



T-RMS AC/DC CLAMP METER WITH DATALOGGER & OSCILLOSCOPE PRO 475

INTRODUCTION

The Metravi Pro 475 TRMS **Clamp Meter with Oscilloscope** combines the traditional electrical measurement capabilities of a clamp meter with the real-time waveform visualisation of an oscilloscope.

This hybrid device provides deeper diagnostic insights, making it particularly useful in various complex electrical troubleshooting and analysis scenarios.

Real-Time Waveform Analysis helpful for diagnosing non-linear loads or irregular waveforms caused by harmonic distortions, which are common in industrial and commercial equipment.

Advanced Troubleshooting for Power Quality Issues is possible and the user you can identify and address these issues promptly to prevent potential damage or inefficiency in equipment.

The Metravi Pro 475 provides detailed inrush current measurements, capturing the initial surge of current when equipment starts up. This is valuable for motors, compressors, and transformers, where inrush can affect performance or indicate malfunction.

In applications such as motor drives or variable frequency drives (VFDs), monitoring PWM signals is essential for tuning and troubleshooting. The built-in Oscilloscope enables visualisation of the signal waveform, helping in identifying pulse issues or improper signal shaping.

Detailed Analysis of DC Systems is possible with one single meter, especially in EVs or renewable energy setups, as this device can visualise ripple voltage and other irregularities that may indicate issues with DC-DC converters, battery health, or other components.

The Metravi Pro 475 is a versatile tool, enhancing the capability of standard clamp meters by providing visual insight into waveforms and enabling more precise diagnostic

FEATURES

- **Multi-functional Usage:** A 4-in-1 innovative experience which combines **T-RMS Clamp Meter, Multimeter, Oscilloscope, and Data Recorder** functions to suit various measurement needs.
- **High Accuracy:** Ensures precise reading with high accuracy across voltage, current, resistance, and frequency measurements.
- **Easy-to-Read Display:** Features a large, clear screen for easy viewing of measurement results and waveforms.
- **Narrow-edge Jaw Opening:** A 38mm elongated jaw opening design makes it suitable for confined spaces as well as large wire dimensions.
- **Robust Input Protection:** Equipped with comprehensive input protection to protect the device and the user.
- **User-Friendly Interface:** Intuitive design with simple button layout for convenient operation and quick access to functions.
- **Bluetooth & Smartphone App:** Helps automatically record measurement values and display them in a graph to visualise trends. The recorded data can be shared in csv format.



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APPLICATIONS

- **Industrial and Commercial Electrical Maintenance:** Identifying power quality issues, harmonics, and diagnosing equipment faults.
- **Automotive and EV Systems:** Monitoring inrush currents, ripple voltage, and PWM signals in high-voltage DC systems.
- **Renewable Energy:** Visualising power irregularities and optimising system performance in Solar PV installations and battery storage systems.
- **Data Centers and Telecom:** Ensuring the integrity of high-voltage DC and AC systems, monitoring phase balance, and ensuring signal stability

SPECIFICATIONS

Counts	: 2,000 / 20,000 (3 1/2 & 4 1/2 digits - depending on ranges)
Safety	: Input Protection, ABS rubber coating housing
Compliance	: CAT III 1000V, CAT IV 600V
Data Logging	: Yes - Data can be recorded, recalled and analysed
Jaw Opening	: 38mm
Inrush Mode	: Only in AC Mode
Automatic Shutdown	: When all functions are not used, the meter will automatically shut down in about 10 minutes.(the default is 10 minutes of automatic shutdown when starting, which can be canceled)
True Effective Value	: ✓ True RMS
Display Mode	: DMM or OSC
Return Zero Measurement	: ✓
Input Protection	: ✓
Digital Hold	: ✓
Bluetooth Interface	: A smart phone can be used to view the measurement data of the multimeter on the mobile phone side, perform remote control, display data charts, and store the measurement data in CSV format.
NCV	: Non-contact Voltage detection
Power	: 3.7V Rechargeable Lithium Battery, USB type-C Charging
Low Battery Indication	: When the power is low, there will be a low power window, and wait for a period of time to shut down automatically.
Backlight Function	: ✓
Display	: 2.8 inch Colour IPS LCD with Dual Theme
Weight	: Approx. 0.35kg
Dimensions	: 248mm(L) x 94.5mm(W) x 37.8mm(D)
Accessories	: Test Leads, User Manual, USB C-type Cable



* Interval Period of Adjustment: One year is recommended for the calibration interval period. *

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MULTIMETER SPECIFICATIONS

Standard Conditions: The environment temperature is 18°C to 28°C, the relative humidity is less than 80%.

NOTE:

When measuring AC Voltage, AC Current, accuracy guarantee range is 10% to 100% of the range.

When measuring DC Voltage, DC Current or Capacitance, accuracy guarantee range is 5% to 100% of the range.

DC Current (A)

Measurement Range	Resolution	Function
20.00A	0.01A	$\pm (2.0\% + 10 \text{ dig})$
200.0A	0.1A	
1000A	1A	

AC Current (A)

Measurement Range	Resolution	Function	
20.00A	0.01A	VRMS Freq range: 40Hz-1000Hz	$\pm (3.0\% + 10 \text{ dig})$
200.0A	0.1A		$\pm (2.5\% + 5 \text{ dig})$
1000A	1A		

DC Voltage (mV)

Measurement Range	Resolution	Function
20.000mV	0.001mV	$\pm (0.1\% + 20 \text{ dig})$
200.00mV	0.01mV	$\pm (0.1\% + 6 \text{ dig})$

DC Voltage (V)

Measurement Range	Resolution	Function
2.0000V	0.0001V	$\pm (0.1\% + 5 \text{ dig})$
20.000V	0.001V	
200.00V	0.01V	
1000.0V	0.1V	$\pm (0.15\% + 5 \text{ dig})$

AC Voltage (mV)

Measurement Range	Resolution	Function	
200.00mV	0.01mV	VRMS Freq range: 40Hz-1000Hz	$\pm (0.6\% + 10 \text{ dig})$





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AC Voltage (V)

Measurement Range	Resolution	Function	
2.0000V	0.0001V	VRMS Freq range: 40Hz-1000Hz	± (0.6% + 10 dig)
20.000V	0.001V		
200.00V	0.01mV		± (0.8% + 10 dig)
1000.0V	0.01V		

Inrush Current (A)

Measurement Range	Resolution	Function	
20.00A	0.01A	VRMS Freq range: 40Hz-1000Hz	± (10.0% + 10 dig)
200.0A	0.1A		
1000A	1A		

Resistance (Ω)

Measurement Range	Resolution	Function
200.00Ω	0.01Ω	± (0.8% + 10 dig)
2.0000kΩ	0.0001kΩ	± (0.3% + 10 dig)
20.000kΩ	0.001kΩ	
200.00kΩ	0.01kΩ	
2.0000MΩ	0.0001MΩ	± (0.5% + 5 dig)
20.000MΩ	0.001MΩ	
100.00MΩ	0.01MΩ	± (5.0% + 10 dig)

Capacitance (F)

Measurement Range	Resolution	Function
2.000nF	0.001nF	± (5.0% + 10 dig)
20.00nF	0.01nF	± (3.0% + 10 dig)
200.0nF	0.1nF	
2.000μF	0.001μF	
20.00μF	0.01μF	
200.0μF	0.1μF	
2.000mF	0.001mF	
20.00mF	0.001mF	



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MULTIMETER SPECIFICATIONS

Frequency (Hz)

Measurement Range	Resolution	Function
200.00Hz	0.01Hz	$\pm (0.1\% + 5 \text{ dig})$
2.0000kHz	0.0001kHz	
20.000kHz	0.001kHz	
200.00kHz	0.01kHz	
2.0000MHz	0.0001MHz	
20.000MHz	0.001MHz	

Duty Cycle (%)

Measurement Range	Resolution	Function
0.1%-99.9% (Typical: Vrms=1 V, f=100Hz)	0.10%	$\pm (1.2\% + 3 \text{ dig})$
0.1%-99.9% ($\geq 1 \text{ kHz}$)		$\pm (2.5\% + 10 \text{ dig})$

Diode

Measurement Range	Resolution	Function
3.0000V	0.0001V	Open circuit voltage 3.2V

On - Off

Measurement Range	Resolution	Function
0~200.0 Ω	0.1 Ω	Buzzer limit 50 Ω ; the measurement value is displayed from 00 to 200.0 Ω , and "OL" is displayed if the value exceeds.

- When measuring capacitance, for the 20.00mF range, the measuring duration should be over 30 seconds.
- When measuring frequency, the typical waveform is Square or Sine. The signal meets the following conditions:

Frequency	Amplitude (rms)
1 Hz - 20 MHz	$\geq 1 \text{ V}$

- When measuring duty cycle, the typical waveform is Square.

Note: When measuring resistance and capacitance, the influence of the resistance reactance of the pen itself on the measured value should be considered.



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OSCILLOSCOPE SPECIFICATIONS

Analogue Bandwidth	: Voltage: 1MHz Current: 1KHz
Sample Mode	: Real-time sample
Real-time Sampling Rate	: 5.0 MSa/s
Channel	: 1
Input impedance	: $\geq 10\text{ M}\Omega$
Maximum Input Voltage	: Maximum peak voltage 1000V
Maximum Sample Current	: Maximum peak current 1000A
Scan speed	: 2.5 us/div - 10 s/div
Time Base Accuracy	: $\pm (0.01\% + 0.1\text{ div})$
Sensitivity	: 30 mV/div - 500 V/div
Displacement Range	: ± 3 grid
Sensitivity Accuracy	: $\pm (5\% + 0.2\text{ div})$
Measurement Values	: Rms, Freq, Max, Min, PK-PK, Avg
Trigger Mode	: Auto
Trigger Type	: Rise, Fall



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