

1. TECHNICAL SPECIFICATIONS – DMM FUNCTIONS

Accuracy is indicated as \pm (% readings + no. of digits) at 23°C \pm 5°C, relative humidity HR <70%

DC VOLTAGE (Autorange)

Range	Resolution	Accuracy	Input impedance	Overload protection
1.0mV \div 999.9mV	0.1mV	$\pm(0.5\%rdg + 2 \text{ dgt})$	1M Ω	605Vrms max
1.000V \div 9.999V	1mV			
10.00V \div 99.99V	10mV			
100.0V \div 605.0V	100mV			

AC VOLTAGE TRMS (Autorange)

Range	Resolution	Accuracy (30 \div 70Hz)	Accuracy (70 \div 400Hz)	Input Impedance	Crest factor
1.0mV \div 999.9mV	0.1mV	$\pm(1.0\%rdg + 2dgt)$	$\pm(2.0\%rdg+2 \text{ dgt})$	1M Ω	3
1.000V \div 9.999V	1mV				1.5
10.00V \div 99.99V	10mV				
100.0V \div 605.0V	100mV				

AC/DC VOLTAGE: MAX / MIN / AVG / PEAK

Function	Range	Resolution	Accuracy	Response time
MAX, MIN, AVG	1.0mV \div 999.9mV	0.1mV	$\pm(5.0\%rdg + 10dgt)$	500ms
	1.000V \div 9.999V	1mV		
	10.00V \div 99.99V	10mV		
	100.0V \div 605.0V	100mV		
PEAK	10.0mV \div 999.9mV	0.1mV		1ms
	1.000V \div 9.999V	1mV		
	10.00V \div 99.99V	10mV		
	100.0V \div 605.0V	100mV		

DC/AC CURRENT TRMS (with external clamp)

Range	Resolution	DC Accuracy	Accuracy (30 \div 70Hz)	Accuracy (70 \div 400Hz)	Crest factor	Overload protection
1.0mV \div 999.9mV	0.1mV	$\pm(0.5\%rdg+2 \text{ dgt})$	$\pm(1.0\%rdg+2 \text{ dgt})$	$\pm(2.0\%rdg+2 \text{ dgt})$	3	605Vrms max
1.000V \div 1.200V	1mV				1.5	

Note: accuracy indicated don't consider clamp accuracy. Please refer also to transducers clamp user's manual.

AC/DC CURRENT: MAX / MIN / AVG / PEAK (with external clamp)

Function	Range	Resolution	Accuracy	Response time	Overload protection
MAX, MIN, AVG	1.0mV \div 999.9mV	0.1mV	$\pm(5.0\%rdg+10 \text{ dgt})$	500 ms	605Vrms max
	1.000V \div 1.200V	1mV		1ms	
	10.0mV \div 999.9mV	0.1mV			
PEAK	10.0mV \div 999.9mV	0.1mV		1mV	
	1.000V \div 3.000V	1mV			

RESISTANCE AND CONTINUITY TEST

Range	Resolution	Accuracy	Continuity test	Overload protection
0.00 Ω \div 39.99 Ω	0.01 Ω	$\pm(1.0\%rdg+5 \text{ dgt})$	R \leq 40 Ω	605Vrms max for 1 minute
40.0 Ω \div 399.9 Ω	0.1 Ω			
400 Ω \div 3999 Ω	1 Ω			
4.00k Ω \div 39.99k Ω	10 Ω			

FREQUENCY (with test leads)

Range	Resolution	Accuracy	Input voltage	Overload protection
30.0 \div 199.9Hz	0.1Hz	$\pm(0.5\%rdg+2 \text{ dgt})$	1.0mV \div 605V	605Vrms max
200 \div 400Hz	1Hz			

FREQUENCY (with external clamp)

Range	Resolution	Accuracy	Input voltage	Overload protection
30.0 \div 199.9Hz	0.1Hz	$\pm(0.5\%rdg+2dgt)$	1.0mV \div 1.000V	605Vrms max
200 \div 400Hz	1Hz			

2. TECHNICAL SPECIFICATIONS – VERIFY TESTS

Accuracy is indicated as \pm (% readings + no. of digits) at 23°C \pm 5°C, relative humidity HR <70%

Continuity test on protective and equalizing conductors

Range (Ω)	Resolution (Ω)	Accuracy	Overload protection
0.01 \div 19.99	0.01	\pm (5.0% rdg + 3dgt)	605Vrms max
20.0 \div 99.9	0.1		

Test current: > 200mA DC for $R \leq 4\Omega$ (included calibration)
Resolution on current measurement: 1mA

Open-circuit voltage: $4V \leq V_0 \leq 24V$

Insulation Resistance

Range (M Ω)	Resolution (M Ω)	Accuracy	Overload protection
0.00 \div 19.99	0.01	\pm (5.0% rdg + 2dgt)	605Vrms max
20.0 \div 199.9	0.1		
200 \div 999	1	\pm (10.0% rdg + 2dgt)	

Test Voltage: 500V DC
Test voltage accuracy: -0% \div +10% rdg
Short circuit current: <3.0mA
Nominal test current: 1mA @ 1k Ω x Vnom ; 1mA @ 500 k Ω

RCD Tripping time

Range (ms)	Resolution (ms)	Accuracy	Overload protection
2 \div 400	1	\pm (2.0% rdg + 2dgt)	605Vrms max

Nominal trip-out currents: 30mA, 30x5mA, 100mA, 300mA
RCD type: AC, Standard
Phase-Earth voltage: 110V \div 265V
Frequency: 50Hz \pm 0.5Hz / 60Hz \pm 0.5Hz
Limit contact voltage: 50V

Global Earth Resistance

Test current	Range (Ω)	Resolution (Ω)	Accuracy	Overload protection
15mA	1 \div 1999	1	\pm (5.0% rdg + 2dgt)	605Vrms max
100mA	0.1 \div 199.9	0.1	\pm (5.0% rdg + 3dgt)	

Phase-Earth voltage: 110V \div 265V
Frequency: 50Hz \pm 0.5Hz / 60Hz \pm 0.5Hz
Limit contact voltage: 50V

PHASE SEQUENCE / CONFORMITY (1 wre measurement)

Type of measure	Voltage range (V)	Frequency range (Hz)	System type
SEQUENCE	90 \div 315 (Phase – Earth)	45 \div 65	up to 315 (Phase – Earth)
CONFORMITY			up to 550V (Phase – Phase)

PHASE SEQUENCE / CONFORMITY (2 wre measurement)

Type of measure	Voltage range (V)	Frequency range (Hz)	System type
SEQUENCE	110 \div 315 (Phase – Neutral)	45 \div 65	up to 315 (Phase – Earth)
CONFORMITY			up to 550V (Phase – Phase)

Max crest factor :1.5

NOTE: the two-wire measurement can be performed also phase to phase in plants without neutral, even with one phase to earth, but always with phase to phase voltage up to 550V

3. TECHNICAL SPECIFICATIONS – LAN CABLES TESTS

Connector and remote units

Input for LAN cables: RJ45
Remote units recognized: #1, #2, #3, #4, #5, #6, #7, #8

Cables type

- UTP, STP, SSTP, FTP: 4 twisted pairs cables
- Categories: no limits
- Length of the cable: 1 ÷ 100 m

Wire mapping detected conditions

- Open cables
- Shorted cables
- Reversed pairs
- Crossed pairs
- Splitted pairs
- Miswire

Reference standards

- TIA 568/B
- ISO 11801

4. GENERAL SPECIFICATIONS

DISPLAY:

Features: Dual numeric, 9999 points
Display update: 2 times/sec
Visible area: 73x73 mm

POWER SUPPLY:

Batteries: 4 batteries 1.5V type LR6-AA-AM3-MN 1500

ELECTRICAL FEATURES:

Conversion: AC 16 Bit, TRMS
Sample frequency: 64 sample/period

MECHANICAL FEATURES:

Dimensions: 240(W) x 100(L) x 45(D) mm
Weight (included batteries): about 630 g

WORKING ENVIRONMENTAL CONDITIONS:

Reference temperature: 23°C ± 5°C
Working temperature: 0° ÷ 40°C
Allowed relative humidity: < 70% HR
Storage temperature: -10 ÷ 60°C
Storage humidity: < 70% HR

TEST VERIFIES REFERENCE STANDARDS:

Continuity test with 200mA: IEC/EN61557-4
Insulation resistance: IEC/EN61557-2
Global earth resistance: IEC/EN61557-3
RCDs test: IEC/EN61557-6
Phase sequence indication: IEC/EN61557-7

GENERAL REFERENCE STANDARDS:

Safety of measuring instruments: EN61010-1 + A2(1997)
Product type standard: IEC61557-1, 2, 3, 4, 6, 7
Insulation: class 2 (double insulation)
Pollution degree: 2
Overvoltage category: CAT III 550V AC Phase - Ground
CAT III 550V AC Phase - Phase
Use: internal use; max altitude: 2000m
EMC: EN61326-1 (1998) + A1 (1999)

This instrument complies with the requirements of the European 2006/95/EEC (LVD) and EMC 2004/108/EEC