

MOM690

Micro-ohmmeter



- **Easy-to-use**
- **Automatic range setting**
- **MOM Win PC-software**

Description

Measuring resistance is an important part of maintaining high-voltage breakers and disconnecting switches. Instruments that measure the resistance of high-current contacts and other transmission elements have been included in the Megger line of products for many years.

MOM690™ supplements our family of micro-ohmmeters. In addition to high current capacity, MOM690™ features microprocessor-based measurement, storage and reporting. The built-in software enables you to carry out an individual test or an entire series of tests and store the results.

With the optional MOMWin™ software you can also export the test results to a PC for further analysis and reporting. Ranges are set automatically, resistances are measured continually and test results can be automatically captured at a preset test current. What could be simpler?

After testing a breaker with a CT mounted in its current circuit, e.g. dead tank and GIS breakers, some standards recommended that the CT is demagnetized. This troublesome task can be accomplished quickly and easily thanks to the MOM690's AC output. The AC output can also be used as a general multi-purpose current source in different applications.

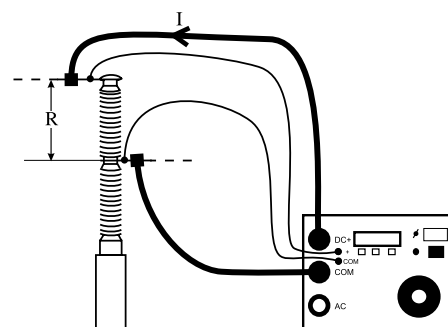
Application example

IMPORTANT!

Read the User's manual before using the instrument.

Measuring the resistance of a breaker

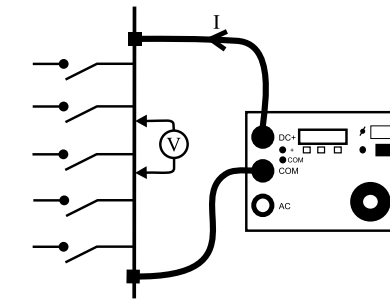
1. Make certain the line is de-energized on both sides of the breaker.
2. Ground the breaker on one side and make certain it is closed.
3. Ground the micro-ohmmeter.
4. Make certain the micro-ohmmeter's ON/OFF switch is OFF while making connections.
5. Connect the current cables to the DC+ and COM terminals and the sensing cables to the sensing inputs to both sides of the breaker, making sure that the polarities match properly.
IMPORTANT: The sensing cables must be connected inside the current cables. Otherwise the test data will be incorrect. See Fig.
6. Switch on the MOM690.
7. Select "AUTO" or "MAN" with the <FUNC>-button.
8. Set output current to zero to start the measurement.
9. Increase the current to the desired value (600 A for example).
10. Read the resistance value.



Measuring the resistance of a breaker

Measuring resistance at busbar joints

1. Make certain the line is de-energized and the test object is grounded.
2. Ground the micro-ohmmeter.
3. Make certain the micro-ohmmeter's ON/OFF switch is OFF while making connections.
4. Connect the micro-ohmmeter's current cables to the test object. Do not connect the sensing cables. Measurement will be done manually using an external portable voltmeter.
5. Switch on the MOM690.
6. Select "MAN" with the <FUNC>-button.
7. Set output current to zero to start the measurement.
8. Increase the current to the desired value (100 A for example).
9. Using an external voltmeter, measure the voltage drop across each contact element within every section of the busbar being tested. The voltmeter must be set to DC.
10. Calculate the actual resistance.



Measuring resistance at busbar joints

Example: If the voltage drop is 0.0067 V at a current of 100 A, the resistance will be $0.0067/100 \Omega$, i.e. $67 \mu\Omega$.

Features and benefits

1. Grounding terminal
2. Miniature circuit breaker for mains
3. Connection for mains voltage
4. Switch for mains voltage
5. DC current output
6. Common output terminal
7. AC current output
8. Voltage measurement input
9. Setting selector
10. Function selector
11. Interrupts current and toggles the display between resist and voltage
12. Variable transformer
13. Display
14. RS 232 Serial interface



Information about current generation or memory location. _____

Value of the generated current. _____

Indicates whether the current is above (<) or below (>) a preselected value. _____

Selected test current for "Auto"/"DC Off".
Scroll using the <▲>- button. _____

Selected function. Scroll using the <FUNC>-button. _____

Shows the measured resistance or voltage value. Toggle by pressing the <Ω>-button. _____



Specifications

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

Environment

Application field The instrument is intended for use in high-voltage substations and industrial environments.

Temperature

Operating 0°C to +50°C (32°F to +122°F)

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

Humidity

5% – 95% RH, non-condensing

CE-marking

LVD 2006/95/EC

EMC 2004/108/EC

General

Mains voltage 115/230 V AC, 50/60 Hz

Power consumption (max) 115 V, 5980 VA (at 600 A output)
230 V, 9660 VA

Protection Miniature circuit breaker, thermal fuse, software

Dimensions

Instrument 350 x 270 x 220 mm
(13.8" x 10.6" x 8.7")

Transport case 610 x 290 x 360 mm
(24.0" x 11.4" x 14.2")

Weight, 115 V model 24 kg (52.9 lbs)
38.9 kg (85.7 lbs) with accessories and transport case

Weight, 230 V model 23.7 kg (52.2 lbs)
38.6 kg (85.1 lbs) with accessories and transport case

Available languages English, French, German, Spanish, Swedish

Current cables 2 x 5 m (16 ft), 50 mm²

Sensing cables 2 x 5 m (16 ft), 2.5 mm²

Optional current cable sets

Ext.1 Extension 2 x 5 m, 50 mm²

Ext.2 Extension 2 x 10 m, 50 mm²

2 x 15 m (49.2 ft) 95 mm²

Measurement section

Ammeter

Range 0 – 800 A

Resolution 1 A

Inaccuracy 100 – 800 A, ±1% of reading + 1 digit
50 – 99 A, ±(2% of reading + 2 digits)
0 – 49 A, not specified

Resistance

Range 0 – 200 mΩ, > 200 mΩ not specified

Resolution 1 μΩ

Inaccuracy 100 – 800 A, ±1% of reading + 1 digit
50 – 99 A, ±(2% of reading + 2 digits)
0 – 49 A, not specified

Max. load resistance / current, 115 V model

Cable set	Standard	Standard + Ext. 1	Standard + Ext. 2	2 x 15 m 95 mm ²
At 300 A	10 mΩ	6 mΩ	3 mΩ	10 mΩ
Max. current	575 A	420 A	360 A	540 A

Max. load resistance / current, 230 V model

Cable set	Standard	Standard + Ext. 1	Standard + Ext. 2	2 x 15 m 95 mm ²
At 300 A	18 mΩ	14 mΩ	11 mΩ	18 mΩ
At 600 A	3.0 mΩ			1.8 mΩ
Max. current	750 A	570 A	480 A	690 A

Output DC (CAT I), 115 V model

Current (A)	Voltage (V)	Max. load time	Input current (A)
0	7.3	–	0.8
50	6.9	30 min.	
100	6.4	10 min.	10
200	5.5	90 s	19
300	4.8	50 s	
400	3.9	30 s	38
500	3.0	15 s	
575 ¹⁾	2.5	10 s	
600	2.2	8 s	52
700	1.5	5 s	
800 ²⁾	0.9	–	

1) Maximum current with standard cables 2 x 5 m 50 mm²

2) At 800 A and above, instant shut off

Note: The above figures shows maximum load time from cold state 25°C. They are not valid for repeated tests

Output AC (CAT I), 115 V model

Current (A)	Voltage (V)	Max. load time	Rest time
0	8.7	Cont.	–
660	3.5	2 s	4 min.

Note: The DC and AC outputs must not be loaded at the same time.

Output DC (CAT I), 230 V model

Current (A)	Voltage (V)	Max. load time	Input current (A)
0	9.4	–	0.4
50	9.0	30 min.	
100	8.6	10 min.	6
200	8.0	90 s	
300	7.2	50 s	
400	6.4	40 s	
500	5.7	30 s	
600	5.0	15 s	33
700	4.3	8 s	
750 ¹⁾	3.8	5 s	
800 ²⁾	3.6	–	42

1) Maximum current with standard cables 2 x 5 m 50 mm²

2) At 800 A and above, instant shut off

Note: The above figures shows maximum load time from cold state 25°C. They are not valid for repeated tests

Output AC (CAT I), 230 V model

Current (A)	Voltage (V AC)	Max. load time	Rest time
0	11.2	Cont.	–
660	4.5	2 s	4 min.

Note: The DC and AC outputs must not be loaded at the same time.

Optional accessories

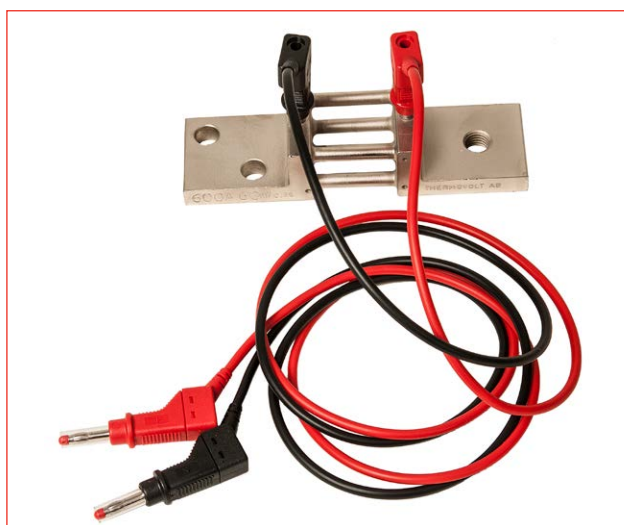
PC Software MOMWin

An optional Windows® program named MOMWin is available for MOM690. It can be used to control measurement, analyse the results and report the results from a PC. It also enables you to retrieve test results stored previously in MOM690.

All readings are saved in ASCII-format and can be easily exported to your favourite spreadsheet program. Results can be presented in table or diagram form in MOMWin.

Current shunt for calibration

An optional calibration shunt (600 A/60 mV) can be ordered for MOM690. A regularly calibration is needed to make certain that the instrument readings remain correct.



Current shunt for calibration, BB-90024

Included accessories



Cable set standard GA-05055 (current cables and sensing cables) and ground cable GA-00200.

Ordering information

Item	Art. No.
MOM690	
Complete with:	
Cable set standard GA-05055	
Ground cable GA-00200	
Transport case GD-00182	
115 V Mains voltage	BB-41190
230 V Mains voltage	BB-42390
Optional	
PC Software MOMWin	
Incl. serial cable for RS-232 port	BB-8010X
Cable set 15 m (49 ft)	
2 x 15 m (49 ft), 95 mm ² (current cables)	
2 x 15 m (49 ft), 2.5 mm ² (sensing cables)	
Weight: 29.4 kg (64.8 lbs)	GA-09155
Cable extension sets	
Since all current cables have bayonet connectors, standard cables can be extended with 5- or 10-meter extension cables. When demands for both high currents and long cable runs, cable kits with larger cross-sectional area needed.	
Extension cable set No. 1	
2 x 5 m (16 ft), 50 mm ² (current cables).	
2 x 10 m (33 ft), 2.5 mm ² (sensing cables).	
Weight: 7.5 kg (16.5 lbs)	GA-05057
Extension cable set No. 2	
2 x 10 m (33 ft), 50 mm ² (current cables).	
2 x 15 m (49 ft), 2.5 mm ² (sensing cables).	
Weight: 15 kg (33 lbs)	GA-05107
Calibration shunt	
600 A/60 mV	BB-90024
Transport case XL	
With space for the standard 5 m cable set + extension cable set No. 1 or No. 2.	GD-00042