

# MICROOHMMETER MMR-620 & MMR-630



The MMR-6X0 Series meters are professional portable instruments for measuring very low resistances. Due to their special measurement algorithm they can be used for both resistive and inductive type of a specimen that makes MMR-6X0 series perfect instruments for electricians testing electrical junctions, motors and power transformers windings. The results can be stored in the internal memory and send to a computer via serial interface. A quick PASS/FAIL test function with results displayed and acoustically indicated simplifies measurements considerably.

### Standard accessories of the meter MMR-620 & MMR-630:

- Test lead 3m (2 pcs.)
- „Crocodile” clip K03; black (4 pcs.)
- Kelvin vice K06 (2 pcs.)
- Vice with cables (MMR-610 only) (2 pcs.)
- Carrying case L1
- Cable for battery charger
- Ni-MH battery package 4,8V 3Ah
- WAPRZ003DZBB** - RS-232 serial transmission cable
- WAKROBL30K03** - Double pin Kelvin probe (2 pcs.)
- WAKROKELK06** - Hanging straps
- WAZACKEL1** - User manual
- WAFUTL1** - Calibration certificate issued by calibration laboratory (MMR-620)
- WAPRZLAD230** - Calibration certificate issued by calibration laboratory (MMR-630)
- WAAKU03**
- WAPRZRS232** - WASONKEL20GB
- WAP0ZSE1
- LSWPLMMR620**
- LSWPLMMR630**

### Optional accessories of the meter MMR-620 & MMR-630:

- Software for creation of documentation from electrical measurements „SONEL PE4”
- Software for creation drawings and diagrams „SONEL Schematic” + „SONEL PE4”
- WAPROPE4EN** - USB key for software
- WAPROPE4EN** - USB1.1/RS232 adaptor
- WAPROPE4EN** - Kelvin vice with cables (MMR-620)
- WAPROPE4EN** - External battery charger
- WAADAKEY1**
- WAADAUSBR523**
- WAZACKEL1**
- WAZASZ6**

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### External battery charger

index: **WAZASZ6**

External battery charger for micro-ohmmeter MMR-630 enables charging of extra battery independently from usage of the meter. Application of external battery charger make possible continuous mode of microohmmeter work without time limitation caused by capacity of the battery and gives full functionality of the meter for continuous measurement process.

### technical data of external battery charger:

- type of insulation double, according to EN 61010-1
- casing protection class acc. to EN 60529 IP20
- power supply 12V/1A DC
- battery charging time approx. 2,5h
- battery charging current 1,5A
- dimensions approx. 128 x 66 x 28 mm
- weight approx. 0,2kg
- battery charging temperature +10...+40°C
- storage temperature -30...+70°C
- quality standard design and production in accordance with ISO 9001

Standard accessories of external battery charger: power supply adaptor (input: 100...240V AC / 50 / 60Hz, output: 12V DC) - index: **WAZASZ7**, 12V carlighter adaptor - index: **WAPRZLAD12SAM**, warranty 24 months.

# MMR-620 & MMR-630

- **Measurement of resistive object type:**
  - welded and soldered connections, equipotential bonding, earth wire,
  - terminals and connectors, rail welded joints, cables and wires,
  - measurement 4-pole method.
- **Measurement of inductive object type:**
  - coils (motors and transformers), low resistance coils.
- **Range selection autoranging or manual (measurement of inductive object type).**
- **Selectable measurement mode adjusted to object type:**
  - for resistive objects - fast mode (3 seconds),
  - for inductive objects - long mode with automatic discharge after measurements (or with lower accuracy - shorter mode).
- **Selectable measurement mode adjusted to application:**
  - normal mode - after pushing „START” button,
  - automatic mode - as test leads are connected to the object meters automatically starts measurement with dual direction current flow and gives average result - what eliminates eventual DC voltage on tested object,
  - continuous mode - every 3 seconds for resistive objects or continuous measurement for inductive objects.
- **Window mode:**
  - this option enables setting an upper and a lower limit between which the average measurement result is bound to appear. The results outside of this range will be indicated by two long audible signals and the symbols.
- **MMR-630 is designated not to be effected by interference up to 20mV and to show noises from 20 to 100mV (so in edge conditions even 5 times higher than measured drop of potential).**
- **Memory of 990 measurement results and with ability to transfer data to a PC.**

<b>Electric security:</b>	
- type of insulation	double, according to EN 61010-1 and IEC 61557
- measurement category	CAT III 300V acc. to EN 61010-1
- protection class acc. to EN 60529	IP54
<b>Other technical data:</b>	
- meter's power supply	battery package SONEL/Ni-MH 4,8V
- battery charging time	approx. 2,5 hours
- number of measurements with the current of 10A	300
- auto-off time	120 seconds
- immunity to interference	additional error ≤1% for voltage 50 Hz ≤100mV RMS
- maximum leads resistance for the 10A current	0,1Ω
- maximum inductance of the tested object	40H
- accuracy of the test current	±10%
- resistance measurement time:	
- with the selected resistive object type with the bidirectional current	3 seconds
- with the selected inductive object type, dependant on the resistance and inductance of the object	a few minutes (max. 10)
- dimensions	295 x 222 x 95 mm
- weight	approx. 1,7 kg

<b>Rated operational conditions:</b>	
- operation temperature	0...+40°C
- storage temperature	-20...+60°C

### MMR-620 & MMR-630 microohmmeter conforms the following directives or standards according to CE requirements.

- Directive: Low Voltage Directive (LVD) 73/23/EEC, 93/68/EEC.  
Standards: EN 61010-1:2001 Safety requirements for electrical equipment for measurement, control and laboratory use. General requirements.  
EN 61010-031:2002: Safety requirements for electrical equipment for measurement, control and laboratory use. Safety requirements for hand-held probe assemblies for electrical measurement and test.
- Directive: Electromagnetic compatibility (EMC) 89/336/EEC, 92/31/EEC, 93/68/EEC.  
Standards: EN 61326:1997+A1:1998+A2:2001 Electrical equipment for measurement, control and laboratory use - EMC requirements.

### Resistance measurement

MMR-620		Current	Voltage for the full scale	Accuracy
Range	Resolution			
0...999μΩ	1μΩ	10A	20mV	±(0,25% m.v. + 2 digits)
1,000...1,999mΩ	0,001mΩ			
2,00...19,99mΩ	0,01mΩ			
20,0...199,9mΩ	0,1mΩ	1A		
200...999mΩ	1mΩ			
1,000...1,999Ω	0,001Ω	0,1A		
2,00...19,99Ω	0,01Ω			
20,0...199,9Ω	0,1Ω			
200...1999Ω	1Ω			
200...1999Ω	1Ω			

MMR-630		Current	Voltage for the full scale	Accuracy
Range	Resolution			
0...999,9μΩ	0,1μΩ	10A	20mV	±(0,25% m.v. + 2 digits)
1,0000...1,9999mΩ	0,0001mΩ			
2,000...19,999mΩ	0,001mΩ			
20,00...199,99mΩ	0,01mΩ	1A		
200,0...999,9mΩ	0,1mΩ			
1,0000...1,9999Ω	0,0001Ω	0,1A		
2,000...19,999Ω	0,001Ω			
20,00...199,99Ω	0,01Ω			
200,0...1999,9Ω	0,1Ω			
200,0...1999,9Ω	0,1Ω			

- input impedance of the voltmeter: ≥200kΩ

„m.v.” - measured value.