

373

Clamp Meter

Calibration Manual



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Fluke Corporation
P.O. Box 9090
Everett, WA 98206-9090
U.S.A.

Fluke Europe B.V.
P.O. Box 1186
5602 BD Eindhoven
The Netherlands

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To register your product online, visit register.fluke.com

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Introduction

⚠⚠ Warning

Read "Safety Information" before you use the Product.

This manual explains the Calibration Adjustment for the 373 Clamp Meter (the Product). Please see the *373 Users Manual* for usage information.

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: +81-3-3434-0181
- Singapore: +65-738-5655
- China: +86-400-810-3435
- 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 see, print, or download the latest manual supplement, visit <http://us.fluke.com/usen/support/manuals>.


Safety Information

A **Warning** identifies conditions and actions that pose hazard(s) to the user. A **Caution** identifies conditions and procedures that could cause Meter damage, equipment under test damage, or permanent loss of data.

Symbols used on the Product and in this manual are explained in Table 1.

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.
- Examine the case before you use the Product. Look for cracks or missing plastic. Carefully look at the insulation around the terminals.
- Do not measure current while the test leads are in the input jacks.
- The battery door must be closed and locked before you operate the Product.
- Remove all probes, test leads, and accessories before the battery door is opened.
- 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.
- Do not use the Product if it operates incorrectly.
- Do not use the Product around explosive gas, vapor, or in damp or wet environments.
- Use only type AA batteries, properly installed in the Product case, to power the Product.
- Hold the Product behind the tactile barrier. See Figure 1, ①.
- Replace the batteries when the low battery indicator () shows to prevent incorrect measurements.
- Use only specified replacement parts.
- Have an approved technician repair the product.
- Do not touch voltages >30 V ac rms, 42 V ac peak, or 60 V dc.
- Do not apply more than the rated voltage, between the terminals or between each terminal and earth ground.
- Keep fingers behind the finger guards on the probes.
- Connect the common test lead before the live test lead and remove the live test lead before the common test lead.
- Do not work alone.














- Use caution around bare conductors or bus bars. To prevent electrical shock, do not touch the conductor.
- 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.
- Disconnect power and discharge all high-voltage capacitors before you measure resistance or continuity.
- Do not measure ac/dc current in circuits carrying more than 600 V or 200 A with the Product Jaw.
- Do not operate the product with covers removed or the case open. Hazardous voltage exposure is possible.
- When white wear indicator insulation shows through the clamp cable jacket, replace the clamp cable.
- Do not exceed the Measurement Category (CAT) rating of the lowest rated individual component of a product, probe, or accessory.
- Measure a known voltage first to make sure that the Product operates correctly.

⚠ Caution

To prevent possible damage to the product or to equipment under test:

- Use the correct terminals, function, and range for measurements.
- Clean the case and accessories with a damp cloth and mild detergent only. Do not use abrasives or solvents.

Table 1. Symbols

Symbol	Meaning	Symbol	Meaning
	AC (Alternating Current)		Earth ground
	DC (Direct Current)		Do not dispose of this product as unsorted municipal waste. Go to Fluke's website for recycling information.
	Hazardous voltage		Conforms to European Union directives.
	Risk of Danger. Important information. See Manual.		Conforms to relevant North American Safety Standards.
	Battery		Double insulated
	Examined and licensed by TÜV Product Services.		Conforms to relevant Australian standards.
CAT III	IEC Measurement Category III CAT III equipment has protection against transients in equipment in fixed-equipment installations, such as distribution panels, feeders and short branch circuits, and lighting systems in large buildings.	CAT IV	IEC Measurement Category IV CAT IV equipment has protection against transients from the primary supply level, such as an electricity Meter or an overhead or underground utility service.
	Application around and removal from HAZARDOUS LIVE conductors is permitted.		

Note

The Measurement Category (CAT) and voltage rating of any combination of test probe, test probe accessory, current clamp accessory, and the Meter is the LOWEST rating of any individual component.

The Meter

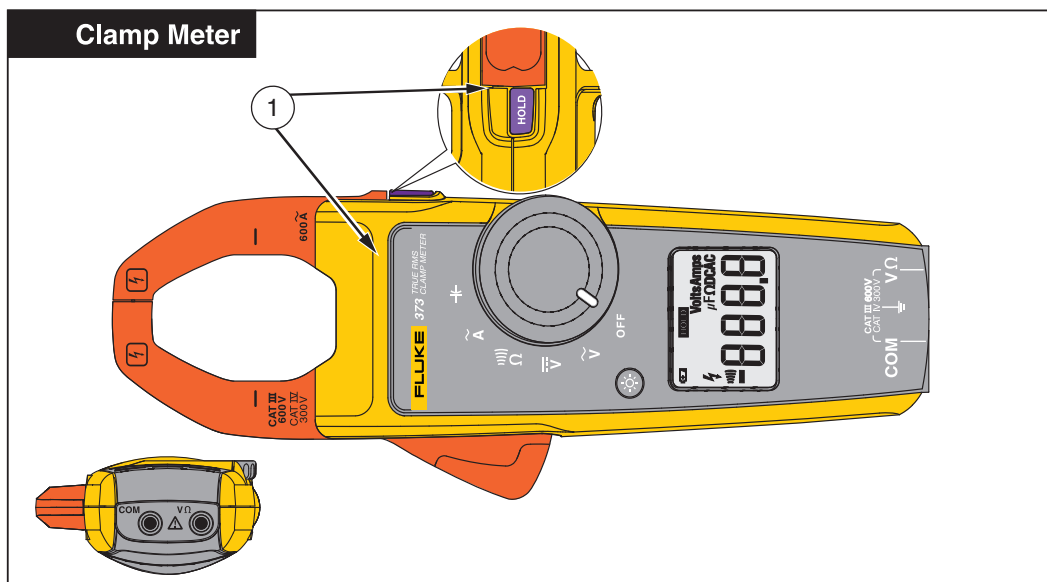


Figure 1. The Meter

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Specifications

AC Current

Range	600.0 A
Resolution	0.1 A
Accuracy	2 % ± 5 digits (48 – 62 Hz)
Crest Factor (50/60 Hz)	2.5 @ 600 A

AC Voltage

Range	600.0 V
Resolution	0.1 V
Accuracy	1.0 % ± 5 digits (48 – 62 Hz)

DC Voltage

Range	600.0 V
Resolution	0.1 V
Accuracy ^[1]	1 % ± 5 digits

^[1] in an RF field greater than 1 V/m between 130 MHz and 350 MHz, add 65 counts to specified accuracy.

Resistance

Range	600.0 Ω/6000 Ω
Resolution	0.1 Ω/1 Ω
Accuracy	1 % ± 5 digits
Continuity Beeper	≤ 30 Ω

Capacitance

Range	10.0 – 100.0 μF / 1000 μF
Resolution	0.1 μF/1 μF
Accuracy	1.9 % ± 2 digits

Mechanical Specifications

Size (L x W x H) 232 mm x 85 mm x 45 mm

Weight..... 370 g

Environmental Specifications

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

Storage Temp -40 °C to +60 °C

Operating Humidity Non condensing (< 10 °C)

≤ 90 % RH (at 10 °C to 30 °C)

≤ 75 % RH (at 30 °C to 40 °C)

≤ 45 % RH (at 40 °C to 50 °C)

(Without Condensation)

Operating Altitude 3000 meters

Storage Altitude 12,000 meters

EMI, EMC..... Meets all applicable requirements in EN61326-1:2006

Temperature Coefficients..... Add 0.1 x specified accuracy for each degree C above
28 °C or below 18 °C

Safety Compliance..... ANSI/ISA S82.02.01:2004




CAN/CSA-C22.2 No. 61010-1-04

IEC/EN 61010-1:2001, 600V CAT III, 300V CAT IV

Pollution Degree 2

EN/IEC 61010-2-32:2002

CAN/CSA-C22.2 No. 61010-2-032 :04

Agency Approvals   

Batteries..... 2 AA, NEDA 15A, IEC LR6







Performance Tests

⚠ ⚠ Warning

To prevent possible electrical shock, fire, or personal injury, do not perform the performance test procedures unless the Product is fully assembled.

The following performance tests verify the complete operation of the Product and check the accuracy of each function against the Product's specifications. See Table 2. If the Product fails any part of the test, calibration adjustment and/or repair is indicated. See "Calibration Adjustment".

Table 2. Performance Tests

Test (Switch Position)	Calibrator Output	UUT Meter Reading Limit	
		Low	High
 AC Volts	20.0 V @ 50 Hz	19.3	20.7
	600.0 V @ 50 Hz	593.5	606.5
 DC Volts	+20.0 V	19.3	20.7
	-20.0 V	-20.7	-19.3
	+600.0 V	593.5	606.5
	-600.0 V	-606.5	-593.5
 Amps AC (w/50 turn coil)	0.4 A @ 50 Hz	19.1	20.9
	4 A @ 50 Hz	195.5	204.5
	10 A @ 50 Hz	489.5	510.5
	12 A @ 50 Hz	587.5	612.5
 Ohms	600.0 Ω	593.5	606.5
	6000 Ω	5940	6060
 Capacitance	100.0 μF	97.9	102.1
	1000 μF	981	1019
 Continuity	25 Ω	Beeper on	

Calibration Adjustment

Required Equipment

The equipment listed in Table 3 is required for calibration adjustment.

Table 3. Required Equipment

Equipment	Required Characteristics	Recommended Model
Calibrator	4.5 digit resolution	Fluke 5520A Calibrator or equivalent
Wired coil	50 turns	Fluke 5500A/COIL

Calibration Adjustment






Each Product function can be calibrated separately or in any sequence. To adjust Product calibration:

1. Turn the Product over to access the battery compartment door screw.
2. Use a flat-head screwdriver to loosen the battery compartment door screw and lift off the battery compartment door. See Figure 2.
3. Remove the batteries.
4. Remove the calibration sticker.
5. Place a jumper (short) across the calibration pins located under the calibration sticker. Once the Product is turned on, this will put the Product into calibration mode.
6. Reinstall the batteries.
7. Turn the Product ON.
8. Turn the rotary switch to select the function to be calibrated.
9. Apply the required output from the source to the Product. See “Adjustment Procedure” below. The calibration adjustment is complete.

When the adjustment is complete:

1. Remove the batteries.
2. Remove the jumper.
3. Replace calibration sticker.
4. Reinstall batteries.
5. Reattach the battery compartment door.
6. Tighten the battery compartment door screw.

Adjustment Procedure

Test (Switch Position)	Product LCD Reading	Action
 AC Volts	CAL1 then 0.0 V ac	Calibrator output 0 V @ 50 HZ. Push (HOLD) to measure. Allow the reading to stabilize. Push (HOLD) again to store the value.
	200.0 V ac	Calibrator output 200.0 V @ 50 HZ. Push (HOLD) to measure. Allow the reading to stabilize. Push (HOLD) again to store the value.
 DC Volts	CAL1 then 200.0 V dc	Calibrator output 200.0 V dc. Push (HOLD) to measure. Allow the reading to stabilize. Push (HOLD) again to store the value.
 Ohms	CAL1 then 300.0 Ω	Calibrator output 300 Ω . Push (HOLD) to measure. Allow the reading to stabilize. Push (HOLD) again to store the value.
	3000 Ω	Calibrator output 3000 Ω . Push (HOLD) to measure. Allow the reading to stabilize. Push (HOLD) again to store the value.
 AC Amps (with 50-turn coil)	CAL1 then 0.0 A ac	Calibrator output 0.0 A @ 50 HZ. Push (HOLD) to measure. Allow the reading to stabilize. Push (HOLD) again to store the value.
	200.0 A ac	Calibrator output 4 A @ 50 HZ. Push (HOLD) to measure. Allow the reading to stabilize. Push (HOLD) again to store the value.
 Capacitance	CAL1 then 40.0 μ F	Calibrator output 40.0 μ F. Push (HOLD) to measure. Allow the reading to stabilize. Push (HOLD) again to store the value.
	400.0 μ F	Calibrator output 400.0 μ F. Push (HOLD) to measure. Allow the reading to stabilize. Push (HOLD) again to store the value.

Maintenance

Clean the Product


Caution

To prevent possible damage to the Product or to equipment under test, do not use abrasive cleaners. They will damage the case.

To clean the Product, use a cloth with a mild cleaning solution.

Battery Replacement

Warning

To prevent possible explosion, fire, or personal injury, replace the batteries when the low battery indicator () shows to prevent incorrect measurements.

Caution

To prevent possible damage to the Product or to equipment under test:

- 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.

To change the batteries, see Figure 2:

1. Make sure the Product is OFF.
2. Turn the Product over to access the battery compartment door screw.
3. Use a flat-head screwdriver to loosen the battery compartment door screw and lift off the battery compartment door.
4. Replace the two AA batteries.
5. Reattach the battery compartment door.
6. Tighten the battery compartment door screw.

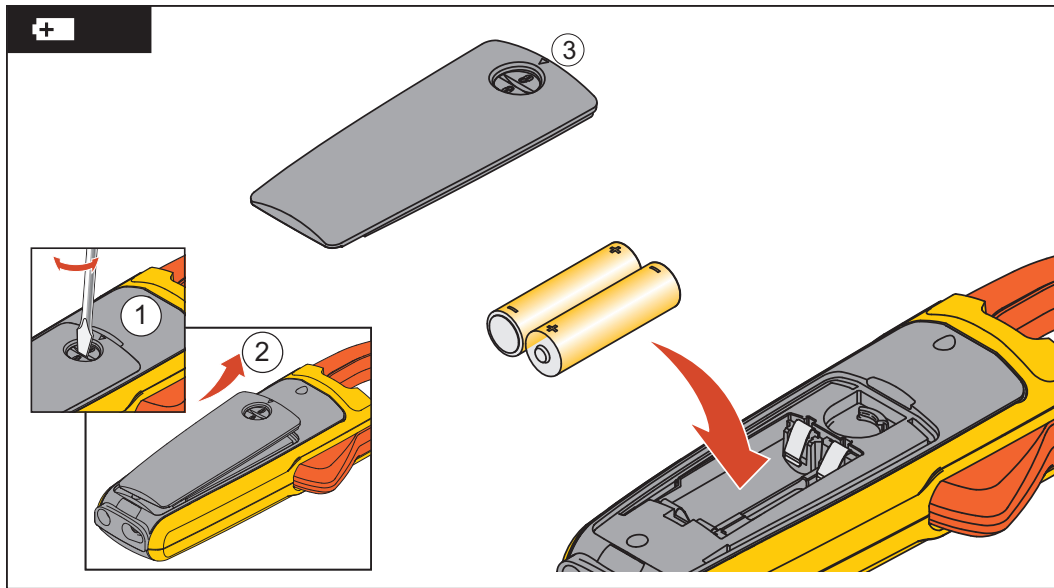


Figure 2. Changing the Batteries

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User Replaceable Parts

User replaceable parts are listed in Table 4.

Table 4. User Replaceable Parts

Fluke Part Number	Description	Qty
376756	Battery (AA 1.5 V)	2
3845988	Battery Door Assembly	1
3612805	Users Manual	1
855742	TL75 Test Leads	1 Set
3752895	Soft Case	1
3868305	Calibration Sticker	1



Tequipment
.NET

USA

205 Westwood Ave
Long Branch, NJ 07740
1-877-742-TEST (8378)
Fax: (732) 222-7088
salesteam@Tequipment.NET