



## 1. TECHNICAL SPECIFICATIONS – DMM FUNCTIONS

Accuracy is indicated as  $\pm$  (% readings + no. of digits) at 23°C  $\pm$  5°C, relative humidity HR <70%

### DC VOLTAGE (Autorange)

| Range                | Resolution | Accuracy                        | Input impedance | Overload protection |
|----------------------|------------|---------------------------------|-----------------|---------------------|
| 1.0mV $\div$ 999.9mV | 0.1mV      | $\pm(0.5\%rdg + 2 \text{ dgt})$ | 1M $\Omega$     | 605Vrms max         |
| 1.000V $\div$ 9.999V | 1mV        |                                 |                 |                     |
| 10.00V $\div$ 99.99V | 10mV       |                                 |                 |                     |
| 100.0V $\div$ 605.0V | 100mV      |                                 |                 |                     |

### AC VOLTAGE TRMS (Autorange)

| Range                | Resolution | Accuracy (30 $\div$ 70Hz) | Accuracy (70 $\div$ 400Hz)    | Input Impedance | Crest factor |
|----------------------|------------|---------------------------|-------------------------------|-----------------|--------------|
| 1.0mV $\div$ 999.9mV | 0.1mV      | $\pm(1.0\%rdg + 2dgt)$    | $\pm(2.0\%rdg+2 \text{ dgt})$ | 1M $\Omega$     | 3            |
| 1.000V $\div$ 9.999V | 1mV        |                           |                               |                 | 1.5          |
| 10.00V $\div$ 99.99V | 10mV       |                           |                               |                 |              |
| 100.0V $\div$ 605.0V | 100mV      |                           |                               |                 |              |

### AC/DC VOLTAGE: MAX / MIN / AVG / PEAK

| Function      | Range                 | Resolution | Accuracy                | Response time |
|---------------|-----------------------|------------|-------------------------|---------------|
| MAX, MIN, AVG | 1.0mV $\div$ 999.9mV  | 0.1mV      | $\pm(5.0\%rdg + 10dgt)$ | 500ms         |
|               | 1.000V $\div$ 9.999V  | 1mV        |                         |               |
|               | 10.00V $\div$ 99.99V  | 10mV       |                         |               |
|               | 100.0V $\div$ 605.0V  | 100mV      |                         |               |
| PEAK          | 10.0mV $\div$ 999.9mV | 0.1mV      |                         | 1ms           |
|               | 1.000V $\div$ 9.999V  | 1mV        |                         |               |
|               | 10.00V $\div$ 99.99V  | 10mV       |                         |               |
|               | 100.0V $\div$ 605.0V  | 100mV      |                         |               |

### DC/AC CURRENT TRMS (with external clamp)

| Range                | Resolution | DC Accuracy                   | Accuracy (30 $\div$ 70Hz)     | Accuracy (70 $\div$ 400Hz)    | Crest factor | Overload protection |
|----------------------|------------|-------------------------------|-------------------------------|-------------------------------|--------------|---------------------|
| 1.0mV $\div$ 999.9mV | 0.1mV      | $\pm(0.5\%rdg+2 \text{ dgt})$ | $\pm(1.0\%rdg+2 \text{ dgt})$ | $\pm(2.0\%rdg+2 \text{ dgt})$ | 3            | 605Vrms max         |
| 1.000V $\div$ 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 $\div$ 999.9mV | 0.1mV                 | $\pm(5.0\%rdg+10 \text{ dgt})$ | 500 ms        | 605Vrms max         |
|                      | 1.000V $\div$ 1.200V | 1mV                   |                                |               |                     |
|                      | PEAK                 | 10.0mV $\div$ 999.9mV |                                | 0.1mV         |                     |
| 1.000V $\div$ 3.000V |                      | 1mV                   |                                |               |                     |

### RESISTANCE AND CONTINUITY TEST

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

### FREQUENCY (with test leads)

| Range               | Resolution | Accuracy                      | Input voltage     | Overload protection |
|---------------------|------------|-------------------------------|-------------------|---------------------|
| 30.0 $\div$ 199.9Hz | 0.1Hz      | $\pm(0.5\%rdg+2 \text{ dgt})$ | 1.0mV $\div$ 605V | 605Vrms max         |
| 200 $\div$ 400Hz    | 1Hz        |                               |                   |                     |

### FREQUENCY (with external clamp)

| Range               | Resolution | Accuracy             | Input voltage       | Overload protection |
|---------------------|------------|----------------------|---------------------|---------------------|
| 30.0 $\div$ 199.9Hz | 0.1Hz      | $\pm(0.5\%rdg+2dgt)$ | 1.0mV $\div$ 1.000V | 605Vrms max         |
| 200 $\div$ 400Hz    | 1Hz        |                      |                     |                     |



## 2. TECHNICAL SPECIFICATIONS – VERIFY TESTS

Accuracy is indicated as  $\pm$  (% readings + no. of digits) at 23°C  $\pm$  5°C, relative humidity HR <70%

### Continuity test on protective and equalizing conductors

| Range ( $\Omega$ ) | Resolution ( $\Omega$ ) | Accuracy                | Overload protection |
|--------------------|-------------------------|-------------------------|---------------------|
| 0.01 $\div$ 19.99  | 0.01                    | $\pm$ (5.0% rdg + 3dgt) | 605Vrms max         |
| 20.0 $\div$ 99.9   | 0.1                     |                         |                     |

Test current: > 200mA DC for  $R \leq 4\Omega$  (included calibration)  
Resolution on current measurement: 1mA

Open-circuit voltage:  $4V \leq V_0 \leq 24V$

### Insulation Resistance

| Range (M $\Omega$ ) | Resolution (M $\Omega$ ) | Accuracy                 | Overload protection |
|---------------------|--------------------------|--------------------------|---------------------|
| 0.00 $\div$ 19.99   | 0.01                     | $\pm$ (5.0% rdg + 2dgt)  | 605Vrms max         |
| 20.0 $\div$ 199.9   | 0.1                      |                          |                     |
| 200 $\div$ 999      | 1                        | $\pm$ (10.0% rdg + 2dgt) |                     |

Test Voltage: 500V DC  
Test voltage accuracy: -0%  $\div$  +10% rdg  
Short circuit current: <3.0mA  
Nominal test current: 1mA @ 1k $\Omega$  x Vnom ; 1mA @ 500 k $\Omega$

### PHASE SEQUENCE / CONFORMITY (1 wre measurement)

| Type of measure | Voltage range (V)             | Frequency range (Hz) | System type                |
|-----------------|-------------------------------|----------------------|----------------------------|
| SEQUENCE        | 90 $\div$ 315 (Phase – Earth) | 45 $\div$ 65         | up to 315 (Phase – Earth)  |
| CONFORMITY      |                               |                      | up to 550V (Phase – Phase) |

### PHASE SEQUENCE / CONFORMITY (2 wre measurement)

| Type of measure | Voltage range (V)                | Frequency range (Hz) | System type                |
|-----------------|----------------------------------|----------------------|----------------------------|
| SEQUENCE        | 110 $\div$ 315 (Phase – Neutral) | 45 $\div$ 65         | up to 315 (Phase – Earth)  |
| CONFORMITY      |                                  |                      | 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:                  | 240(W) x 100(L) x 45(D) mm |
| Weight (included batteries): | about 630 g                |

**WORKING 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:**

|                             |               |
|-----------------------------|---------------|
| Continuity test with 200mA: | IEC/EN61557-4 |
| Insulation resistance:      | IEC/EN61557-2 |
| Phase sequence indication:  | IEC/EN61557-7 |

**GENERAL REFERENCE STANDARDS:**

|                                  |   |
|----------------------------------|---|
| Safety of measuring instruments: | EN61010-1 + A2(1997)  |
| Product type standard:           | IEC61557-1, 2, 4, 7   |
| Insulation:                      | class 2 (double insulation)                                     |
| Pollution degree:                | 2   |
| Overvoltage category:            | CAT III 550V AC Phase - Ground<br>CAT III 550V AC Phase - Phase |
| Use:                             | internal use; max altitude: 2000m                               |
| EMC:                             | EN61326-1 (1998) + A1 (1999)                                    |

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

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EURO-INDEX is fabrikant, importeur en distributeur van diverse A-merken op het gebied van test- en meetinstrumenten. Daarnaast leveren wij een groot aantal diensten om het gebruik van deze instrumenten in uw bedrijfsvoering te optimaliseren. Dit omvat uiteraard onderhoud, reparatie en kalibratie van de instrumenten, maar ook kennisdeling via de EURO-INDEX Academy en verhuur van instrumenten.

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## Kalibratielaboratorium

Ons moderne service- en kalibratielaboratorium beschikt over een RvA accreditatie naar NEN-EN-ISO/IEC 17025. Deze accreditatie geldt voor grootheden, zoals gespecificeerd in de scope bij accreditatienummer K105.



Kijk voor een overzicht van al onze diensten op [euro-index.nl/diensten](http://euro-index.nl/diensten)



## Mobiele Service

Naast de vaste kalibratielaboratoria in Capelle aan den IJssel en Zaventem beschikken wij ook over een laboratorium op wielen met de naam "Mobiele Service". Dit biedt vertrouwde service en kwaliteit, bij u voor de deur!

## KWS®

KWS® is een uniek servicesysteem voor uw meetinstrumenten met periodiek onderhoud en kalibratie tegen vaste, lage kosten. Via een gratis webportal ([mijnkws.nl](http://mijnkws.nl)) heeft u altijd en overal beschikking over uw kalibratiecertificaten.

## Verhuur van meetinstrumenten

- Uitgebreid assortiment
- Nauwkeurigheid aantoonbaar door actueel kalibratiecertificaat
- Deskundig advies
- Complete levering inclusief accessoires

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- Cursussen en workshops
- Demonstratie- en instructievideo's
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Servicebalie



Onderhoud, reparatie en kalibratie



Cursussen en workshops



Mobiele Service

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