1. ELECTRICAL SPECIFICATIONS

Accuracy indicated as ± [% readings + (number of digits * resolution)] at 23°C ± 5°C <80%HR

Continuity of protection conductor with I>200mA

Range (Ω)	Resolution (Ω)	Accuracy	Overload protection
0.00 ÷ 19.99	0.01	±(3.0%rdg + 3dgt)	CAT III 300V
20.0 ÷ 199.9	0.1		

Standard test leads: cables 2.5mmq, 2m length
Output voltage: approx. 4.5V AC
Test current: >200mA DC (R < 20Ω with standard test leads)
Timer on measure: 1s ÷ 60min (in step of 1s)
Measure method: 2 wires

Continuity of protection conductor with I>25A (2-wire)

Range (Ω)	Resolution (Ω)	Accuracy	Overload protection
0.000 ÷ 1.999	0.001	±(3.0%rdg + 3dgt)	CAT III 300V
2.00 ÷ 19.99	0.01		

Standard test leads: cables 2.5mmq, 2m length
Output voltage: approx. 4.5V AC
Test current: > 25A AC (R < 0.1Ω with standard test leads)
>10A AC (R < 0.5Ω with standard test leads)
Timer on measure: 1s ÷ 60min (in step of 1s)
Measure method: 2 wires

Continuity of protection conductor with I>25A (4-wire)

Range (Ω)	Resolution (Ω)	Accuracy	Overload protection
0.000 ÷ 1.999	0.001	±(3.0%rdg + 3dgt)	CAT III 300V
2.00 ÷ 19.99	0.01		

Standard test leads: cables 2.5mmq, 2m length
Output voltage: approx. 4.5V AC
Test current: > 25A AC (R < 0.1Ω with standard test leads)
>10A AC (R < 0.5Ω with standard test leads)
Timer on measure: 1s ÷ 60min (in step of 1s)
Measure method: 4 wires

Continuity of protection conductor with – IEC/EN60204-1:2006

Range (Ω)	Resolution (Ω)	Accuracy	Overload protection
0.000 ÷ 1.999	0.001	±(3.0%rdg + 3dgt)	CAT III 300V
2.00 ÷ 19.99	0.01		

Standard test leads: cables 2.5mmq, 2m length
Line impedance range: 0.001Ω ÷ 2.000Ω (in step of 0.001Ω)
Section of PE conductor: 1, 2.5, 4, 6, 10,16,25,35,50, 70mmq
Type of protection devices: MCB (magnetothermic) Curve B, C, D, K, Fuses type gG, aM
Nominal current MCB: 6, 10, 13, 16, 20, 25, 32, 40, 50, 63A (Curve B)
0.5, 1, 1.6, 2, 4, 6, 10, 13, 16, 20, 25, 32, 40, 50, 63A (Curve C)
0.5, 1, 1.6, 2, 4, 6, 10, 13, 16, 20, 25, 32A (Curve D and Curve K)
Nominal current fuse: 2A ÷ 1250A (Fuse gG) ; 2A ÷ 6300A (Fuse aM)
Cable length range: 0.1 ÷ 999.9m
Type of cable selectable: Copper, Aluminum
Output voltage: approx. 4.5V AC
Test current: >10A AC
Timer on measure: 1s ÷ 60min (in step of 1s)
Measure method: 4 wires

Insulation resistance

Test voltage (V)	Range (MΩ)	Resolution (MΩ)	Accuracy	Overload protection
100	0.01 ÷ 9.99	0.01	±(3.0%rdg+3dgt)	CAT III 300V
	10.0 ÷ 19.9	0.1		
	20.0 ÷ 99.9		±5.0%rdg	
250	0.01 ÷ 9.99	0.01	±(3.0%rdg+3dgt)	
	10.0 ÷ 19.9	0.1		
	20.0 ÷ 99.9		±5.0%rdg	
	100 ÷ 249	1		
500	0.01 ÷ 9.99	0.01	±(3.0%rdg+3dgt)	
	10.0 ÷ 19.9	0.1		
	20.0 ÷ 99.9		±5.0%rdg	
	100 ÷ 499	1		
1000	0.01 ÷ 9.99	0.01	±(3.0%rdg+3dgt)	
	10.0 ÷ 19.9	0.1		
	20.0 ÷ 99.9		±5.0%rdg	
	100 ÷ 999	1		

Nominal test voltage: 100, 250, 500, 1000VDC
Accuracy test voltage: (-0% ÷ 25%) Unom
Test current: > 1mA (fino a Unom/1mA)
Short circuit current: <15mA
Measurement modes: Manual, Auto, Timer
Timer on measure: 5s÷10min (resolution 1s)

Dielectric test

Nominal test voltage Un (V)	Resolution (V)	Accuracy	Overload protection
250 ÷ 800	10	±3.0%Un	CAT III 300V
810 ÷ 2500			
2510 ÷ 5100			

Test voltage: 250V ÷ 5100V AC, 50/60Hz programmable in steps of 10V
Measurement modes: Manual, Ramp, Timer, Burn
Timer on measure: 1s ÷ 10min in step of 1s
Output power: 500VA at 5100V
Discharging current: selectable IAPP and IREAL modes

Discharging current IAPP mode

Measurement range (mA)	Resolution (mA)	Accuracy	Overload protection
0 ÷ 200	1	±3.0%rdg + 2mA	CAT III 300V

Discharging current IREAL mode

Measurement range (mA)	Resolution (mA)	Accuracy	Overload protection
0 ÷ 110	1	±3.0%rdg + 4mA	CAT III 300V

Discharging current threshold: 1 ÷ 110mA (adjustable in step of 1mA, for IAPP or IREAL modes)
Short circuit current: > 200mA

Residual voltage – Modes INT and PLUG

Range (s)	Resolution (s)	Accuracy	Overload protection
10 ÷ 460 V AC	1	±(3.0%rdg + 3V)	CAT III 300V
10 ÷ 650 V DC			

Nominal main voltage: 230V o 240V
Input voltage (UTRIG): 0 ÷ 460V V AC
Measurement modes: INT (4 wire connection, discharging time 1s or 5s, Linear, Not Linear)
PLUG (2 wire connection, discharging time 1s, Linear, Not Linear)
Limit value residual voltage: 60V TRMS
Range AC voltage: 0.0 ÷ 710V
Input impedance: 100MΩ (URES), 450kΩ (UTRIG)

Leakage current on the test socket

Range	Resolution	Accuracy	Overload protection
0.25mA ÷ 49.99mA	0.01mA	±(3.0%rdg + 3dgt)	CAT II 300V
0.05A ÷ 0.99A	0.01A		
1.0A ÷ 10.0A	0.1A		

Power supply: 195V ÷ 253V AC
Frequency range: 40Hz ÷ 100kHz
Limit value: 0.25mA ÷ 10.00mA selectable

Absorbed current on test socket

Range (A)	Resolution (A)	Accuracy	Overload protection
0.00 ÷ 0.99	0.01	±(3.0%rdg + 3dgt)	CAT II 300V
1.0 ÷ 20.0	0.1		

Power supply: 195V ÷ 253V AC
Frequency range: 15Hz ÷ 723Hz

Active / Apparent power on test socket

Range (W/VA)	Resolution (W/VA)	Accuracy	Overload protection
0.0 ÷ 99.9	0.1	±(5.0%rdg + 10dgt)	CAT II 300V
100 ÷ 999	1	±(5.0%rdg + 3dgt)	
1.00k ÷ 5.06k	10		

Power supply: 195V ÷ 253V AC
Frequency range: 15Hz ÷ 723Hz
Timer: 5s ÷ 60min (resolution 1s)
Limit value apparent power: 6VA ÷ 5.06kVA

Power factor

Range	Resolution	Accuracy	Overload protection
0.00 ÷ 1.00	0.01	See Papp, Pact	CAT II 300V

Leakage currect with external transducer clamp HT96U (optional accessory)

Selectable range	Measurement range	Resolution	Accuracy (*)	Overload protection
1A	0.0 ÷ 99.9mA	0.1mA	±(3.0%rdg + 3dgt)	Measurement lead connected to ground
	100mA ÷ 1000mA	1mA		
100A	0.00A ÷ 9.99A	0.01A		
	10.0A ÷ 100.0A	0.1A		
1000A	0.0A ÷ 99.9A			
	100A ÷ 1000A	1A		

(*) Accuracy of instrument without clamp
Type of clamp: HT96U optional accessory (available ranges 1A, 100A, 1000A)
Transduced input voltage: 0 ÷ 1V AC
Input impedance: 1MΩ
Frequency range: 40Hz ÷ 100kHz

RCD Test

Nominal currents selectable:	10mA, 30mA, 100mA, 300mA, 500mA, 650mA, 1000mA
Type RCD:	AC, A, B, General, Selective, Delayed
Measurement modes:	x1/2, x1, x2, xK (K= 4 B type, K=5 AC, A type), Ramp, Auto (seq:x1/2, x1, xK), Ut
Range voltage / frequency:	100V ÷ 265V / (50Hz/60Hz) ±0.5Hz
Contact voltage limits:	25V, 50V selectable
Test current polarity:	0°, 180° selectable

During of trip out test [ms] – TT/TN systems (Resolution:1ms, Accuracy: ±(3.0%rdg+ 2ms)

		x 1/2			x1			x2		xK		AUTO		Rampa		
		G	S	R	G	S	R	G	S	G	S	G	S	G	S	R
10mA 30mA 100mA	AC	1000	1000	1000	1000	1000	1000	200	250	50	150	✓	✓	320		
	A	1000	1000	1000	1000	1000	1000	200	250	50	150	✓	✓	320		
	B	1000	1000	1000	1000	1000	1000			200	250	✓	✓	320		
300mA	AC	1000	1000	1000	1000	1000	1000	200	250	50	150	✓	✓	320		
	A	1000	1000	1000	1000	1000	1000	200	250	50	150	✓	✓	320		
	B	1000	1000	1000	1000	1000	1000							320		
500mA	AC	1000	1000	1000	1000	1000	1000	200	250	50	150	✓	✓	320		
	A	1000	1000	1000	1000	1000	1000	200	250					320		
	B	1000	1000	1000										320		
650mA	AC	1000	1000	1000	1000	1000	1000	200	250	50	150	✓	✓	320		
	A	1000	1000	1000	1000	1000	1000	200	250					320		
	B															
1000mA	AC	1000	1000	1000	1000	1000	1000	200	250					320		
	A	1000	1000	1000	1000	1000	1000									
	B															

Line / Loop Impedance P-P, P-N, P-PE

Range (Ω)	Resolution (Ω)	Accuracy	Overload protection
0.000 ÷ 2.000 (*)	0.1m	±(3.0%rdg + 3dgt)	CAT III 300V
0.00 ÷ 9.99	0.01		
10.0 ÷ 99.9	0.1		
100 ÷ 199	1		

(*) Only with optional accessory IMP57

Measurement modes:	Loop/Ipsc, kA, I2t test, trip current , Ut (indirect contact)
Type of protection devices:	MCB (magnetothermic) Curve B, C, D, K, Fuse type gG, aM
Corrente nominale MCB:	6, 10, 13, 16, 20, 25, 32, 40, 50, 63A (Curve B) 0.5, 1, 1.6, 2, 4, 6, 10, 13, 16, 20, 25, 32, 40, 50, 63A (Curve C) 0.5, 1, 1.6, 2, 4, 6, 10, 13, 16, 20, 25, 32A (Curve D and Curve K)
Nominal current fuses:	2A ÷ 1250A (Fuse gG) ; 2A ÷ 6300A (Fuse aM)
Breakdown current MCB/Fuses::	1kA ÷ 25kA selectable
Section of cable:	1 ÷ 70mmq selectable
Cable type:	Copper, Aluminum
Type of cable insulation:	PVC, Butyl rubber, EPR/XLPE
Number of parallel cables (I2t test):	1 ÷ 99
Trip out time of protection devices:	0.1s, 0.2s, 0.4s, 5s
P-N, P-PE / P-PP voltage:	100 ÷ 265V / 100 ÷ 460V
Frequency:	(50Hz/60Hz) ±0.5Hz

Prospective short circuit current (Ipsc)

Range (A)	Resolution (A)	Accuracy	Overload protection
0.05 ÷ 0.99	0.01	Depending on the accuracy of Z measure	CAT III 300V
1.0 ÷ 99.9	0.1		
100 ÷ 999	1		
1.00k ÷ 46.00k	0.01k		

Global earth resistance without RCDs tripping

Idn (mA)	Measure range (Ω)	Resolution (Ω)	Accuracy	Overload protection
10	0 ÷ 1999	1	±(3.0%rdg + 1Ω)	CAT III 300V
30	0.0 ÷ 99.9	0.1		
	100 ÷ 1999	1		
100	0.0 ÷ 99.9	0.1	±(3.0%rdg + 3dgt)	
	100 ÷ 999	1		
300	0.0 ÷ 99.9	0.1		
	100 ÷ 299	1		
500	0.0 ÷ 99.9	0.1		
	100 ÷ 199	1		
650	0.0 ÷ 99.9	0.1		
	100 ÷ 149	1		
1000	0.0 ÷ 99.9	0.1		

Test current: Idn/2
P-N, P-PE / P-PP voltage: 100 ÷ 265V, 50/60Hz
Mains nominal voltage: 230V or 240V

Contact voltage

Range (V)	Resolution (V)	Accuracy	Overload protection
0 ÷ 100 (Utlim = 50V)	1	±(3%rdg + 3V)	CAT III 300V
0 ÷ 50 (Utlim = 25V)			

Phase sequence rotation test

Range (V)	Frequency	Overload protection
360 ÷ 460	50Hz/60Hz ±0.5Hz	CAT III 300V

Indication of test: 1.2.3. (correct), 2.1.3. (incorrect), 1.1.X (not defined)

2. GENERAL SPECIFICATIONS

POWER SUPPLY:	
Main voltage:	207V ÷ 253V AC - 50/60Hz ±5%
Absorbed current:	16Amax
MECHANICAL SPECIFICATIONS:	
Dimensions (L x W x H):	400 x 300 x 170mm
Weight:	15kg
MEMORY AND INPUT/OUTPUT INTERFACES	
Internal memory:	999 locations (three levels structure)
PC interface:	USB type “B”
Keyboard, printer, pen drive, barcode:	2 x USB type “A”
Warning lamp:	for Dielectric test
Keyboard for remote controls	START/STOP/SAVE keys
Bluetooth interface	connection to mobile devices
ENVIRONMENTAL CONDITIONS:	
Reference temperature:	23°C ± 5°C
Working temperature:	0° ÷ 40°C
Working humidity:	<80%HR
Storage temperature:	-10 ÷ 60°C
Storage humidity:	<80%HR
REFERENCE GUIDELINES	
Safety tests machines/switchboards/devices:	IEC/EN60204-1:2006; IEC/EN61439-1-2; IEC/EN60335-1
Literature:	IEC/EN61187
Instrument:	IEC/EN61557-1-2-3-4-6-13-14
GENERAL CHARACTERISTICS:	
Display :	TFT, LCD, color 4.3” with capacitive touch screen
Instrument safety:	IEC/EN61010-1
Insulation:	double insulation
Pollution degree:	2
Measurement category:	CAT II 300V (I, Leak, Power), CAT III 300V (other tests)
Max. height of use:	2000m
Mechanical protection:	IP40
Input protections:	Fuses T16/250V, FF12.5A/500V, F20A/500V

This instrument complies with the requirements of the European Low Voltage Directives 2014/35/EU (LVD) and EMC 2014/30/EU
This instrument satisfies the requirements of 2011/65/EU (RoHS) directive and 2012/19/EU (WEEE) directive