1. ELECTRICAL SPECIFICATIONS

Accuracy is calculated as [% rdg + (number of dgt) x resolution]. It is referred to 23°C ± 5°C, <80%RH

DC Voltage

Range	Resolution	Accuracy	Input impedance	Overload protection
0.1 ÷ 999.9V	0.1V	±(1.0%rdg + 3dgt)	1MΩ	1000VDC/ACrms

AC (AC+DC) TRMS Voltage

Range	Resolution	Accuracy	Input impedance	Overload protection
		±(1.0%rdg + 3dgt)	1MΩ	1000VDC/ACrms

Max crest factor: 1.41, Fundamental: 50/60Hz ± 15%, Frequency bandwidth: 42.5Hz ÷ 1725Hz

AC/DC Voltage – MAX/MIN/CREST

Range	Resolution	Accuracy	Response time	Overload protection
0.5 ÷ 999.9V	0.1V	±(3.5%rdg + 5dgt)	1s	1000VDC/ACrms

Input impedance: 1MΩ, Max crest factor: 1.41, Fundamental: 50/60Hz ± 15%, Frequency bandwidth: 42.5Hz ÷ 1725Hz

DC Current

Range	Resolution	Accuracy	Overload protection
0.1 ÷ 999.9A	0.1A	±(2.0%rdg + 5dgt)	1000ADC/ACrms

AC (AC+DC) TRMS Current

Range	Resolution	Accuracy	Overload protection
0.1 ÷ 999.9A	0.1A	±(2.0%rdg + 5dgt)	1000ADC/ACrms

Max crest factor: 1.41, Fundamental: 50/60Hz ± 15%, Frequency bandwidth: 42.5Hz ÷ 1725Hz

AC/DC Current – MAX/MIN/CREST

Range	Resolution	Accuracy	Response time	Overload protection
0.5 ÷ 999.9A	0.1A	±(3.5%rdg + 5dgt)	1s	1000VDC/ACrms

Max crest factor: 1.41, Fundamental: 50/60Hz ± 15%, Frequency bandwidth: 42.5Hz ÷ 1725Hz

Inrush current AC, AC+DC TRMS

Range	Resolution	Accuracy	Overload protection
2.0 ÷ 99.9A	0.1A	±2.0%rdg + 5dgt)	1000ADC/ACrms
5 ÷ 999A	1A		

Frequency: DC, (50± 0.5)Hz, (60± 0.5)Hz, Crest factor: 3, Response time: DC:20ms, AC 50Hz: 20ms, 60Hz: 16.66ms

Resistance and Continuity test

Range	Resolution	Accuracy	Buzzer	Overload protection
0.0Ω ÷ 199.9Ω	0.1Ω	±(1.0%rdg + 5dgt)	1Ω ÷ 150Ω	1000VDC/ACrms 1000ADC/ACrms
200Ω ÷ 1999Ω	1Ω			
2.00kΩ÷19.99kΩ	0.01kΩ			
20.0kΩ ÷ 29.9kΩ	0.1kΩ			

Frequency with test leads and with jaws

Range	Resolution	Accuracy	Overload protection
42.5 ÷ 69.0Hz	0.1Hz	±(1.0%rdg + 5dgt)	1000VDC/ACrms 1000ADC/ACrms

Voltage range for frequency measurement: 0.5 ÷ 1000V / Current range for frequency measurement with jaws : 0.5 ÷ 1000A

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Phase sequence and phase conformity

Voltage range	Frequency range	Overload protection
100 ÷ 1000V	42.5 ÷ 69Hz	1000VDC/ACrms

Input impedance: 1MΩ

DC Power

Range [kW]	Resolution [kW]	Accuracy
0.00 ÷ 99.99	0.01	±(3.0%rdg + 3dgt)
100.0 ÷ 999.9	0.1	

Input impedance: 1MΩ, Accuracy defined for voltage > 10V, current ≥ 2A

Active power, Apparent power AC (AC+DC TRMS)

Range [kW, kVA]	Resolution [kW, kVAR, kVA]	Accuracy
0.00 ÷ 99.99	0.01	±(2.0%rdg + 3dgt)
100.0 ÷ 999.9	0.1	

Input impedance: 1MΩ, Accuracy defined for: sinusoidal waveform,42.5..69Hz, Voltage ≥ 10V, Current ≥ 2A, Pf ≥ 0.5

Reactive power AC (AC+DC TRMS)

Range [kVAR]	Resolution [kW, kVAR, kVA]	Accuracy
0.00 ÷ 99.99	0.01	±(2.0%rdg + 3dgt)
100.0 ÷ 999.9	0.1	

Input impedance: 1MΩ, Accuracy defined for: sinusoidal waveform,42.5..69Hz, Voltage ≥ 10V, Current ≥ 2A, Pf ≤ 0.9

Active Energy AC (AC+DC TRMS)

Range [kWh]	Resolution [kWh]	Accuracy
0.00 ÷ 99.99	0.01	±(2.0%rdg + 3dgt)
100.0 ÷ 999.9	0.1	

Input impedance: 1MΩ, Accuracy defined for: sinusoidal waveform,42.5..69Hz, Voltage ≥ 10V, Current ≥ 2A, Pf ≥ 0.5

Reactive Energy AC (AC+DC TRMS)

Range [kVARh]	Resolution [kVARh]	Accuracy
0.00 ÷ 99.99	0.01	±(2.0%rdg + 3dgt)
100.0 ÷ 999.9	0.1	

Input impedance: 1MΩ, Accuracy defined for: sinusoidal waveform,42.5..69Hz, Voltage ≥ 10V, Current ≥ 2A, Pf ≤ 0.9

Power factor

Range	Resolution	Accuracy
0.20 ÷ 1.00	0.01	±(2.0%rdg+2dgt)

Input impedance: 1MΩ, Accuracy defined for: sinusoidal waveform,42.5..69Hz, Voltage ≥ 10V, Current ≥ 2A

Voltage and Current Harmonics

Harmonic order	Fundam. Freq. [Hz]	Resolution [V], [A]	Accuracy (values not zeroed)
0	42.5 ÷ 69.0	0.1V /0.1A	±(10.0%rdg+5dgt)
1 ÷ 25			±(5.0%rdg+5dgt)
THD%		0.1%	±(10.0%rdg+5dgt)

The accuracy of harmonics amplitude expressed in % is evaluated considering the accuracy of the parameters ratio
(*) Voltage harmonics are zeroed in the below conditions:

- 1st harmonic: if value < 0.5V
- DC, 2nd to 25th harmonics: if harmonic value <0.5% of fundamental value or if value < 0.5V

Current harmonics are zeroed in the below conditions:

- 1st harmonic: if value < 0.5A

DC, 2nd to 25th harmonics: if harmonic value <0.5% of fundamental value or if value < 0.5AV

2. GENERAL SPECIFICATIONS

Mechanical characteristics	
Dimensions (L x W x H):	252 x 88 x 44mm
Weight (including battery):	420g
Max conductor size:	45mm
Supply	
Battery type:	2 batteries 1.5V type AAA IEC LR03
Battery life:	approx. 150 hours of continuous use in power/energy measures
Auto Power Off:	approx. 5 minutes of idleness
Display	
Characteristics:	graphic dot matrix, 128x128pxl with backlight
Sample rate:	128 samples/period (@ 50Hz)
Display update rate:	1 times/sec
Conversion mode:	TRMS
Climatic conditions	
Reference temperature:	23°C ± 5°C
Operating temperature:	0 ÷ 40 °C
Operating humidity:	<80%RH
Storage temperature:	-10 ÷ 60 °C
Storage humidity:	<70%RH
Reference standards	
Comply with:	IEC/EN 61010-1, IEC/EN61010-2-032
EMC:	IEC/EN61326-1
Safety of test leads:	IEC/EN61010-031
Insulation:	double insulation
Pollution:	level 2
For inside use, max height:	2000m
Installation category:	CAT IV 600V to ground, max 1000V between inputs

This instrument satisfies the requirements of Low Voltage Directive 2006/95/EC (LVD) and of EMC Directive 2004/108/EC
This instrument satisfies the requirements of 2011/65/EU (RoHS) directive and 2012/19/EU (WEEE) directive