FLUKE®

393/393 FC

CAT III 1500V TRMS Clamp Meter

Users Manual

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Table of Contents

Title	Page
Introduction	1
Contact Fluke	1
Safety	2
Before You Start	2
Fluke Connect™ (393 FC)	2
Radio Frequency Data	3
Fluke Connect™ Mobile App	3
Battery	4
Features/Controls	5
Display	6
Power	7
Auto Power Off	7
Backlight	7
Power-On Options	7
Basic Measurements	9
Hazardous Voltage Indicator	9
AC Voltage Measurement with Test Leads	9
DC Voltage Measurement with Test Leads	9
Resistance/Continuity	10
Capacitance	10
Amps DC	11
Power DC	11
Amps AC	12
Amps AC Measurement with Jaw	12
Amps AC Measurement with iFlex Probe	12
Measurement Features	14
Display Hold	14
Auto Hold	14
Min/Max/Avg Measurements	15
Inrush Current/Peak Current	16
Data Logging (393 FC)	16
Clear Memory (393 FC)	16
Firmware Update (393 FC)	16
Firmware Version	17

Maintenance 17
How to Clean the Case 17
Environmental 17
Service 18
Specifications 18
General 18
Electrical 18
Mechanical 21
Environmental 22

Introduction

The Fluke 393/393 FC CAT III 1500V TRMS Clamp Meter (the Product or Clamp) measures:

- true-rms ac current (up to 1000 Aac with jaw measurement) and voltage (up to 1000 Vac)
- dc current (up to 1000 Adc) and voltage (up to 1500 Vdc)
- dc power
- inrush/peak current
- resistance and continuity
- capacitance
- frequency
- dc millivolts

The detachable iFlex (Flexible Current Probe) expands the measurement range to 2500 Aac. The iFlex provides increased display flexibility and allows measurements of awkward-sized conductors and improved wire access. The illustrations in this manual show the 393 FC.

The Clamp includes these features:

- Audio Polarity indicator
- Visual Continuity
- Reporting/data logging with Fluke Connect™ (393 FC)

Contact 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

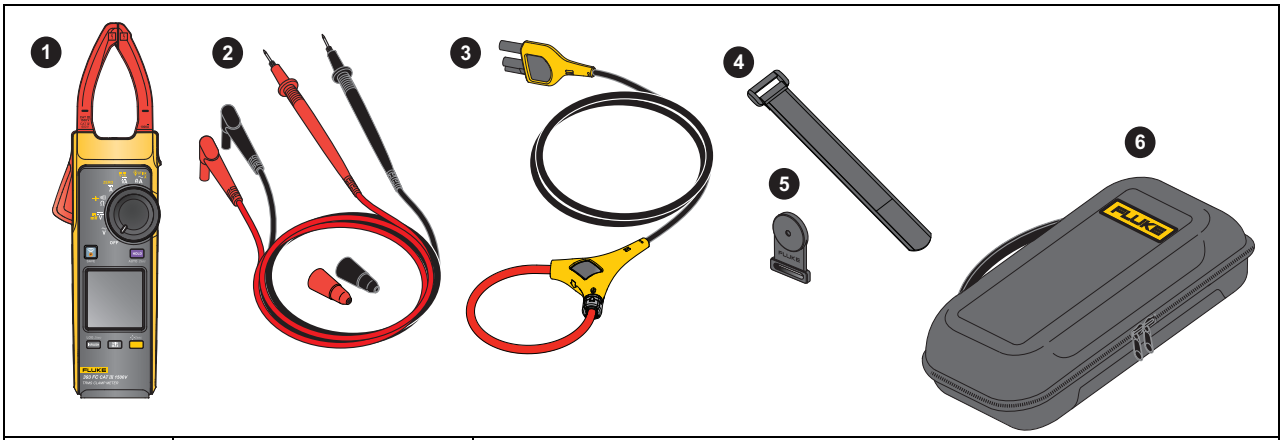
General Safety Information is in the printed Safety Information document that ships with the Product and at www.fluke.com. More specific safety information is listed where applicable.

A **Warning** identifies 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.

Before You Start

Table 1 is a list of the items included with the Product.

Table 1. Standard Equipment



Item	Model Number	Description
1	varies	Clamp Meter
2	TL1500DC	1500 V Test Lead Set
3	i2500-18 iFlex	Flexible Current Probe 18 in (46 cm)
4	TPAK80-4-8001	Strap 9 in (23 cm)
5	TPAK80-4-2002C	Magnet
6	37x	Carry Case
not shown		Safety Information

Fluke Connect™ (393 FC)

Fluke Connect™ software (may not be available in all regions) supports the Clamp to wirelessly connect your Clamp with a mobile app. The app shows the measurements and other data on your smartphone or tablet display. You can share this data with your team and save collected measurements and calculations to the Fluke Connect Cloud.

Fluke Connect uses low-power wireless radio technology to connect the Clamp with an app on your smartphone or tablet. The wireless radio does not cause interference with Clamp measurements.

Radio Frequency Data

Note

Changes or modifications to the wireless 2.4 GHz radio not expressly approved by Fluke Corporation could void the user's authority to operate the equipment.

For complete information about radio frequency data, go to www.fluke.com/manuals and search for "*Radio Frequency Data Class A*".

Fluke Connect™ Mobile App

The Fluke Connect™ app works with Apple and Android mobile products. The app is available for download to your smart device from the Apple App Store and Google Play.

To use the Fluke Connect app:

1. Open the FlukeConnect app on your device.
2. Turn on the Clamp.
3. Push to activate the radio on the Clamp. shows on the display.
4. On your smartphone, go to **Settings** > **Bluetooth**.
5. Verify that Bluetooth is turned on.
6. Go to the Fluke Connect App and in the list of connected Fluke tools, select **393 FC**.

   You can now take, save, and share measurements with the app. Go to www.flukeconnect.com for more information about how to use the app.

Battery

⚠⚠ Warning

To prevent personal injury and for safe operation of the Product:

- **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.**
- **Replace the batteries when the low battery indicator shows to prevent incorrect measurements.**
- **When batteries are changed, ensure that the calibration seal in the battery compartment is not damaged. If damaged, the Product may not be safe to use. Return the Product to Fluke for replacement of the seal.**

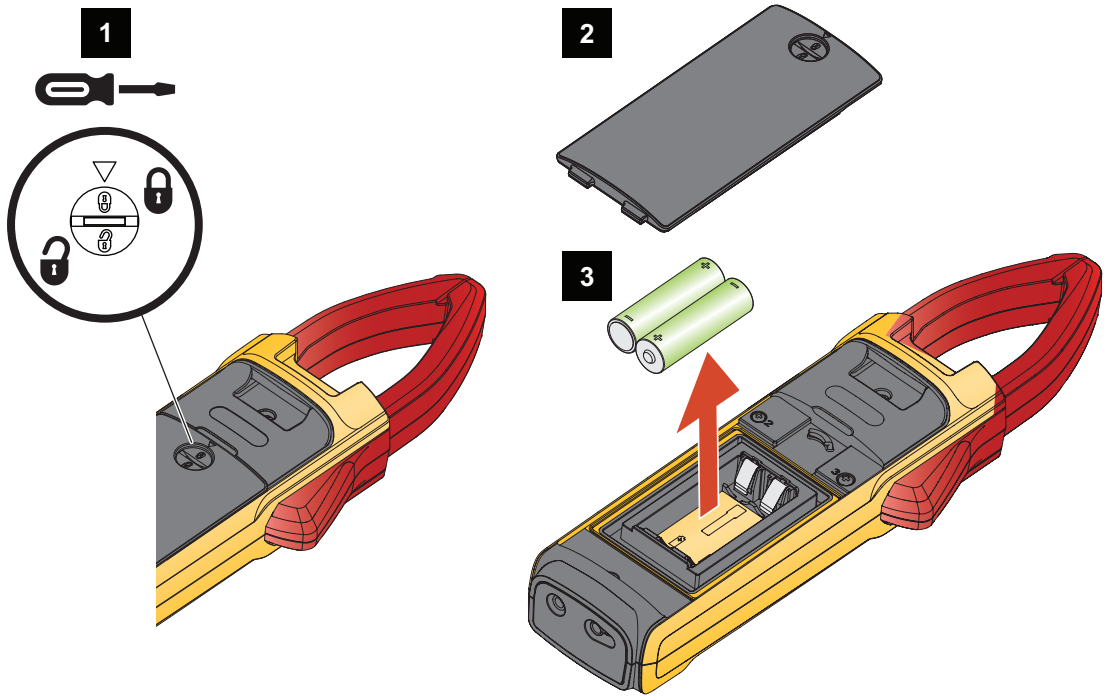
⚠ Caution

To prevent damage to the battery:

- **Repair the Product before use if the battery leaks.**
- **Do not expose battery to heat sources or high-temperature environments such as an unattended vehicle in the sun.**
- **Always operate in the specified temperature range.**
- **Do not incinerate the Product and/or battery.**

The Product ships with the batteries installed. To replace batteries, see Figure 1.

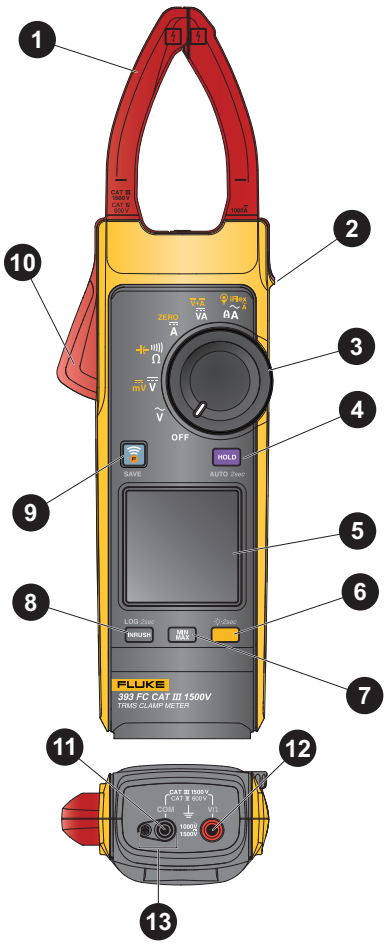
Figure 1. Battery Replacement



Features/Controls

Table 2 is a list of features and controls.

Table 2. Feature/Control Descriptions

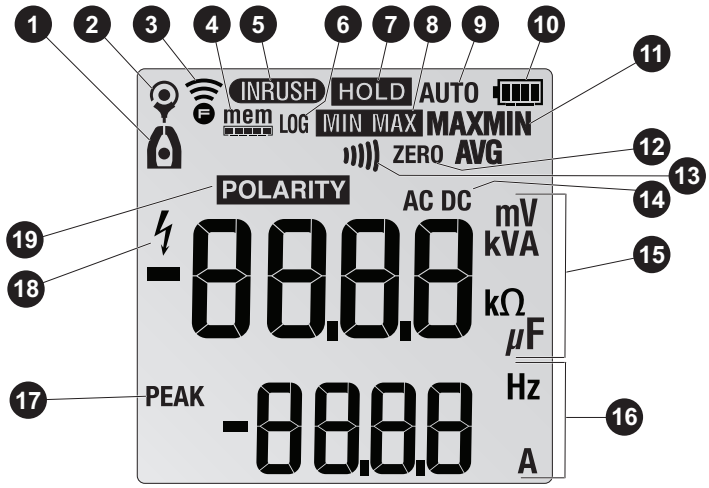


Item	Description
❶	Jaw
❷	Tactile Barrier
❸	Control Knob
❹	Hold Push >2 s to enable/disable the Auto Hold mode.
❺	Display
❻	Extends the function selection to yellow items on the control knob. Push >2 s to turn on/turn off the backlight.
❼	Min/Max/Avg for dc power, current, voltage, resistance, capacitance, and frequency measurement functions.
❽	INRUSH: push to enter inrush mode. Push a second time to exit inrush mode. Integration time is 100 ms. Push >2 s to enable/disable data logging function.
❾	Turn on the Fluke Connect feature. turns blue and flashes when paired with the Fluke Connect mobile phone app. When on, push to save a measurement to the Fluke Connect mobile app. Push >2 s to turn off the Fluke Connect feature.
❿	Trigger
⓫	Common terminal
⓬	Volts/Ohm input terminal
⓭	iFlex Current Probe (R-coil) connection

Display

Table 3 is a list of the display annunciators.

Table 3. Display



Item	Description	Item	Description
❶	Jaw measurement	⓫	Min, Max, or Avg measurement indication
❷	iFlex measurement	⓬	Zero indication
❸	Fluke Connect feature is on	⓭	Continuity indication
❹	Remaining memory (393 FC)	⓮	AC or DC measurement
❺	Inrush measurement	⓯	Unit of measurement for voltage, current, dc power, and resistance/capacitance measurement
❻	Log mode is active (393 FC)	⓰	Unit of measurement for frequency and current measurement
❼	Hold mode is active	⓱	Peak value of inrush measurement
❽	MinMax mode is active	⓲	Clamp senses a voltage >30 V or a voltage overload (OL)
❾	Auto Hold mode is active	⓳	Polarity indication
❿	Battery status		

Power

Two AA batteries supply power to the Clamp:

- To turn on the Clamp, rotate the control knob from **OFF** to a function.
- To turn off the Clamp, rotate the control knob to **OFF**.

Auto Power Off

The Clamp automatically powers off after 20 minutes of no use. If the Clamp automatically powers off, turn the control knob to OFF and then to a function to resume operation.

To disable auto power off, see *Power-On Options*.

Note

Auto power off is always disabled when you use the Min/Max/Avg, Auto Hold, Fluke Connect, and Data Logging functions.

Backlight

The display on the Clamp includes a backlight that improves the readability in dim work areas.

- 393: Push ☼ to toggle on/toggle off the backlight.
- 393 FC: Push ☼ >2 s to toggle on/toggle off the backlight.

The backlight has an auto off feature that turns off the backlight after 2 minutes of no use. To disable the auto off backlight feature, see *Power-On Options*.

Power-On Options

Power-on options allow you to customize the controls:

- Disable Auto Power Off
- Disable Auto Backlight Off
- View firmware version and light all LCD segments
- Erase Logging Memory
- Disable Beeper

To select a power-on option:

1. Turn off the Clamp.
2. See Table 4 for option and button sequence.

Table 4. Power-On Options

Option	Button Sequence
Disable Auto Power Off	Hold down INRUSH as you turn ON Clamp (rotate control knob) and push HOLD for <1 s. Display shows PoFF.
Disable Auto Backlight Off	Hold down INRUSH as you turn ON Clamp (rotate control knob) and push . Display shows LoFF.
View firmware version and light all LCD segments	Any button + ON (rotate control knob)
Erase Logging Memory	Hold down INRUSH as you turn ON Clamp (rotate control knob) and push . Display shows clr,P. Push again. Display shows ErAS. Display shows donE when erase is complete.
Disable Beeper	Hold down INRUSH as you turn ON Clamp (rotate control knob) and hold HOLD for >1 s. Display shows bEEP.

Basic Measurements

⚠⚠ Warning

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

- **Hold the Product behind the tactile barrier.**
- **Do not measure current while the test leads are in the input jacks.**

Hazardous Voltage Indicator

When the Clamp senses a voltage more than ±30 V or a voltage overload (OL), ϟ shows on the display to tell you a hazardous voltage is at the Clamp input.

AC Voltage Measurement with Test Leads

To measure ac voltage and the frequency:

1. Turn control knob to $\widetilde{V}$.
2. Connect the black test lead to the **COM** terminal and the red test lead to the **VΩ** terminal.
3. Touch the probes to the test points of the circuit.

   The display shows the ac voltage and the frequency.

DC Voltage Measurement with Test Leads

To measure dc voltage:

1. Turn control knob to $\overline{\overline{mV}}\,\overline{\overline{V}}$.
2. Connect the black test lead to the **COM** terminal and the red test lead to the **VΩ** terminal.
3. Touch the probes to the test points of the circuit.

   The display shows the measurement.

4. Push [ ] to toggle on/toggle off the mV function shown in yellow at the control knob position.

The Clamp checks the polarity during a dc voltage measurement. When dc voltage is less than -10 V:

1. Red LEDs blink and continue for 10 s.
2. Beeper sounds and continues for 10 s.
3. POLARITY blinks on the display.

Resistance/Continuity

To measure resistance or continuity:

1. Turn the control knob to ⊣(ω).
2. Remove power from the circuit to test.
3. Connect the black test lead to the COM terminal and the red test lead to the **VΩ** terminal.
4. Touch the probes to the test points of the circuit.

   The display shows the value.

If the resistance is <30 Ω, the beeper sounds continuously to indicate continuity and the green LEDs blink. If the display shows **OL**, the circuit is open.

Capacitance

The Clamp determines capacitance by charging a capacitor with a known current, measuring the resulting voltage, then calculating the capacitance.

Note

A good capacitor stores an electrical charge and may remain energized after power is removed. Before you touch the capacitor or make a measurement, turn all power OFF, use the Clamp to confirm that power is OFF, and carefully discharge the capacitor by connecting a resistor across the leads. Be sure to wear appropriate personal protective equipment.

To measure capacitance:

1. Turn the control knob to ⊣(ω).
2. Push [ ] to shift to the ⊣ function.
3. Remove the capacitor from the circuit and discharge the capacitor.
4. Connect the black test lead to the **COM** terminal and the red test lead to the **VΩ** terminal.
5. Touch the probes to the capacitor leads.

   The display shows the measurement.

   OL indicates the capacitor is faulty or the capacitance value is higher then the measurement range. dISC indicates the capacitor does not properly discharge.

Amps DC

To measure dc current:

1. Turn control knob to $\overline{\underline{\mathbf{A}}}$.
2. Push [ ] to compensate (zero) for outside influences.
3. Position the Clamp jaw around the conductor.

   The display shows the value and to indicate that the measurement is from the jaw. When the current measurement is <0.5 A, the center dot in the icon flashes. For current measurements >0.5 A, the center dot in the icon is steady.

Power DC

To measure dc power:

1. Turn control knob to $\overline{\underline{\mathbf{A}}}$.
2. Push [ ] to compensate (zero) for outside influences.
3. Turn control knob to $\overline{\underline{\mathbf{VA}}}$.
4. Position the Clamp jaw around the conductor.
5. Connect the black test lead to the **COM** terminal and the red test lead to the **VΩ** terminal.
6. Touch the probes to the test points of the circuit.

   The display shows the measurement of dc power and dc current.

   The display also shows to indicate that the measurement is from the jaw.

Note

Push [ ] to toggle the readout between dc power and dc voltage.

Amps AC

⚠⚠ Warning

To prevent electrical shock, do not apply or remove from live hazardous conductors.

Amps AC Measurement with Jaw

To measure amps ac:

1. Turn control knob to iFlex Ã.
2. Position the Clamp jaw around the conductor.

   The display shows the amps ac measurement and frequency and also shows to indicate that the measurement is from the jaw.

Amps AC Measurement with iFlex Probe

The high-performance AC Flexible Current Probe uses the Rogowski principle for accurate, non-intrusive measurement of sinusoidal, pulsed, and other complex waveforms. The flexible and lightweight measuring head allows quick and easy installation in hard-to-reach areas and works well with large conductors.

To use the iFlex Probe:

1. Connect the iFlex Probe to the Clamp. See Figure 2.
2. Connect the flexible part of the iFlex Probe around the conductor. If you open the end of the iFlex Probe to make the connection, make sure that you close and latch the coupling. See the detail in Figure 2. You should be able to hear and feel the lock snap into place.

   Note

   When you measure current, center the conductor in the iFlex Probe. Avoid measurements close to other current-carrying conductors.

3. Keep the probe coupling >2.5 cm (1 inch) away from the conductor.
4. Turn the control knob to iFlex Ã.
5. Push [ ].

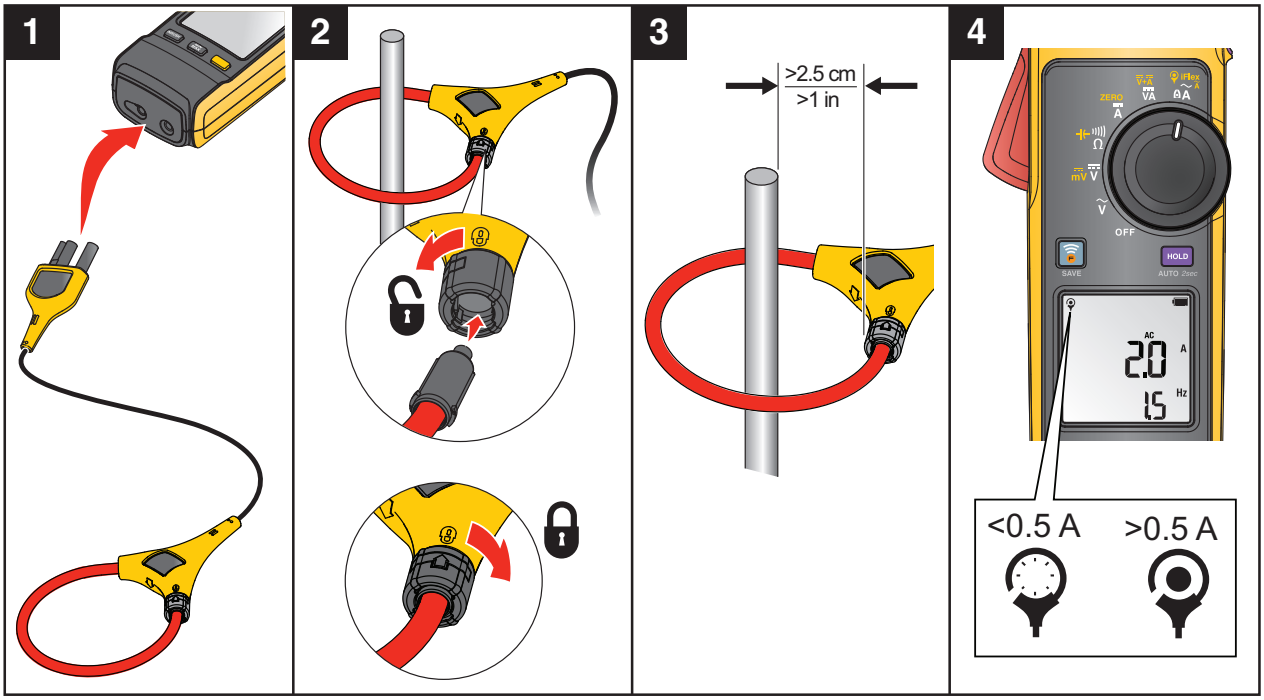
   The display shows to indicate that the measurements are from the iFlex Probe. When the current measurement is <0.5 A, the center dot in the icon flashes. For current measurements >0.5 A, the center dot is steady.

   The display shows the measurement.

If the iFlex Probe does not work as expected:

- Make sure that the coupling system is connected and closed correctly or look for any damage. If any foreign material is present, the coupling system will not close properly.
- Inspect the cable between the iFlex Probe and the Clamp for any damage.
- Check that the control knob is in the correct position iFlex A.

Figure 2. Flex Probe Setup



Measurement Features

This section is about the Clamp features you can use for measurements.

⚠⚠ Warning

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

- **Do not use the HOLD function to measure unknown potentials. When HOLD is turned on, the display does not change when a different potential is measured.**
- **Disconnect power and discharge all highvoltage capacitors before you measure resistance, continuity, capacitance, or a diode junction.**

Display Hold

To capture and hold the display reading, push HOLD. The display freezes the readings and **HOLD**. The Product periodically beeps to remind you that the measurement is not live. When in HOLD mode, if the Product senses a voltage more than ±30 V or a voltage overload (OL), ϟ shows on the display to tell you a hazardous voltage is at the Product input.

When in HOLD mode, push HOLD again to resume normal operation with live readings.

Auto Hold

To capture and hold the display reading automatically:

1. Push HOLD >2 s to enable Auto Hold mode.

   AUTO shows on the display to indicate that Auto Mode is enabled. The display will freeze and blink **HOLD** automatically.

   When in Auto Hold mode, the Clamp periodically beeps to remind you that the measurement is not live. If the Clamp senses a voltage more than ±30 V or a voltage overload (OL), ϟ shows on the display to tell you a hazardous voltage is at the Clamp input.

   When Auto Hold is enabled, the main reading will trigger the hold mode, and the second reading will not display. **HOLD** stops blinking until the main reading triggers the hold mode.

   The display updates when the measured value:

   - exceeds the threshold value (voltage, capacitance, current, dc power)
   - is less than the threshold value (Ohm) and stabilizes within the fluctuation range/delta value.

   See Table 5.

Table 5. Auto Hold Functions

Function	Threshold	Fluctuation Range/Delta
V ac	10 V	2 V
V dc	10 V	2 V
mV dc	20 mV	5 mV
Ohm	60 kΩ	2.0 Ω/20 Ω/0.20 kΩ
Capacitance	10 µF	2 µF
A dc	10 A	2 A
A ac	10 A for Clamp/25 A for iFlex	2 A for Clamp/5 A for iFlex
dc Power	10.0 kVA	2.0 kVA

2. When in Auto Hold mode, push HOLD >2 s again to exit the Auto Hold mode.

Note

Auto Power Off is always disabled when you use the Auto Hold function. When Auto Hold is enabled on VA, push [ ] *to disable it automatically. Auto hold is disabled when Inrush Current/Peak Current or Min/Max/Ave is enabled.*

Min/Max/Avg Measurements

Min/Max/Avg mode captures the minimum, maximum, and average readings of a given output signal over an extended time. The Clamp beeps when it senses a new high value or new low value. It applies for both reading except for Inrush Current/Peak Current. Push HOLD to pause the reading update (recording continues).

This function works in current, voltage, and frequency modes:

1. Push MIN MAX to enter the Min/Max/Avg mode.

   The maximum reading shows on the display.
2. Continue to push MIN MAX to select between the maximum, minimum, average, and live readings.

   The cycle continues each time you push MIN MAX.
3. To exit Min/Max/Avg mode, push and hold MIN MAX for >2 s.

Note

The Min/Max/Avg function does not support Auto Hold and Inrush Current/Peak Current. Auto Power Off is always disabled when you use the Min/Max/Avg, Auto Hold, and Logging functions or Fluke Connect is active.

Inrush Current/Peak Current

Inrush Current is surge current that occurs when an electrical device is first powered on. The Clamp can capture this surge current reading. Current spikes from motor drives are one example of such an event. The Inrush function takes samples over a 100 ms period and calculates the starting current envelope.

To measure inrush current:

1. Select the measurement function (ac current, dc current, or iFlex ac current).
2. Center the Jaw or iFlex Probe around the live wire on the device.
3. Push INRUSH.

   Dashes show on the display until the Clamp detects the inrush current. When the inrush current is detected, the measurement and the peak value show simultaneously on the display.

Data Logging (393 FC)

The Fluke Connect™ app enables you to log the data measurements. This app shows measurements from the connected Clamp on your smartphone or tablet display. The app also saves the measurements in the Product internal memory and to the Fluke Connect Cloud™ storage. With Fluke Connect Cloud storage you can easily share the information with your team.

Note

The logging interval is set in the Fluke Connect app. Logging is not available for the inrush mode.

To log measurements:

1. On the Clamp, push INRUSH for >2 s.

   The memory icon indicates how much memory is available.
2. On the Clamp, push INRUSH for >2 s to stop logging.

Clear Memory (393 FC)

See *Power-On Options*.

Firmware Update (393 FC)

Firmware updates are available for Clamps that have the Fluke Connect™ feature. The Fluke Connect mobile app shows a notification if a firmware update is available when the unit is connected to the app.

To update:

1. Make sure the Product has at least 50 % battery power available.
2. Make sure you download all the logged data before you update the firmware.
3. In the app, tap **Update** to start the firmware update to the Product.

Firmware Version

To find the firmware version for the Clamp, see *Power-On Options*.

Maintenance

The Product does not require routine maintenance.

⚠⚠ Warning

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

- **Remove the input signals before you clean the Product.**
- **Repair the Product before use if the battery leaks. Battery leakage may create a shock hazard or damage the Product.**
- **Use only specified replacement parts.**
- **Have an approved technician repair the Product.**
- **Remove the batteries if the Product is not used for an extended period of time, or if stored in temperatures above 50 °C. If the batteries are not removed, battery leakage may result.**

How to Clean the Case

Wipe the case with a damp cloth and mild detergent.

⚠ Caution

Do not use abrasives, isopropyl alcohol, or solvents to clean the case or lens/window.

Environmental

This Product has electronic printed circuit boards. These components must be disposed of specifically when the Product is at the end of its use. The manufacturer offers to take back the Product from the customer to ensure that the Product is disposed of in an environmentally-friendly manner when it is at the end of its use.

See *Contact Fluke* for more information.

Service

An authorized Fluke Calibration service center should service the Product at one-year intervals to maintain optimum performance. Contact your equipment distributor or authorized Fluke Calibration Service Center for any equipment performance failure or to schedule regular maintenance service. See *Contact Fluke* for more information.

Table 6 is a list of the available replacement parts.

Table 6. Replacement Parts

Item	Quantity	Fluke Part Number
Battery, AA 1.5 V	2	376756
Battery Door Assembly	1	5266613
TL1500DC Test Lead Set	1	5292172
Flexible Current Probe i2500-10	1	3676410
Flexible Current Probe i2500-18	1	3798105
Magnet Strap	1	4329190
Strap, 9-inch	1	669960
Carry Case	1	5211830

Specifications

General

Maximum voltage between any Terminal and Earth Ground
AC ..... 1000 V
DC ..... 1500 V
Batteries ..... 2 AA IEC LR6 alkaline
Display ..... Dual display with backlight
Automatic Power Off ..... 20 minutes

Electrical

Accuracy

Accuracy is specified for 1 year after calibration, at operating temperatures of 18 °C to 28 °C, relative humidity at 0 % to 75 %. Accuracy specifications take the form of: ±([% of Reading] + [Number of Least Significant Digits]).

Temperature Coefficients ..... Add 0.1 x specified accuracy for each °C >28 °C or <18 °C

AC Current: Jaw

Range ..... 999.9 A
Resolution ..... 0.1 A
Accuracy ..... 2 % + 5 digits (10 Hz to 100 Hz)
2.5 % + 5 digits (100 Hz to 500 Hz)
Crest Factor (50/60 Hz) ..... 2.5 @600.0 A
3.0 @500.0 A
1.42 @999.9 A
Add 2 % for C.F. >2

AC Current: Flexible Current Probe

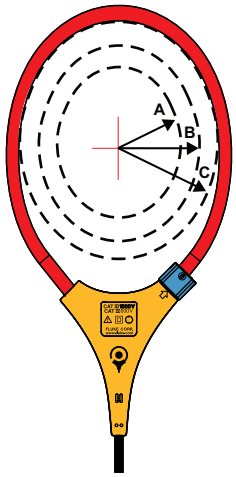
Range ..... 999.9 A
2500 A

Resolution..... 0.1 A (≤999.9 A)
1 A (≤2500 A)

Accuracy..... 3 % RD + 5 digits (10 Hz to 500 Hz)

Crest Factor (50/60Hz) ..... 2.5 @1400 A
3.0 @1100 A
1.42 @2500 A
Add 2 % for C.F. >2

Position Sensitivity



Distance from Optimum	i2500-10 Flex	i2500-18 Flex	Error
A	0.5 in (12.7 mm)	1.4 in (35.6 mm)	±0.5 %
B	0.8 in (20.3 mm)	2.0 in (50.8 mm)	±1.0 %
C	1.4 in (35.6 mm)	2.5 in (63.5 mm)	±2.0 %
Measurement uncertainty assumes centralized primary conductor at optimum position, no external electrical or magnetic field, and within operating temperature range.			

DC Current

Range ..... 999.9 A

Resolution..... 0.1 A

Accuracy..... 2 % RD + 5 digits[1]

[1] When using the ZERO ( ) function to compensate for offsets.

AC Voltage

Range ..... 600.0 V
1000 V

Resolution ..... 0.1 V (≤600.0 V)
1 V (≤1000 V)

Accuracy ..... 1 % RD + 5 digits (20 Hz to 500 Hz)

DC Voltage

Range ..... 600.0 V
1500 V

Resolution ..... 0.1 V (≤600.0 V)
1 V (≤1500 V)

Accuracy ..... 1 % RD + 5 digits

mV dc

Range ..... 500.0 mV

Resolution ..... 0.1 mV

Accuracy ..... 1 % RD + 5 digits

Amps Frequency: Jaw

Range ..... 5.0 Hz to 500.0 Hz

Resolution ..... 0.1 Hz

Accuracy ..... 0.5 % RD + 5 digits

Trigger Level ..... 5 Hz to 10 Hz, ≥10 A
10 Hz to 100 Hz, ≥5 A
100 Hz to 500 Hz, ≥10 A

Amps Frequency: Flexible Current Probe

Range ..... 5.0 Hz to 500.0 Hz

Resolution ..... 0.1 Hz

Accuracy ..... 0.5 % RD + 5 digits

Trigger Level ..... 5 Hz to 20 Hz, ≥25 A
20 Hz to 100 Hz, ≥20 A
100 Hz to 500 Hz, ≥25 A

Voltage Frequency

Range ..... 5.0 Hz to 500.0 Hz

Resolution ..... 0.1 Hz

Accuracy ..... 0.5 % RD + 5 digits

Trigger Level ..... 5 Hz to 20 Hz, ≥5 V
20 Hz to 100 Hz, ≥5 V
100 Hz to 500 Hz, ≥10 V

DC Power

Range ..... 600.0 kVA (600.0 V dc range)
1500 kVA (1500 V dc range)

Resolution ..... 0.1 kVA
1 kVA

Accuracy ..... 2 % RD + 2.0 kVA
2 % RD + 20 kVA

Resistance

Range ..... 600.0 Ω
6000 Ω
60.00 kΩ

Resolution ..... 0.1 Ω (≤600.0 Ω)
1 Ω (≤6000 Ω)
0.01 kΩ (≤60.00 kΩ)

Accuracy ..... 1 % RD + 5 digits

Capacitance

Range ..... 100.0 µF
1000 µF

Resolution ..... 0.1 µF (≤100.0 µF)
1 µF (≤1000 µF)

Accuracy ..... 1 % RD + 5 digits

Inrush

Trigger Level ..... 5 A

Mechanical

Size (L x W x H) ..... 281 mm x 84 mm x 49 mm

Weight (with batteries ..... 520 g

Jaw Opening ..... 34 mm

Flexible Current Probe Diameter ..... 7.5 mm

Flexible Current Probe Cable Length
(head to electronics connector) ..... 1.8 m

Environmental

Operating Temperature	-10 °C to 50 °C
Storage Temperature	-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)
Operating Altitude	2000 m
Storage Altitude	12 000 m
Ingress Protection (IP) Rating	IEC 60529: IP54 non-operating
Electromagnetic Compatibility (EMC)	
International	IEC 61326-1: Portable, Electromagnetic Environment, IEC 61326-2-2 CISPR 11: Group 1, Class A *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 A: Equipment is suitable for use in all establishments other than domestic and those directly connected to a low-voltage power supply network that supplies buildings used for domestic purposes. There may be potential difficulties in ensuring electromagnetic compatibility in other environments due to conducted and radiated disturbances.* *Caution: This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.*
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

General	IEC 61010-1, Pollution Degree 2
Measurement	IEC 61010-2-032: CAT III 1500 V / CAT IV 600 V IEC 61010-2-033: CAT III 1500 V / CAT IV 600 V

Wireless Radio

Radio frequency certification	FCC ID: T68-FBLE, IC: 6627A-FBLE
Wireless Radio Frequency Range	2400 MHz to 2483.5 MHz
Output Power	<100 mW

SIMPLIFIED EU DECLARATION OF CONFORMITY
Hereby, Fluke declares that the radio equipment contained in this Product is in compliance with Directive 2014/53/EU. The full text of the EU declaration is available at the following Internet address:
www.fluke.com/en-us/declaration-of-conformity