

Rotating Machine Tester with Thermal Imager RMTi-1

PRODUCT INTRODUCTION

While testing a motor the important parameters to test are the Insulation Resistance, Winding Resistance, Temperature of the Motor and all Electrical Parameters like the current, voltage and the voltage of the Variable Frequency Drive.

Measuring these parameters enables the user to know how efficiently the motor is working and also to decide upon the pre-emptive maintenance of the motor.

This unique instrument is a combination of Digital Multimeters that can work on VFD, Digital Insulation. Resistance Tester with Polarisation Index and DAR measurement, Low Resistance measurement using 4 wire method and a Thermal Imager. The instrument has Bluetooth to connect it to your mobile device so that you can record the readings on the go. Not to mention it has a Data Logger and a K type thermocouple that can be used to measure temperature.

A professional, True RMS Multimeter and Insulation Tester with built-in Thermal Imager, featuring a TFT color LCD display, provides fast A/D converting sampling time and high accuracy, making it easy to find and solve problems of production equipment. It helps in taking measurements safely with a double-moulded plastic housing and IP65 waterproof features.

- 6000 Count 3.5" TFT Colour LCD Display
- Built-in Thermal Imager with Max, Min and Center Crosshair Targeting
- 50Hz Fast Thermal Image Frame Rate
- DC Voltage
- AC, AC+DC TRMS Voltage
- VFD (Variable Frequency Drive) measurements
- Low Ohms measurements
- Flexible Clamp or Coil can be used to measure high currents
- Resistance and Continuity Test
- Diode Test
- Capacitance
- Frequency
- Duty Cycle
- Temperature with K-Type Probe
- Insulation Tester
- PI/DAR Test
- Data Logger Function and Recall
- Re-chargeable battery and battery charger



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GENERAL SPECIFICATIONS

Reference Standards

Safety	IEC/EN61010-1
EMC	IEC/EN 61326-1, 61557-1-2-4
Insulation	Double Insulation
Pollution Level	2
Overvoltage Category	CAT IV 600V, CAT III 1000V
Max Operating Altitude	2000m (6562ft)

Mechanical Characteristics

Size (L x W x H)	210 x 85 x 65mm
Weight (batteries included)	680g

Power Supply

Battery Type	1 x 7.4V rechargeable Li-ION battery, 2600mAh
Battery Charger Power Supply	100/240VAC, 50/60Hz, 12VDC, 2A
Low Battery Indication	symbol "  " on the display
Auto Power Off	After 5-60min minutes idling (May be disabled)
Fuses	500mA/1000V

Display

Conversion	TRMS
Characteristics	Color RGB, 6000 dots with bargraph
Sampling Frequency	3 times/s

Environmental Conditions for Use

Reference Temperature	18 to 28°C (64 to 82°F)
Operating Temperature	5 to 40°C (41 to 104°F)
Allowable Relative Humidity	<80%RH
Storage Temperature	-20 to 60°C (-4 to 140°F)
Storage Humidity	<80%RH

THERMAL IMAGER

Field of View (FoV) / Minimum Focus Distance	21°x 21° / 0.5m
Spatial Resolution (IFOV)	4.53mrad
IR Resolution	80 x 80 Pixels
Thermal Sensitivity / NETD	< 0.1°C at 30°C (86°F) / 100 mK
Image Frequency	50Hz
Focus Mode	Focus free
Focal Length	7.5mm
Focal Plane Array (FPA) / Spectral Range	Uncooled microbolometer / 8-14µm
Object Temperature Range	-20 to 260°C (-4 to 302°F)
Accuracy	±3°C (±36°F) or ±3% of reading (Environment temperature 10 to 35°C, object temperature >0°C)



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METER AND TESTER

Accuracy calculated as [%reading + (num. digits*resolution)] at 18 to 28°C; <75%RH.

DC Voltage

Range	Resolution	Accuracy	Input Impedance
600.0mV	0.1mV	±(0.8% + 8 digits)	>10MΩ
6.000V	0.001V	±(0.5% + 5 digits)	
60.00V	0.01V		
600.0V	0.1V	±(0.8% + 5 digits)	
1000V	1V		

Protection Against Overcharge: 1000V DC/AC RMS.

AC TRMS Voltage

Range	Resolution	Accuracy (50 to 60Hz)	Accuracy (61 to 1kHz)
6.000V	0.001V	$\pm(1.2\% + 5 \text{ digits})$	$\pm(2.5\% + 5 \text{ digits})$
60.00V	0.01V		
600.0V	0.1V		
1000V	1V		

Protection Against Overcharge: 1000V DC/AC RMS.

(*) Accuracy specified from 10% to 100% of the measuring range, sine wave.

Input impedance: > 9M Ω

Accuracy PEAK function: $\pm 10\% \text{rdg} + 25 \text{dgt}$.

PEAK response time: 1 ms.

VFD AC Voltage reading for reference only.

AC+ DC TRMS Voltage (50 to 1 kHz)

Range	Resolution	Accuracy	Input Impedance
6.000V	0.001V	$\pm(2.5\% + 20 \text{ digits})$	>10M Ω
60.00V	0.01V		
600.0V	0.1V		
1000V	1V		

Protection Against Overcharge: 1000V DC/AC RMS.

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Flexible Coil Current (50 to 400Hz)

Test Current	Resolution	Accuracy
30.00A	0.01A	$\pm(3.0\% \text{reading} + 5 \text{digits})$
300.0A	0.1A	
3000A	1A	

Protection Against Overcharge: 1000V DC/AC RMS.

(*) Accuracy specified from 10% to 100% of the measuring range, sine wave.

Diode Test

Test Current	Max Voltage with Open Circuit
<2mA	3.2VDC

Resistance and Continuity Test

Range	Resolution	Accuracy	Buzzer
600.00Ω	0.1Ω	±(1.0%+ 10 digits)	>50Ω
6.000kΩ	0.001kΩ	±(0.8% + 5 digits)	
60.00kΩ	0.01kΩ		
600.0kΩ	0.1kΩ		
6.000MΩ	0.001MΩ		
60.00MΩ	0.01MΩ	±(2.5% + 10 digits)	

Protection Against Overcharge: 1000V DC/AC RMS.

Frequency (Electronic Circuits)

Range	Resolution	Accuracy
60.00Hz	0.01Hz	$\pm(0.2\% + 5 \text{ digits})$
600.0Hz	0.1Hz	
6.000kHz	0.001kHz	
60.00kHz	0.01kHz	
600.0kHz	0.1kHz	
6.000MHz	0.001MHz	
10.00MH	0.01MHz	

Protection Against Overcharge: 1000V DC/AC RMS.

Sensitivity: > $\pm 2V$ (at 20 to 80% Duty Cycle) and $f < 100\text{kHz}$: >5Vrms (at 20 to 80% Duty Cycle) and $f > 100\text{kHz}$.

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Frequency (Electrical Circuits)

Range	Resolution	Accuracy
40.00 to 10kHz	0.01 to 0.001kHz	$\pm(1.0\% + 5 \text{ digits})$

Protection Against Overcharge: 1000V DC/AC RMS.

Sensitivity: $\geq \pm 2V$

Duty Cycle

Range	Resolution	Accuracy
10.0 to 90.0%	0.1 %	$\pm(1.2\% + 8 \text{ digits})$

Pulse Frequency Range: 40 to 10kHz.

Pulse Amplitude: $\pm 5V$ (100s to 100ms)

Capacity

Range	Resolution	Accuracy
60.00nF	0.01nF	$\pm(3.0\% + 20 \text{ digits})$
600.0nF	0.1nF	
6.000 μ F	0.001 μ F	
60.00 μ F	0.01 μ F	
600.0 μ F	0.1 μ F	$\pm(3.0\% + 8 \text{ digits})$
6000 μ F	1 μ F	
		$\pm(3.5\% + 20 \text{ digits})$

Protection Against Overcharge: 1000V DC/AC RMS.

Temperature with K-Type Probe

Range	Resolution	Accuracy
-20.0 to 600.0°C	0.1°C	$\pm(2.5\% \text{ reading} + 5^\circ\text{C})$
600 to 1000°C	1°C	
-20.0 to 600.0°F	0.1°F	$\pm(2.5\% \text{ reading} + 9.0^\circ\text{F})$
600 to 1800°F	1°F	
253.0 to 600.0K	0.1K	$\pm(2.5\% \text{ reading} + 5K)$
600 to 1273K	1K	

Protection Against Overcharge: 1000V DC/AC RMS.

(*) Instrument accuracy without probe: Specified accuracy with stable environmental temperature at $\pm 1^\circ\text{C}$.

For long-lasting measurements, reading increases by 2°C .





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Low Ohms

Range	Resolution	Accuracy
1.00 to 60.00 Ω	0.01 Ω	$\pm(1.5\% + 40 \text{ digits})$
60.00 to 600.0 Ω	0.1 Ω	$\pm(1.5\% + 20 \text{ digits})$

The open circuit voltage is about 4V and the short circuit current is greater than 200mA.

Meg Ohms

Terminal Voltage	Range	Resolution	Accuracy	Test Current
125V (0 to 20%)	125k Ω - 6.000M Ω	0.001M Ω	$\pm(3.0\% + 20 \text{ digits})$	1mA at 125k Ω
	6.000M Ω - 60.00M Ω	0.01M Ω	$\pm(2.5\% + 8 \text{ digits})$	
	60.00M Ω - 600.0M Ω	0.1M Ω	$\pm(3.0\% + 8 \text{ digits})$	
	600.0M Ω - 5000M Ω	1M Ω	$\pm(5.0\% + 20 \text{ digits})$	
250V (0 to 20%)	250k Ω - 6.000M Ω	0.001M Ω	$\pm(2.5\% + 20 \text{ digits})$	1mA at 250k Ω
	6.000M Ω - 60.00M Ω	0.01M Ω	$\pm(2.0\% + 8 \text{ digits})$	
	60.00M Ω - 600.0M Ω	0.1M Ω	$\pm(3.0\% + 8 \text{ digits})$	
	600.0M Ω - 5000M Ω	1M Ω	$\pm(5.0\% + 20 \text{ digits})$	
500V (0 to 20%)	500k Ω - 6.000M Ω	0.001M Ω	$\pm(2.5\% + 20 \text{ digits})$	1mA at 500k Ω
	6.000M Ω - 60.00M Ω	0.01M Ω	$\pm(2.0\% + 8 \text{ digits})$	
	60.00M Ω - 600.0M Ω	0.1M Ω	$\pm(3.0\% + 8 \text{ digits})$	
	600.0M Ω - 5000M Ω	1M Ω	$\pm(5.0\% + 20 \text{ digits})$	
1000V (0 to 20%)	1.000M Ω - 6.000M Ω	0.001M Ω	$\pm(3.0\% + 20 \text{ digits})$	1mA at 1.0M Ω
	6.000M Ω - 60.00M Ω	0.01M Ω	$\pm(2.5\% + 8 \text{ digits})$	
	60.00M Ω - 600.0M Ω	0.1M Ω	$\pm(4.0\% + 8 \text{ digits})$	
	600.0M Ω - 5000M Ω	1M Ω	$\pm(5.0\% + 50 \text{ digits})$	

A Insulation Resistance.

See Electrical Specifications <30%.

*Indicates maximum amount allowable by standard.

Accessories Provided

Pair of Test Leads • K-type Wire Temperature Probe • 1x7.4V Rechargeable Li-Ion Battery • Carrying Bag • User Manual