

## MOM2

### Handheld micro-ohmmeter 220 A



- Up to 220 A
- Battery supplied
- Lightweight – 1 kg
- Auto range: 1  $\mu\Omega$  to 1000 m $\Omega$
- Bluetooth® PC communication
- Complies with IEEE and IEC standards

#### DESCRIPTION

The MOM2 is designed to measure the resistance of circuit breaker contacts, bus-bar joints and other high-current links. This product is designed with safety, ease of use and versatility in mind.

The ruggedness and lightweight makes MOM2 a handheld instrument very suitable for field work, such as in substations. The unit comes with a strong rubber holster accessory which makes it extra durable. MOM2 is dimensioned to make a full day's work of testing without recharge. It can store 180 test values and transfer test data to a PC via Bluetooth.

The micro-ohmmeter can be used anywhere to measure a low resistance value with high accuracy.

MOM2 uses an ultra capacitor to generate the high output current. The ultra capacitor is able to store a huge amount of energy compared to conventional capacitors and can deliver very high current during the discharge thanks to its very low internal resistance.

While testing, the capacitor is discharged through the test object and the voltage drop across- and the current flow through the test object are continuously and synchronously sampled. The resistances calculated from the individual samples are then averaged to obtain the final value.

#### APPLICATIONS

MOM2 test system is designed to serve a number of applications. The most common are contact resistance measurements of low-, medium- and highvoltage breakers and also at busbar joints, and other high current links.

If the contact resistance is too high this will lead to power loss and temperature rise, which often leads to serious trouble. To avoid such problems, it is necessary to check the resistance at regular intervals.

The following table demonstrates how important low resistance is at high currents:

Current	Contact resistance	Power loss
10 kA	1 m $\Omega$	100 kW
10 kA	0.1 m $\Omega$	10 kW
1 kA	1 m $\Omega$	1 kW
1 kA	0.1 m $\Omega$	100 W

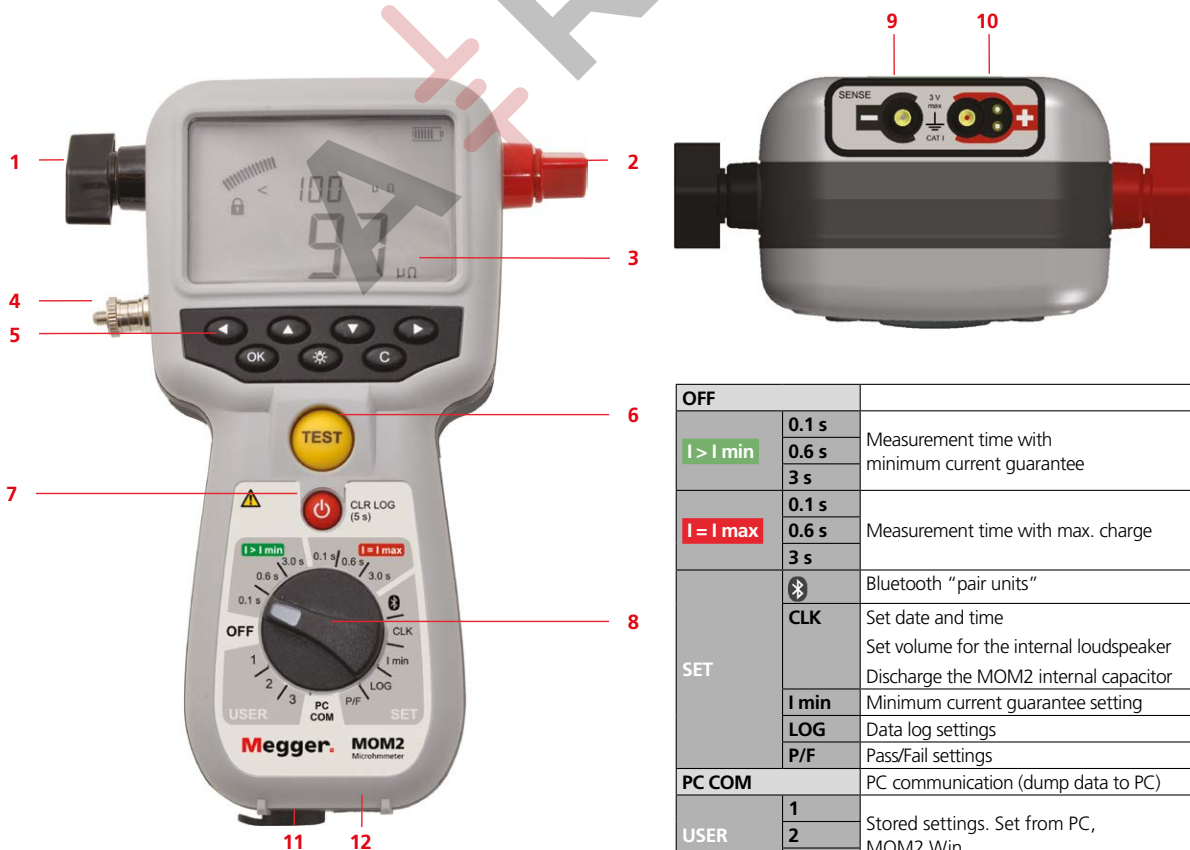
At 10 kA a contact with the resistance 0.1 m $\Omega$  gives a power loss of 10 kW. This power loss in one single point will definitely confer a temperature rise, which may result in overheating and possibly premature failure.

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#### FEATURES AND BENEFITS

1. Current output terminal (-)
2. Current output terminal (+)
3. Display  
The display offers a combination of analogue arc and a dual digital readout:
  - Analogue arc:  
Indicates level of the capacitor charge.
  - Dual digital display:  
Large main digital readout for good visibility of all main measurement results  
Second digital display for additional data.
4. Ground (earth) terminal
5. Keys for navigation and to make settings in the display
6. Test-button
7. Stand-by/Wake up (Press shortly to toggle)  
Clear log (Press and hold for 5 seconds)
8. Function selector
9. Connector for the voltage (-) sense lead
10. Connector for the voltage (+) sense lead and the trig function
11. Connector for the battery charger
12. Battery charger indicator



OFF		
I > I min	0.1 s	Measurement time with minimum current guarantee
	0.6 s	
	3 s	
I = I max	0.1 s	Measurement time with max. charge
	0.6 s	
	3 s	
SET	Bluetooth	Bluetooth "pair units"
	CLK	Set date and time Set volume for the internal loudspeaker Discharge the MOM2 internal capacitor
	I min	Minimum current guarantee setting
	LOG	Data log settings
	P/F	Pass/Fail settings
PC COM		PC communication (dump data to PC)
USER	1	Stored settings. Set from PC, MOM2 Win
	2	
	3	

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#### APPLICATION EXAMPLES

##### Circuit Breaker testing

- Test of circuit breaker contacts
- Test of the connections to the breaker

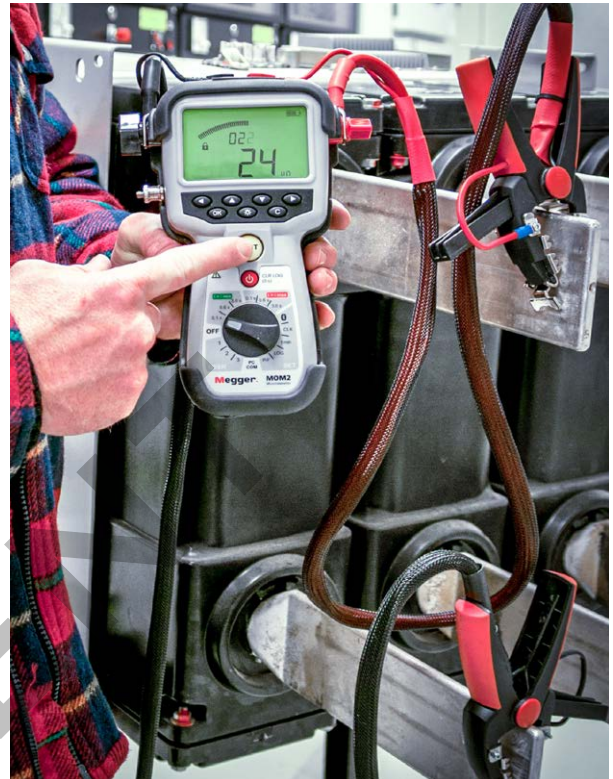
##### Testing of Bus-bar

- Test of Bus-bar joints
- Test of connections

##### Everywhere you need to test a low resistance/ high current connection

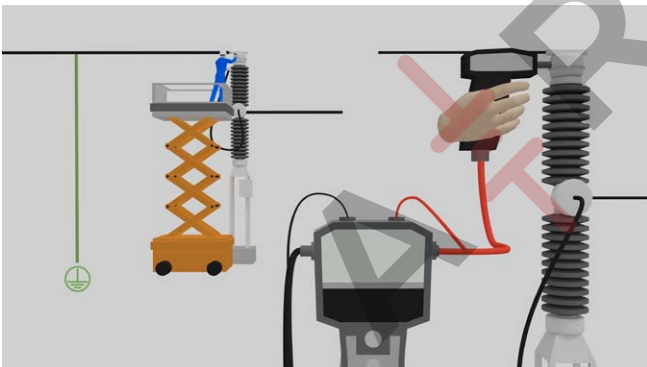
- Switches
- Disconnecting devices
- Safety ground connections
- Welding points
- Fuses
- Cables

#### PRODUCT IN USE

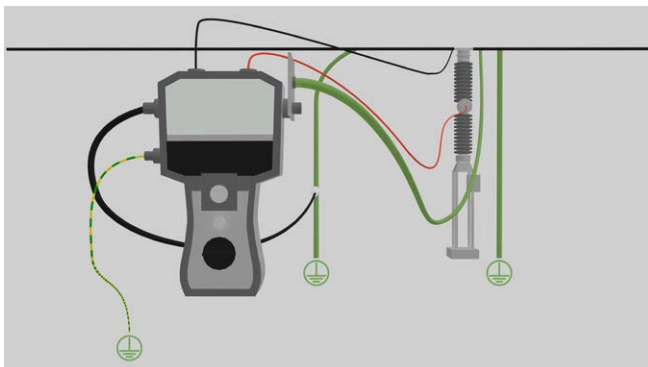


Hold probes / attach Kelvin clamps to CB and press trig / TEST button. A signal indicates whether test was pass or fail and result is logged in unit for later dump to PC.

#### METHODS CIRCUIT BREAKER OUTDOORS



Measurement on circuit breaker with one side grounded. Here is a combination of one clamp and one probe used



Traditional measurement from ground. Injection is done through existing grounding cable (earthing). use any of the optional cable kits, GA- 00380/82/84 with 5,10, or 15 m cables.

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### SPECIFICATIONS

Specifications are valid at fully charged batteries and an ambient temperature of +25°C, (77°F). Specifications are subject to change without notice.

### Environment

**Application field** For use in high-voltage substations and industrial environments.

### Temperature

**Operation** -20°C to +50°C (-4°F to +122°F) \*)

**Storage** -40°C to +70°C (-40°F to +158°F)

**Relative humidity %RH** 5%-95%, non condensing

\*) Battery operation temperature 0°C to +50° (32°F to +122°F)  
Battery charging temperature +10°C to +40° (50°F to +104°F)

### CE-marking

**EMC** 2014/30/EU

**LVD** 2014/35/EU

**RoHS** 2011/65/EU

### Classifications and standards

**Pollution degree** 2

**Shock** IEC 60068-2-27

**Vibration** IEC 60068-2-6

**Transport** ISTA 2A

**Flammability class** V0

### General

**Battery power** Five AA (HR6) 2500 mAh NiMH cells

**Recharge time** < 12 h

**Typical recharge time at 25°C** 3 h

### Battery charger

**Mains voltage** 100-250 V AC, 50 / 60 Hz

**Power consumption** 24 W

**Protection** Against wrong battery type, low/high temperature.

**Real time clock battery life** ≥10 years

**Audible feedback** Different buzzer sounds

**User presets** 3

**Field calibration** Yes

**Encapsulation** IP54

**Dimensions**

**Instrument (excl. binding posts)** 217 x 104 x 72 mm

8.5 x 4.1 x 2.8 in.

**Carrying case** 395 x 300 x 190 mm

15.6 x 11.8 x 7.5 in.

**Weight** 1.0 kg (2.2 lbs) instrument only

5.3 kg (11 lbs) with accessories and carrying case

1.0 – 9.99 mΩ

10.0 – 99.9 mΩ

100 – 1000 mΩ

### Inaccuracy

0 – 1999 μΩ

2 – 500 mΩ

500 – 1000 mΩ

0.01 mΩ

0.1 mΩ

1 mΩ

±1 % of reading ±1 digit

±2 % of reading ±1 digit

±4 % of reading ±1 digit

### Outputs + / –

**Range** > 100 A DC (R < 2 mΩ)

**Output voltage (max)** 2.5 V DC

**Generation duration** Selectable: 0.1 s, 0.6 s, 3 s

### Recovery time at I min set to 100 A and load 100 μΩ

Generation time	Max	Typ
0.1 s	10 s	8 s
0.6 s	20 s	16 s
3 s	130 s	100 s

### Inputs

#### SENSE + / –

**Connector**

4 mm banana jack

**Voltage**

±3 V DC

#### Trigger input

**DC IN**

Threshold 8 V DC

12 – 24 V DC, 2 A max

### Logger

**Logger, Data**

Label. Timestamp, I max, I min, I Limit, Resistance, Meas.time, P/F limit

### Labeling schemes

Circuit breaker oriented or running numbers

### Capacity

180 measurements in running numbers mode

### Wireless communication

#### PC communication

Bluetooth

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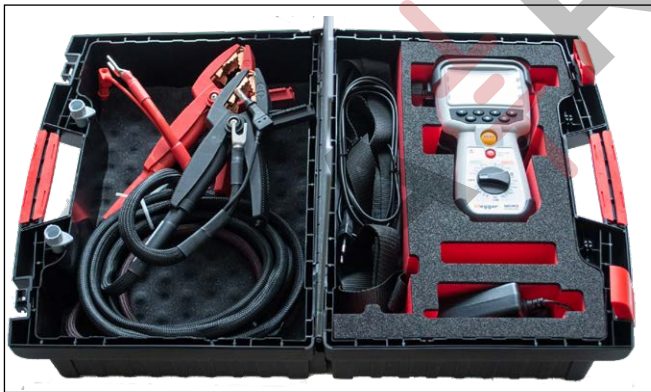
#### INCLUDED ACCESSORIES



Test cables with Kelvin probes (GA-90000).  
Included in BD-59090. the "double" probe tip showing the springy center tip.

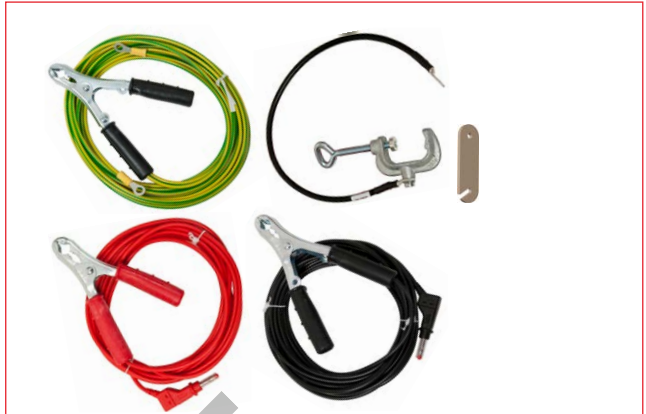


Test cables with Kelvin clamps (GA-90001).  
Included in BD-59092



Transport case with MOM2 and accessories

#### OPTIONAL ACCESSORIES



Cable kit 5 m (16 ft), (GA-00380)



Soft carrying case, (6380-138)

#### PC SOFTWARE MOM2 WIN

With MOM2 comes the MOM2 Win sw for reporting and calibration of the MOM2. The PowerDb sw can also be used for reporting.



ORDERING INFORMATION	
Item	Art. No.
<b>MOM2</b> <i>Incl.</i> Test cables with Kelvin probes (GA-90000) Transport case, Charger, Rubber holster, Carrying strap, Belt clip, MOM2 Win*	BD-59090
<b>MOM2</b> <i>Incl.</i> Test cables with Kelvin clamps (GA-90001) Transport case, Charger, Rubber holster, Carrying strap, Belt clip, MOM2 Win*	BD-59092
<b>MOM2</b> <i>Incl.</i> Test cable red with Kelvin clamp (GA-00373) Test cable black with Kelvin clamp (GA-00374) Transport case, Charger, Rubber holster, Carrying strap, Belt clip, MOM2 Win*	BD-59093
*) MOM2 Win can be downloaded from: <a href="http://www.megger.com">"www.megger.com"</a> and search for MOM2 PowerDB is downloaded from <a href="http://www.powerdb.com">www.powerdb.com</a>	
<b>Optional accessories</b>	
<b>Test cables with Kelvin probes</b> (current & sense) 2 x 1.3 m (4 ft) (one with trig button), 16 mm <sup>2</sup>	GA-90000
<b>Test cables with Kelvin clamps</b> (current & sense) 1.3 m (4 ft) red, 3 m (10 ft) black, 16 mm <sup>2</sup>	GA-90001
<b>Test cable with Kelvin probe</b> 1.3 m (4 ft) red, 16 mm <sup>2</sup> (with trig button)	GA-00370
<b>Test cable with Kelvin probe</b> 1.3 m (4 ft) black, 16 mm <sup>2</sup>	GA-00371
<b>Test cable with Kelvin clamp</b> 3 m (10 ft) black, 16 mm <sup>2</sup>	GA-00372
<b>Test cable with Kelvin clamp</b> 3 m (10 ft) red, 16 mm <sup>2</sup>	GA-00378
<b>Test cable with Kelvin clamp</b> 1.3 m (4 ft) red, 16 mm <sup>2</sup>	GA-00373
<b>Test cable with Kelvin clamp</b> 5 m (16 ft) black, 25 mm <sup>2</sup>	GA-00374
<b>Test cable with Kelvin clamp</b> 10 m (33 ft) black, 16 mm <sup>2</sup> This length in combination with the cable area 16 mm <sup>2</sup> results in a reduction of maximum current.	GA-00376
<b>Cable kit 5 m</b> Current cable 0.5 m (1.6 ft), Connection plate 10 cm and sense cables 5 m (16 ft), Ground cable	GA-00380
<b>Cable kit 10 m</b> Current cable 0.5 m (1.6 ft), Connection plate 10 cm and sense cables 10 m (33 ft), Ground cable	GA-00382
<b>Cable kit 15 m</b> Current cable 0.5 m (1.6 ft), Connection plate 10 cm and sense cables 15 m (49 ft), Ground cable	GA-00384
<b>Calibration kit</b> Includes 2 calibration shunts and cable	BD-90002
<b>Soft carrying case</b> For MOM2, Charger and Cables	6380-138

**Megger**<sup>®</sup>