



1. ELECTRICAL SPECIFICATIONS

Continuity test on protective conductors

| Range (Ω) | Resolution (Ω) | Accuracy | Category of measure |
|--------------------|-------------------------|------------------------|---|
| 0.00 ÷ 9.99 | 0.01 | $\pm(2.0\%rdg + 2dgt)$ | CAT III 240V to Ground CAT III 415V between inputs |
| 10.0 ÷ 99.9 | 0.1 | | |

(*) after cable calibration which eliminates the cable resistance

 Test current: >200mA DC per $R \leq 5\Omega$ (calibration included) ; Current measurement resolution: 1mA

 Open leads voltage: $4 < V_0 < 24V$

Insulation resistance

| Test voltage (V) | Range (M Ω) | Resolution (M Ω) | Accuracy | Category of measure |
|------------------|---------------------|--------------------------|------------------------|---|
| 50 | 0.01 ÷ 9.99 | 0.01 | $\pm(2.0\%rdg + 2dgt)$ | CAT III 240V to Ground CAT III 415V between inputs |
| | 10.0 ÷ 49.9 | 0.1 | $\pm(5.0\%rdg + 2dgt)$ | |
| | 50.0 ÷ 99.9 | | | |
| 100 | 0.01 ÷ 9.99 | 0.01 | $\pm(2.0\%rdg + 2dgt)$ | |
| | 10.0 ÷ 99.9 | 0.1 | $\pm(5.0\%rdg + 2dgt)$ | |
| | 100 ÷ 199 | 1 | | |
| 250 | 0.01 ÷ 9.99 | 0.01 | $\pm(2.0\%rdg + 2dgt)$ | |
| | 10.0 ÷ 99.9 | 0.1 | | |
| | 100 ÷ 249 | 1 | $\pm(5.0\%rdg + 2dgt)$ | |
| | 250 ÷ 499 | | | |
| 500 | 0.01 ÷ 9.99 | 0.01 | $\pm(2.0\%rdg + 2dgt)$ | |
| | 10.0 ÷ 99.9 | 0.1 | | |
| | 100 ÷ 499 | 1 | $\pm(5.0\%rdg + 2dgt)$ | |
| | 500 ÷ 999 | | | |
| 1000 | 0.01 ÷ 9.99 | 0.01 | $\pm(2.0\%rdg + 2dgt)$ | |
| | 10.0 ÷ 99.9 | 0.1 | | |
| | 100 ÷ 999 | 1 | $\pm(5.0\%rdg + 2dgt)$ | |
| | 1000 ÷ 1999 | | | |

Open leads voltage: 1.25 x nominal test voltage ; Voltage measurement resolution: 1V

Short circuit current: <15mA (peak) for each test voltage

 Nominal current: >2.2mA with 230k Ω @, 500V; 1mA with 1M Ω @ other test voltage

RCDs tripping time

| Range (ms) | Resolution (ms) | Accuracy | Category of measure | |
|--|-----------------|------------------------|---|-------------------|
| $\frac{1}{2} I_{\Delta N}, I_{\Delta N}$ | 1 | $\pm(2.0\%rdg + 2dgt)$ | CAT III 240V to Ground CAT III 415V between inputs | |
| 1 ÷ 999 | | | | |
| 2 $I_{\Delta N}$ | | | | 1 ÷ 200 general |
| | | | | 1 ÷ 250 selective |
| 5 $I_{\Delta N}$ | | | | 1 ÷ 50 general |
| | | | | 1 ÷ 160 selective |

Nominal trip-out current: 10mA, 30mA, 100mA, 300mA, 500mA, 650mA, 1000mA

RCD type: AC, A, general and selective

 Phase-ground voltage: (110V ÷ 240V) $\pm 10\%$

 Frequency: 50Hz ± 0.5 Hz, 60Hz ± 0.5 Hz

Voltage contact limits: 25V or 50V

RCDs tripping current (general, AC and A types)

| RCD's type | $I_{\Delta N}$ | Range $I_{\Delta N}$ (mA) | Resolution (mA) | Accuracy | Category of measure |
|------------|--------------------------|----------------------------|--------------------|-------------|---|
| AC | $I_{\Delta N} \leq 10mA$ | (0.5 ÷ 1.1) $I_{\Delta N}$ | 0.1 $I_{\Delta N}$ | 0%, +10%rdg | CAT III 240V to Ground CAT III 415V between inputs |
| A | | (0.3 ÷ 1.1) $I_{\Delta N}$ | | | |
| AC | $I_{\Delta N} > 10mA$ | (0.5 ÷ 1.1) $I_{\Delta N}$ | | | |
| A | | (0.3 ÷ 1.1) $I_{\Delta N}$ | | | |



Global Earth Resistance R_A without RCD's tripping

| Range (Ω) | Resolution (V) | Accuracy | Category of measure |
|--------------------|----------------|-------------------------|---|
| 1 ÷ 1999 | 1 | $\pm (5.0\%rdg + 3dgt)$ | CAT III 240V to Ground CAT III 415V between inputs |

RCD type: AC, A, general and selective
 Range contact voltage U_t : 0 ÷ 2U_{lim}, resolution: 0.1V, accuracy: -0%, +(5%rdg + 3dgt)
 Test current: < ½ I_{dn}, accuracy: -10%, +0% I_{dn}

Loop impedance P-P, P-N, P-PE TT/TN systems

| Range (Ω) | Resolution (Ω) (*) | Accuracy | Category of measure |
|------------------------|-----------------------------|------------------------|---|
| 0.01 ÷ 9.99 | 0.01 | $\pm(5.0\%rdg + 3dgt)$ | CAT III 240V to Ground CAT III 415V between inputs |
| 10.0 ÷ 199.9 | 0.1 | | |
| 200 ÷ 1999 (only P-PE) | 1 | | |

(*) 0.1m Ω in 0.0 ÷ 199.9 m Ω range (with option accessory IMP57)
 Maximum peak current: 3A @ 127V, 6A @ 230V, 10A @ 400V
 Test voltage: (110÷240V) $\pm 10\%$ (P-N, P-PE); 50Hz ± 0.5 Hz, 60Hz ± 0.5 Hz
 (110÷415V) $\pm 10\%$ (P-P); 50Hz ± 0.5 Hz, 60Hz ± 0.5 Hz

Loop impedance P-P, P-N, P-PE - First fault current IT systems

| Range (mA) | Resolution (mA) | Accuracy | Category of measure |
|------------|-----------------|------------------------|---|
| 5 ÷ 999 | 1 | $\pm(5.0\%rdg + 3dgt)$ | CAT III 240V to Ground CAT III 415V between inputs |

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

Global Earth Resistance R_A

| Range (Ω) | Resolution (Ω) | Accuracy | Category of measure |
|------------------------|-------------------------|-----------------------------|---|
| 0.01 ÷ 9.99 | 0.01 | $\pm(5.0\%rdg + 1.0\Omega)$ | CAT III 240V to Ground CAT III 415V between inputs |
| 10.0 ÷ 199.9 | 0.1 | | |
| 200 ÷ 1999 (solo F-PE) | 1 | | |

Test current @ 265V: <15 mA
 Test voltage: (110÷240V) $\pm 10\%$ (phase-neutral/PE); 50Hz ± 0.5 Hz, 60Hz ± 0.5 Hz
 U_{lim} (UI): 25V , 50V

Phase sequence with 1 or 2 wires

| Range (V) | Results displayed | Category of measure |
|------------------------|---|---|
| (100 ÷ 240) $\pm 10\%$ | "123" → correct phase sequence "132" → wrong phase sequence "11-" → phase coincidence | CAT III 240V to Ground CAT III 415V between inputs |

The instrument detects the phase sequence by touching the hot wire. The detection is not performed on insulated cables.
 Frequency: 50Hz ± 0.5 Hz, 60Hz ± 0.5 Hz

AC TRMS Voltage

| Range (V) | Frequency (Hz) | Resolution (V) | Accuracy | Category of measure |
|-------------|----------------|----------------|------------------------|---|
| 5.0 ÷ 265.0 | 47 ÷ 63 | 0.1 | $\pm(0.5\%rdg + 2dgt)$ | CAT III 240V to Ground CAT III 415V between inputs |

Max crest factor: <1.5 ; Voltage indicated it's the Max TRMS value considered between any couple of inputs

Frequency

| Range (Hz) | Resolution (Hz) | Accuracy | Category of measure |
|-------------|-----------------|-----------------------|---|
| 47.0 ÷ 63.0 | 0.1 | $\pm (2\%rdg + 2dgt)$ | CAT III 240V to Ground CAT III 415V between inputs |

Voltage range: 15V ÷ 460V_{rms}

Voltage harmonics

| Range | Resolution (V) | Accuracy | Category of measure |
|-----------|----------------|------------------------|-----------------------------|
| 2a ÷ 15a | 0.1 | $\pm (2\%rdg + 5dgt)$ | CAT III 240V to Ground |
| 16a ÷ 49a | | $\pm (5\%rdg + 10dgt)$ | CAT III 415V between inputs |

Voltage range: 0.0V ÷ 265V_{rms}
 Fundamental frequency range : 47 ÷ 63Hz



AC TRMS Current (In1 input)

| Range (A) | Resolution (A) | Accuracy | Category of measure |
|------------------|----------------|-------------------|--|
| 0.005 ÷ 1.2 x FS | See table | ±(1.0%rdg + 2dgt) | CAT I 30V to Ground and between inputs |

Frequency range : 47Hz ÷ 63Hz

Current harmonics (In1 input)

| Range | Resolution (A) | Accuracy | Category of measure |
|-----------|----------------|-------------------|--|
| 2a ÷ 15a | See table | ± (2% rdg + 5dgt) | CAT I 30V to Ground and between inputs |
| 16a ÷ 49a | | ± (5%rdg + 10dgt) | |

Frequency range: 47Hz ÷ 63Hz ; Current range: ≥ 0.020 x FS

| Full scale FS [A] | Resolution [A] | Full scale FS [A] | Resolution [A] |
|-------------------|----------------|-------------------|----------------|
| 1 | 0.001 | 300 | 0.1 |
| 10 | 0.01 | 400 | 0.1 |
| 30 | 0.01 | 1000 | 1 |
| 100 | 0.1 | 2000 | 1 |
| 200 | 0.1 | 3000 | 1 |

Active, Reactive, Apparent power @ V_{mis}>60V, cosφ=1, f=50.0Hz

| Range (W, VAR, VA) | Resolution (W,VAR, VA) | FS Clamp (A) | Accuracy |
|--------------------|------------------------|-----------------|--------------------|
| 0.0 ÷ 999.9 | 0.1 | FS ≤ 1 | ± (1.0%rdg + 6dgt) |
| 1.000 ÷ 9.999 k | 0.001 k | | |
| 0.000 ÷ 9.999 k | 0.001 k | 1 < FS ≤ 10 | |
| 10.00 ÷ 99.99 k | 0.01 k | | |
| 0.00 ÷ 99.99 k | 0.01 k | 10 < FS ≤ 100 | |
| 100.0 ÷ 999.9 k | 0.1 k | | |
| 0.0 ÷ 999.9 k | 0.1 k | 100 < FS ≤ 3000 | |
| 1000 ÷ 9999 k | 1 k | | |

Power factor (cosφ) @ V_{mis}>60V, f=50.0Hz

| Current range (A) | Range | Resolution | Accuracy |
|-------------------|----------------------|------------|----------|
| 0.005 ÷ 0.1 x FS | 0.80c ÷ 1.00 ÷ 0.80i | 0.01 | ± 2° |
| 0.1 ÷ 1.2 x FS | | | ± 1° |

Leakage current AC TRMS (In1 input)

| Range (mV) | Resolution (mV) | Accuracy | Category of measure |
|------------|-----------------|-------------------|--|
| 1 ÷ 1200 | 0.1 | ±(1.0%rdg + 2dgt) | CAT I 30V to Ground and between inputs |

Frequency range: 50Hz ÷ 60Hz

Environmental parameters

| Feature | Range | Resolution | Transduced signal | Accuracy |
|-------------|------------------|-----------------|-------------------|-------------------|
| Temperature | -20.0 ÷ 80.0°C | 0.1°C | -20 ÷ +80mV | ±(2.0%rdg + 2dgt) |
| | -4.0 ÷ 176.0°F | 0.1°F | -4 ÷ +176mV | |
| Humidity | 0.0 ÷ 100.0% RH | 0.1% RH | 0 ÷ +100mV | |
| DC Voltage | ±(0.0 ÷ 999.9mV) | 0.1mV | ±(0.2 ÷ 999.9mV) | |
| Illuminance | 0.001 ÷ 20.00Lux | 0.001 ÷ 0.02Lux | 0 ÷ +100mV | |
| | 0.1 ÷ 2000Lux | 0.1 ÷ 2Lux | | |
| | 1 ÷ 20000Lux | 0.1 ÷ 2Lux | | |



2. GENERAL SPECIFICATIONS

MECHANICAL FEATURES

| | |
|------------------------------|------------------|
| Dimensions (L x W x H): | 235 x 165 x 75mm |
| Weight (batteries included): | 1.2kg |

MEMORY AND SERIAL INTERFACE

| | |
|--------------------------------|---------------|
| Each measurement can be stored | |
| Memory: | 500 locations |
| PC communication port: | optical / USB |

DISPLAY:

| | |
|-----------|----------------------------|
| Features: | graphic LCD with backlight |
|-----------|----------------------------|

POWER SUPPLY:

| | |
|---------------|--|
| Batteries: | 6x 1.5V type LR6, AA, AM3, MN 1500 |
| Battery life: | > 600 measurements (without using the timer) |

ENVIRONMENTAL CONDITIONS:

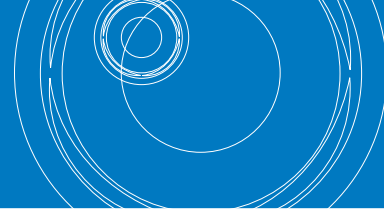
| | |
|---|------------|
| Reference temperature of calibration: | 23°C ± 5°C |
| Working temperature: | 0° ÷ 40°C |
| Working humidity: | < 80%HR |
| Storage temperature (batteries not included): | -10 ÷ 60°C |
| Storage humidity: | < 80%HR |

GENERAL REFERENCE STANDARDS:

| | |
|------------------------|--|
| Safety: | IEC/EN61010-1, IEC/EN61557-1, -2, -3, -4, -6, -7 |
| Technical literature: | IEC/EN61187 |
| Safety of accessories: | IEC/EN61010-031, IEC/EN61010-2-032 |
| LOW Ω (200mA): | IEC/EN61557-4 |
| M Ω : | IEC/EN61557-2 |
| RCD: | IEC/EN61557-6 |
| LOOP P-P, P-N, P-PE: | IEC/EN61557-3 |
| Ra 15 _{mA} | IEC/EN61557-3 |
| 123: | IEC/EN61557-7 |
| Insulation: | double insulation |
| Pollution degree: | 2 |
| Max altitude: | 2000m |
| Overvoltage category: | CAT III 240V to ground, max 415V among inputs |

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

Service van EURO-INDEX b.v.



EURO-INDEX b.v. verleent service op alle meetinstrumenten uit haar leveringspakket en biedt de faciliteiten, kennis en hoog gekwalificeerd personeel voor (preventief) onderhoud, reparatie en kalibratie van uw meetinstrumenten.

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Bekijk de video en ontdek alles over KWS

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- Uitgebreid assortiment
- Deskundig advies
- Instrumenten worden geleverd met accessoirepakket en herleidbaar kalibratiecertificaat

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Servicebalie



Kalibratie rookgasanalyse



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