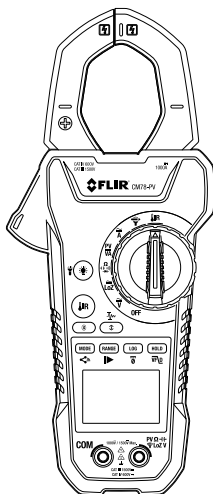




QUICK START

CAT III 1500 V Solar Clamp Meter

MODEL CM78-PV



Quick Start (en)

INTRODUCTION

Congratulations on your purchase of the FLIR CM78-PV CAT III 1500 V Solar Clamp Meter.

In addition to standard clamp meter functions, the CM78-PV supports solar photovoltaic (PV) DC measurements up to 1500 V using test leads, and up to 1000 A DC or AC using the clamp.

The built-in non-contact infrared thermometer measures surface temperature and the Bluetooth® METERLiNK® technology offers wireless connection to the METERLiNK app on mobile devices.

METER POWER

1. Install six (6) AAA batteries in the rear compartment. The compartment is secured by one screw.
2. Turn the rotary switch from OFF to any position to power the meter.

SAFETY

Safety Notes

- Read, understand, and follow all instructions, dangers, warnings, cautions, and notes, before use.
- FLIR Systems reserves the right to change specifications at any time without prior notice.
- Remove the batteries if the device is not to be used for an extended time period.

Safety Warnings

- Do not operate the device if you do not have the correct knowledge.
- Do not change to the current or resistance mode when measuring voltage.
- Do not measure the current on a circuit when the voltage increases to more than 600 V.
- Disconnect the test leads from the circuit under test before changing the range.
- Do not replace the batteries before removing the test leads.
- Do not look directly into the laser beam.



LASER RADIATION - DO NOT STARE INTO BEAM
RAYONNEMENT LASER NE REGARDEZ PAS LE FAISCEAU
CLASS 2 CONSUMER LASER PRODUCT

WAVELENGTH: 650nm MAX OUTPUT POWER < 1mW

IEC 60825-1:2014

COMPLIES WITH 21 CFR 1040.10

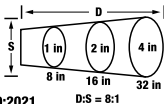
AND 1040.11 EXCEPT FOR

CONFORMANCE WITH IEC 60825-1

ED. 3 AS DESCRIBED IN LASER

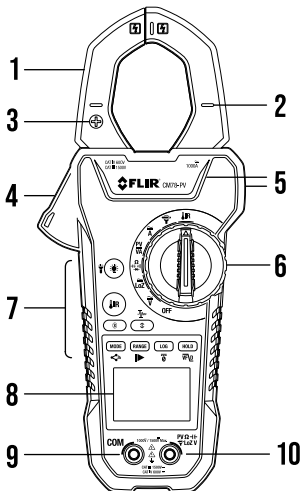
NOTICE NO. 56, DATED MAY 8, 2019.

EN 60825-1:2014/A11:2021, EN 50689:2021













PRODUCT DESCRIPTIONS

Meter



1. Clamp jaw.
2. Conductor alignment guides.
3. Polarity icon.
4. Jaw opening trigger.
5. Hand protection barriers.
6. Rotary function switch.
7. Control buttons.
8. LCD display.
9. Common input terminal.
10. Positive input terminal.

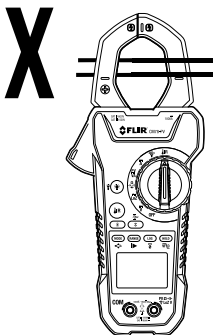
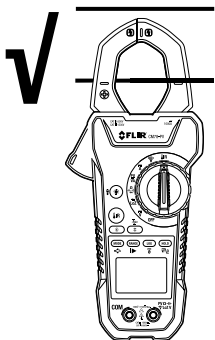
Control Buttons

 	Backlight (short press). Work light (long press)
	Activate laser pointer and thermal sensor
	Enable/disable Bluetooth communication
	View MAX and MIN readings
	Engage in-rush current circuit when measuring AC current
MODE	Change the operating mode for the currently selected function
	With Bluetooth and data log modes engaged, long press to share data log readings with a mobile device running METERLiNK
RANGE	Switch from Auto to Manual range mode. Long press to return to Auto range mode
LOG	Set the data logger to ready (standby) mode (LOG will appear)
	Start and stop the data logger. The LOG icon blinks when logging
	DC Zero function (long press) when measuring DC current
HOLD	Data Hold mode
	Long press to engage the low pass filter, for measuring variable speed drives (VFD) and other devices that generate high frequency noise.

CURRENT MEASUREMENTS

Clamp Measurements

Clamp only one conductor.



1. Disconnect test leads.
2. Set function switch to $\overline{\text{A}}$.
3. Press MODE to select AC or DC.
4. Use the trigger to open and close the clamp.
5. Fully enclose and centre one conductor.
6. Read the current value on the display.

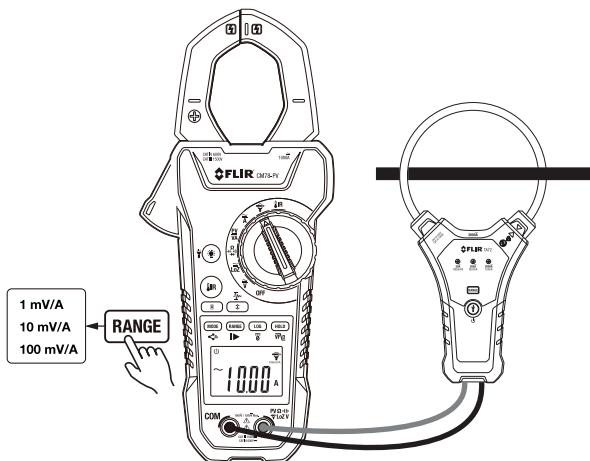
Inrush AC Current

1. Set up a current measurement as described above.
2. Press $\overline{\text{I}}$ and the icon $\overline{\text{I}}$ will appear.
3. With the clamp enclosing one conductor, apply power to the conductor.
4. Read the inrush current on the display.

DC Zero

Before measuring a DC Current signal with the clamp, long press $\overline{0}$ to zero the display.

External Clamp Adaptor

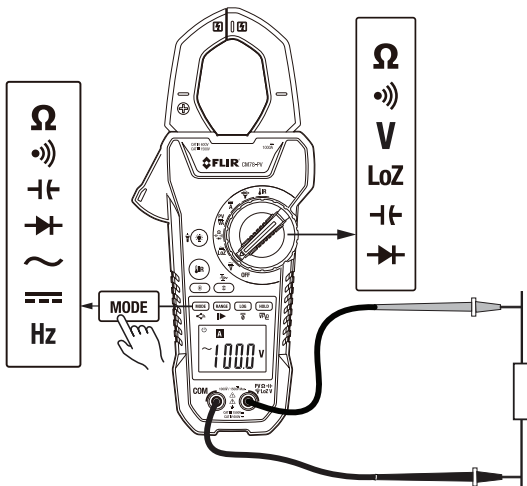


1. Disconnect the external clamp from the test circuit.
2. Connect the external clamp to the CM78-PV input terminals.
3. Set the rotary switch to
4. Press RANGE to select the desired range.
5. Clamp onto the test conductor and apply power.
6. Read the current measurement on the display.

TEST LEAD MEASUREMENTS

WARNING: Remove power to the device under test before measuring resistance, diode, and capacitance.

1. Set the rotary switch to the desired parameter.
2. Use the MODE button to selected the desired function.
3. Connect the probe leads to the meter and in parallel to the part under test.
4. Read the measurement value on the display.



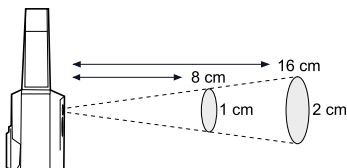
NOTES:

To eliminate 'ghost' voltages, use the *LoZ* switch position when measuring voltage.

To filter high frequency noise from AC measurements, engage the low pass filter by long pressing the *VFD* button.

IR TEMPERATURE MEASUREMENTS

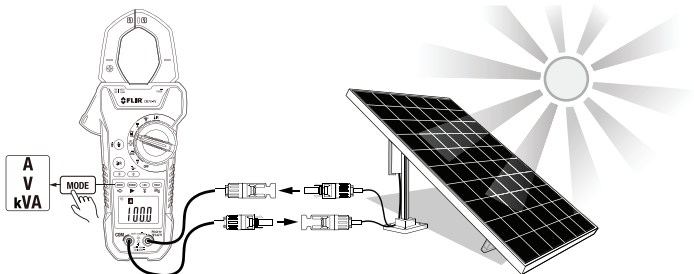
The meter's field of view ratio is 8:1, if the meter is 8 cm from the target, the diameter (spot) of the object under test must be at least 1 cm.



1. Set the function switch to **IR**.
2. Press the **IR** button to enable the IR sensor and the laser pointer.
3. Aim the laser pointer at the test surface. Read the temperature on the display.
4. The unit of measure (°C, °F) switch is located in the battery compartment.

SOLAR POWER MEASUREMENTS

1. Set the rotary switch to **PV**.
2. Press **MODE** to select power (kVA), current (A), or voltage (V).
3. To measure voltage, use the supplied MC4 plugs or test leads to connect to the panels.
4. To measure current, clamp onto a test conductor.
5. To measure power, measure voltage (test leads) and current (clamp) simultaneously.
6. Read the measurement on the display.



DATA LOGGING

1. Press **LOG** to put the data logger in ready (standby) mode.
2. Press **▶** to start/stop logging. The **LOG** display icon flashes while recording. The logger stops recording at 999 readings.

Refer to the user manual for complete instructions on sharing data log files with a mobile device.

BASIC SPECIFICATIONS

See the user manual for complete specifications.

General Specifications

Display	Backlit LCD
Input impedance	10 M Ω (3 k Ω , approx. in LoZ mode)
AC voltage bandwidth	45 to 400 Hz
AC measurement type	True RMS
Power supply	6 x AAA alkaline batteries
Battery life	50 hours
Auto power off	After 25 minutes of inactivity
Operating temperature	14 to 122°F (–10 to 50°C)
Storage temperature	–14 to 140°F (–25 to 60°C)
Dimensions	10.1 x 4.3 x 2.0 in. (257 x 110 x 50 mm)
Weight	1.4 lbs. (0.63 kg)
Bluetooth range	33 ft. (10 m) maximum
Safety Rating	CAT IV 600 V, CAT III 1500 V

Measurement Ranges

AC and DC Current	600.0 to 1000 A
AC Voltage	6.000 to 1000 V
DC Voltage	600.0 mV to 1500 V
DC Power (PV)	900 kW
Resistance	600.0 Ω to 60.00 M Ω
Continuity	50 Ω threshold
Capacitance	60.00 nF to 6000 μ F
Frequency	10.00 Hz to 60.00 kHz
IR Temperature	-58 to 518°F (-50 to 270°C)

CUSTOMER SUPPORT

Customer Support Telephone List	https://support.flir.com/contact
Repair, Calibration, and Technical Support	https://support.flir.com

WARRANTY

This product is protected by FLIR's Limited Lifetime Warranty. Visit www.flir.com/testwarranty to read the warranty document.