Multifunction electrical instalations meter

MPI-535

index: WMGBMPI535

Much more than a multifunctional meter

- **the largest 7" touch panel on the market – remarkable ergonomics and ease of use**
- removable memory card – easy increase of memory capacity
- Li-Ion battery – longer operation of the meter

- **measurement of all parameters related to earthing and protection against electric shock – one device instead of several**
- quick measurement of the short circuit impedance with the RCD without triggering (up to several seconds) – time saver
- auto-tests - the ability to perform automatic measurements in sequence – simplified measurements
- fast path from measurements to report – saves time

Product features

- this device can be used for all measurements for commissioning of electrical installations in accordance with applicable regulations:
  - short circuit loop impedance (also in circuits with RCDs)
  - parameters of RCDs
  - insulation resistance
  - earthing resistance (3 measurement methods + ground resistivity measurement)
  - continuity of protective and equipotential bondings
  - lighting measurement
  - phase sequence tester

Application

The MPI-535 meter is designed for checking home and industrial electrical installations. The device provides measurements, results of which determine the safety of the installation. Significant automation of measurements of the meter makes possible to test functioning of residual current circuit breakers in the Auto mode, as well as in pre-programmed measuring sequences (so-called auto-tests), which can also be extended with own sequences. Automatic insulation resistance measurement of 3-, 4- and 5-wire conductors is possible by using the additional AUTO ISO-1000C adapter.

Device capabilities

The meter combines the measurement capabilities of several devices, while ensuring equally and accuracy. In terms of functionality and capabilities it all makes the meter characterized as superior.

Ease of reading

The device is equipped with a color TFT LCD touch screen with a resolution of 800x480 pixels and a diagonal of 7", which allows for convenient operation and easy reading of parameters. Thanks to this screen size, you can display more information that is available at any time of use. Users will definitely like the right size of displayed symbols and clear results in all conditions.

Built-in help system

The device has built-in help screens with measurement diagrams. Thanks to this you can easily and quickly see and be sure how to connect to a given system depending on the type of measurement being performed.

Increased resistance to environmental conditions

The MPI-535 meter will cope well in difficult environmental conditions. Protection against penetration of dust and water is ensured by a unique housing with a level of protection IP51. It is resistant to mechanical damage, and a special design allows you to easily protect the touch screen by shielding using the cover of the meter. In addition to the fact that it protects against damage, it also allows you to conveniently carry and use the device in different positions.

Communication and software

You can easily transfer measurement data to your computer via USB port or removable SD memory card. In order to generate a report on measurements for electric shock protection the Sonel Report Plus program should be used. Saving the downloaded data to the simplest formats and printing is provided by Sonel Reader program, which is a standard and free software of the meter.

Measurement of short circuit loop impedance Z_{L-PE}, Z_{L-N}, Z_{L-L}

Test current: 23/40 A
Measuring range acc. to IEC 61557: **0.13...1999.9 Ω** (for 1.2 m test lead):

Display range	Resolution	Accuracy
0.000...19.999 Ω	0.001 Ω	±(5% m.v. + 30 digits)
20.00...199.99 Ω	0.01 Ω	
200.0...1999.9 Ω	0.1 Ω	

- rated voltage: 95...270 V (for Z_{L-PE} and Z_{L-N}) and 95...440 V (for Z_{L-L})
- frequency: 45...65 Hz

Measurement of short circuit loop impedance Z_{L-PE} in RCD mode

Test current: 15 mA, measuring range acc. to IEC 61557: **0.50...1999 Ω**

Display range	Resolution	Accuracy
0.00...19.99 Ω	0.01 Ω	±(6% m.v. + 10 digits)
20.0...199.9 Ω	0.1 Ω	±(6% m.v. + 5 digits)
200...1999 Ω	1 Ω	

- rated voltage: 95...270 V
- frequency: 45...65 Hz

Measurement of earth resistance R_E with the 3p and 4p method

Measuring range acc. to IEC 61557-5:
0.50 Ω...1.99 kΩ for test voltage 50 V
0.56 Ω ...1.99 kΩ for test voltage 25 V

Display range	Resolution	Accuracy
0.00...9.99 Ω	0.01 Ω	±(2% m.v. + 4 digits)
10.0...99.9 Ω	0.1 Ω	±(2% m.v. + 3 digits)
100...999 Ω	1 Ω	
1.00...1.99 kΩ	0.01 kΩ	

- test voltage: 25 V or 50 V RMS
- test current: 20 mA, sinusoidal RMS 125 Hz (for f_n = 50 Hz) and 150 Hz (for f_n = 60 Hz)
- measurement blocked at interference voltage U_N > 24 V
- maximum measured interference voltage U_{nmax} = 100 V
- maximum resistance of auxiliary earth electrodes 50 kΩ

Selective earth measurement with two clamps

Display range	Resolution	Accuracy
0.00...9.99 Ω	0.01 Ω	±(10% m.v. + 4 digits)
10.0...19.9 Ω	0.1 Ω	
20.0...99.9 Ω		±(20% m.v. + 4 digits)

- measurement with transmitting and receiving clamps
- interference current measuring range: up to 9.99 A

Soil resistivity measurement (ρ)

Display range	Resolution	Accuracy
0.0...99.9 Ωm	0.1 Ωm	Depending on accuracy of R_E measurement
100...999 Ωm	1 Ωm	
1.00...9.99 Ωm	0.01 kΩm	
10.0...99.9 kΩm	0.1 kΩm	

- measurement with Wenner method
- distance settable in metres or feet
- distance range: 1...30 m (1...90 feet)

Phase sequence indication

- phase sequence indication: conforming, non-conforming
- mains voltage range U : 100...440 V (45...65 Hz) L-L
- display of phase-to-phase voltage values

Measurements of RCD parameters

(voltage range 95...270 V):
RCD tripping test and measurement of tripping time t_A
(for t_A measurement function)

RCD type	Current	Range	Resolution	Accuracy
General and short-time delay	$0.5*I_{\Delta n}$	0...300 ms	1 ms	±(2% m.v. + 2 digits)*
	$1*I_{\Delta n}$			
	$2*I_{\Delta n}$	0...150 ms		
	$5*I_{\Delta n}$	0...40 ms		
Selective	$0.5*I_{\Delta n}$	0...500 ms		
	$1*I_{\Delta n}$			
	$2*I_{\Delta n}$	0...200 ms		
	$5*I_{\Delta n}$	0...150 ms		

* for RCD with $I_{\Delta n}$=10 mA and $0.5*I_{\Delta n}$ uncertainty: ±(2% m.v. +3 digits)
- accuracy of residual current application:
  - for $0,5*I_{\Delta n}$: -8...0%
  - for $1*I_{\Delta n}$, $2*I_{\Delta n}$, $5*I_{\Delta n}$: 0...8%

Measurement of RCD disconnection current I_A for sinusoidal differential current (type AC)

Rated current	Measuring range	Resolution	Test current	Accuracy
10 mA	3.3...10.0 mA	0.1 mA	$0.3 \times I_{\Delta n}$...$1.0 \times I_{\Delta n}$	±5% $I_{\Delta n}$
30 mA	9.0...30.0 mA			
100 mA	33...100 mA	1 mA		
300 mA	90...300 mA			
500 mA	150...500 mA			
1000 mA	330...1000 mA			

- the measurement can be started from positive or negative half-period of forced leakage current (AC)

Measurement of RCD tripping current I_A for unidirectional residual current and unidirectional with the 6 mA DC bias (type A)

Rated current	Meas. range	Resolution	Test current	Accuracy
10 mA	3.5...20.0 mA	0.1 mA	$0.35 \times I_{\Delta n}$...$2.0 \times I_{\Delta n}$	±10% $I_{\Delta n}$
30 mA	10.5...42.0 mA			
100 mA	35...140 mA	1 mA	$0.35 \times I_{\Delta n}$...$1.4 \times I_{\Delta n}$	
300 mA	105...420 mA			
500 mA	175...700 mA			

- measurement for positive or negative half-periods of forced leakage current

Measurement of RCD tripping current I_A for direct residual current (type B)

Rated current	Meas. range	Resol.	Test current	Accuracy
10 mA	2.0...20.0 mA	0.1 mA	$0.2 \times I_{\Delta n}$...$2.0 \times I_{\Delta n}$	±10% $I_{\Delta n}$
30 mA	6...60 mA	1 mA		
100 mA	20...200 mA			
300 mA	60...600 mA			
500 mA	100...1000 mA			

- measurement for positive or negative half-periods of forced leakage current
- $I_{\Delta n}$ – rated residual current

Abbreviation „m.v." means a measured value.

Low-voltage measurement of resistance and circuit continuity

Measurement of protective conductor continuity with the ±200 mA current

Display range	Resolution	Accuracy
0.00...19.99 Ω	0.01 Ω	±(2% m.v. + 3 digits)
20.0...199.9 Ω	0.1 Ω	
200...400 Ω	1 Ω	

- voltage on open terminals: 4...9 V
- output current at R < 2 Ω: min. 200 mA
- autocalibration of test leads
- measurements for both current polarities

Illuminance measurement

Display range	Resolution	Accuracy
0.1...99.9 lx	0.1 lx	±(5% m.v. + 2 digits)
100...999 lx	1 lx	
1.00...9.99 klx	0.01 klx	
10.0...19.9 klx	0.1 klx	

- measurement in luxes (lx) or feet-candles (fc)

Insulation resistance measurements

Measuring range acc. to IEC 61557-2:
- for U_n = 50 V: 50 kΩ...250 MΩ
- for U_n = 100 V: 100 kΩ...500 MΩ
- for U_n = 250 V: 250 kΩ...999 MΩ
- for U_n = 500 V: 500 kΩ...2 GΩ
- for U_n = 1000 V: 1 MΩ...9.99 GΩ

Display range *)	Resolution	Accuracy
0...1999 kΩ	1 kΩ	±(3% m.v. + 8 digits)
2.00...19.99 MΩ	0.01 MΩ	
20.0...199.9 MΩ	0.1 MΩ	
200...999 MΩ	1 MΩ	
1.00...9.99 GΩ	0.01 GΩ	±(4% m.v. + 6 digits)

*) not greater than measuring range for given voltage

Standard accessories

WS-03 adapter with START button with UNI-SCHUKO plug

WAADAWS03

test lead 30 m, red, for MRU (banana plugs, on a reel)

WAPRZ030REBBSZ

test lead 15 m, blue, for MRU (on a reel)

WAPRZ015BUBBSZ

test lead 1.2 m, yellow, 1 kV (banana plugs)

WAPRZ1X2YEBB

test lead 1.2 m, red, 1 kV (banana plugs)

WAPRZ1X2REBB

test lead 1.2 m, blue, 1 kV (banana plugs)

WAPRZ1X2BUBB

crocodile clip, yellow, 1 kV, 20 A

WAKROYE20K02

crocodile clip, red, 1 kV, 20 A

WAKRORE20K02

crocodile clip, blue, 1 kV, 20 A

WAKROBU20K02

pin probe, yellow 1 kV (banana socket)

WASONYEOGB1

pin probe, red 1 kV (banana socket)

WASONREOGB1

pin probe, blue 1 kV (banana socket)

WASONBUOGB1

2x earth contact test probe (rod), 30 cm

WASONG30

Z7 power supply

WAZASZ7

power supply wire (230 V)

WAPRZLAD230

L2 carrying case

WAFUTL2

L2 hanging straps (set)

WAPOZSZEKPL

LI-ion battery 11.1 V 3.4 Ah

WAAKU15

USB interface cable

WAPRZUSB

Abbreviation „m.v." means a measured value.

Additional accessories

WS-04 adapter with UNI-SCHUKO angular plug

WAADAWS04

test lead, 5 kV (banana plugs, shielded)

5 m / 10 m / 20 m

WAPRZ005REBB
WAPRZ010REBB
WAPRZ020REBB

Foldable pin probe, 1 kV, 2 m (banana socket)

WASONSP2M

three-phase socket adapter 16 A

AGT-16P three-phase socket adapter 16 A
WAADAAGT16P

AGT-16C three-phase socket adapter 16 A (PEN)
WAADAAGT16C

three-phase socket adapter 32 A

AGT-32P three-phase socket adapter 32 A
WAADAAGT32P

AGT-32C three-phase socket adapter 32 A (PEN)
WAADAAGT32C

three-phase socket adapter 63 A

AGT-63P three-phase socket adapter 63 A
WAADAAGT63P

AGT-16T industrial socket adapter 16 A

WAADAAGT16T

AGT-32T industrial socket adapter 32 A

WAADAAGT32T

AutoISO-1000C adapter

WAADAAISO10C

LP-1 light meter probe

LP-1 light meter probe (set, PS/2 plug)
WAADALP1KPL
LP-1 light meter probe for MPI (PS/2 plug)
WAADALP1
WS-06 adapter
WAADAWS06

LP-10B light meter probe

LP-10B light meter probe for MPI (set, PS/2 plug)
WAADALP10BKPL
LP-10B light meter probe (PS/2 plug)
WAADALP10B
WS-06 adapter
WAADAWS06

LP-10A light meter probe

LP-10A light meter probe for MPI (set, PS/2 plug)
WAADALP10AKPL
LP-10A light meter probe (PS/2 plug)
WAADALP10A
WS-06 adapter
WAADAWS06

test lead reel

WAPOZSZP1

test lead 25 m, blue (banana plugs, on a reel)

WAPRZ025BUBBSZ

test lead 50 m, yellow (banana plugs, on a reel)

WAPRZ050YEBBSZ

Earth contact test probe (rod), 80 cm

WASONG80

N-1 transmitting clamps (Φ=52 mm)

WACEGN1BB

C-3 current clamps (Φ=52 mm)

WACEGC3OKR

L3 carrying case for a 80 cm rods

WAFUTL3

AZ-2 power supply adapter (IEC C7 plug/banana connectors)

WAADAAZ2

Cable for battery charging from car cigarette lighter socket (12 V)

WAPRZLAD12SAM

CS-1 cable simulator

WAADACS1

TWR-1J – RCD breaker testing adapter

WAADATWR1J

test cramp

WAZACIMA1

microSD 4 GB

PRS-1 resistance test probe

WASONPRS1GB