



1. ELECTRICAL SPECIFICATIONS

Accuracy is indicated as $\pm$ (% readings + no. of digits*resolution) at $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$, <60%HR

Voltage (RCD, LOOP, Phase sequence)

Range [V]	Resolution [V]	Accuracy
15 ÷ 460	1	$\pm(3.0\% \text{ rdg} + 2\text{dgt})$

Frequency

Range [Hz]	Resolution [Hz]	Accuracy
47.0 ÷ 63.6	0.1	$\pm(0.1\% \text{ rdg} + 1\text{dgt})$

Continuity test on protective and equalizing conductors

Range [Ω]	Resolution [Ω]	Accuracy (*)
0.01 ÷ 19.99	0.01	$\pm(5.0\% \text{ rdg} + 3\text{dgt})$
20.0 ÷ 99.9	0.1	

(*) calibrate the cables to null their resistance

Test current: > 200mA DC for $R \leq 5\Omega$ (calibration included) ; Resolution for DC current :1mA

Open-circuit voltage: $4\text{V} \leq V_0 \leq 12\text{V}$

Insulation resistance (DC voltage)

Test voltage[V]	Range [$\text{M}\Omega$]	Resolution [$\text{M}\Omega$]	Accuracy
50	0.01 ÷ 9.99	0.01	$\pm(2.0\% \text{ rdg} + 2\text{dgt})$
	10.0 ÷ 49.9	0.1	
	50.0 ÷ 99.9	0.1	$\pm(5.0\% \text{ rdg} + 2\text{dgt})$
100	0.01 ÷ 9.99	0.01	$\pm(2.0\% \text{ rdg} + 2\text{dgt})$
	10.0 ÷ 99.9	0.1	
	100.0 ÷ 199.9	0.1	$\pm(5.0\% \text{ rdg} + 2\text{dgt})$
250	0.01 ÷ 9.99	0.01	$\pm(2.0\% \text{ rdg} + 2\text{dgt})$
	10.0 ÷ 99.9	0.1	
	100 ÷ 499	1	$\pm(5.0\% \text{ rdg} + 2\text{dgt})$
500	0.01 ÷ 9.99	0.01	$\pm(2.0\% \text{ rdg} + 2\text{dgt})$
	10.0 ÷ 199.9	0.1	
	200 ÷ 499	1	$\pm(5.0\% \text{ rdg} + 2\text{dgt})$
	500 ÷ 999	1	
1000	0.01 ÷ 9.99	0.01	$\pm(2.0\% \text{ rdg} + 2\text{dgt})$
	10.0 ÷ 199.9	0.1	
	200 ÷ 999	1	$\pm(5.0\% \text{ rdg} + 2\text{dgt})$
	1000 ÷ 1999	1	

Open-circuit voltage: nominal test voltage $-0\% +10\%$

Short circuit current: <6.0mA at 500V test voltage

Nominal test current: >1mA if load= $1\text{k}\Omega \cdot V_{\text{nom}}$ ($V_{\text{nom}}=50\text{V}, 100\text{V}, 250\text{V}, 500\text{V}, 1000\text{V}$)

Safety protection: the display shows an error message for input voltage >10V

Z Line (Line-Line, Line-Neutral, Line-PE)

Range [Ω]	Resolution [Ω]	Accuracy
0.00 ÷ 199.9 m Ω (*)	0.1 m Ω (*)	$\pm(5.0\% \text{ rdg} + 1\text{m}\Omega) (*)$
200 ÷ 1999 m Ω (*)	1 m Ω (*)	
0.01 ÷ 9.99 Ω	0.01 Ω	$\pm(5.0\% \text{ rdg} + 3\text{dgt})$
10.0 ÷ 199.9 Ω	0.1 Ω	

(*) By means of IMP57 optional accessory

Maximum test current: 5.81A (at 265V); 10.10A (at 457V)

Test voltage ranges: 100÷265V (Line-Neutral) / 100÷460V (Line-Line); 50/60Hz $\pm 5\%$

Protection type: MCB (B, C, D, K), Fuse (gG, aM)

Insulation materials: PVC, Rubber butyl, EPR, XLPE

**RCD test****General characteristics**

Nominal trip-out current: 10mA, 30mA, 100mA, 300mA, 500mA, 650mA, 1000mA
 RCD type: AC, A, B / General, Selective and Delayed
 Line-PE voltage: 100V ÷ 265V
 Frequency: 50/60Hz ± 5%

RCD tripping current

RCD type	I _{ΔN}	Range I _{ΔN} [mA]	Resolution [mA]	Accuracy I _{ΔN}
AC, A	I _{ΔN} ≤ 650mA	(0.3 ÷ 1.1) I _{ΔN}	≤ 0.1 I _{ΔN}	-0%, +(5.0% I _{ΔN})

RCD tripping time range [ms] (TT/TN system)

	x 1/2				x1				x2				x5				AUTO				Ramp			
	\	G	S	Dly	G	S	Dly	G	S	Dly	G	S	Dly	G	S	Dly	G	S	Dly	G	S	Dly		
10mA	AC	999	999	999	999	999	999	200	250		50	150								310				
	A	999	999	999	999	999	999	200	250		50	150								310				
	B																							
30mA 100mA 300mA	AC	999	999	999	999	999	999	200	250		50	150								310				
	A	999	999	999	999	999	999	200	250		50	150								310				
	B	999	999	999	999	999	999																	
500mA	AC	999	999	999	999	999	999	200	250		50	150								310				
	A	999	999	999	999	999	999	200	250		50	150								310				
	B																							
650mA	AC	999	999	999	999	999	999	200	250											310				
	A	999	999	999	999	999	999	200	250											310				
	B																							
1000mA	AC	999	999	999	999	999	999	200	250											310				
	A	999	999	999	999	999	999																	
	B																							

Resolution: 1ms, Accuracy: ±(2.0%rdg + 2dgt)

RCD Tripping time range [ms] (IT system)

10mA	AC	999	999	999	999	999	999	200	250		50	150					310		
	A																		
	B																		
30mA 100mA 300mA	AC	999	999	999	999	999	999	200	250		50	150					310		
	A																		
	B																		
500mA	AC	999	999	999	999	999	999	200	250		50	150					310		
	A																		
	B																		
650mA	AC	999	999	999	999	999	999	200	250								310		
	A																		
	B																		
1000mA	AC	999	999	999	999	999	999	200	250								310		
	A																		
	B																		

Resolution: 1ms, Accuracy: ±(2.0%rdg + 2dgt)



R_A – Non-trip earth loop impedance

General characteristics

Test voltage: 100÷265V (Line-PE), 50/60Hz ± 5%

R_A – Systems with Neutral wire

Range [Ω]	Resolution [Ω]	Accuracy
0.01 ÷ 9.99	0.01	-0%, +(5.0% rdg + 0.1Ω)
10.0 ÷ 199.9	0.1	-0%, +(5.0% rdg + 1Ω)
200 ÷ 1999	1	-0%, +(5.0% rdg + 3Ω)

Test current: ~10mA

R_A – Systems without Neutral wire

Range [Ω]	Resolution [Ω]	Accuracy
1 ÷ 1999	1	-0%, +(5.0% rdg + 3dgt)

Test current: < ½ I_{ΔN} set

Contact voltage U_t

Range [V]	Resolution [V]	Accuracy
0 ÷ 2U _{lim}	0.1	-0%, +(5.0% rdg + 3dgt)

U_{lim} (UI): 25V, 50V

Ground resistance / Soil resistivity

General characteristics

Test current: <10mA – 77.5Hz, Open-circuit voltage: < 20V rms

Ground resistance

Range [Ω]	Resolution [Ω]	Accuracy (*)
0.01 ÷ 9.99	0.01	±(5.0% rdg + 3dgt)
10.0 ÷ 99.9	0.1	
100 ÷ 999	1	
1.00k ÷ 49.99k	0.01k	

(*) Add 5% to the accuracy if the probe resistances (R_s or R_h) > 100 x R_{meas}

Soil resistivity

Range [Ωm]	Resolution [Ωm]	Accuracy (*)
0.06 ÷ 9.99	0.01	±(5.0% rdg + 3dgt)
10.0 ÷ 99.9	0.1	
100 ÷ 999	1	
1.00k ÷ 9.99k	0.01k	
10.0k ÷ 99.9k	0.1k	
100k ÷ 999k	1k	
1.00M ÷ 3.14M	0.01M	

(*) with distance d=10m, Distance "d" range: 1 ÷ 10m

Leakage current (by HT96U optional clamp transducer)

Range [mA]	Resolution [mA]	Accuracy
0.5 ÷ 999.9	0.1	±(5.0% rdg + 2dgt)

Environmental parameters (AUX function)

Parameter	Range	Resolution	Accuracy
Temperature [°C]	-20°C ÷ 80°C	0.1 °C	±(2.0%rdg+2dgt)
Temperature [°F]	-4°F ÷ 176°F	0.1 °F	
Relative humidity [%HR]	0 ÷ 100%HR	0.1% UR	
DC output voltage	0.1mV ÷ 1.0V	0.1mV	
Illuminance [Lux]	0.001Lux ÷ 20.00 Lux (*)	0.001 ÷ 0.02 Lux	
	0.1 Lux ÷ 2000 Lux (*)	0.1 ÷ 2 Lux	
	1 Lux ÷ 20 kLux (*)	1 ÷ 20 Lux	

(*) Accuracy of HT53 lux probe is according to Class AA



2. GENERAL SPECIFICATIONS

DISPLAY AND MEMORY:

Features:	Touch screen, color graphic LCD, 320x240mm
Memory:	999 locations, 3 marker levels
Communication:	Optical-USB

POWER SUPPLY:

Batteries:	6 x 1.2V(rechargeable) type AA or 6 x 1.5V type AA
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MECHANICAL FEATURES:

Dimensions (L x W x H):	225 x 165 x 105mm
Weight (included batteries):	about 1.2kg

WORKING ENVIRONMENTAL CONDITIONS:

Reference temperature:	23°C ± 5°C
Working temperature:	0° ÷ 40°C
Allowed relative humidity:	< 80% HR
Storage temperature:	-10 ÷ 60°C
Storage humidity:	< 80% HR

TEST VERIFIES REFERENCE STANDARDS:

Continuity test with 200mA:	IEC/EN61557-4
Insulation resistance:	IEC/EN61557-2
Earth resistance:	IEC/EN61557-5
Fault loop impedance:	IEC/EN61557-3
RCD test:	IEC/EN61557-6
Phase sequence:	IEC/EN61557-7

GENERAL REFERENCE STANDARDS:

Safety of measuring instruments:	IEC/EN61010-1 + A2(1997)
Product type standard:	IEC/EN61557-1,2,3,4,5,6,7
Insulation:	double insulation
Pollution degree:	2
Overvoltage category:	CAT III 240V~ (to ground), max 415V between inputs
Max height of use:	2000m
EMC:	EN61326-1 (1998) + A1 (1999)

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

Technical specifications can be modified without preliminary notice.