

## PROFESSIONAL DIGITAL T-RMS MULTIMETER PRO 589

### INTRODUCTION

The Metravi PRO 589 Professional True-RMS Industrial Digital Multimeter with TFT colour LCD display, provides fast A/D converting sampling time, high accuracy, built-in datalogging and Trend Capture features. It can trace any interrupted problems of the equipments and watch on without person. It is a very easy to use and handy instrument for finding and solving the problems of production equipments. The Metravi PRO 589 is very safe to use and provides highly accurate measurements.

This meter measures AC/DC Voltage, AC/DC Current, Resistance, Capacitance, Frequency (electrical & electronic), Duty Cycle, Diode Test, Insulation Test, and Continuity plus Thermocouple Temperature. It can store and recall data. It features a waterproof, rugged design for heavy duty use. Proper use and care of this meter will provide many years of reliable service.

### FEATURES

This meter is intended for origin of installation use and protects the user with double insulation as per EN61010-1 and IEC61010-1 2nd Edition (2001) to Category IV 600V and Category III 1000V; Pollution Degree 2. The meter also meets UL 61010-1 2nd Edition (2004), CAN/CSA C22.2 No. 61010-1 2nd Edition (2004), and UL 61010B-2-031, 1st Edition (2003)

- 50,000 Counts TFT LCD Colour Display
- 100kHz Bandwidth
- Bluetooth interface for PC / Smartphone connection
- Trend Capture
- Low Pass Filter
- Surge Protection up to 8kV peak as per IEC 61010
- Full Overload Protection
- 0.05% Accuracy
- MAX / MIN / AVG readings can be seen on the same screen with the live parameter
- PEAK MAX / PEAK MIN readings can be recorded
- Peak values of transients up to 250 $\mu$ S can be recorded
- AC+DC Measurement
- Relative Function and Data Hold Facility
- Data Logging Capability
- Histogram Data viewable with time stamp
- Real Time Data Recoding with Date and Time Stamp
- User Selectable Recording function
- Cursor Measurements on Trend Graphs
- Zoom in function on Trend Capture
- Rechargeable Battery with Battery Charger
- Auto Power Off with Manual Over-ride function
- Overload Indication
- T-RMS Measurements



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**Polarity** : Automatic (no indication for positive); Minus (-) sign for negative

**Measurement Rate** : 20 times per second, nominal

**Low Battery Indication** : “” is displayed if battery voltage drops below operating voltage

**Battery** : One 7.4 volt (NEDA 1604) battery

**Fuses** : mA,  $\mu$ A ranges; 0.8A/1000V ceramic fast blow A range; 10A/1000V ceramic fast blow

**Operating Temperature** : 5°C to 40°C (41°F to 104°F)

**Storage Temperature** : -20°C to 60°C (-4°F to 140°F)

**Operating Humidity** : Max 80% up to 31°C (87°F) decreasing linearly to 50% at 40°C (104°F)

**Storage Humidity** : 50% at 40°C (104°F)

**Operating Altitude** : <80% 7000ft. (2000meters) maximum

**IP Rating** : Water Proof And Dust Proof (IP 67)

**Molding** : Double Molded Injection Body



#### AC Voltage

Range	Resolution	50/60Hz	<1KHz	<5KHz	≤100KHz [1]
500mV	0.01mV	±0.5% +5	±1.5%	±3.0%	±5.5%
5V	0.0001V		+5	+5	+20
50V	0.001V		±1.5% +10	±3.5%	Unspecifie
500V	0.01V			+10	
1000V	0.1V			Unspecifie	Unspecifie

[1] Upper 10% of range, sine wave.

Low Pass Filter : RANG 1000V 50/60Hz (+-1%+10)  
40-400Hz (+-3%+10) > 3KHz (-3dB)

#### DC Voltage

Range	Resolution	Accuracy
500mV[1]	0.01mV	(0.1% + 5digits)
5V	0.0001V	(0.05% + 5digits)
50V	0.001V	(0.05% + 5digits)
500V	0.01V	(0.05% + 5digits)
1000V	0.1V	(0.1% + 5)

[1] When using the relative mode (REL Q ) to compensate for offsets.

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### (AC + DC)

Range	Resolution	<1KHZ	<5KHZ
5V	0.0001V	(1.5% + 20)	(3.0% + 20)
50V	0.001V		
500V	0.01V		
1000V	0.1V		

### Resistance

Range	Resolution	Accuracy
500Ω [1]	0.01Ω	0.20% + 10
5KΩ	0.0001kΩ	0.20% + 5
50KΩ	0.001kΩ	0.20% + 5
500KΩ	0.01kΩ	0.50% + 5
5MΩ	0.0001MΩ	0.50% + 5
50MΩ	0.001MΩ	2.0% + 10

[1] When using the relative mode (REL Q) to compensate for offsets.

### Temp (type-K)

Range	Resolution	Accuracy
-200 to 1350°C	0.1C	±(1.0% reading + 3.0°C) ±(1.0% reading + 5.4°F) (probe accuracy not included)

- Does not include error of the thermocouple probe.
- Accuracy specification assumes ambient temperature stable to ±1°C
- Use a long time, reading will increase 2°C
- <-50°C Temp Rang accuracy ± (3%+5°C)



### DC Current

Range	Resolution	Accuracy
500μA	0.01μA	±0.2%+5
5000μA	0.1μA	±0.2%+5
50mA	0.001mA	±0.2%+5
500mA	0.01mA	±0.3%+8
10A	0.001A	±0.5%+8

### AC Current

Range	Resolution	Accuracy	
		<1KHZ	<5KHZ
500μA	0.01μA	±(0.8% + 5)	±(3% + 5)
5000μA	0.1μA		
50mA	0.001mA		
500mA	0.01mA		
10A	0.001A		
(20A : 30 sec max with reduced accuracy)			
All AC current ranges are specified from 5% of range to 100% of range			



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#### Capacitance

Range	Resolution	Accuracy
5nF [1]	0.001nF	±(1.5% +20)
50nF	0.01nF	±(1.5% +8)
500nF	0.1nF	±(1.0% +8)
5µF	0.001µF	±(1.5% +8)
50µF	0.01µF	±(1.0% +8)
500µF	0.1µF	±(1.5% +8)
10mF	0.01mF	±(2.5% +20)

[1] With a film capacitor or better, using relative mode (REL $\Delta$ ) to zero residual.

#### Frequency (electronic)

Range	Resolution	Accuracy
50Hz	0.001Hz	±(0.01% +5)
500Hz	0.01Hz	±(0.01% +5)
5kHz	0.0001kHz	±(0.01% +5)
50kHz	0.001kHz	±(0.01% +5)
500kHz	0.01kHz	±(0.01% +5)
5MHz	0.0001MHz	±(0.01% +5)
10MHz	0.001MHz	Unspecified

Sensitivity : 2V rms min. @ 20% to 80% duty cycle and <100kHz; 5V rms min@ 20% to 80% duty cycle and >100kHz.

#### Frequency (electrical)

Range	Resolution	Accuracy
10.00Hz - 10KHz	0.01Hz - 0.001KHz	±(0.5% reading)
Sensitivity : 2V rms		

#### Duty Cycle

Range	Resolution	Accuracy
0.1 to 99.90%	0.01%	±(1.2% +2 reading)
Pulse width : 100µs - 100ms, Frequency : 5Hz to 150kHz		

