Index: WMGBMPI520S

MULTIFUNCTION ELECTRICAL INSTALLATIONS METER

MPI-520Start

Possible measurements

- **Short-circuit loop measurement:**
- impedance measurement with 23A current (44A phase-to-phase) - short-circuit resistor R=10Ω,
- measurement range: 95...440V, frequency 45...65Hz,
- **Short-circuit loop measurement with resolution 0,01Ω, in distribution network without tiggering RCD ($I_{\Delta n}$≥30mA):**
- 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,
- measurement range up to 3GΩ,
- UNI-Schuko plug for insulation measurement,
- automatic discharging after measurement,
- automatic measurement of all resistences 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.**

The MPI-520S multifunction meter is dedicated to perform diagnosis of electrical installation according to IEC 61557 standards. Digital meter MPI-520S is designed to measure impedance of a short cicuit loop also without triggering RCD, parameters of RCD, insulation resistance, earthing resistance, continuity and also for phase sequence testing. Furthermore it is used for measurement of AC voltage and current, frequency and power.

Standard accesories of the meter MPI-520S:

- probe with START button with UNI-SCHUKO (WS-03)	WAADAWS03
- test lead with banana plug; 1,2m; yellow	WAPRZ1X2YEBB
- test lead with banana plug; 1,2m; blue	WAPRZ1X2BUBB
- test lead with banana plug; 1,2m; red	WAPRZ1X2REBB
- USB transmission cable	WAPRZUSB
- pin probe with banana connector; red	WASONREOGB1
- pin probe with banana connector; blue	WASONBUOGB1
- crocodile clip K02; yellow	WAKROYE20K02
- crocodile clip K02; red	WAKRORE20K02
- carrying case L4	WAFUTL4
- hanging straps	WAPOZSZEKPL
- battery case LR14 (size C)	WAPOJ1
- batteries	
- calibration certificate issued by calibration laboratory	

Optional accesories of the meter MPI-520S:

- test lead with banana plug 5m; red	WAPRZ005REBB
- test lead with banana plug 10m; red	WAPRZ010REBB
- test lead with banana plug 20m; red	WAPRZ020REBB
- test lead on a reel with banana plugs; 30m; red	WAPRZ030REBBSZ
- test lead on a reel with banana plugs; 15m; blue	WAPRZ015BUBBSZ
- cable for battery charger	WAPRZLAD230
- lead for battery loading from the socket of car lighter (12V)	WAPRZLAD12SAM
- triple phase socket adapter AGT-16P	WAADAAGT16P
- triple phase socket adapter AGT-32P	WAADAAGT32P
- triple phase socket adapter AGT-63P	WAADAAGT63P
- triple phase socket adapter AGT-16C	WAADAAGT16C
- triple phase socket adapter AGT-32C	WAADAAGT32C
- triple phase socket adapter AGT-16T	WAADAAGT16T
- triple phase socket adapter AGT-32T	WAADAAGT32T
- adapter AUTO-ISO-1000C	WAADAAISO10C
- AC line splitter (AC-16)	WAADAAC16
- RCD breaker testing adapter TWR-1 universal pin	WAADATWR1J
- probe with UNI-SCHUKO (WS-04)	WAADAWS04
- earth contact test probe (rod); 0,8m	WASONG80
- earth contact test probe (rod); 0,3m	WAFUTL3
- pin probe with banana connector; yellow	WASONYEOGB1
- carrying case L3	WASONG30
- round connector current clamps C3 (Ø=52mm)	WACEGC30KR
- Ni-MH battery package 4,8V 4,2Ah	WAAKU07
- crocodile clip K02; blue	WAKROBU20K02
- cramp	WAZACIMA1
- test wire reel	WAPOZSZP1
- power supply adaptor Z7	WAZASZ7
- software for creation of documentation from electrical measurements "SONEL PE5"	WAPROSONPE5
- software for creation drawings and diagrams "SONEL Schematic" + „SONEL PE5"	WAPROSCHEM

MPI-520Start

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

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)

*) 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 pase-to-phase voltages

Measurement of the active P, passive Q and apparent S power and cosφ

- Range of voltages U_{LN}: 0...440V
- Nominal frequency of the network: 45...65Hz
- frequency measurement for voltage 50...440V in range 45,0...65,0Hz (accuracy max. ± 0,1% m.v. + 1 digit)
- measurement cosφ: 0,00...1,00 (resolution 0,01)

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*$I_{\Delta n}$	0...300ms	1ms	±(2% m.v. + 2 dgt)
	1* $I_{\Delta n}$			
	2* $I_{\Delta n}$	0...150ms		
	5*$I_{\Delta n}$	0...40ms		
Selective	0,5*$I_{\Delta n}$	0...500ms		
	1* $I_{\Delta n}$			
	2* $I_{\Delta n}$	0...200ms		
	5*$I_{\Delta n}$	0...150ms		

Precision of the differential current: 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 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 x $I_{\Delta n}$...1,0 x $I_{\Delta n}$	± 5% $I_{\Delta n}$
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 RDC 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 x $I_{\Delta n}$...2,0 x $I_{\Delta n}$	±10% $I_{\Delta n}$
30mA	12,0...42,0mA		0,4 x $I_{\Delta n}$...1,4 x $I_{\Delta n}$	
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 x $I_{\Delta n}$...2,0 x $I_{\Delta n}$	±10% $I_{\Delta n}$
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 61010-1and IEC 61557, EMC
- measurement category IV 300V acc. to EN 61010-1
- casing protection class acc. to PN-EN 60529 IP54

Other technical data:
- power supply alkaline batteries LR14 (5 szt.) or battery package Ni-MH (additional option)

MPI-520S is equipment to perform complete test and verify on electrical installations according to the most common safety standards (IEC 61557, VDE 0100, BS7671).

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