





## 1. ELECTRICAL SPECIFICATIONS

Accuracy calculated as [%reading + (num. dgt\* resolution)] at 23°C ±5°, &lt;80%HR

### DC VOLTAGE (Autorange)

Range [V]	Resolution [V]	Accuracy	Input impedance	Overload protection
0.0 ÷ 690.0	0.1	±(0.5%rdg + 2dgt)	1MΩ	690VDC/ACrms

### AC, AC+DC, LoZ TRMS VOLTAGE (Autorange)

Range [V]	Resolution [V]	Frequency range	Accuracy	Overload protection
0.5 ÷ 690.0	0.1	32Hz ÷ 1kHz	±(0.5%rdg + 2dgt)	690VDC/ACrms

Input impedance VAC function: 1MΩ, Input impedance LoZ function: 3.5kΩ

Auto detection DC mode, Max crest factor: 1.5

### VOLTAGE/CURRENT FREQUENCY (Autorange)

Range [Hz]	Resolution [Hz]	Accuracy
33.00 ÷ 99.99	0.01	±(0.1%rdg+1dgt)
100.0 ÷ 999.9	0.1	

Voltage range: 0.5V ÷ 690V, Current range: 0.5A ÷ 3000A (Flex clamp F300U), 1mV ÷ 1000mV (STD Clamp)

### DC, AC, AC+DC CURRENT (STANDARD RIGID CLAMP + FLEX CLAMP FS=1V) – (Autorange)

Range [mV]	Resolution [mV]	Accuracy (*)
1 ÷ 1000	1	±(0.5%rdg + 2dgt)

(\*) For frequency &gt;100Hz the accuracy is: ±(1.5%rdg + 5dgt)

Max crest factor: 3, Frequency bandwidth: 1kHz

Current zeroed for value &lt;1%FS [A] (1V Flex clamp), Current zeroed for value &lt;1%FS [A] (STD clamp)

### AC TRMS CURRENT (FLEXIBLE CLAMP F3000U) – (Autorange)

Range [mV]	Resolution [mV]	Accuracy (*)
1 ÷ 3000	1	±(0.5%rdg + 2dgt)

(\*) For frequency &gt;100Hz the accuracy is: ±(1.5%rdg + 5dgt)

Max crest factor: 3, Frequency bandwidth: 1kHz

Current zeroed for value &lt;1%FS [A]

### INRUSH CURRENT – DC, AC, AC+DC TRMS (STANDARD RIGID CLAMP)

Range [mV]	Resolution [mV]	Accuracy (*)
1 ÷ 1000	1	±(2%rdg + 2dgt)

(\*) Accuracy declared for frequency: DC, 42.5 ÷ 69Hz

Max crest factor: 3 ; Sample frequency: 4kHz ; Detection threshold: 1%FS [A] fixed

Response time: 1ms (Peak), 16.7ms, 20ms, 50ms, 100ms, 150ms, 175ms, 200ms (max RMS)

### INRUSH CURRENT – AC TRMS (FLEXIBLE CLAMP F3000U)

Range [mV]	Resolution [mV]	Accuracy (*)
1 ÷ 3000	1	±(2%rdg + 2dgt)

(\*) Accuracy declared for frequency: DC, 42.5 ÷ 69Hz

Max crest factor: 3 ; Sample frequency: 4kHz ; Detection threshold: 1%FS [A] fixed

Response time: 1ms (Peak), 16.7ms, 20ms, 50ms, 100ms, 150ms, 175ms, 200ms (max RMS)

### RESISTANCE AND CONTINUITY TEST (Autorange)

Range [Ω]	Resolution [Ω]	Accuracy	Buzzer
0.0 ÷ 199.9	0.1	±(1.0%rdg + 5dgt)	<30Ω
200 ÷ 1999	1		

**HARMONIC VOLTAGE AND CURRENT – (Autorange)**

Harmonic order	Fundamental frequency	Resolution	Accuracy (*) (not zeroed values)
DC	42.5Hz ÷ 69Hz	0.1V / 0.1A / 0.1%	±(5.0%rdg+20dgt)
1 ÷ 25			±(5.0%rdg+10dgt)
THD%		0.1%	±(10.0%rdg+10dgt)

Accuracy of harmonics amplitudes expressed in % is evaluated considering the accuracy of parameters ratio

(\*) Harmonic voltages are zeroed in the followed conditions:

- 1° harmonic: value <0.5V
- DC, 2° to 25° harmonics: harmonic value <0.5% fundamental value or value <0.5V

(\*) Harmonic currents are zeroed in the followed conditions:

- 1° harmonic: value <1%FS[A]
- DC, 2° to 25° harmonics: harmonic value <0.5% fundamental value or value <1%FS[A]

**LOOP IMPEDANCE L-N, L-L, RA<sub>⊥</sub>, RA<sub>⊥</sub>RCD (NO RCD TRIPPING)**

L-PE, L-N, L-L Voltage range: 100V ÷ 690V, 42.5 ÷ 69Hz

Test current : (see below table)

Test	Test current	Range [Ω]	Resolution [Ω]	Accuracy
Ra <sub>⊥</sub> RCD	15mA	1 ÷ 1999	1	-0%, +(5.0% rdg + 3Ω)
L-N, L-L, Ra <sub>⊥</sub>	100mA	0.1 ÷ 199.9	0.1	-0%, +(5.0% rdg + 0.3Ω)

**RCD TESTS (INSTANTANEOUS MOLDED CASE TYPE)**


RCDs type: AC (⌚), A (⌚), General (G)

L-PE, L-N Voltage range: 100V ÷ 690V, 42.5 ÷ 69Hz

 Rated tripping current (I<sub>ΔN</sub>): 30mA, 100mA, 300mA (see below table)

Tripping time: resolution: 1ms, accuracy: ±(2.0%rdg + 2dgt)

**Tripping times for Molded case RCD  
(n.a. = not available function)**

		x 1/2 G	x 1 G	x 5 G	 G	AUTO G		
30mA	AC	300	310	40	310	x1	x5	x½
	A	300	310	40	310	x1	x5	x½
100mA	AC	300	310	n.a.	n.a.	x1	x½	
	A	300	310	n.a.	n.a.	x1	x½	
300mA	AC	300	310	n.a.	n.a.	x1	x½	
	A	300	310	n.a.	n.a.	x1	x½	

Possible combinations and tripping time duration [ms]

**TRIPPING CURRENT (Ramp )**

Type	I <sub>ΔN</sub>	Ramp [LCD]	Current value [mA RMS @20ms]	Accuracy
AC	30mA	6.0, 6.5, 7.0 .. 32.5, 33.3	6.0, 6.5, 7.0 .. 32.5, 33.0	- 0%, +5%I <sub>ΔN</sub>
A	30mA	6.0, 6.5, 7.0 .. 32.5, 33.3	8.5, 9.2, 9.9 .. 46, 46.7	- 0%, +5%I <sub>ΔN</sub>

**PHASE SEQUENCE ROTATION WITH 1-WIRE METHOD (\*)**

Voltage range [V]	Frequency range
130 ÷ 690	42.5 ÷ 69Hz

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

## 2. GENERAL SPECIFICATIONS






### Display:

- 4 LCD, (max 9999 counts), sign, decimal point and bargraph
- Automatic polarity indication
- Backlight
- Refresh frequency: 2/s
- Conversion: TRMS

### Features:

- Data HOLD
- MAX/MIN
- PEAK (Voltage and Current), response time = 1ms
- Autorange
- Automatic detection of AC/DC signals
- Auto Power OFF after 15 minutes of idleness

### Power supply:

- 4x1.5V alkaline batteries type AAA IEC LR03
- Battery life:
  - V, A,  $\Omega$ ,  → approx 132h (backlight OFF)
  - V, A,  $\Omega$ ,  → approx 68h (backlight ON)
  - Ra  (15mA) → approx 5400 test (backlight ON)
  - Ra  (100mA) → approx 13k test (backlight ON)
  - RCD  → approx 8600 test (backlight ON)
  - RCD T → approx 160k test (backlight ON)


### Mechanical specifications:

- Dimensions (L x W x H): 175 x 85 x 55mm
- Weight (included batteries): 420g
- Mechanical protection: IP40

### Environmental conditions:

- Reference temperature: 23°C ± 5°C
- Working temperature: 5°C ÷ 40°C
- Working humidity: <80%RH
- Storage temperature: -20°C ÷ 60°C
- Storage humidity: <80%RH
- Max height of use: 2000m

### Reference guidelines:

- Safety: IEC/EN61010-1, IEC/EN61010-2-030, IEC/EN61010-2-033
- RCD test: IEC/EN61557-6
- LOOP P-P, P-N, P-PE, Ra  test: IEC/EN61557-3
- Phase sequence rotation: IEC/EN 61557-7
- EMC: IEC/EN61326-1
- Insulation: double insulation
- Pollution degree: 2
- Category of measure: CAT IV 600V, CAT III 690V to ground and between inputs

**This product conforms to the prescriptions of the European directive on low voltage 2014/35/EU and to EMC directive 2014/30/EU**

**This product conforms to the prescriptions of the European directive 2011/65/EU (RoHS) and the European directive 2012/19/EU (WEEE)**

# Diensten van EURO-INDEX

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## Kalibratielaboratorium

Het laboratorium in Nederland beschikt over een RvA accreditatie naar EN-ISO/IEC 17025. Deze accreditatie geldt voor grootheden, zoals gespecificeerd in de scope bij accreditatienummer K105. RvA kalibratiecertificaten zijn internationaal geaccepteerd en is gelijkwaardig aan BELAC.



## Mobiele Service

Naast de vaste kalibratielaboratoria in Zaventem en Capelle aan den IJssel 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.be](http://mijnkws.be)) 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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- Demonstratie- en instructievideo's
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