

1. ELECTRICAL SPECIFICATIONS – SAFETY SECTION (*)

Accuracy is indicated as \pm (% readings + no. of digits*resolution) at 23 °C \pm 5 °C, <80%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: $4V \leq V_0 \leq 12V$

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

Insulation resistance (DC voltage)

| Test voltage[V] | Range [$M\Omega$] | Resolution [$M\Omega$] | 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= $1k\Omega \cdot V_{nom}$ ($V_{nom}=50V, 100V, 250V, 500V, 1000V$)

Safety protection: the display shows an error message for input voltage > approx.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) / 173÷460V (Line-Line); 50/60Hz \pm 5%

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

Insulation materials: PVC, Rubber butyl, EPR, XLPE





First fault current (IT systems)

| Range (mA) | Resolution (mA) | Accuracy |
|------------|-----------------|--|
| 0.1 ÷ 0.9 | 0.1 | $\pm(5.0\% \text{ rdg} + 1\text{dgt})$ |
| 1 ÷ 999 | 1 | $\pm(5.0\% \text{ rdg} + 3\text{dgt})$ |

Limit contact voltage (ULIM) :

25V, 50V








RCD test (Molded case type)

RCD type: AC () , A () , B () – General (G), Selective (S) and Delayed ()
 Rated tripping currents (I Δ N):: 10mA, 30mA, 100mA, 300mA, 500mA, 650mA, 1000mA
 Line-PE, Line-N voltage: 100V \pm 265V RCD type AC and A, 190V \pm 265V RCD type B
 Frequency: 50/60Hz \pm 5%

RCD tripping current (Molded case type – RCD General)








| RCD type | I Δ N | Range I Δ N [mA] | Resolution [mA] | Accuracy I Δ N |
|----------|---------------------------------------|-------------------------------|-------------------------|------------------------|
| AC, A | I Δ N = 10mA | (0.3 \div 1.1) I Δ N | \leq 0.1 I Δ N | - 0%, +10%I Δ N |
| | 10mA <I Δ N \leq 650mA | | | - 0%, +5%I Δ N |
| B | 30mA \leq I Δ N \leq 100mA | | | |

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

| | \ | x 1/2 | | | x 1 | | | x 2 | | | x 5 | | | AUTO | | |  | | |
|----------------|----|-------|-----|---|-----|-----|---|-----|-----|---|-----|---|---|------|---|---|---|---|---|
| | | G | S |  | G | S |  | G | S |  | G | S |  | G | S |  | G | S |  |
| 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 | 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 | | | | | | | | | | 310 | | |
| 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 650mA | AC | 999 | 999 | 999 | 999 | 999 | 999 | 200 | 250 | 50 | 150 | ✓ | ✓ | | | | 310 | | |
| | A | 999 | 999 | 999 | 999 | 999 | 999 | 200 | 250 | | | | | | | | 310 | | |
| | B | | | | | | | | | | | | | | | | | | |
| 1000mA | AC | 999 | 999 | 999 | 999 | 999 | 999 | 200 | 250 | | | | | | | | | | |
| | A | 999 | 999 | 999 | 999 | 999 | 999 | | | | | | | | | | | | |
| | B | | | | | | | | | | | | | | | | | | |

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

RCD Molded type tripping time range [ms] (IT system)

| | \ | x 1/2 | | | x 1 | | | x 2 | | | x 5 | | | AUTO | | |  | | |
|------------------------|----|-------|-----|---|-----|-----|---|-----|-----|---|-----|---|---|------|---|---|---|---|---|
| | | G | S |  | G | S |  | G | S |  | G | S |  | G | S |  | G | S |  |
| 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 650mA | AC | 999 | 999 | 999 | 999 | 999 | 999 | 200 | 250 | 50 | 150 | ✓ | ✓ | | | | 310 | | |
| | A | | | | | | | | | | | | | | | | | | |
| | B | | | | | | | | | | | | | | | | | | |
| 1000mA | AC | 999 | 999 | 999 | 999 | 999 | 999 | 200 | 250 | | | | | | | | | | |
| | A | | | | | | | | | | | | | | | | | | |
| | B | | | | | | | | | | | | | | | | | | |

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

Test on earth leakage delay tester RCDs (with RCDX10 optional accessory)

| | |
|--|---|
| RCD type: | AC (⌚), A (⌚), B (⌚) – General (G), Selective (S) and Delayed (⌚) |
| Rated tripping currents (I _{ΔN}):: | 0.3A ÷ 10A |
| Line-PE, Line-N voltage: | 100V ÷265V RCD type AC and A, 190V ÷265V RCD type B |
| Frequency: | 50/60Hz ± 5% |

Earth leakage delay tester RCDs tripping current (RCD General)

| RCD type | I _{ΔN} | Range I _{ΔN} [mA] | Resolution [mA] | Accuracy I _{ΔN} |
|----------|--------------------------------|-----------------------------|-----------------------|---------------------------|
| AC, A | 300mA ≤ I _{ΔN} ≤ 6.5A | (0.3 ÷ 1.1) I _{ΔN} | ≤ 0.1 I _{ΔN} | - 0%, +5% I _{ΔN} |
| B | 300mA ≤ I _{ΔN} ≤ 1A | | | |

Earth leakage delay tester RCDs trip out time range [ms] (TT/TN system)

| | \ | x 1/2 | | | x 1 | | | x 2 | | | x 5 | | | AUTO | | | | | |
|----------------------------------|----|-------|-----|-----|-----|-----|-----|-----|-----|----|-----|---|---|------|---|---|-----|-----|---|
| | | G | S | ⌚ | G | S | ⌚ | G | S | ⌚ | G | S | ⌚ | G | S | ⌚ | G | S | ⌚ |
| 0.3A ÷ 1.0A | 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 | | | | | | | | | | | 310 | |
| 1.1A ÷ 3.0A | 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 | | | | | | | | | | | | |
| 3.1A ÷ 6.5A | 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 | | | | | | | | | | | | |
| 6.6A ÷ 10.0A | AC | 999 | 999 | 999 | 999 | 999 | 999 | 200 | 250 | | | | | | | | | | |
| | A | 999 | 999 | 999 | 999 | 999 | 999 | | | | | | | | | | | | |
| | B | | | | | | | | | | | | | | | | | | |

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

Earth leakage delay tester RCDs trip out time range [ms] (IT system)

| | \ | x 1/2 | | | x 1 | | | x 2 | | | x 5 | | | AUTO | | | | | |
|----------------------------------|----|-------|-----|-----|-----|-----|-----|-----|-----|----|-----|---|---|------|---|---|-----|---|---|
| | | G | S | ⌚ | G | S | ⌚ | G | S | ⌚ | G | S | ⌚ | G | S | ⌚ | G | S | ⌚ |
| 0.3A ÷ 3.0A | AC | 999 | 999 | 999 | 999 | 999 | 999 | 200 | 250 | 50 | 150 | ✓ | ✓ | | | | 310 | | |
| | A | | | | | | | | | | | | | | | | | | |
| | B | | | | | | | | | | | | | | | | | | |
| 3.1A ÷ 6.5A | AC | 999 | 999 | 999 | 999 | 999 | 999 | 200 | 250 | 50 | 150 | ✓ | ✓ | | | | 310 | | |
| | A | | | | | | | | | | | | | | | | | | |
| | B | | | | | | | | | | | | | | | | | | |
| 6.6A ÷ 10.0A | AC | 999 | 999 | 999 | 999 | 999 | 999 | 200 | 250 | | | | | | | | | | |
| | A | | | | | | | | | | | | | | | | | | |
| | B | | | | | | | | | | | | | | | | | | |

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

R_A – Non-trip earth loop impedance

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 (RCD and Ra test)

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

Contact voltage (EARTH test – TT system)

| Range [V] | Resolution [V] | Accuracy |
|-----------|----------------|-----------------------|
| 0 ÷ 99.9 | 0.1 | -0%, +(5.0% rdg + 3V) |

Contact voltage (EARTH test – TN system)

| Range [V] | Resolution [V] | Accuracy |
|-----------|----------------|-----------------------|
| 0 ÷ 99.9 | 0.1 | -0%, +(5.0% rdg + 3V) |
| 100 ÷ 999 | 1 | |

Ground resistance with 3-wire method

| 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 | |

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

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

Soil resistivity with 4-wire Wenner method

| 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

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

Phase sequence rotation with 1-wire method

| Voltage range P-N, P-PE[V] | Frequency range |
|----------------------------|-----------------|
| 100 ÷ 265 | 50Hz/60Hz ± 5% |

Measurement is only carried out by direct contact with metal live parts (not on insulation sheath)

Voltage drop on main power lines (ΔV%)

| Range (%) | Resolution (%) | Accuracy |
|-----------|----------------|---------------------|
| 0 ÷ 100 | 0.1 | ±(10.0% rdg + 4dgt) |

Voltage range Phase-PE, Phase-Neutral: 100 ÷ 265V, Frequency: 50/60Hz ± 5%

Leakage current (by HT96U optional clamp transducer)

| FS clamp AC (A) | Resolution | Accuracy |
|-----------------|------------|--------------------|
| 1 | 0.1mA | ±(1.0%rdg + 20dgt) |
| 1 < FS <10 | 0.01A | |
| 10 ≤ FS <300 | 0.1A | |
| 300 ≤ FS <3000 | 1A | |

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

2. ELECTRICAL SPECIFICATIONS – PQA SECTION

AC TRMS Voltage (Phase-Neutral)

| Range [V] | Resolution [V] | Accuracy |
|--------------|----------------|-------------------|
| 15.0 ÷ 380.0 | 0.1V | ±(1.0%rdg + 1dgt) |

Allowed crest factor: ≤ 1,5 ; Frequency: 42 ÷ 69.0 Hz

AC TRMS Voltage (Phase-Phase)

| Range [V] | Resolution [V] | Accuracy |
|--------------|----------------|-------------------|
| 15.0 ÷ 660.0 | 0.1V | ±(1.0%rdg + 1dgt) |

Allowed crest factor: ≤ 1,5 ; Frequency: 42 ÷ 69.0 Hz

Frequency

| Range [Hz] | Resolution [Hz] | Accuracy |
|---------------|-----------------|-------------------|
| DC, 42 ÷ 69.0 | 0.01 | ±(2.0%rdg + 2dgt) |

Allowed voltage: 15.0 ÷ 660V ; Allowed current: 5%FS clamp ÷ FS clamp

DC/ AC TRMS Current (STD clamp)

| FS clamp | Range [A] | Resolution [A] | Accuracy |
|------------------|---------------|----------------|--------------------|
| ≤ 10A | 5% FS ÷ 9.99 | 0.01 | ±(1.0%rdg + 3 dgt) |
| 10A ≤ FS ≤ 300 | 5% FS ÷ 299.9 | 0.1 | |
| 300A ≤ FS ≤ 3000 | 5% FS ÷ 2999 | 1 | |

Range: 5 ÷ 999.9 mV; Values under 5mV are zeroed

Allowed crest factor: ≤ 3; Frequency: 42 ÷ 69.0 Hz

AC TRMS Current (FLEX clamp – 300A AC)

| Range [mV] | Frequency [Hz] | Resolution | Accuracy | Overload protection |
|--------------|----------------|------------|--------------------|---------------------|
| 0.085 ÷ 85.0 | 42 ÷ 69.0 | 8.5μV | ±(0.5%rdg+0.17%FS) | 10V |

Allowed crest factor ≤3, Values under 1A are zeroed

AC TRMS Current (FLEX clamp – 3000A AC)

| Range [mV] | Frequency [Hz] | Resolution | Accuracy | Overload protection |
|---------------|----------------|------------|--------------------|---------------------|
| 0.425 ÷ 255.0 | 42 ÷ 69.0 | 85μV | ±(0.5%rdg+0.17%FS) | 10V |

Allowed crest factor ≤3, Values under 5A are zeroed

DC Power

| FS clamp | Range [kW] | Resolution [kW] | Accuracy |
|-------------------|---------------|-----------------|-------------------|
| ≤ 10A | 0.000 ÷ 9.999 | 0.001 | ±(2.0%rdg + 7dgt) |
| | 10.00 ÷ 99.99 | 0.01 | |
| 10A ≤ FS ≤ 200 | 0.00 ÷ 99.99 | 0.01 | |
| | 100.0 ÷ 999.9 | 0.1 | |
| 200A ≤ FS ≤ 1000 | 0.0 ÷ 999.9 | 0.1 | |
| | 1000 ÷ 9999 | 1 | |
| 1000A ≤ FS ≤ 3000 | 0 ÷ 9999 | 1 | |

Active power (@ 230V, I > 5%FS, cosφ ≥ 0.5, f=50.0Hz)

| FS clamp | Range [kW] | Resolution [kW] | Accuracy |
|-------------------|---------------|-----------------|-------------------|
| ≤ 10A | 0.000 ÷ 9.999 | 0.001 | ±(2.0%rdg + 7dgt) |
| | 10.00 ÷ 99.99 | 0.01 | |
| 10A ≤ FS ≤ 200 | 0.00 ÷ 99.99 | 0.01 | |
| | 100.0 ÷ 999.9 | 0.1 | |
| 200A ≤ FS ≤ 1000 | 0.0 ÷ 999.9 | 0.1 | |
| | 1000 ÷ 9999 | 1 | |
| 1000A ≤ FS ≤ 3000 | 0 ÷ 9999 | 1 | |

Reactive power (@ 230V, I >5%FS, cosφ<0.9, f=50.0Hz)

| FS clamp | Range [kVAr] | Resolution [kVAr] | Accuracy |
|-------------------|---------------|-------------------|-------------------|
| ≤ 10A | 0.000 ÷ 9.999 | 0.001 | ±(2.0%rdg + 7dgt) |
| | 10.00 ÷ 99.99 | 0.01 | |
| 10A ≤ FS ≤ 200 | 0.00 ÷ 99.99 | 0.01 | |
| | 100.0 ÷ 999.9 | 0.1 | |
| 200A ≤ FS ≤ 1000 | 0.0 ÷ 999.9 | 0.1 | |
| | 1000 ÷ 9999 | 1 | |
| 1000A ≤ FS ≤ 3000 | 0 ÷ 9999 | 1 | |

Power factor / cosφ (@ 230V, I >5%FS)

| Range | Resolution | Accuracy |
|----------------------|------------|-------------------|
| 0.70c ÷ 1.00 ÷ 0.70i | 0.01 | ±(2.0%rdg + 3dgt) |

Voltage harmonics (@ 230V in 1Ph systems, 400V in 3Ph systems)

| Range [%] | Resolution [%] | Order | Accuracy |
|-------------|----------------|-------------|-------------------|
| 0.1 ÷ 100.0 | 0.1 | DC, 01 ÷ 49 | ±(5.0%rdg + 5dgt) |

Frequency of fundamental: 42 ÷ 69.0 Hz

Harmonics are zeroed at the below conditions:

- DC : DC value <0.5% fundamental value or DC value < 1.0V
- 1° Harmonic: value of 1° Harmonic < 15V
- 2nd ÷ 49th Harmonics: harmonic value <0.5% fundamental value or if value < 1.0V

Current harmonics

| Range [%] | Resolution [%] | Order | Accuracy |
|-------------|----------------|-------------|-------------------|
| 0.1 ÷ 100.0 | 0.1 | DC, 01 ÷ 49 | ±(5.0%rdg + 5dgt) |

Frequency of fundamental: 42 ÷ 69.0 Hz

Harmonics are zeroed at the below conditions:

- DC : DC value <0.5% fundamental value or DC value < 0.5%FS clamp
- 1° Harmonic: value of 1° Harmonic < 0.5%FS clamp
- 2nd ÷ 49th Harmonics: harmonic value <0.5% fundamental value or if value < 0.5%FS clamp

Voltage anomalies (Phase-Neutral, Phase-PE)

| Range [V] | Resolution [V] | Resolution [ms] | Accuracy [V] | Accuracy [ms] |
|------------|----------------|-----------------|-------------------|---------------|
| 15.0 ÷ 380 | 0.2 | 20ms | ±(1.0%rdg + 2dgt) | ± 1cycle |

Voltage anomalies (Phase- Phase)

| Range [V] | Resolution [V] | Resolution [ms] | Accuracy [V] | Accuracy [ms] |
|------------|----------------|-----------------|-------------------|---------------|
| 15.0 ÷ 660 | 0.2 | 20ms | ±(1.0%rdg + 2dgt) | ± 1cycle |



3. GENERAL SPECIFICATIONS

DISPLAY AND MEMORY:

| | |
|------------------------|---|
| Features: | TFT, touch screen, color graphic LCD, 320x240mm |
| Memory safety section: | 999 locations, 3 marker levels |
| Memory PQA section: | 8MB (not expanded) |
| Communication: | Optical-USB and built-in WiFi |

POWER SUPPLY:

| | |
|-------------------|--|
| Batteries: | 6 x 1.2V(rechargeable) type AA or 6 x 1.5V type AA |
| Battery life: | > 500 test for each safety functions > 6 hours in recording |
| Recharging time: | approx. 12 hours |
| External charger: | 100-240VAC, 50/60Hz / 15VDC, CAT IV 300V |
| Auto Power OFF: | after 5 min of idleness (disabled) |

MECHANICAL FEATURES:

| | |
|------------------------------|------------------|
| Dimensions (L x W x H): | 225 x 165 x 75mm |
| Weight (included batteries): | 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 |

GENERAL REFERENCE STANDARDS:

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|----------------------------------|--|
| Safety of measuring instruments: | IEC/EN61010-1, IEC/EN61010-031, IEC/EN61010-2-032 |
| Product type standard: | IEC/EN61557-1-2-3-4-5-6-7-10 |
| EMC : | IEC/EN61326-1 |
| Technical documentation : | IEC/EN61187 |
| Insulation: | double insulation |
| Pollution degree: | 2 |
| Encapsulation : | IP40 |
| Measurement category: | CAT IV 300V to ground, CAT III 350V to ground max 600V among inputs |
| Max height of use: | 2000m |

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 (only Phase-Neutral-Ground systems) |
| Phase sequence: | IEC/EN61557-7 |
| Multifunction: | IEC/EN61557-10 |
| Prospective short circuit current: | EN60909-0 |
| Earth resistance on TN systems: | EN61936-1 + EN50522 |
| Power quality: | EN50160 |

This instrument complies with the requirements of the European Low Voltage Directives 2014/35/EU (LVD) and EMC 2014/30/EU

This instrument complies with the requirements of the European 2011/65/EU (RoHS) and with the requirements of the European 2012/19/EU (WEEE)