



## 1. TECHNICAL SPECIFICATIONS – DMM FUNCTIONS

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

### DC/AC TRMS VOLTAGE (Autorange)

Range	Resolution	DC Accuracy	Accuracy (30 ÷ 70Hz)	Accuracy (70 ÷ 400Hz)	Input impedance
1.0 ÷ 999.9mV	0.1mV	$\pm(0.5\%rdg+2dgt)$	$\pm(1.0\%rdg+2dgt)$	$\pm(2.0\%rdg+2dgt)$	1M $\Omega$
1.000 ÷ 9.999V	0.001V				
10.00 ÷ 99.99V	0.01V				
100.0 ÷ 605.0V	0.1V				

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

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

### DC/AC CURRENT TRMS (with external clamp)

Range	Resolution	DC Accuracy	Accuracy (30 ÷ 70Hz)	Accuracy (70 ÷ 400Hz)	Crest factor	Overload protection
1.0 ÷ 999.9mV	0.1mV	$\pm(0.5\%rdg+2dgt)$	$\pm(1.0\%rdg+2dgt)$	$\pm(2.0\%rdg+2dgt)$	3	605Vrms max
1.000 ÷ 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 ÷ 999.9mV	0.1mV	$\pm(5.0\%rdg+10dgt)$	500 ms	605Vrms max
	1.000V ÷ 1.200V	1mV			
PEAK	10.0mV ÷ 999.9mV	0.1mV		1ms	
	1.000V ÷ 3.000V	1mV			

### RESISTANCE AND CONTINUITY TEST

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

### FREQUENCY (with test leads)

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

### FREQUENCY (with external clamp)

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

**2. TECHNICAL SPECIFICATIONS – SAFETY TEST VERIFY****Continuity test on protective and equalizing conductors**

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

Test current: > 200mA DC for  $R \leq 5\Omega$  (included calibration); Resolution on current measurement: 1mA  
 Open-circuit voltage:  $4V \leq V_0 \leq 24V$



**Insulation Resistance**

Range (M $\Omega$ )	Resolution (M $\Omega$ )	Accuracy	Overload protection
0.00 ÷ 19.99	0.01	$\pm(5.0\%rdg + 2dgt)$	605Vrms max
20.0 ÷ 199.9	0.1		
200 ÷ 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 $\Omega$  x Vnom ; 1mA @ 500 k $\Omega$

**Tripping time test for RCD type AC and A**

Range (ms)	Resolution (ms)	Accuracy	Overload protection
2 ÷ 300	1	$\pm(2.0\% rdg + 2dgt)$	605Vrms max

Nominal trip-out currents: 30mA, 30x5mA, 100mA, 300mA (Type AC), 30mA (Type A)  
 RCD type: AC () , A () , General  
 Phase-Earth / Phase-Neutral voltage: 100V ÷ 265V  
 Frequency: 50Hz  $\pm$  0.5Hz / 60Hz  $\pm$  0.5Hz

**Tripping current test for RCD**

RCD Type	I $\Delta$ N	Range I $\Delta$ N [mA]	Resolution	Accuracy
AC, A (General)	30mA	6.0 ÷ 33.0	0.5mA	- 0%, +10%I $\Delta$ N

Phase-Earth / Phase-Neutral voltage: 100V ÷ 265V  
 Frequency: 50Hz  $\pm$  0.5Hz / 60Hz  $\pm$  0.5Hz

**Global Earth Resistance**

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

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

**Phase sequence / conformity**

Type of measure	Voltage range (V)	Frequency range (Hz)	System type
1 Wire	90 ÷ 315 (Phase – Earth)	45 ÷ 65	up to 315 (Phase – Earth) up to 550V (Phase – Phase)
2 Wire	110 ÷ 315 (Phase – Neutral)	45 ÷ 65	up to 315 (Phase – Earth) 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. 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
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**ELECTRICAL FEATURES:**

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

**MECHANICAL FEATURES:**

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

**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:**

Global earth resistance:	IEC/EN61557-3
RCDs test:	IEC/EN61557-6
Phase sequence indication:	IEC/EN61557-7

**REFERENCE STANDARDS:**

Safety of measuring instruments:	IEC/EN61010-1 + A2(1997)
Product type standard:	IEC/EN61557-1, 3, 6,7
Insulation:	double insulation
Pollution degree:	2
Overvoltage category:	CAT III 550V AC Phase - Ground CAT III 550V AC Phase - Phase
Max height of use:	2000m

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