

## MOM2 Test cables and output current

### Resistance testing

This application note informs about how to select a suitable test cable when doing tests with MOM2.

#### General

MOM2 is delivered with either Kelvin clamps (1.3 m. and 3 m.) or with Kelvin probes (2 x 1.3 m.).

These cable alternatives may in some cases not be suitable for a specific application. What can be an expected output current with different cable length and dimension? Don't use longer cables than you need. It will derate the current output level.



#### Procedure

With MOM2 and the use of the standard cable set GA-90000 (Kelvin probes 2 x 1.3m 16mm<sup>2</sup>). It gives a maximum current a bit over 200 A DC, with a test object/load of 2 mΩ.



Probe tip



#### Calculating example:

The internal ultracapacitor has a rated voltage on 2.5 V.

The cable set GA-90000 has a theoretical resistance of about 2.8 mΩ.

A test load of 2 mΩ.

Internal resistance of MOM2, 5 mΩ.

The theoretical current output value will be accordingly.

$$\frac{2.5 \text{ V}}{(2.8 + 2 + 5) \text{ mohm}} = 255 \text{ A}$$

However, the practical max current value will be a bit lower.

Let's say roughly 210 A due to surface contact resistances.

In the same way as above calculation.

With the standard Kelvin clamp cable (GA-00373, 1.3m 16mm<sup>2</sup>) and an extra long cable with standard Kelvin clamp (Art no.GA-00376, 10m 16mm<sup>2</sup>).

The theoretical value will be 130 A. But a practical value is more like 115 A. Since contact resistances between clamp and test object influence the max output current level.



Note. The above examples calculates on a 2 m $\Omega$  load. That is considered as a high load. A more typical load on a test joint is 10-40  $\mu\Omega$ .

When the area of a test joint is “small”, were the clamp or probes can't reach the measuring points adequately. The use of a separate test cable for the voltage sense should be considered.

For special cable arrangements like longer cables and higher cable area. Please contact Megger support: [sweden.support@megger.com](mailto:sweden.support@megger.com)

### Conclusion

The correct choice of equipment when you need to measure resistance in joints and connections is crucial to reveal the status and performance of the study. The use of micro-ohmmeter like our MOM2 will guarantee the best results to analyse and take corrective actions. To be implemented in the maintenance management schedule that prefers.