



## Measure HV switches and transformers with one device

### Product features

- measurements of resistive objects with current up to 100/200 A
- measurements of induction objects up to 10 A
- measurements of objects earthed on both sides (i.e. main joints of HV switches)
- measurement with one- or both-way current flow
- high immunity to outside interference
- measurements temperature of windings
- automatic compensation temperature of objects measured
- a state of art interface with a touch screen and expanded memory
- cooperation with a printer and a 2D barcode reader
- WiFi, USB and LAN communication
- IP67
- it can work in an environment where electromagnetic interferences of 400 kV occur

### Application

MMR-6xxx micrometers series are devices with a state of art design with unprecedented approach to measuring small resistances. The instruments allow to measure resistive objects with a high current and have a unique in his measurement class module for inductive current objects up to 10 A.

### Device capabilities

Sonel microhmmeter MMR-6xxx series thanks to the use of special algorithms, measuring functions and a stabilized, non-pulsing measurement current allow user to work in difficult conditions. Possibility of use measurement current up to 200 A and a high power source allows you to measure the contacts of the HV switch with basic uncertainty from 0.25%.

### Simplicity of readings

The MMR-6xxx microhmmeter is equipped with readable, touch screen, 5-inch colored display with a resolution of 800x480 pixels for convenience of readings measurement results.

### Help system

The use of a large, readable display allowed for use helpful appetent drawings how to use the meter.



## Measurements of resistive components

Range	Resolution	Basic measurement uncertainty	Test current / Voltage
0.0...999.9 $\mu\Omega$	0.1 $\mu\Omega$	$\pm(0,25\% + 2 \text{ digits})$	100 A < I $\leq$ 200 A/* (200 mV)
0.0...999.9 $\mu\Omega$	0.1 $\mu\Omega$		50 A < I $\leq$ 100 A (200 mV)
1.0000...1.9999 m $\Omega$	0.0001 m $\Omega$		20 A < I $\leq$ 50 A (200 mV)
0.0...999.9 $\mu\Omega$	0.1 $\mu\Omega$		10 A < I $\leq$ 20 A (160mV)
1.0000...3.9999 m $\Omega$	0.0001 m $\Omega$		10 A (20 mV)
0.0...999.9 $\mu\Omega$	0.1 $\mu\Omega$		10 A (200 mV)
1.0000...7.9999 m $\Omega$	0.0001 m $\Omega$		10 A / 1 A (2 V / 200 mV)
0...999.9 $\mu\Omega$	0.1 $\mu\Omega$		1 A / 0.1 A (2 V / 200 mV)
1.0000...1.9999 m $\Omega$	0.0001 m $\Omega$		0.1 A (2 V)
2.000...19.999 m $\Omega$	0.001 m $\Omega$		10 mA (2 V)
20.00...199.99 m $\Omega$	0.01 m $\Omega$		1 mA (2 V)
200.0...999.9 m $\Omega$	0.1 m $\Omega$		
1.0000...1.9999 $\Omega$	0.0001 $\Omega$		
2.000...19.999 $\Omega$	0.001 $\Omega$		
20.00...199.99 $\Omega$	0.01 $\Omega$		
200.0...1999.9 $\Omega$	0.1 $\Omega$		

/\* MMR-6700 only

## Measurements of inductive components

Range	Resolution	Basic measurement uncertainty	Test current
0...999.9 $\mu\Omega$	0.1 $\mu\Omega$	$\pm(0.25\% \text{ m.v.} + 2 \text{ digits})$	10 A
1.0000...1.9999 m $\Omega$	0.0001 m $\Omega$		10 A
2.000 ...19.999 m $\Omega$	0.001 m $\Omega$		10 A / 1 A
20.00...199.99 m $\Omega$	0.01 m $\Omega$		1 A / 0.1 A
200.0...999.9 m $\Omega$	0.1 m $\Omega$		0.1 A
1.0000...1.9999 $\Omega$	0.0001 $\Omega$		10 mA
2.000...19.999 $\Omega$	0.001 $\Omega$		1 mA
20.00...199.99 $\Omega$	0.01 $\Omega$		
200.0...1999.9 $\Omega$	0.1 $\Omega$		

for measurements on inductive objects output voltage  $\leq$  5 V



"m.v" - measured value

## Technical specification

housing protection level acc. to EN 60529	closed cover	IP67
	open cover	IP40
power supply for $I \leq 10$ A measurements		Li-Ion battery 7.2 V 8.8 Ah
mains supply	MMR-6500	100 V...265 V / 50 ...60 Hz, 10 A
	MMR-6700	100 V...265 V / 50 ...60 Hz, 16 A
battery charging time		ca. 3.5 h
maximum resistance for current of 10A		200 m $\Omega$
current pre-setting accuracy		$\pm 10\%$
measurement time	resistance mode, with bidirectional current flow	7-15 s
	inductive mode (depends on object resistance and inductance)	10 s or more
dimensions		401 x 307 x 175 mm 15.8" x 121.1" x 6.9"
meter weight	MMR-6500	ca. 8.2 kg ca. 18.1 lbs
	MMR-6700	ca. 8.7 kg ca. 19.2 lbs
operating temperature		-10°C...+50°C 14°F...122°
humidity		20%...90%
display		800 x 480 pixels
communication		USB, LAN, Wi-Fi

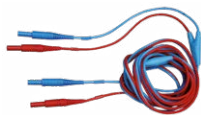


## Standard accessories



**Current carrying test lead 3 m black I1 (200 A, 25 mm<sup>2</sup>)**

WAPRZ003BLI1



**Double-wire test lead 3 m (10 A / 25 A) U1/I1**

WAPRZ003DZBBU11



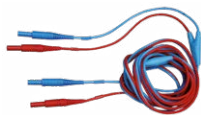
**Test lead 3 m blue 1 kV U1 (banana plugs)**

WAPRZ003BUBBU1



**Current carrying test lead 3 m black I2 (200 A, 25 mm<sup>2</sup>)**

WAPRZ003BLI2



**Double-wire test lead 3 m (10 A / 25 A) U2/I2**

WAPRZ003DZBBU212



**Test lead 3 m blue 1 kV U2 (banana plugs)**

WAPRZ003BUBBU2



**ST-3 temperature probe**

WASONT3



**2x Kelvin clamp, 1 kV, 25 A**

WAKROKELK06



**2x crocodile clip, black, 1 kV, 32 A**

WAKROBL30K03



**USB transmission cable**

WAPRZUSB



**Mains cable with IEC C19 plug**

WAPRZZAS1



**Case L-12**

WAFUTL12



**Factory calibration certificate**

## Optional accessories



**Current carrying test lead 6 m / 10 m / 15 m black I1 (200 A, 25 mm<sup>2</sup>)**

WAPRZ006BLI1  
WAPRZ010BLI1  
WAPRZ015BLI1



**Double-wire test lead (10 / 25 A) U1/ I1 6 m / 10 m / 15 m**

WAPRZ006DZBBU111  
WAPRZ010DZBBU111  
WAPRZ015DZBBU111



**Test lead 6 m / 10 m / 15 m blue 1 kV U1 (banana plugs)**

WAPRZ006BUBBU1  
WAPRZ010BUBBU1  
WAPRZ015BUBBU1



**Current carrying test lead 6 m / 10 m / 15 m black I2 (200 A, 25 mm<sup>2</sup>)**

WAPRZ006BLI2  
WAPRZ010BLI2  
WAPRZ015BLI2



**Double-wire test lead (10 / 25 A) U2 / I2 6 m / 10 m / 15 m**

WAPRZ006DZBBU212  
WAPRZ010DZBBU212  
WAPRZ015DZBBU212



**Test lead 6 m / 10 m / 15 m blue 1 kV U2 (banana plugs)**

WAPRZ006BUBBU2  
WAPRZ010BUBBU2  
WAPRZ015BUBBU2



**ST-1 temperature probe**

WASONT1



**Kelvin vice with cables**

WAZACKEL1



**Double pin Kelvin probe - standard pins / thick pins**

WASONKEL20GB  
WASONKEL20GB2



**C-5A current clamp (Φ=39 mm) 1000 A AC/DC**

WACEGC5AOKR



**Barcode scanner 2D (USB)**

WAADACK2D



**D2 portable USB report / barcode printer (Sato)**

WAADAD2



**Label roll - black on white for D2 printer (SATO)**

WANAKD2



**Ribbon for D2 printer (SATO)**

WANAKD2BAR



**RJ45 LAN cable**

WAPRZRJ45



**L-7 Backpack**

WAFUTL7



**Calibration certificate with accreditation**