

Digital T-RMS AC/DC Clamp Meter PRO 476

INTRODUCTION

The Metravi PRO 476 T-RMS AC/DC Clamp Meter is an advanced device, especially designed for high-voltage photovoltaic environments. It offers exceptional accuracy and performance, with a wide range of features.

With its automatic range selection, T-RMS measurements and a clear display capable of showing up to 9999 digits, this clamp meter allows for precise measurements of AC/DC Voltage, Current, Low-pass Filtered Voltage/Current, Surge Current, Peak Current, DC Power (using an external flexible clamp head), Resistance, Circuit Continuity, Diodes, Capacitance, and Temperature.

Its versatility extends beyond Photovoltaic applications, as it can also be used in other high-voltage settings like energy storage systems, uninterrupted power supplies (UPS), and large motors.

FEATURES

- Measure 2500V DC, 1000A DC & DC Power 2000kW
- Measure 1500V AC, 1000A AC
- External Flex Clamp (optional) can measure up to 3000A AC
- Low Pass Filter
- AC Inrush Current & Peak Value (PEAK) measurement
- Dual Display to show Voltage/Frequency or Current/Frequency or DC Voltage/DC Current or DC Power/DC Current on the same screen
- Temperature measurement (contact K-type)
- Data Logging
- 35mm Ultra-thin Jaws - ideal for inverter or combiner box
- Solar Panel Polarity indication: when <-10 DCV
- Audible & Visual Alarm
- Bluetooth App for Android & iOS: enables remote control & monitoring using Smartphone App
- Auto backlight & Auto power-off
- Certifications: CE, RoHS, cETLus
- Safety rating: CAT III 1500V/ CAT IV 600V
- Protection IP65 makes it ideal for outdoor use, especially for Solar Arrays, Wind Energy Systems, etc.



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TECHNICAL SPECIFICATIONS

Accuracy: $\pm (a\% \text{ of rdg.} + b \text{ dgt.})$; guaranteed for 1 year
Ambient temperature and humidity: $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$; $\leq 80\% \text{ RH}$
Temperature coefficient: The temperature condition to ensure accuracy is $18^{\circ}\text{C} \sim 28^{\circ}\text{C}$. The fluctuation range of ambient temperature keeps within $\pm 1^{\circ}\text{C}$. If the temperature is $< 18^{\circ}\text{C}$ or $> 28^{\circ}\text{C}$, the additional error of temperature coefficient is $0.1 \times (\text{specified accuracy}) / ^{\circ}\text{C}$

AC Voltage ACV

Range	Resolution	Accuracy	Overload Protection
999.9V	0.1V	$\pm(1.0\%+5)$	2500V DC/1500V AC
1500V	1V		

AC Voltage ACV-LPF

Range	Resolution	Accuracy	Overload Protection
999.9V	0.1V	$\pm(2.0\%+9)$ (45Hz~100Hz)	2500V DC/1500V AC

* Input impedance: About 2 M Ω

* Frequency response (ACV): 40~1000 Hz (Display: True RMS)

* Accuracy guarantee range:

ACV: 1%~100% of range

ACV: 10%~100% of range

* Add an error for the AC crest factor of non-sine wave

a) Add 3% for crest factor of 1~2

b) Add 5% for crest factor of 2~2.5

c) Add 7% for crest factor of 2.5~3

* If frequency is displayed on the sub-display, then the input amplitude shall meet the requirements as: 5 Hz~100 Hz: $\geq 5 \text{ V}$, 100 Hz~999.9Hz: $\geq 10 \text{ V}$

DC Voltage DCV, DCmV

Range	Resolution	Accuracy	Overload Protection
999.9mV	0.1mV	$\pm(1.0\%+5)$	1500V AC/DC
999.9V	0.1V		2500V DC/1500V AC
2500V	1V		

* Accuracy guarantee range: 1~100% of range

* Input impedance:

DCV: About 2 M Ω , DCmV: About 10 M Ω



Polarity Indication

If the voltage is below -10V DC, the system activates a series of indicators: The red LED will flash for a period of 10 seconds, accompanied by buzzing. Additionally, the LCD screen will display the "POLARITY" symbol, alerting the user to the reversed probe.

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TECHNICAL SPECIFICATIONS

DC Current DCA

Range	Resolution	Accuracy	Overload Protection
999.9A	0.1A	$\pm(2.0\%+5)$	1000A AC//DC

* Press the zero button to zero the reading before measurement.

* Please perform measurement at the center of the clamp jaws. An error of 1% is added if deviated from the center.

* Accuracy guarantee range: 1~100% of range.

AC Current ACA

Range	Resolution	Accuracy	Overload Protection
999.9A	0.1A	$\pm(2.0\%+5)$ (40Hz~100Hz) $\pm(2.5\%+5)$ (100Hz~1000Hz)	1000A AC/DC

AC Current ACA_LPF

Range	Resolution	Accuracy	Overload Protection
999.9A	0.1A	$\pm(2.5\%+9)$ (45Hz~100Hz)	1000A AC/DC

* RMS of sine wave

* Accuracy guarantee range:

ACA: 1%~100% of range, ACA_LPF: 10~100% of range

* AC crest factor (50/60HZ):

2.5 (At 600.0A), 3.0 (At 500.0A), 1.42 (At 999.9A)

Add an error for the crest factor of non-sine wave:

- Add 4% for crest factor of 1~2
- Add 5% for crest factor of 2~2.5
- Add 7% for crest factor of 2.5~3

* Please perform measurement at the center of the clamp jaws. An error of 1% is added if deviated from the center.

* If frequency is displayed on the sub-display, then the input amplitude shall meet the requirements below: 5 Hz~10Hz: ≥ 10 A, 10 Hz~100Hz: ≥ 5 A, 100 Hz~999.9Hz: ≥ 10 A

* 3db frequency (ACA_LPF): About 1.2 KHz



Ultra-thin Clamp Head:

35mm ultra-thin clamp head is designed for narrow gaps in the combiner or inverter and other tight spaces and crowded environments.

DC Power VA

Range	Resolution	Accuracy	Overload Protection
999.9kVA	0.1kVA	$\pm(2.0\%+20)$	2500V DC/1500V AC 1000A AC/DC
2500kVA	1kVA		

* Precision range: 5~100% of range

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TECHNICAL SPECIFICATIONS

Flex Current Sensor CSA ACV

Range	Resolution	Accuracy	Overload Protection
30.00A	0.01A	$\pm(3.0\%+5)$	2500V DC 1500V AC
300.0A	0.1A		
3000A	1A		

Flex Current Sensor CSA_LPF

Range	Resolution	Accuracy	Overload Protection
30.00A	0.01A	$\pm(4.0\%+9)$ (45Hz~100Hz)	2500V DC 1500V AC
300.0A	0.1A		
3000A	1A		

* Frequency response (CSA): 45Hz~5500Hz (The frequency response refers to the intrinsic frequency response of PRO 476)

* 30.00A: 1A = 100mV (AC); 300.0A: 1A = 10mV (AC); 3000A: 1A = 1mV (AC).

* The specified accuracy at this measurement position is the intrinsic accuracy of PRO 476 (eliminate the error of flex current sensor).

* CSA_LPF: 10~100% of range

* 3db frequency (CSA_LPF): About 1.2 KHz

Resistance (Ω)

Range	Resolution	Accuracy	Overload Protection
999.9 Ω	0.1 Ω	$\pm(1.0\%+5)$	1500V AC/DC
9.999k Ω	0.001k Ω		
99.99k Ω	0.01k Ω		

* Precision range: 1~100% of range

* For continuity test at 999.9 Ω , fast response cannot be achieved. For resistance $\leq 30\Omega$, continuous sound is generated and green backlight is lit up. For resistance $\geq 50\Omega$, no sound is made.

Frequency

Range	Resolution	Accuracy
5.0 - 999.9 Hz	0.1Hz	$\pm(.5\%+5)$

Diode

Range	Resolution	Overload Protection
2.800V	0.001V	1500V AC/DC

* Open-circuit voltage: About 3V

* Residual reading under short-circuit condition: ≤ 3 digits



External Clamp Sensor:

AC current measurement range can expand to 3000A with the flex clamp sensor and it also makes it easy to take measurements in narrow spaces.

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TECHNICAL SPECIFICATIONS

Capacitance

Range	Resolution	Accuracy	Overload Protection
100.0μF	0.1μF	±(1.0%+5)	1500V AC/DC
1000μF	1μF		

* Residual reading under open-circuit condition: ≤5 digits

* Measured value = Displayed value - Residual reading

* Precision range: 5~100% of range

Temperature

Range	Resolution	Accuracy	Overload Protection
-40°C~400°C	0.1°C	±(1.0%+30)	1500V AC/DC
-40°F~752°F	0.2°F	±(1.0%+60)	

* Equipped with Type K (NiCr~NiSi) thermocouple

* Open-circuit indication: OL

* Short-circuit indication: Ambient temperature

* If each ambient temperature difference of the Clamp Meter reaches ±5°C, the accuracy can be adopted after 1 hour.

Table of Auto Hold Function

Table of Auto HOLD Function		
Function	Threshold	Fluctuation range/Increment
ACV	10V	2V
DCV	10V	2V
Ω	99.99KΩ	2.0Ω/20Ω/0.2KΩ
CAP	10μF	2μF
DCA	10A	2A
ACA (Clamp Jaw)	10A	2A
CSA	1A/10A/100A	0.2A/2A/2A
VA	10KVA	2.0KVA



Bluetooth APP:

By utilising the Bluetooth app, user can conveniently record the testing results and measurement details.

Moreover, the testing reports and data can be effortlessly transferred and shared with your colleagues or team members.

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GENERAL SPECIFICATIONS

- Display : 9999 Counts Backlit Large LCD
- Polarity Indication : Auto
- Overload Indication : Yes
- Low Battery Indication : Yes
- Drop Proof : 1m
- Protection : IP65
- Jaw Opening : 35mm
- Auto Power Off : After 15 mins of non-operation
- Power Supply : 2 x 1.5V AA Batteries
- Dimensions : 295 mm x 73 mm x 50 mm
- Weight : 540 gms
- Operating Environment : 0°-30°C, ≤ 80%RH; 30°-40°C, ≤ 75%RH; 40°-50°C, ≤ 45%RH
- Storage Environment : -20°C to 60°C, ≤ 80%RH
- Operating Altitude : 2000 mtrs
- Electromagnetic Capability : In an RF field of 1V/m², total accuracy = specified accuracy + 5% of range. In RF field > 1V/m², there are no specifications
- Interface : Bluetooth
- Software : Free App for iOS and Android
- Zero / REL Key : Available
- Accessories : Test Leads, K-type Thermocouple, Carrying Case, Batteries, User Manual

