1. ELECTRICAL SPECIFICATIONS

Accuracy is indicated as ± (% readings + no. of digits*resolution) at 23°C ± 5°C, <80%RH

Voltage (RCD, LOOP, Phase sequence)

Range [V]	Resolution [V]	Accuracy
15 ÷ 460	1	±(3.0% rdg + 2dgt)

Frequency

Range [Hz]	Resolution [Hz]	Accuracy
47.0 ÷ 63.6	0.1	±(0.1% rdg + 1dgt)

Continuity test on protective and equalizing conductors

Range [Ω]	Resolution [Ω]	Accuracy (*)
0.01 ÷ 99.99	0.01	±(5.0%rdg + 3dgt)

(*) calibrate the cables to null their resistance
Test current: > 200mA DC for R≤5Ω (calibration included) ; Resolution for DC current :1mA
Open-circuit voltage: 4V ≤ V_0 ≤ 12V

Insulation resistance (DC voltage)

Test voltage[V]	Range [MΩ]	Resolution [MΩ]	Accuracy
50	0.01 ÷ 9.99	0.01	±(2.0%rdg + 2dgt)
	10.0 ÷ 49.9	0.1	
	50.0 ÷ 99.9	0.1	±(5.0%rdg + 2dgt)
100	0.01 ÷ 9.99	0.01	±(2.0%rdg + 2dgt)
	10.0 ÷ 99.9	0.1	
	100.0 ÷ 199.9	0.1	±(5.0%rdg + 2dgt)
250	0.01 ÷ 9.99	0.01	±(2.0%rdg + 2dgt)
	10.0 ÷ 99.9	0.1	
	100 ÷ 499	1	±(5.0%rdg + 2dgt)
500	0.01 ÷ 9.99	0.01	±(2.0%rdg + 2dgt)
	10.0 ÷ 199.9	0.1	
	200 ÷ 499	1	
	500 ÷ 999	1	±(5.0%rdg + 2dgt)
1000	0.01 ÷ 9.99	0.01	±(2.0%rdg + 2dgt)
	10.0 ÷ 199.9	0.1	
	200 ÷ 999	1	
	1000 ÷ 1999	1	±(5.0%rdg + 2dgt)

Open-circuit voltage: nominal test voltage –0% +10%
Short circuit current: <6.0mA at 500V test voltage
Nominal test current: >1mA if load= 1kΩ*Vnom (Vnom=50V, 100V, 250V, 500V, 1000V)
Safety protection: the display shows an error message for input voltage >10V

Z Line (Line-Line, Line-Neutral, Line-PE)

Range [Ω]	Resolution [Ω]	Accuracy
0.00 ÷ 199.9 mΩ (*)	0.1 mΩ (*)	±(5.0% rdg + 1mΩ) (*)
200 ÷ 1999 mΩ (*)	1 mΩ (*)	
0.01 ÷ 9.99 Ω	0.01 Ω	±(5.0% rdg + 3dgt)
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) / 100÷460V (Line-Line); 50/60Hz ± 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	±(5.0% rdg + 1dgt)
1 ÷ 999	1	±(5.0% rdg + 3dgt)

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 (IΔN)::	6mA, 10mA, 30mA, 100mA, 300mA, 500mA, 650mA, 1000mA
Line-PE, Line-N voltage:	100V ÷265V RCD type AC and A, 190V ÷265V RCD type B
Frequency:	50/60Hz ± 5%

RCD tripping current (Molded case type – RCD General)

RCD type	IΔN	Range IΔN [mA]	Resolution [mA]	Accuracy IΔN
AC, A, B	6mA,10mA	(0.2 ÷ 1.1) $I_{\Delta N}$	≤ 0.1 $I_{\Delta N}$	- 0%, +10%$I_{\Delta N}$
AC, A, B	30mA ≤IΔN ≤300mA			- 0%, +5%$I_{\Delta N}$
AC, A	500mA ≤IΔN ≤650mA			

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

		x 1/2			x 1			x 2		x 5		AUTO			AUTO+		
	\	G	S	⏲	G	S	⏲	G	S	G	S	G	S	⏲	G	S	⏲
6mA	AC	999	999	999	999	999	999	160	210	50	150	✓	✓	310	✓		
	A	999	999	999	999	999	999	160	210	50	150	✓	✓	310	✓		
	B	999	999	999	999	999	999							310			
10mA	AC	999	999	999	999	999	999	160	210	50	150	✓	✓	310	✓		
	A	999	999	999	999	999	999	160	210	50	150	✓	✓	310	✓		
	B	999	999	999	999	999	999							310			
30mA	AC	999	999	999	999	999	999	160	210	50	150	✓	✓	310	✓		
	A	999	999	999	999	999	999	160	210	50	150	✓	✓	310	✓		
	B	999	999	999	999	999	999							310			
100mA	AC	999	999	999	999	999	999	160	210	50	150	✓	✓	310			
	A	999	999	999	999	999	999	160	210	50	150	✓	✓	310			
	B	999	999	999	999	999	999							310			
300mA	AC	999	999	999	999	999	999	160	210	50	150	✓	✓	310			
	A	999	999	999	999	999	999	160	210	50	150	✓	✓	310			
	B	999	999	999	999	999	999							310			
500mA 650mA	AC	999	999	999	999	999	999	160	210	50	150	✓	✓	310			
	A	999	999	999	999	999	999	160	210					310			
	B																
1000mA	AC	999	999	999	999	999	999	160	210								
	A	999	999	999	999	999	999										
	B																

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

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

		x 1/2			x 1			x 2		x 5		AUTO			AUTO+		
	\	G	S	⏲	G	S	⏲	G	S	G	S	G	S	⏲	G	S	⏲
6mA 10mA 30mA	AC	999	999	999	999	999	999	160	210	50	150	✓	✓	310	✓		
	A																
	B																
100mA 300mA 500mA 650mA	AC	999	999	999	999	999	999	160	210	50	150	✓	✓	310			
	A																
	B																
1000mA	AC	999	999	999	999	999	999	160	210								
	A																
	B																

Resolution: 1ms, Accuracy: ±(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 (IΔN):: 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	IΔN	Range IΔN [mA]	Resolution [mA]	Accuracy IΔN
AC, A, B	300mA ≤IΔN ≤1A	(0.3 ÷ 1.1) $I_{\Delta N}$	≤ 0.1$I_{\Delta N}$	- 0%, +5%$I_{\Delta N}$
AC, A	1.1A ≤IΔN ≤10A			

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)

NoTripTest – Non-trip earth loop impedance

Test voltage: 100÷265V (Line-PE), 50/60Hz ± 5%

NoTripTest – Systems with Neutral wire

Range [Ω]	Resolution [Ω]	Accuracy (*)
0.01 ÷ 9.99	0.01	±(5% reading + N/10)
10.0 ÷ 199.9	0.1	±(5% reading + N)
200 ÷ 1999	1	±(5% reading + 3N)

(*) If $I\Delta_N$ <30mA, test current = $I\Delta_N$/2 and N[Ω]=30/$I\Delta_N$; if $I\Delta_N$ ≥ 30mA, test current <15mA and N=1Ω

NoTripTest – Systems without Neutral wire

Range [Ω]	Resolution [Ω]	Accuracy (*)
1 ÷ 1999	1	-0%, +(5.0% lettura +N)

(*) if $I\Delta_N$ <30mA, test current = $I\Delta_N$/2 and N[Ω]=(10x30)/$I\Delta_N$ Ω; If $I\Delta_N$ ≥ 30mA, test current $I\Delta_N$/2 and N[Ω]=(3x30)/$I\Delta_N$

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Contact voltage (RCD and NoTripTest)

Range [V]	Resolution [V]	Accuracy
0 ÷ Utlim	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 (Rs or Rh) > 100 x Rmeas

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)

Leakage current (by HT96U optional clamp transducer)

Range [mA]	Resolution [mA]	Accuracy
0.5 ÷ 999.9	0.1	±(5.0% rdg + 2dgt)

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]	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	

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

Measurement of main parameters and harmonics (PQA)

AC TRMS Voltage

Range [V]	Resolution [V]	Accuracy
15.0 ÷ 459.9	0.1V	±(1.0%rdg + 1dgt)

Allowed crest factor ≤ 1,5 ; Frequency: 42.5 ÷ 69.0 Hz

Frequency

Range [Hz]	Resolution [Hz]	Accuracy
42.5 ÷ 69.0	0.01	±(2.0%rdg + 2dgt)

Allowed voltage: 15.0 ÷ 459.9V ; Allowed current: 5%FS clamp ÷ FS clamp

AC TRMS Current

FS clamp	Range [A]	Resolution [A]	Accuracy
≤ 10A	5% FS ÷ 9.99	0.01	1Ph: ±(1.0%rdg + 3 dgt) 3Ph: ±(2.0%rdg + 5 dgt)
10A ≤ FS ≤ 200	5% FS ÷ 199.9	0.1	
200A ≤ FS ≤ 3000	5% FS ÷ 2999	1	

Range: 5 ÷ 999.9 mV; Values under 5mV are zeroed
Allowed crest factor ≤ 3; Frequency: 42.5 ÷ 69.0 Hz

Active power (@ 230V in 1Ph systems, 400V in 3Ph systems, cosφ=1, f=50.0Hz)

FS clamp	Range [kW]	Resolution [kW]	Accuracy
≤ 10A	0.000 ÷ 9.999	0.001	1Ph: ±(2.0%rdg + 5 dgt) 3Ph: ±(2.5%rdg + 8 dgt)
10A ≤ FS ≤ 200	0.00 ÷ 999.99	0.01	
200A ≤ FS ≤ 1000	0.0 ÷ 999.9	0.1	
1000A ≤ FS ≤ 3000	0 ÷ 9999	1	

Reactive power (@ 230V in 1Ph systems, 400V in 3Ph systems, cosφ=0, f=50.0Hz)

FS clamp	Range [kVAr]	Resolution [kVAr]	Accuracy
≤ 10A	0.000 ÷ 9.999	0.001	1Ph: ±(2.0%rdg + 7 dgt) 3Ph: ±(3.0%rdg + 8 dgt)
10A ≤ FS ≤ 200	0.00 ÷ 999.99	0.01	
200A ≤ FS ≤ 1000	0.0 ÷ 999.9	0.1	
1000A ≤ FS ≤ 3000	0 ÷ 9999	1	

Power factor (@ 230V in 1Ph systems, 400V in 3Ph systems, f=50.0Hz)

Range	Resolution	Accuracy
0.70c ÷ 1.00 ÷ 0.70i	0.01	±(4.0%rdg + 10dgt) if I ≤ 10%FS ±(2.0%rdg + 3dgt) if I > 10%FS

cosφ (@ 230V in 1Ph systems, 400V in 3Ph systems, f=50.0Hz)

Range	Resolution	Accuracy
0.70c ÷ 1.00 ÷ 0.70i	0.01	±(4.0%rdg + 10dgt) if I ≤ 10%FS ±(1.0%rdg + 7dgt) if I > 10%FS

Voltage harmonics (@ 230V in 1Ph systems, 400V in 3Ph systems, f=50.0Hz)

Range [%]	Resolution [%]	Order	Accuracy
0.1 ÷ 100.0	0.1	01 ÷ 25	±(5.0%rdg + 5dgt)

Frequency of fundamental: 42.5 ÷ 69.0 Hz, DC accuracy not declared

Current harmonics (f=50Hz)

Range [%]	Resolution [%]	Order	Accuracy
0.1 ÷ 100.0	0.1	01 ÷ 9	±(5.0%rdg + 5dgt)
		10 ÷ 17	±(10.0%rdg + 5dgt)
		18 ÷ 25	±(15.0%rdg + 10dgt)

2. GENERAL SPECIFICATIONS

DISPLAY AND MEMORY:	
Features:	Touch screen, color graphic LCD, 320x240mm
Memory:	999 locations, 3 marker levels
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 funtions
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°C ÷ 40°C
Allowed relative humidity:	<80%RH
Storage temperature:	-10°C ÷ 60°C
Storage humidity:	<80%RH
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
Phase sequence:	IEC/EN61557-7
Multifunction:	IEC/EN61557-10
Prospective short circuit current:	EN60909-0
Earth resistance on TN systems:	EN61936-1 + EN50522
Test on EVSE devices:	IEC/EN61851-1, IEC/EN60364-7-722 (with EV-TEST100)
GENERAL REFERENCE STANDARDS:	
Safety of measuring instruments:	IEC/EN61010-1, IEC/EN61010-031, IEC/EN61010-2-032
Product type standard:	IEC/EN61557-1
Technical documentation :	IEC/EN61187
Insulation:	double insulation
Pollution degree:	2
Encapsulation :	IP40
Overvoltage category:	CAT IV 300V~ (to ground), max 415V between inputs
Max height of use:	2000m

This instrument satisfies the requirements of Low Voltage Directive 2014/35/EU (LVD) and of EMC Directive 2014/35/EU
This instrument satisfies the requirements of European Directive 2011/65/EU (RoHS) and 2012/19/EU (WEEE)

Diensten van EURO-INDEX

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.

Meer info

Kijk voor een overzicht van al onze diensten op 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!

Meer info

KWS®

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

Meer info

Verhuur van meetinstrumenten

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

Meer info

EURO-INDEX Academy

- Trainingen (individueel en klassikaal)
- Cursussen en workshops
- Demonstratie- en instructievideo’s
- Whitepapers

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Onderhoud, reparatie en kalibratie

Cursussen en workshops

Mobiele Service

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