FLUKE

368/368 FC
369/369 FC

AC Leakage Current Clamp

Users Manual

November 2015 Rev. 1, 6/19

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11/99

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Introduction

The 368/368 FC and 369/369 FC AC Leakage Current Clamp (the Product) is a handheld tool for measurement of ac leakage current.

Principle of Leakage Current Measurement

Based on the electromagnetic induction principle, the Product has a ring-shape current transformer comprised of a metal core and coil winding. The current transformer senses the magnetic field produced by the current or by the vector sum of the currents flowing in the conductor under test. The current transformer then produces a current proportional to the current flowing in the conductor.

See the *Product Functions* section near the end of this manual.

How to Contact Fluke

To contact Fluke, call one of the following 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: +65-6799-5566
- China: +86-400-921-0835
- Brazil: +55-11-3530-8901
- Anywhere in the world: +1-425-446-5500

Product Overview

Table 1 and Figure 1 explain the Product features.

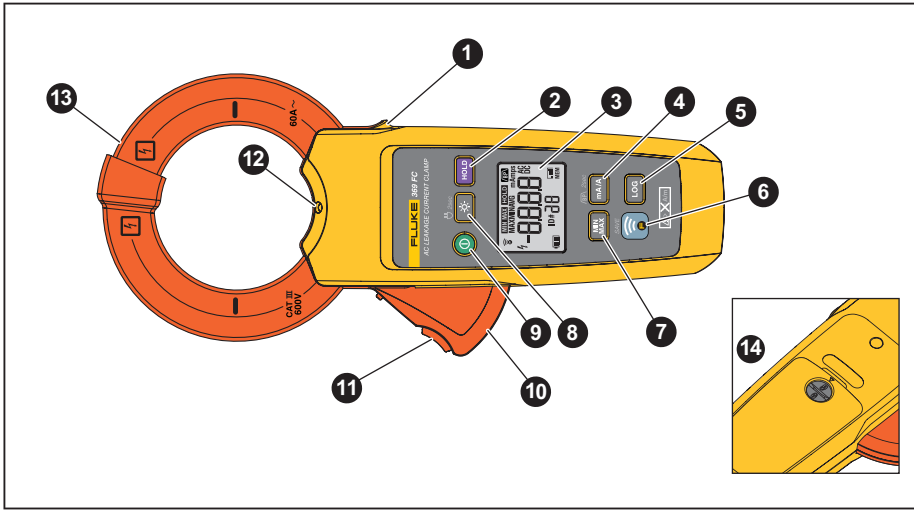
Table 1. Features

Item	Definition
❶	Keep fingers below the **Tactile Barrier**.
❷	Push HOLD to retain the measured data on the display. When pushed, **HOLD** shows on the display. When pushed again, data hold is canceled and **HOLD** disappears.
❸	The display shows the measured value (digital reading), unit, function, and low battery symbol.
❹	Push mA/A to choose the range of ac current (either mA or A). Push and hold mA/A for 2 seconds to turn on the filter.
❺	368 FC/369 FC: Log data and clear memory, see *Product Functions*.
❻	368 FC/369 FC: Turn on/turn off the Fluke Connect™ wireless connectivity to a smartphone, see *Product Functions*.

Table 1. Features (cont.)

Item	Definition
❼	Push MIN MAX to show the minimum, maximum, and average reading. When pushed, MIN MAX shows on the display.
❽	Push ☼ to turn on the display backlight. Push and hold ☼ for 2 seconds to turn on the spotlight. See *Spotlight*.
❾	Push ⏻ to turn on or turns off the Product.
❿	Jaw trigger
⓫	Push the jaw lock button and the trigger together to unlock the jaw.
⓬	Spotlight. See *Spotlight*.
⓭	Jaw
⓮	Battery Housing holds the batteries. See *Batteries*.

Figure 1. Product Features



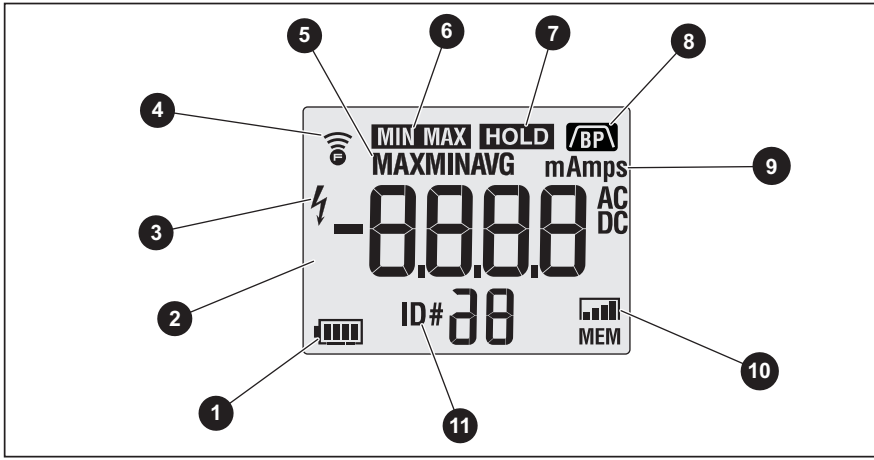
The Display

Table 2 and Figure 2 explain the Product display.

Table 2. Display

Item	Definition
❶	Battery Symbol
❷	Main display
❸	The Product is searching for ranges.
❹	Fluke Connect on (368 FC and 369 FC)
❺	Min, Max, or Avg reading is showing.
❻	MinMax mode is active.
❼	Hold mode is active.
❽	Filter is active and filters signals from 40 Hz – 70 Hz.
❾	mA AC or A AC
❿	Remaining memory (368 FC and 369 FC)
⓫	Product identification number when used with Fluke Connect (368 FC and 369 FC).

Figure 2. Display



Manual-Range Mode

To enable manual-range mode:

1. With the Product off, simultaneously push ⏻ and mA/A.
2. Hold both buttons until the backlight illuminates (~2 s).
   The Product is now in manual-range mode.
3. Push mA/A to select the range.

Clean the Product

Periodically wipe the case with a damp cloth and mild detergent.

⚠ Caution

To avoid damaging the Product, do not use abrasives or solvents to clean the Product.

1. Inspect the jaw mating surface for cleanliness. If any foreign material is present, the jaw will not close properly and measurement errors will result.
2. Open the jaws and clean the clamp metal ends with a lightly oiled cloth.

Maintenance

If the Product does not work or perform properly, use these steps to help isolate the problem:

1. Inspect the jaw mating surface for cleanliness. If any foreign material is present, the jaw will not close properly and measurement errors will result.
2. Verify that the range on the Product is correct.

Replacement Parts

Replacement parts are listed in Table 3. To order, see *How to Contact Fluke*.

Table 3. Replacement Parts

Item	Description	Fluke Part Number
Battery	2AA IEC LR6 Alkaline	376756
Battery door assembly	English	4700598
	Chinese	4739829

Specifications

General

Measurement functions	AC current
Display (LCD)	Digital reading: 3300 counts, LCD refresh rate 4x/s
Range selection	mA/A: manual selection 3 mA/30 mA/300 mA: auto selection 3 A/30 A/60 A: auto selection
Battery	
Type	2 AA IEC LR6 alkaline
Life	>150 hours without backlight and spotlight
Maximum conductor diameter	368: 40 mm, 369: 61 mm
Automatic power off	15 minutes after the last switch operation

Dimensions

369/369 FC (W x H x D)..... 116 mm x 257 mm x 46 mm

368/368 FC (W x H x D)..... 101 mm x 234 mm x 46 mm

Weight

369/369 FC..... 600 g

368/368 FC..... 500 g

Electrical Specifications

Reference Conditions.....23 ±5 °C and 80 % RH maximum

A AC Range .....3 mA, 30 mA, 300 mA, 3 A, 30 A, 60 A

Frequency .....40 Hz to 1 kHz

Crest Factor.....3

AC Current Measurement

Accuracy is specified for 1 year after calibration. Accuracy is given as ±(% reading + digit).

Range	Resolution	368/368 FC		369/369 FC		T.C./°C Outside 18 °C to 28 °C
		Filter On (40-70 Hz)	Filter Off (40-1 kHz)	Filter On (40-70 Hz)	Filter Off (40-1 kHz)	
3 mA[1]	0.001 mA	1+5	1+5	1.5+5	1.5+5	0.002+1
30 mA	0.01 mA	1+5	1+5	1.5+5	1.5+5	0.002+1
300 mA	0.1 mA	1+5	1+5	1.5+5	1.5+5	0.002+1
3 A	0.001 A	1+5	1+5	1.5+5	1.5+5	0.002+1
30 A	0.01 A	1+5	1+5	1.5+5	1.5+5	0.002+1
60 A	0.1 A	2+5	2+5	2+5	2+5	0.002+1

[1] The minimum value is 10 µA rms.

Environmental Specifications

Operating temperature .....-10 °C to +50 °C

Storage temperature .....-40 °C to +60 °C

Operating humidity
(without condensation) .....Non condensing (<10 °C)
90 % RH (10 °C to 30 °C)
75 % RH (30 °C to 40 °C)
45 % RH (40 °C to 50 °C)

Ingress Protection .....IEC 60529: IP30 with jaw closed

Operating Altitude.....2000 m

Storage Altitude.....12 000 m

Electromagnetic Compatibility (EMC)

International..... IEC 61326-1: Industrial Electromagnetic Environment
IEC 61326-2-2, CISPR 11: Group 1, Class B

Group 1: Equipment has intentionally generated and/or uses conductively-coupled radio frequency energy that is necessary for the internal function of the equipment itself.

Class B: Equipment is suitable for use in domestic establishments and in establishments directly connected to a low voltage power supply network which supplies buildings usedfor domestic purposes.

Emissions that exceed the levels required by CISPR 11 can occur when the equipment is connected to a test object.

Korea (KCC)..... Class A equipment (Industrial Broadcast & Communications Equipment)

Class A: Equipment meets requirements for industrial electromagnetic wave equipment and the seller or user should take notice of it. This equipment is intended for use in business environments and not to be used in homes.

USA (FCC) ..... 47 CFR 15 subpart B. This product is considered an exempt device per clause 15.103.

Safety Specifications

General.....IEC61010-1: Pollution degree 2

Measurement .....IEC61010-2-032: CAT III 600 V

Current Clamp for Leakage Current Measurements.....IEC 61557-13: Class 2, ≤30 A/m

Wireless Radio

Radio Frequency Certification .....FCC ID:T68-FBLE IC:6627A-FBLE
Frequency Range.....2405 MHz to 2480 MHz
Output Power .....<100 mW

Class A" (PN 4333628)

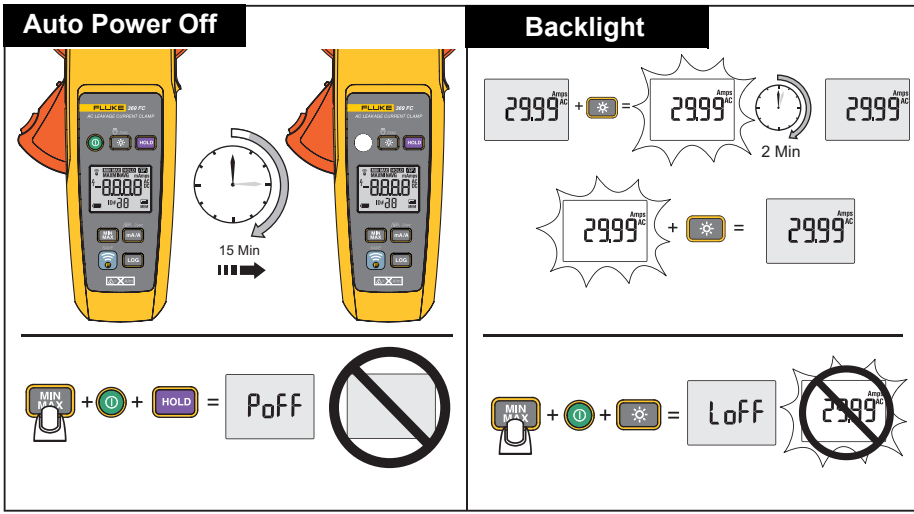
Operational Error for Current

Accuracy is specified for 1 year after calibration. Accuracy is given as ±(% reading).
Accuracy guaranteed for 50 Hz and 60 Hz.

Parameter	Specification	Typical		Max[1]	
		368/368 FC	369/369 FC	368/368 FC	369/369 FC
Intrinsic Uncertainty	IEC 61557-13 A Reference conditions	0.08 %	0.06 %	0.15 %	0.13 %
Conductor Position	IEC 61557-13 E1 ±30 °	0.08 %	0.06 %	0.15 %	0.12 %
Battery Voltage	IEC 61557-13 E2 2.0 V to 3.3 V	0.08 %	0.05 %	0.15 %	0.12 %
Temperature	IEC 61557-13 E3 -10 °C to 50 °C	0.14 %	0.14 %	0.29 %	0.29 %
Distortion	IEC 61557-13 E9	0.06 %	0.07 %	0.15 %	0.12 %

Parameter	Specification	Typical		Max[1]	
		368/368 FC	369/369 FC	368/368 FC	369/369 FC
Magnetic Field	IEC 61557-13 E11 (15 Hz to 400 Hz) 10 A/m Class 3 30 A/m Class 2	 1.58 % 4.75 %	 2.07 % 6.21 %	 3.54 % 10.61 %	 3.31 % 9.96 %
Load Current	IEC 61557-13 E12 60 A rms max (50 Hz and 60 Hz)	3.60 %	5.17 %	7.67 %	10.83 %
Touch Current	IEC 61557-13 E13 CAT III 600 V/ 60 Hz	0.94 %	0.06 %	1.61 %	0.14 %
Frequency	IEC 61557-13 E14 40 Hz to 1 kHz	0.15 %	0.15 %	0.30 %	0.32 %
Repeatability	IEC 61557-13 E15	0.08 %	0.06 %	0.15 %	0.12 %
Uncertainty	IEC 61557-13 B 10A/m Class 3 30A/m Class 2	 4.74 % 7.02 %	 6.47 % 9.36 %	 10.06 % 15.34 %	 13.16 % 17.05%
[1] Confidence level: 95 %.					

Product Functions



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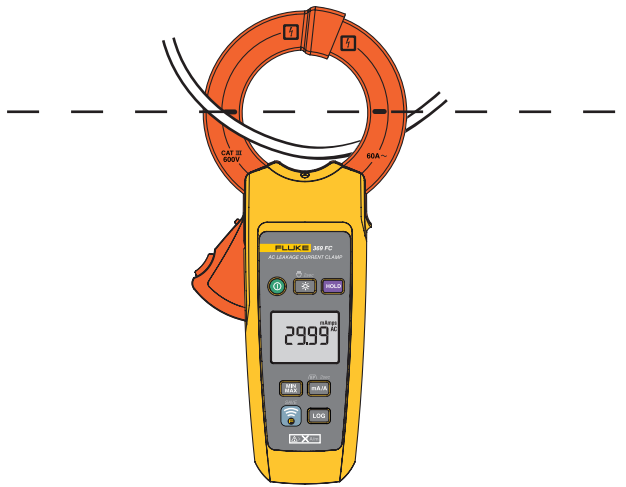
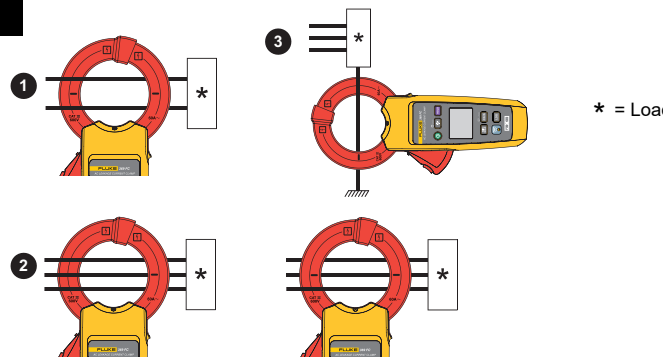
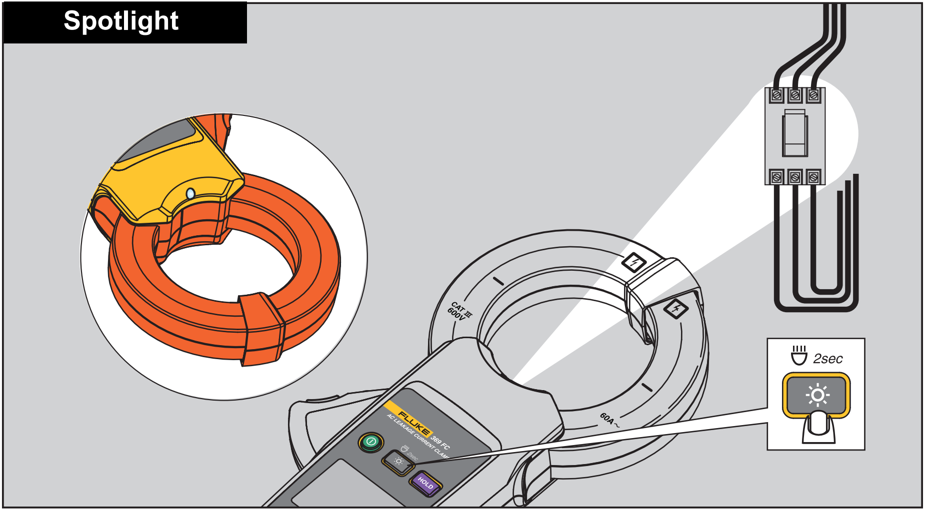
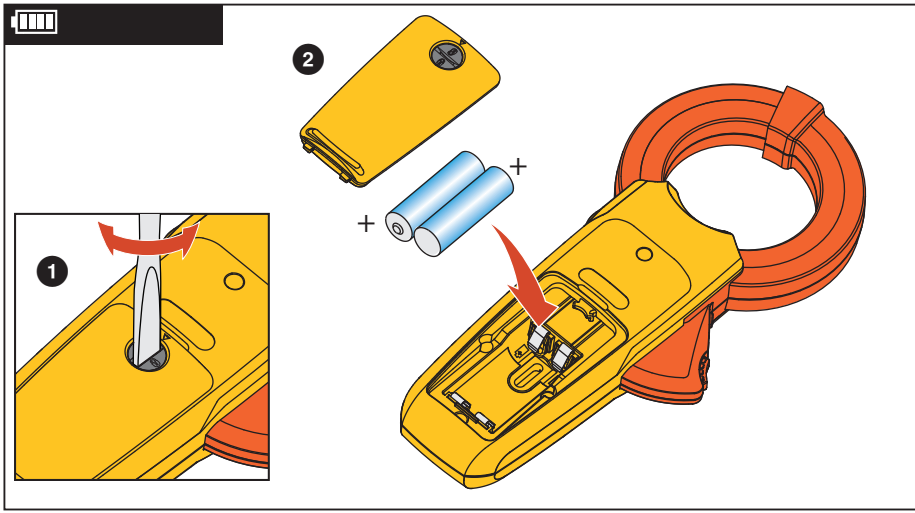

CAT III
600V
60A~
FLUKE 369 FC
AC LEAKAGE CURRENT CLAMP
HOLD
29.99
MIN
MAX
mA/A
LOG

Measure

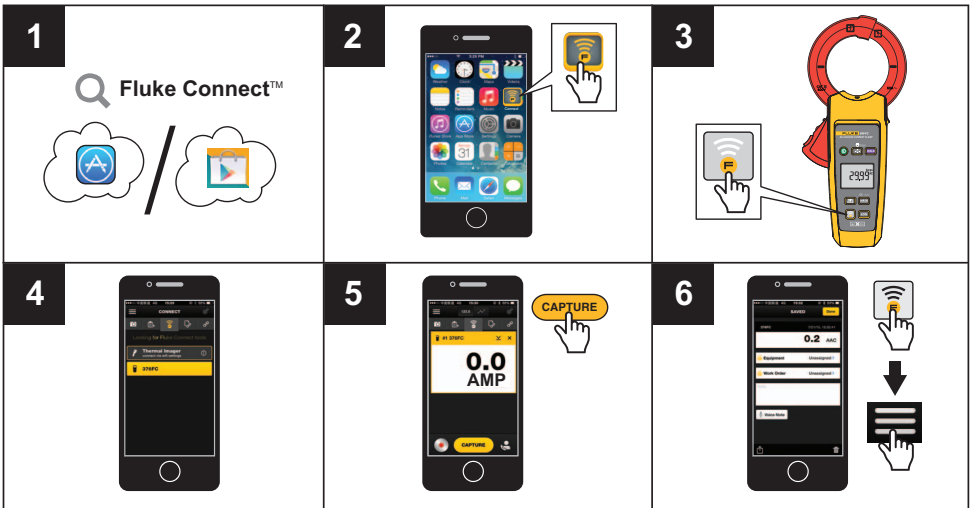


❶	Single-Phase Two-Wire Circuit
❷	Single-Phase Three-Wire or Three-Phase Three-Wire Circuit
❸	Load Current Measurement. Insert only one of the wires through the jaw.


Spotlight
CAT III 600V
60A~
FLUKE
369 FC
AC LEAKAGE CURRENT CLAMP
HOLD
2sec

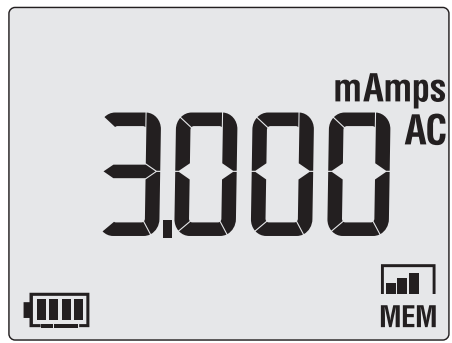

1
2
+
+

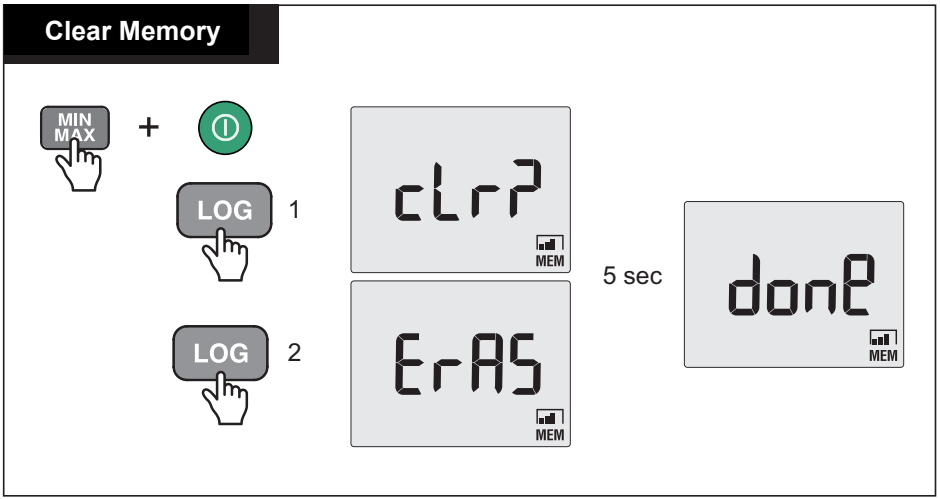
Fluke Connect™ Bluetooth Connection to FC Tools



Log

on/off LOG




Clear Memory
MIN MAX
+
LOG
1
LOG
2
clr?
MEM
ErAS
MEM
5 sec
donE
MEM