

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 Ω |
| 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 | | 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 | | 1ms | |
| PEAK | 10.0mV ÷ 999.9mV | 0.1mV | | | |
| | 1.000V ÷ 3.000V | 1mV | | | |

RESISTANCE AND CONTINUITY TEST

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

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 – VERIFY TESTS

Tripping time test for RCD type AC and A

| Range (ms) | Resolution (ms) | Accuracy | Overload protection |
|------------|-----------------|--|---------------------|
| 2 ÷ 300 | 1 | $\pm(2.0\% \text{ rdg} + 2\text{dgt})$ | 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 type AC and A

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

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

Global Earth Resistance

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

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 |
|------------|--|

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

