5 ± 5 digit (60-500 Hz) [600/1000 A]
	Crest factor add 2 % into spec for CF >2	3.0 Max @ 500 A 2.5 Max @ 600 A	3.0 Max @ 500 A 2.5 Max @ 600 A 1.4 Max @ 1000 A
	AC response	rms	rms

Function	Parameter	317	319
$\overline{\sim}$ A (A dc)	Range	40.00 A 600.0 A	40.00 A 600.0 A 1000 A
	Resolution	0.01 A 0.1 A	0.01 A 0.1 A 1 A
	Accuracy	1.6 % ± 6 digit [40 A] 1.5 % ± 5 digit [600 A]	1.6 % ± 6 digit [40 A] 1.5 % ± 5 digit [600/1000 A]
$\overline{\sim}$ V (V ac)	Range	600.0 V	
	Resolution	0.1 V	
	Accuracy	1.5 % ± 5 digit (20-500 Hz)	
	AC response	rms	
$\overline{\sim}$ V (V dc)	Range	600.0 V	
	Resolution	0.1 V	
	Accuracy	1 % ± 4 digit	
Ω	Range	400.0 Ω 4000 Ω	
	Resolution	0.1 Ω 1 Ω	
	Accuracy	1 % 5.0	
)		$\leq 30 \Omega$	
Inrush	Integration Time	N/A	100 ms

Clamp Meter Specifications

Function	Parameter	317	319
Hz	Range	N/A	5.0 - 500.0 Hz
	Accuracy	N/A	0.5 % ± 5 digit
	Trigger Level	N/A	10 – 100 Hz ≥ 5 A, 5 – 10 Hz, 100 – 500 Hz ≥ 10 A
<p>The accuracy specifications apply at 23 °C \pm 5 °C (73 °F \pm 41 °F) Below 18 °C and above 28 °C (64 °F and above 82 °F) accuracy degrades at (0.1) times specification per °C. True rms for ac V and ac A accuracy is specified from 5 % to 100 % of range.</p>			

Software Specifications

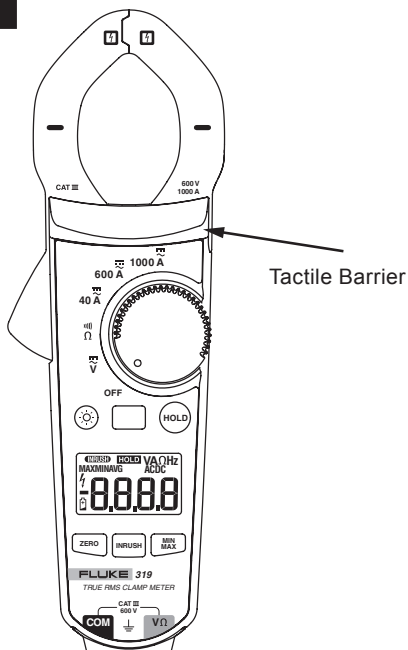
Calibration.....	Full manual calibration and test One-year calibration cycle
Data Integrity and Security	Calibration parameters stored in flash ROM.

Environmental Specifications

Operating Temperature.....	-10 °C to 50 °C (14 °F to 122 °F)
Storage Temperature.....	-40 °C to 60 °C (-40 °F to 140 °F)
Operating Humidity.....	Non condensing <10 °C (<50 °F) 90 % RH (50 °F to 86 °F) (10 °C to 30 °C) 75 % RH (86 °F to 104 °F) (30 °C to 40 °C) 45 % RH (104 °F to 122 °F) (40 °C to 50 °C) (Without Condensation)
Operating Altitude.....	2000 meters (1 mile) above mean sea level
Storage Altitude.....	12,000 meter (7 miles) above mean sea level
IP Rating	IP40
Vibration Requirements	Random MIL-PRF-28800F Class 2, 5-500 Hz, 30 minutes per axis
Drop Test Requirements	3 ft (1 m) drop test, six sides, oak floor
EMI, RFI, EMC	Instrument unspecified for use in EMC field ≥ 0.1 V/m

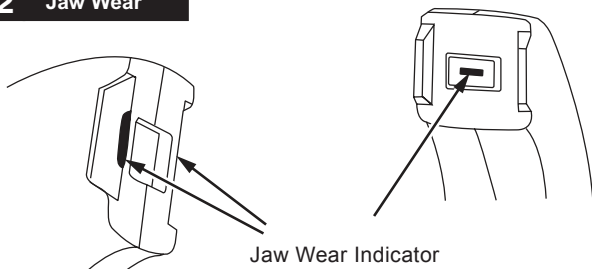
The Product

1 ClampMeter

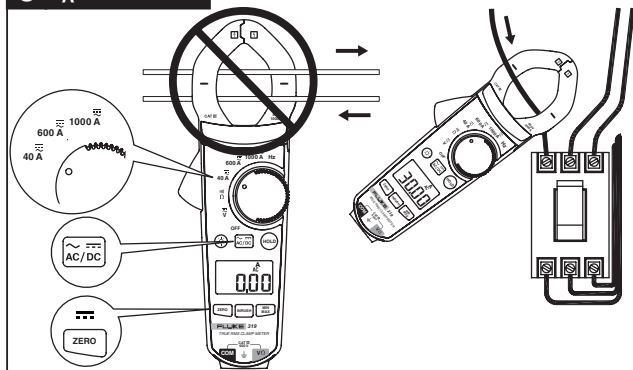


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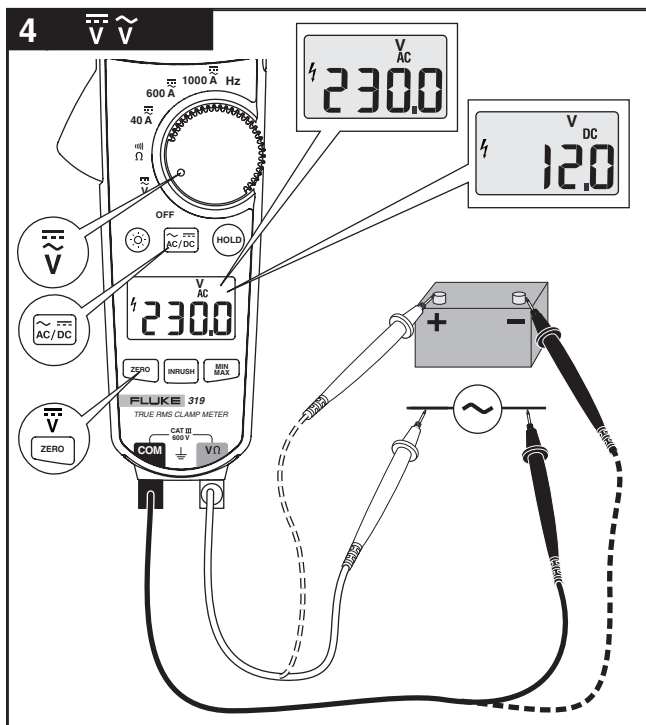
2 Jaw Wear



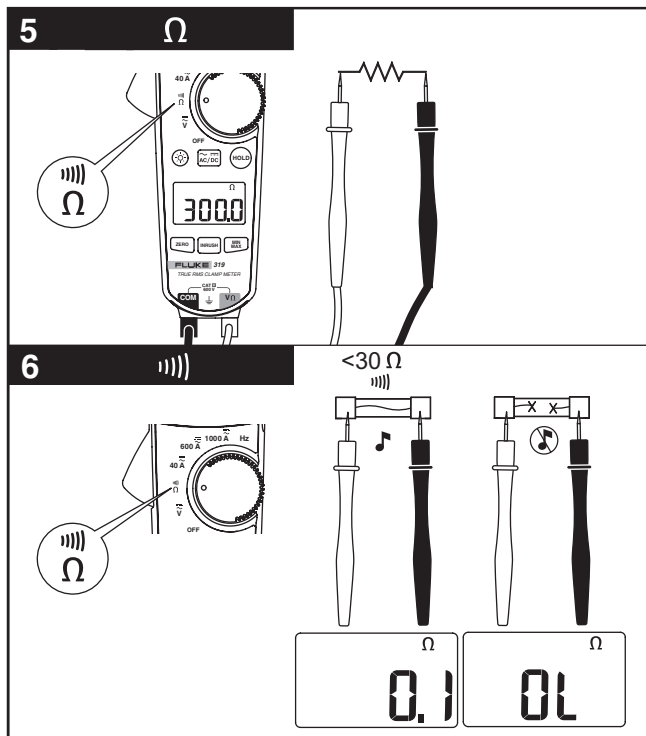
3 $\overline{\sim}$ A



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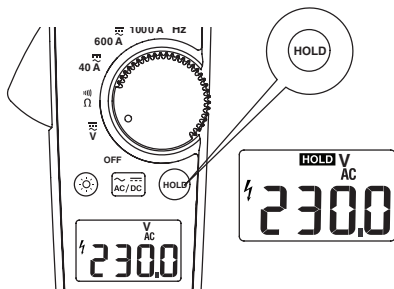


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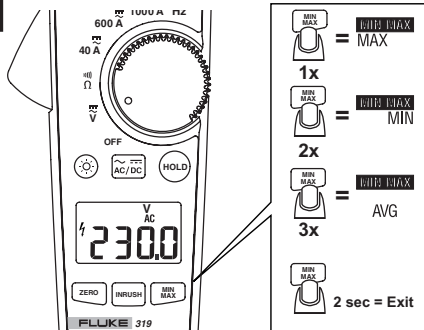


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7 Display Hold

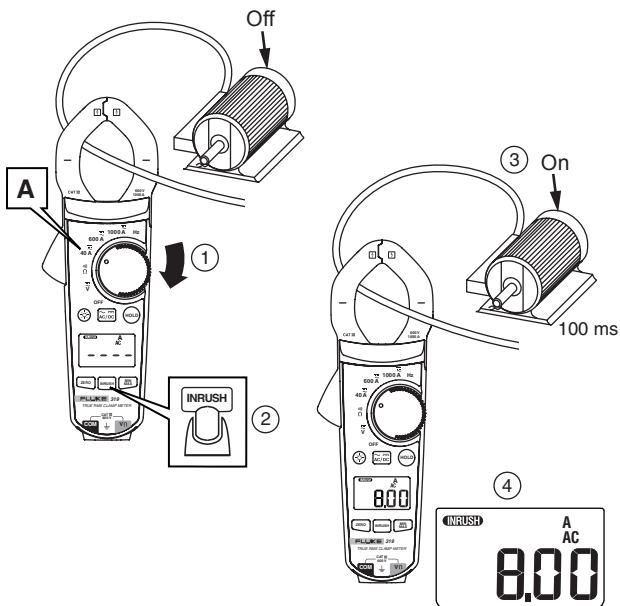


8 MIN MAX AVG



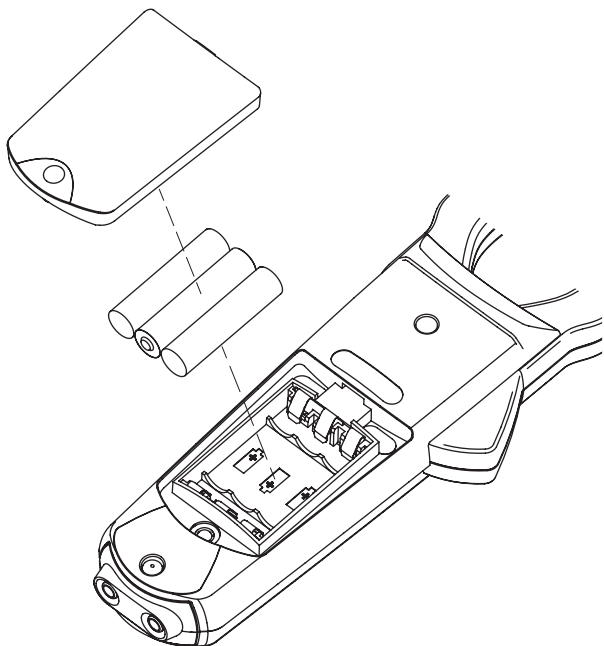
etr122.eps

9 INRUSH



etr119.eps

10



etr123.eps



HOT LINE

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