FLUKE®

355
Clamp Meter

Users Manual

October 2007 Rev. 1, 2/25

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This Fluke product will be free from defects in material and workmanship for three years 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.

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Clamp Meter

Introduction

The Fluke 355 is a hand-held battery-operated Clamp Meters (*the Meter*). Both Meter measures ac, dc, true rms voltage, inrush current, resistance, and frequency.

Contacting Fluke

Fluke Corporation operates worldwide. For local contact information, go to our website: www.fluke.com

To register your product, view, print, or download the latest manual or manual supplement, go to our website.

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Safety Information

General Safety Information is in the Fluke Safety Information that shipped with the Product. More specific safety information is listed where applicable.

In this manual, a **Warning** identifies conditions and actions that pose hazards to the user. A **Caution** identifies conditions and actions that may damage the Meter or the equipment under test.

Features

See Figure 1 and Tables 2 and 3 for a list of features.

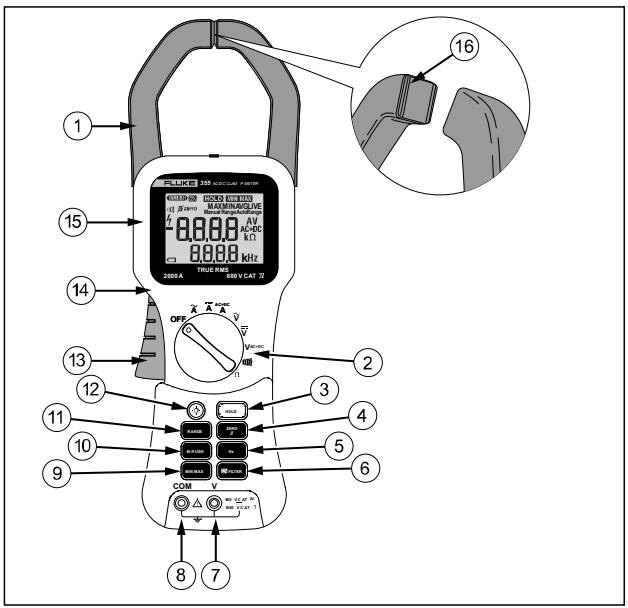

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Figure 1. Feature Locations

Table 1. Features and Buttons

Number	Description
①	Current sensing clamp
②	Rotary function switch
③	Hold button- freezes the display reading and releases the reading when pressed a second time
④	Zero button- Clears last reading from the display and establishes a baseline for ac + dc and dc current readings.
⑤	Hz button- press to see frequency in the secondary display.
⑥	Low Pass Filter button- Press to turn on the low pass filter. The filter eliminates high frequency noise such as from a ASD or VFD motor speed controller.
⑦	Volts/Ohm input terminal.
⑧	Common input terminal.
⑨	Min Max button -When first pressed, the Meter shows maximum input. With subsequent presses, the minimum and the average inputs are shown. Hold for 2 seconds to exit min max mode. This function works in current, voltage and Frequency modes when activated.
⑩	Inrush button- Press this button to enter inrush mode. Press it a second time to exit.
⑪	Range button- press to change range or to turn off auto range.

Table 1. Features and Buttons (cont.)

Number	Description
⑫	Backlight button - Turns the backlight on and off. The backlight goes off after 5 minutes.
⑬	Jaw release
⑭	Tactile barrier ⚠⚠ **Warning: To avoid injury, do not hold the Meter anywhere above the tactile barrier.**
⑮	Display
⑯	Jaw wear indicator. ⚠⚠ **Warning: To avoid injury, do not use the Meter if the wear indicator in the jaw opening is not visible.**
N/A	Auto Power Off- The Meter turns off if there is no button pushed or rotary function switch operation for 20 minutes. Turn the Meter off and on to restart the Meter. This feature is disabled when the Meter is in Min Max mode.

Table 2. Rotary Switch Positions

Position	Function	Position	Function
OFF	Meter is powered down	$\tilde{A}$	AC current
$\overline{\tilde{A}}$	DC current	AC + DC A	Combined ac + dc (true rms) current reading.
$\tilde{V}$	AC voltage	$\overline{\tilde{V}}$	DC voltage
V AC + DC	Combined ac + dc (true rms) voltage reading.	)))	Continuity
Ω	Resistance		

Display

Figure 2 and Table 4 explain the display.

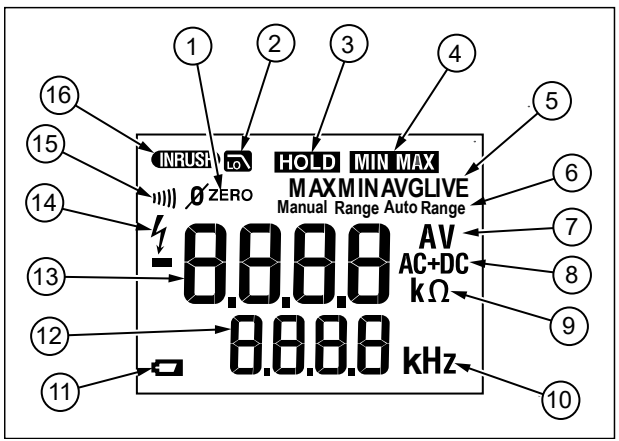

Figure 2. The Display

Table 3. Display

Item	Explanation
①	Zero mode is active
②	Low pass filter is active
③	Hold mode is active
④	Min Max mode is active
⑤	Min, Max, Avg, or Live modes. Live mode is active with Min Max and designates the real-time reading.
⑥	Manual or Auto Range is active
⑦	Amps or Volts is active
⑧	AC and DC mode is active
⑨	Resistance mode is active
⑩	Frequency mode is active
⑪	Low Battery Symbol
⑫	Frequency display
⑬	Main display
⑭	Hazardous voltage present
⑮	Continuity symbol
⑯	Inrush mode is active

Using the Meter

⚠⚠ Warning

To avoid electric shock or personal injury:

When measuring current, center the conductor in the clamp.

When making current measurements, disconnect the test leads from the Meter.

Keep fingers behind Tactile Barrier. See Meter Features.

Measuring AC or DC Current

To measure ac or dc current:

1. Turn the rotary function switch to the proper current setting $\widetilde{A}$, $\overline{A}$, or $\overset{AC+DC}{A}$.
2. Open the clamp by pressing the jaw release and insert the conductor to be measured into the clamp.
3. Close the clamp and center the conductor using the jaw alignment marks.
4. View the current reading on the main display.
5. When measuring ac or ac + dc current, press Hz to view the frequency reading on the frequency display.

⚠⚠ Warning

To avoid possible electric shock or personal injury, if current is moving in opposite directions, place only ONE conductor into the clamp at a time. If current is moving in the same direction, more than one conductor may be placed into the clamp. See Figure 3.

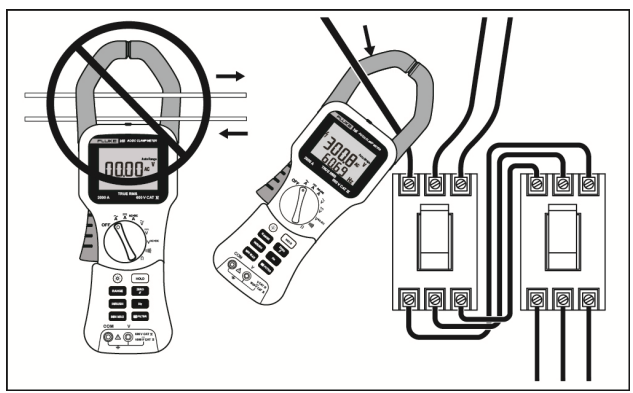

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Figure 3. Connecting the Meter

Measuring Inrush Current

Inrush current is surge current that occur when an electrical device is first powered on. Once the device has reached its normal working condition, the current stabilizes. See Figure 4.

To capture the inrush current reading:

1. With the system under test powered down, place the source wire into the Meter jaws.
2. Turn the knob to Ã.
3. Press INRUSH on the Meter.
4. Power up the system under test. The inrush current is shown on the Meter display.

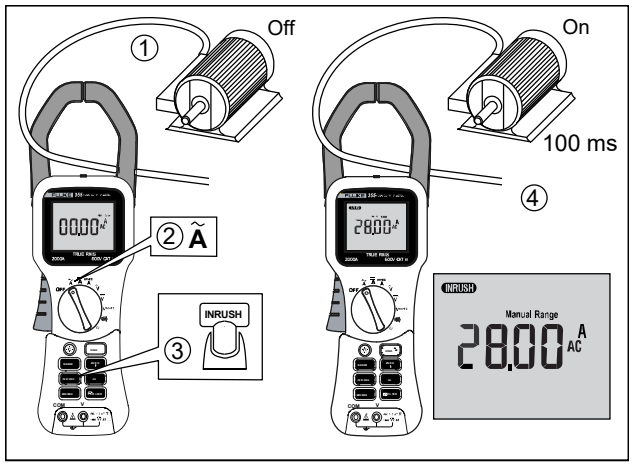

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Figure 4. Measuring Inrush Current

Measuring AC and DC Voltage

To measure ac or dc voltage:

1. Turn the rotary function switch to $\overline{\tilde{V}}$, $\tilde{V}$, or V^{AC+DC}.
2. Connect the black test lead to the **COM** terminal and the red test lead to the **V** terminal. Before connecting the probes to the measurement points, add any clips to the probes that are necessary.
3. Measure the voltage by touching the probes to the desired test points of the circuit.
4. View the reading on the display.
5. When measuring ac voltage, press Hz to view the frequency reading on the frequency display. See Figures 5 and 6.

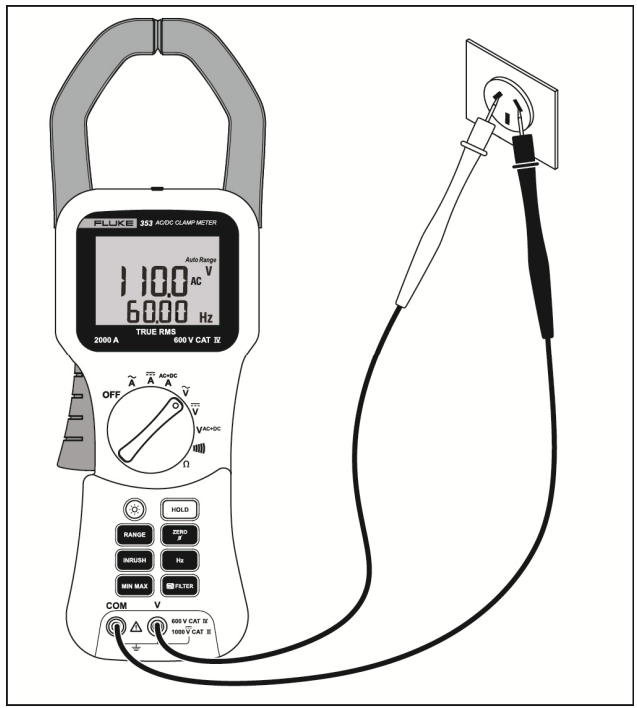

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Figure 5. AC Voltage Measurement

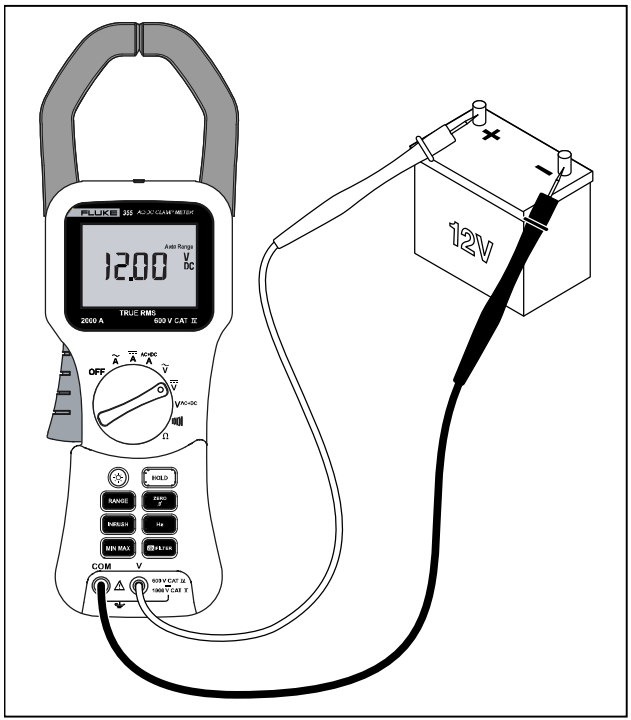

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Figure 6. DC Voltage Measurement

Testing Continuity

⚠⚠ Warning

To avoid electrical shock when testing continuity in a circuit, make sure the power to the circuit is turned off and all capacitors are discharged.

To test continuity:

1. Connect the black test lead to the **COM** terminal and the red test lead to the **V** terminal.
2. Remove power from the circuit being tested. Turn the rotary function switch to))) .
3. Connect the probes across the circuit or component to be tested.
4. If the resistance is < 30 Ω, the beeper sounds continuously, designating a short circuit (①). If the display reads **OL**, the circuit is open (②) or above 399.9 Ω. See Figure 7.

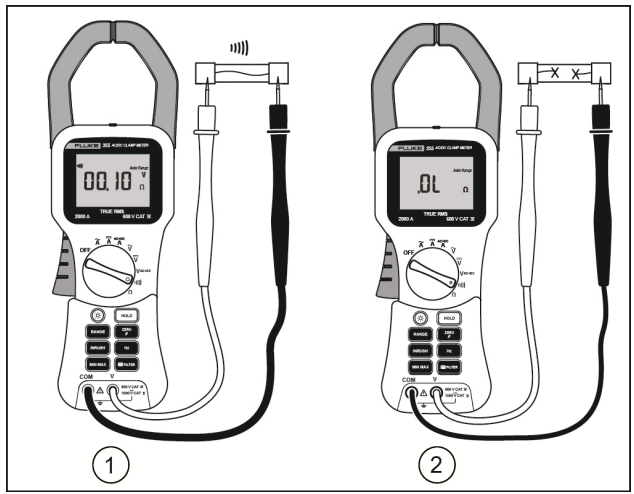

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Figure 7. Measuring Continuity

Measuring Resistance

⚠⚠ Warning

To avoid possible electric shock or personal injury, when measuring resistance in a circuit, make sure the power to the circuit is turned off and all capacitors are discharged.

To measure resistance:

1. Turn the rotary function switch to Ω.
2. Remove power from the circuit being tested.
3. Connect the black test lead to the **COM** terminal and the red test lead to the **V** terminal.
4. Measure the resistance by touching the probes to the desired test points of the circuit.
5. View the reading on the display. See Figure 8.

⚠⚠ Warning

To avoid electrical shock or personal injury, be aware that dangerous voltages may be present at the input terminals and may not be displayed.

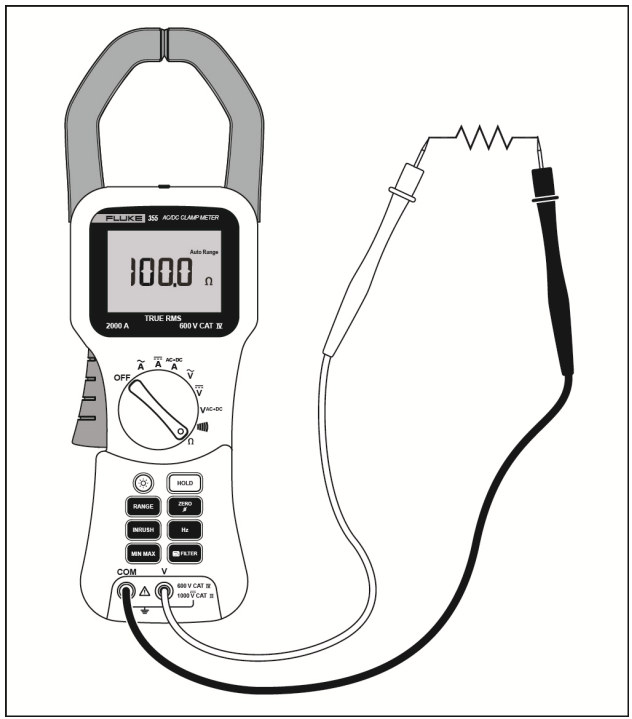

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Figure 8. Measuring Resistance

Maintenance

⚠⚠ Warning

To avoid electrical shock, or personal injury:

- **Repairs or servicing not covered in this manual should be performed only by qualified personnel.**
- **Disconnect test leads from the Meter before removing its back cover.**
- **Never use the Meter with the back cover removed.**

⚠Caution

- **To avoid contamination or static damage of the Meter, do not touch the circuit board without proper static protection.**
- **If the Meter is not going to be used for an extended time, remove the battery. Do not store the Meter in high temperature or high-humidity environments.**

Cleaning the Meter

⚠ Caution

To avoid damaging the meter, do not use abrasives or solvents on this instrument.

Clean using a damp cloth and mild detergent.

Changing the Batteries

When battery voltage drops below the value required for proper operation, the battery symbol ( ) appears and the Meter beeps.

To change the batteries:

1. Turn the Meter off and disconnect the test leads.
2. Using a screwdriver, open the battery cover on the back of the Meter.
3. Replace the batteries with six new AA/LR6 batteries. Observe correct polarity when installing the batteries.
4. Close the back cover and tighten the screw.

Product Disposal

Dispose of the Product in a professional and environmentally sound manner:

- Delete personal data on the Product before disposal.
- Remove batteries that are not integrated into the electrical system before disposal and dispose of batteries separately.
- If this Product has an integral battery, put the entire Product in the electrical waste.

User Replaceable Parts

Refer to *Contacting Fluke* for more information.

- C43 Soft carrying case
- TL224 1.5 m silicone rubber test leads
- TP2 Test Probes
- AC285 Alligator Clips

Specifications

Safety Specifications

Safety Specifications are in the printed Safety Information that shipped with the Product.

General Specifications

Weight ..... 1.8 lb (0.814 kg)
Jaw Size ..... .28 inches (58 mm)
Dimensions
(L x W x D) ..... 12 inches x 3.75 inches x 2 inches
(300 mm x 98 mm x 52 mm)

Electrical Specifications

Current Measurement 10 Hz to 100 Hz

Range	Resolution	Accuracy, A	Trigger Level for Inrush	Trigger Level for Hz Filter OFF	Trigger Level for Hz Filter ON
40 A	10 mA	1.5 % rdg + 15 digits	0.50 A	10.00 A	10.00 A
400 A	100 mA	1.5 % rdg + 5 digits	5.0 A	10.0 A	10.0 A
2000 A 1400 ac rms	1 A	1.5 % rdg + 5 digits	5 A	20 A	20 A

Current Measurement 100.1 Hz to 1 kHz

Range	Resolution	Accuracy > 10 A
40 A	10 mA	3.5 % rdg + 15 digits
400 A	100 mA	3.5 % rdg + 5 digits
2000 A; 1400 ac rms	1 A	3.5 % rdg + 5 digits

Voltage Measurement 10 Hz to 100 Hz

600 and 1000 V ranges have 10 % over range to 660 and 1100 V respectively.

Range	Resolution	Accuracy	Trigger Level for Hz Filter OFF	Trigger Level for Hz Filter ON
4 V	1 mV	1 % rdg + 10 digits	0.050 V	0.050 V
40 V	10 mV	1 % rdg + 5 digits	0.25 V	0.25 V
400 V	100 mV	1 % rdg + 5 digits	6 V	6 V
600 V AC RMS	1 V	1 % rdg + 5 digits	6 V	6 V
1000 V DC	1 V	1 % rdg + 5 digits	N/A	N/A

Voltage Measurement 100.1 Hz to 1 kHz

600 and 1000 V ranges have 10 % over range to 660 and 1100 V

Range	Resolution	Accuracy
4 V	1 mV	3 % rdg + 10 digits
40 V	10 mV	3 % rdg + 5 digits
400 V	100 mV	3 % rdg + 5 digits
600 V AC RMS	1 V	3 % rdg + 5 digits

Ohms Measurement

Range	Resolution	Accuracy
400 Ω	0.1 Ω	1.5 % + 5 digits
4 k Ω	1 Ω	1.5 % + 5 digits
40 k Ω	10 Ω	1.5 % + 5 digits
400 k Ω	100 Ω	1.5 % + 5 digits

Continuity Beeper

On at ≤ 30 Ω

Off at ≥ 100 Ω

Frequency Measurement

Measurement Range..... 5.0 Hz to 1 kHz

Resolution ..... 0.1 Hz (15 Hz to 399.9 Hz)
1 Hz (400 Hz to 1 kHz)

Accuracy

5.0 to 100 Hz ..... 0.2 % + 2 counts

Accuracy

100.1 Hz to 1 kHz..... 0.5 % + 5 counts

Trigger Level ..... Refer to current and voltage tables

Temperature

Coefficients ..... Current: 0.1 % of reading per °C outside 22-24 °C

Voltage: 0.1 % of reading per °C outside 22-24 °C