FLUKE®

374/375/376/376-II

Clamp Meter

Calibration Manual

December 2010 Rev. 2, 11/25

LIMITED WARRANTY AND LIMITATION OF LIABILITY

The Fluke 374/375/376 products will be free from defects in material and workmanship for 3 years from the date of purchase. The Fluke 376-II product will be free from defects in material and workmanship for 5 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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Introduction

⚠⚠Warning

Read "Safety Information" before you use the Product.

This manual explains the Calibration Adjustment for the 374, 375, 376, and 376-II Clamp Meters (the Product). See the *374/375/376/376-II Users Manual* for usage information.

Contact Fluke

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

To register your product, or to view, print, or download the latest manual or manual supplement, go to our website: www.fluke.com/productinfo.

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Safety Information

General Safety Information is in the printed Users Manual that ships with the Product and at www.fluke.com. More specific safety information is listed where applicable.

A **Warning** identifies hazardous conditions and procedures that are dangerous to the user. A **Caution** identifies conditions and procedures that can cause damage to the Product or the equipment under test.

Specifications

Complete specifications are in the printed *374/375/376/376-II Users Manual* and at www.fluke.com.

The Meter

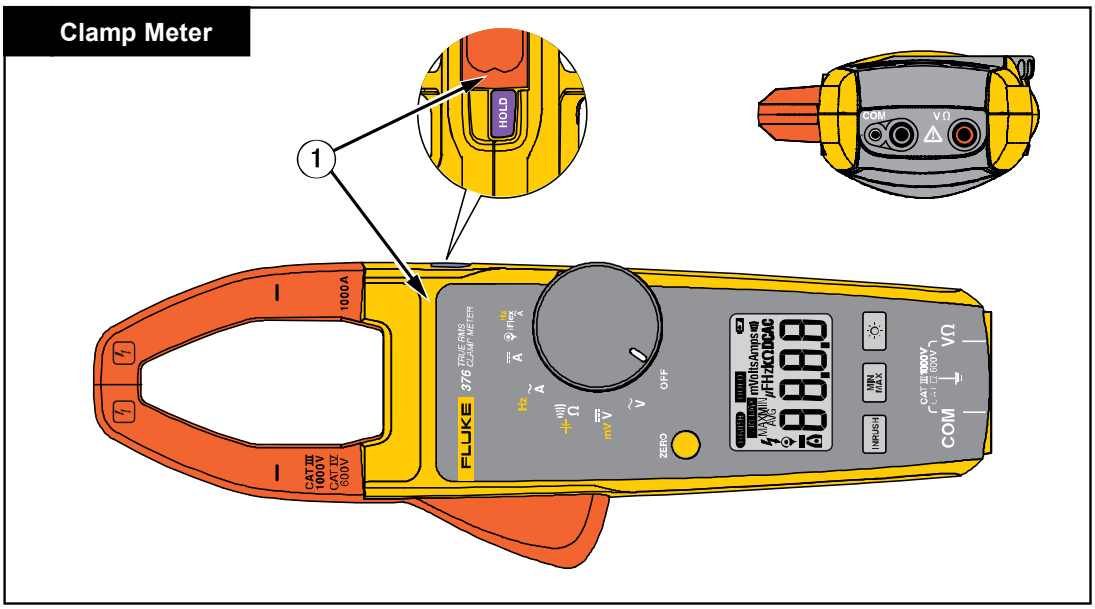

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Figure 1. The Meter

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 1. If the Product fails any part of the test, calibration adjustment and/or repair is indicated. See "Calibration Adjustment".

For the iFlex simulated tests you need the leads and probes listed in the required equipment list. They are used to connect the calibrator output to the iFlex input. Calibrator Output HI goes to the iFlex 2 mm jack (on the far left) and the Calibrator Output LO goes to the black COM jack.

Table 1. Performance Tests

Test (Switch Position)	Calibrator Output	374	375	376/376-II	Meter Reading Limit	
					Low	High
Ṽ AC Volts	10 V, 50 Hz	X	X	X	9.4 V	10.7 V
	500 V, 50 Hz	X	X	X	492.0 V	508.0 V
	900 V, 50 Hz	-	-	X	882.0 V	919.0 V
	500 V, 500 Hz	X	X	X	492.0 V	508.0 V
V⎓ DC Volts	-500 V	X	X	X	-505.5 V	-494.5 V
	10 V	X	X	X	9.4 V	10.6 V
	500 V	X	X	X	494.5 V	505.5 V
	900 V	-	-	X	886.0 V	914.0 V
	-250 mV	-	X	X	-253.0 mV	-247.0 mV
	50 mV	-	X	X	49.0 mV	51.0 mV
	250 mV	-	X	X	247.0 mV	253.0 mV
	450 mV	-	X	X	445.0 mV	455.0 mV
VΩ Ohms	60 Ω	X	X	X	58.9 Ω	61.1 Ω
	300 Ω	X	X	X	296.5 Ω	303.5 Ω
	540 Ω	X	X	X	534.1 Ω	545.9 Ω
	3000 Ω	X	X	X	2965 Ω	3035 Ω
	5400 Ω	X	X	X	5341 Ω	5459 Ω
	30K Ω	-	X	X	29.65 KΩ	30.35 KΩ
	54K Ω	-	X	X	53.41 KΩ	54.59 KΩ
VΩ Capacitance	10 µF	X	X	X	9.5 µF	10.5 µF
	500 µF	X	X	X	491 µF	509 µF
	900 µF	X	X	X	887 µF	913 µF

Table 1. Performance Tests (cont.)

Test (Switch Position)	Calibrator Output	374	375	376/376-II	Meter Reading Limit	
					Low	High
Ã AC Amps (with 50-turn Coil)	0.2 A @ 50 Hz	X	X	X	9.3 A	10.7 A
	10 A @ 50 Hz	X	X	X	489.5 A	510.5 A
	18 A @ 5 0Hz	-	-	X	881.5 A	918.5 A
	6 A @ 440 Hz	X	X	X	292.0 A	308.0 A
Ã DC Amps (with 50-turn Coil)	0.2 A	X	X	X	9.7 A	10.3 A
	10 A	X	X	X	495.0 A	505.0 A
	18 A	-	-	X	891.0 A	909.0 A
Hz iFLEX Ã iFlex Current Probe (with Simulation)	3 mV @ 50 Hz	X	X	X	98.2 A	101.8 A
	30 mV @ 50 Hz	X	X	X	982 A	1018 A
	60 mV @ 50 Hz	X	X	X	1967 A	2033 A
	75 mV @ 50 Hz	X	X	X	2460 A	2540 A
	750 mV @ 500 Hz	X	X	X	2460 A	2540 A
Hz iFLEX Ã iFlex Current Probe (with 50-turn Coil)	0.2 A @ 50 Hz	X	X	X	9.6 A	10.4 A
	10 A @ 50 Hz	X	X	X	493.0 A	507.0 A
	18 A @ 50 Hz	X	X	X	887.0 A	913.0 A
	6 A @ 440 Hz	X	X	X	295.2 A	304.8 A

Calibration Adjustment

Required Equipment

The equipment listed in Table 2 is required for calibration adjustment.

Table 2. Required Equipment

Equipment	Required Characteristics	Recommended Model
Calibrator	4.5-digit resolution	Fluke 55XXA Calibrator
Wired coil	50 turns	55XXA/COIL
Test Probe for iFlex	2 mm to 4 mm Slim Reach probe	PN 6508922
Test Lead	Test Lead with retractable sheath	6358, PN 1903307
Power Supply	+3.0 V	Common power supply or a 2 x AA or AAA battery container

Adjustment Procedure

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 4.
3. Remove the calibration sticker.
4. Connect the Power Supply to the Product battery terminals.
5. Turn the Product ON.
6. Use a small jumper to short the two pads together under the calibration sticker. This will put the Product into calibration mode. See Figure 2.

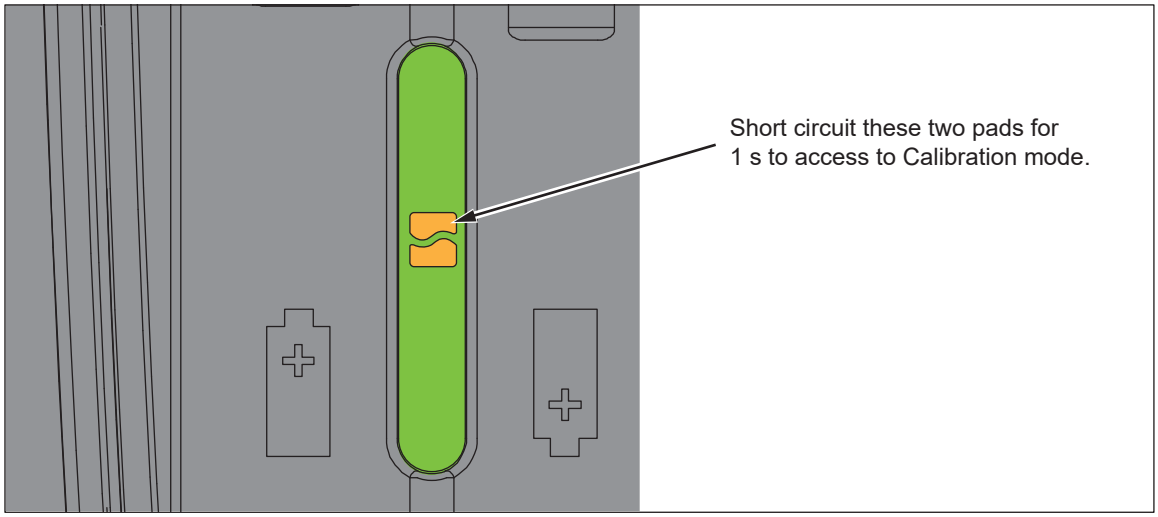

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Figure 2. Calibration Activation

7. Turn the rotary switch to select the function to be calibrated.
8. Apply the required output from the source to the Product. See Table 3.
9. Wait until each applied output stabilizes.
10. Push HOLD to confirm the value and move to the next step in the Adjustment Procedure.

For Current calibration, see Figure 3 for connections.

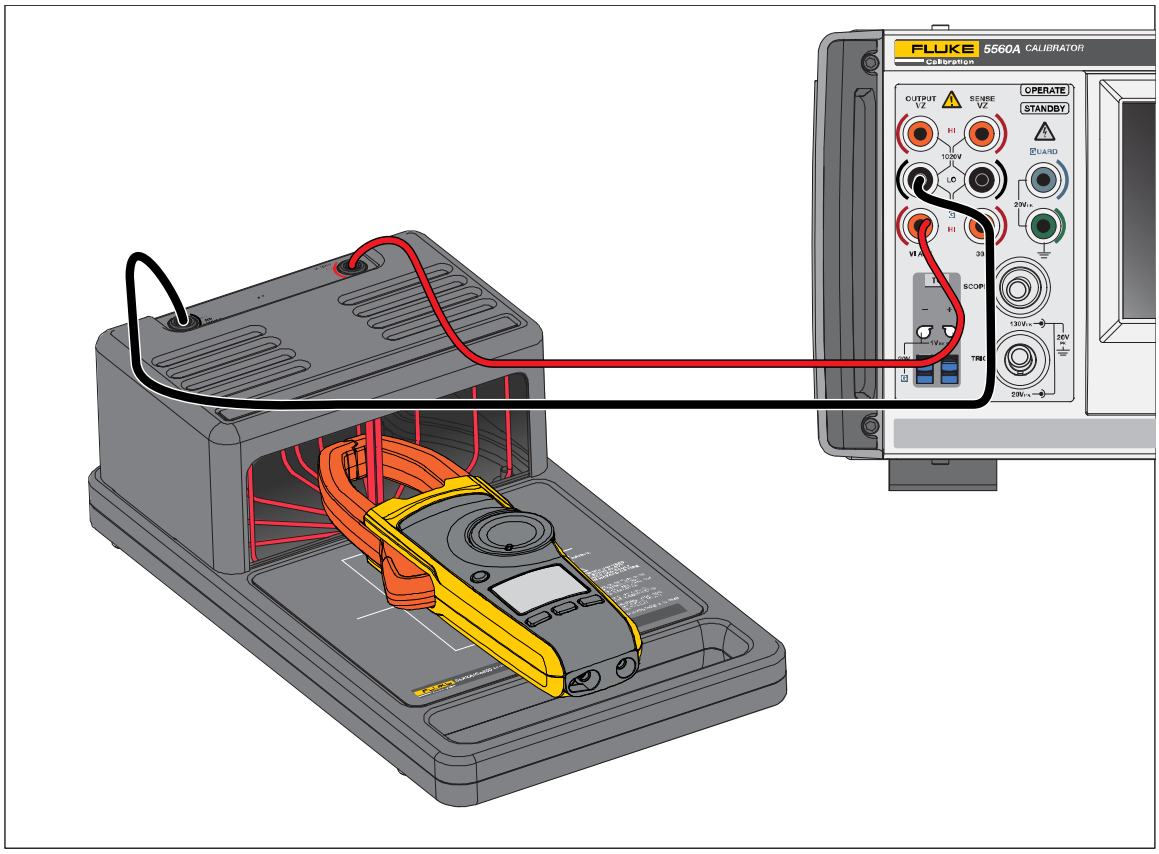

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Figure 3. Current Calibration Setup

The calibration adjustment is complete.

When the adjustment is complete:

1. Remove the Power Supply.
2. Replace the batteries.
3. Reattach the battery compartment door.
4. Tighten the battery compartment door screw.

Table 3. Adjustment Procedure

Test (Switch Position)	LCD Reading	374	375	376/376-II	Calibrator Output
Ṽ AC Volts	C-00	X	X	X	600 V @ 50 Hz
	C-01	X	X	X	300 V @ 50 Hz
	C-02	X	X	X	300 V @ 100 Hz
	C-03	X	X	X	300 V @ 200 Hz
	C-04	X	X	X	300 V @ 300 Hz
	C-05	X	X	X	300 V @ 400 Hz
	C-06	X	X	X	300 V @ 500 Hz
	Save	X	X	X	STBY
V̿ DC Volts	C-07	X	X	X	0 V
	C-08	X	X	X	600 V
	C-09	X	X	X	0 V
	C-10	X	X	X	0.5 V
	Save	X	X	X	STBY
VΩ))))⊣⊢ Ohms/Capacitance	C-11	X	X	X	0 Ω
	C-12	X	X	X	600 Ω
	C-13	X	X	X	660 Ω
	C-14	X	X	X	6000 Ω
	C-15	-	X	X	6600 Ω
	C-16	-	X	X	60000 Ω
	C-17	X	X	X	0.1 µF
	C-18	X	X	X	0.5 µF
	C-19	X	X	X	1.5 µF
	C-20	X	X	X	110 µF
	C-21	X	X	X	500 µF
	C-22	X	X	X	1000 µF
	Save	X	X	X	STBY

Table 3. Adjustment Procedure (cont.)

Test (Switch Position)	LCD Reading	374	375	376/376-II	Calibrator Output
Ã AC Amps (with 50-turn Coil)	C-23	X	X	X	8 A @ 50 Hz
	C-24	X	X	X	3 A @ 50 Hz
	C-25	X	X	X	3 A @ 100 Hz
	C-26	X	X	X	3 A @ 200 Hz
	C-27	X	X	X	3 A @ 300 Hz
	C-28	X	X	X	3 A @ 400 Hz
	C-29	X	X	X	3 A @ 440 Hz
	Save	X	X	X	STBY
A DC Amps (with 50-turn Coil)	C-30	X	X	X	0 A
	C-31	X	X	X	10 A
	Save	X	X	X	STBY
Hz iFLEX Ã iFlex Current Probe (Simulation)	C-32	X	X	X	60 mV @ 50 Hz
	C-33	X	X	X	30 mV @ 50 Hz
	C-34	X	X	X	60 mV @ 100 Hz
	C-35	X	X	X	120 mV @ 200 Hz
	C-36	X	X	X	180 mV @ 300 Hz
	C-37	X	X	X	240 mV @ 400 Hz
	C-38	X	X	X	300 mV @ 500 Hz
	Save	X	X	X	STBY

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 4:

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.

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.

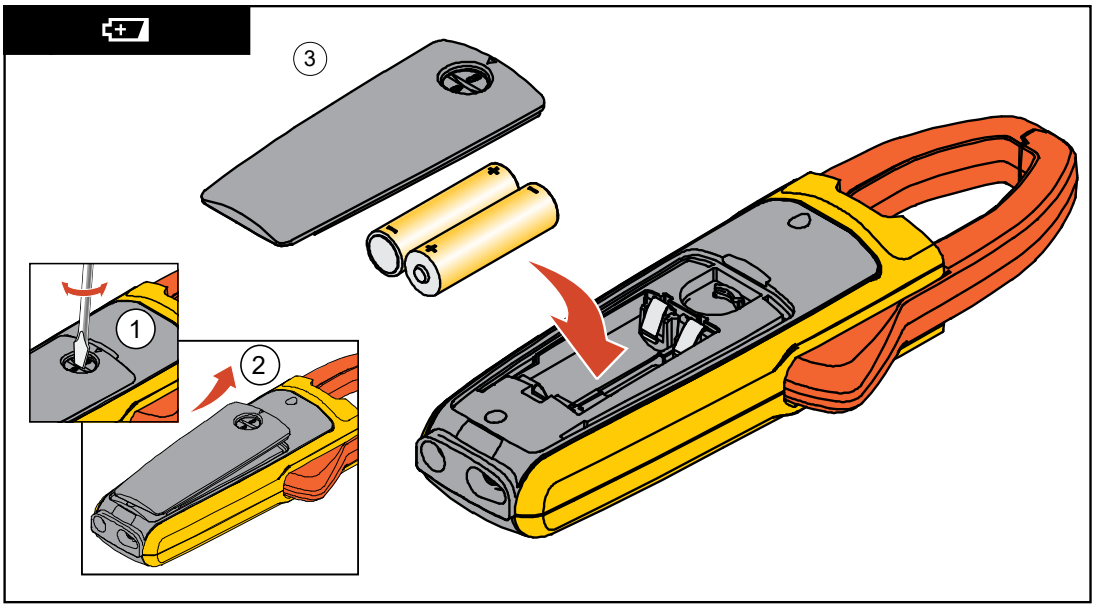

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Figure 4. Changing the Batteries

User Replaceable Parts

User replaceable parts are listed in Table 4.

Table 4. User Replaceable Parts

Fluke Part Number	Description	Qty
3845988	Battery Door Assembly	1
3752958	Soft Case	1
3608883	User Manual	1
376756	Battery (AA 1.5V)	2
3782019	TL175 test leads	1
855742	TL75 test leads	1
3798105	Fluke i2500-18 Rogowski coil	1
3868305	Calibration Sticker	1