

Possible measurements

- **Short-circuit loop measurement:**
 - impedance measurement with 23A current (44A phase-to-phase) - short-circuit resistor $R=10\Omega$,
 - measurement range: 95...440V, frequency 45...65Hz,
- **Short-circuit loop measurement with resolution 0,01 Ω , in distribution network without triggering RCD ($I_{sc} \geq 30\text{mA}$):**
 - automatic calculation of short-circuit, detection of phase voltage and phase-to-phase voltage,
 - additional UNI-Schuko plug for automatic measurement, AGT adapter for 3 phase network measurement.
- **Testing of general and selective RCD with the rated differential current of 10,30,100,300,500 and 1000mA. (Type AC, A and B).**
- **Measurement of insulation resistance:**
 - with test voltage 250V, 500V, 1000V, 2500V,
 - measurement range up to 10G Ω ,
 - automatic discharging after measurement,
 - automatic measurement of all resistances in 3,4,5-wire cables using optional adapter AUTO-ISO,
 - acoustic signals in 5sec intervals for insulation resistance characteristic,
 - safety measurement - protection against overvoltage.
- **Measurement of earthing resistance.**
- **Bi-directional testing of PE wire continuity using 200mA current.**
 - Autocalibration of test leads.
- **Phase sequence testing.**
- **Memory is divided into 10 memory banks each of them containing 99 memory cells.**
- **Battery charge indicator.**
- **AUTO-OFF function.**
- **USB interface.**

MULTIFUNCTION ELECTRICAL INSTALLATIONS METER

MPI-525



2500V!
Insulation
resistance
measurement

CAT IV
300V

IP 54

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Standard accessories of the meter MPI-525:

- | | | | |
|---|-----------------------|--|---------------------|
| - probe with START button with UNI-SCHUKO (WS-03) | WAADAWS03 | - pin probe 5kV with banana connector; red | WASONRE0GB2 |
| - test lead with banana plug; 1,2m; yellow | WAPRZ1X2YE8B | - crocodile clip K04; 5kV; black | WAKROBL20K04 |
| - test lead with banana plug; 1,2m; blue | WAPRZ1X2BUBB | - crocodile clip K02; yellow | WAKROYE20K02 |
| - test lead with banana plug; 1,2m; red | WAPRZ1X2RE8B | - crocodile clip K02; red | WAKRORE20K02 |
| - test lead on a reel with banana plugs; 30m; red | WAPRZ030RE8BSZ | - earth contact test probe (rod); 0,3m | WASONG30 |
| - test lead on a reel with banana plugs; 15m; blue | WAPRZ015BUBBSZ | - carrying case L2 | WAFUFL2 |
| - USB transmission cable | WAPRZUSB | - hanging straps | WAP0ZSZEKPL |
| - pin probe with banana connector; yellow | WASONYE0GB1 | - battery case LR14 (size C) | WAP0J1 |
| - pin probe with banana connector; red | WASONRE0GB1 | - batteries | |
| - pin probe with banana connector; blue | WASONBU0GB1 | - calibration certificate issued by calibration laboratory | |
| - test lead with banana plug; 1,8m; 5kV; red | WAPRZ1X8RE8B | | |
| - test shield lead with banana plug; 1,8m; 5kV; black | WAPRZ1X8BL8B | | |

Optional accessories of the meter MPI-525:

- | | | | |
|---|-----------------------|--|--------------------|
| - probe with UNI-SCHUKO (WS-04) | WAADAWS04 | - triple phase socket adapter AGT-16P | WAADAAGT16P |
| - earth contact test probe (rod); 0,8m | WASONG80 | - triple phase socket adapter AGT-32P | WAADAAGT32P |
| - software for creation of documentation from electrical measurements "SONEL PE4" | WAPROSONPE4 | - triple phase socket adapter AGT-63P | WAADAAGT63P |
| - interface for radio transmission OR-1 - receiver | WAADAUSBOR1 | - adapter AUTO-ISO-2500 | WAADAISO25 |
| - test lead on a reel with banana plugs; 50m; yellow | WAPRZ050YE8BSZ | - RCD breaker testing adapter TWR-1J - universal pin | WAADATWR1J |
| - test lead on a reel with banana plugs; 25m; blue | WAPRZ025BUBBSZ | | |

Multifunction electrical installations meter

Short-circuit loop impedance measurement Z_{L-PE} , Z_{L-N} , Z_{L-L}

Measurement using 23/40A current measurement range in accordance with IEC 61557: **0,13...1999,9Ω** (for 1,2m lead):

Range	Resolution	Accuracy
0,00...19,99Ω	0,01Ω	±(5% m.v. + 3 dgt)
20,0...199,9Ω	0,1Ω	
200...1999Ω	1Ω	

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

Short-circuit loop impedance measurement Z_{L-PE} **RCD**

Measurement using 15mA current measurement range in accordance with IEC 61557: **0,50...1999,9Ω**

Range	Resolution	Accuracy
0,00...19,99Ω	0,01Ω	±(6% m.v. + 10 dgt)
20,0...199,9Ω	0,1Ω	±(6% m.v. + 5 dgt)
200...1999Ω	1Ω	

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

Measurement of earthing R_E

Rated voltage in accordance with IEC 61557-5: 0,5...1999Ω

Range	Resolution	Accuracy
0,00...9,99Ω	0,01Ω	±(2% m.v. + 4 dgt)
10,0...99,9Ω	0,1Ω	±(2% m.v. + 3 dgt)
100...999Ω	1Ω	
1,00...1,99kΩ	0,01kΩ	

Insulation resistance measurement

Measurement range in accordance with IEC 61557-2:

- for $U_n = 50V$: 50kΩ...250MΩ
- for $U_n = 100V$: 100kΩ...500MΩ
- for $U_n = 250V$: 250kΩ...1GΩ
- for $U_n = 500V$: 500kΩ...2GΩ
- for $U_n = 1000V$: 1MΩ...3GΩ
- dla $U_n = 2500V$: 2,5M...9,99GΩ

Display range *)	Resolution	Accuracy
0...1999kΩ	1kΩ	±(3% m.v. + 8 dgt)
2,00...19,99MΩ	0,01MΩ	
20,0...199,9MΩ	0,1MΩ	
200...999MΩ	1MΩ	
1,00...3,00GΩ	0,01GΩ	±(4% m.v. + 6 dgt)
1,00...9,99GΩ	0,1GΩ	

- *) limited to measurement range.
• with UNI-Schuko additional error ±2%.

Phase sequence

- phase sequence indicator: forward, reverse
- mains voltage range U_{L-L} : 100...440V (45...65Hz) U_{L-L} : 100...440V (45...65Hz)
- display of phase-to-phase voltages

Low voltage test of the circuit and insulation continuity

Test of PE wire continuity using a ±200mA current

Range	Resolution	Accuracy
0,00...19,99Ω	0,01Ω	±(2% m.v. + 3 dgt)
20,0...199,9Ω	0,1Ω	
200...400Ω	1Ω	

- Voltage on open terminals: 4...9V
- Test current at $R < 2Ω$: min. 200mA at rated battery voltage
- Autocalibration of test leads
- Measurements for both polarizations of the current

RCD trigger and response time test t_A (for t_A mode) Measurement ranges in accordance with IEC 61557: 0ms ... up to the upper bound of the displayed value

Breaker Type	Test Current Multiplier	Measurement Range	Resolution	Accuracy
Standard	$0,5 * I_{Δn}$	0...300ms	1ms	±(2% m.v. + 2 dgt)
	$1 * I_{Δn}$	0...150ms		
	$2 * I_{Δn}$	0...40ms		
Selective	$0,5 * I_{Δn}$	0...500ms		
	$1 * I_{Δn}$	0...200ms		
	$5 * I_{Δn}$	0...150ms		

Precision of the differential current: for $0,5 * I_{Δn}$: -8...0.0% for $1 * I_{Δn}$, $2 * I_{Δn}$, $5 * I_{Δn}$: 0...8%

Measurement of the RCD triggering current (I_A) for sine waveform testing current

Selected Current	Range	Resolution	Test Current	Accuracy
10mA	3,3...10,0mA	0,1mA	$0,3 * I_{Δn}$... $1,0 * I_{Δn}$	± 5% $I_{Δn}$
30mA	9,0...30,0mA			
100mA	33...100mA	1mA		
300mA	90...300mA			
500mA	150...500mA			
1000mA	330...1000mA			

- It is possible to start the measurement from the positive or negative half of the forced leaking current

Measurement of the RCD triggering current (I_A) for a unidirectional half period sine waveform test current with a 6mA direct current offset

Selected Current	Range	Resolution	Test Current	Accuracy
10mA	4,0...20,0mA	0,1mA	$0,4 * I_{Δn}$... $2,0 * I_{Δn}$	±10% $I_{Δn}$
30mA	12,0...42,0mA			
100mA	40...140mA	1mA		
300mA	120...420mA			
500mA	200...700mA			

- a measurement is possible for a positive or negative forced leakage current

Measurement of the RCD triggering current (I_A) for direct testing current

Selected Current	Range	Resolution	Test Current	Accuracy
10mA	4,0...20,0mA	0,1mA	$0,4 * I_{Δn}$... $2,0 * I_{Δn}$	±10% $I_{Δn}$
30mA	12...60mA	1mA		
100mA	40...200mA			
300mA	120...600mA			
500mA	200...1000mA			

- a measurement is possible for a positive or negative forced leakage current

„m.v.” measured value.

Rated operational conditions:

- operation temperature 0...+50°C

Electric security:

- type of insulation double, according to EN 61010-1 and IEC 61557, EMC
- measurement category IV 300V acc. to PN-EN 61010-1
- protection class acc. to PN-EN 60529 IP54

Other technical data:

- power supply battery package Ni-MH or alkaline batteries LR14 (4 pcs.)

MPI-525 is equipment to perform complete test and verify on electrical installations according to the most common safety standards (IEC 61557, VDE 0100, BS7671).