

General information

After installation of Roxtec solutions for bonding and grounding, earth continuity tests should be performed to verify a satisfying connection between the cable armor/shield and the Roxtec frame.

To measure contact resistance, a 4-pole method shall be used, 10 ADC or higher following national legislation.

Always check that the system is correctly installed. See the installation instructions for the corresponding product.



Verification of contact resistance for Roxtec BG™ solutions

Measuring method for Roxtec BG™ B

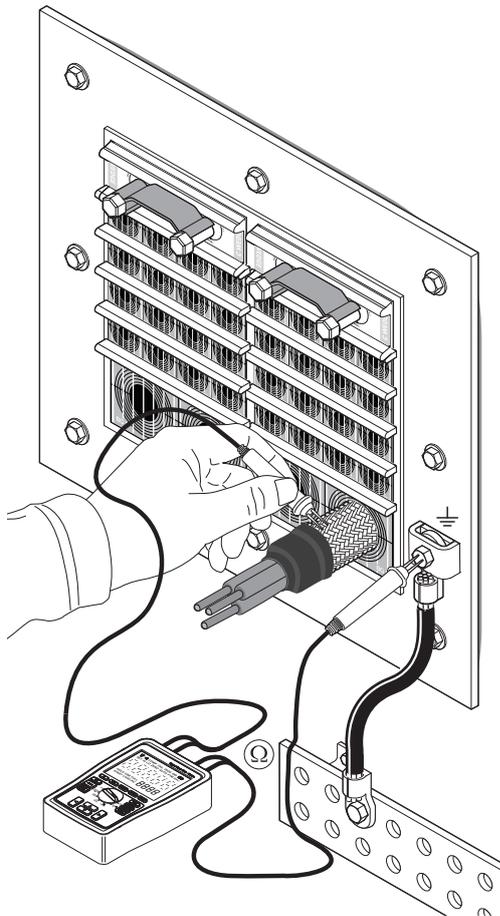
In most installations with Roxtec BG B modules it is possible to measure the connection between the BG B braid and the armor/shield directly at the system.

Test should be performed with an earth continuity tester (4-pole measurement) @ 10 ADC. The resistance from armor/shield to the frame is typically <math><1\text{ m}\Omega</math> except for where stainless steel frame is used which typically shows values <math><2.5\text{ m}\Omega</math>. Each cable shall be tested.

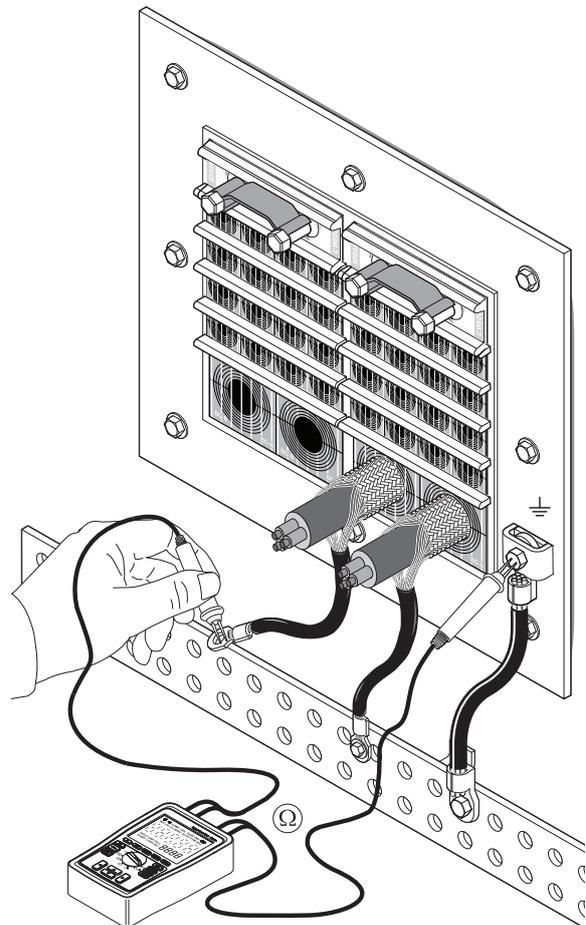
Note: The values above are typical for Copper or Aluminium armor/shields taken in close proximity to the system. Other less conductive armor material, e.g. steel wire armor, may show higher values.

If not possible to measure from the armor/shield at the point of termination, see measuring method for Roxtec BG.

Alternative installations



1. Measure the resistance from the Roxtec frame earth point to the cable armor/shield (cables may continue further than the picture shows).
2. Repeat until all cables have been tested.



1. Remove the so called pig-tails from the earth bar.
2. Measure the resistance from the Roxtec frame earth point to the end of the pig-tail.
3. Repeat until all cables have been tested.

Measuring method for Roxtec BG™

The connection between armor/shield and BG™ braid is enclosed within the Roxtec BG module and can therefore not be measured directly at the connection. The method that Roxtec recommend is measuring the earth continuity between one end of the cable armor/shield and the frame through which the cable runs. To get a reliable test result, the armor/shield must be unconnected in both ends.

When a test is performed, the length, material and cross-section of the armor/shield must be considered. Tested with an earth continuity tester (4-pole measurement) @ 10 ADC, the resistance from armor inside the module to frame is typically <math><1\text{ m}\Omega</math> except for where stainless steel frame is used which typically shows values <math><2.5\text{ m}\Omega</math>. However, the additional resistance coming from the extended cable length has to be added. See example below. Each cable shall be tested.

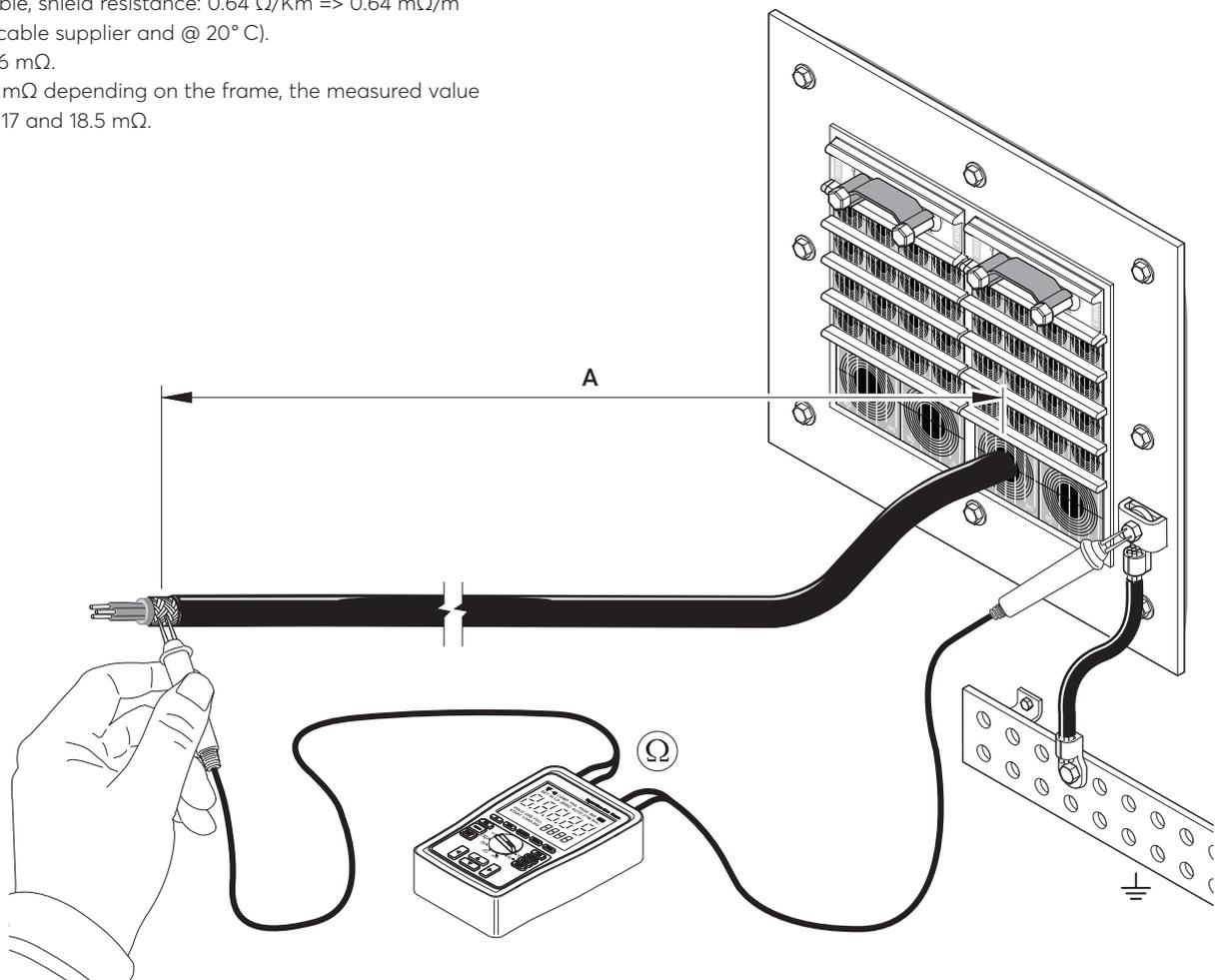
Example:

A=25 m 4x95/29 cable, shield resistance: 0.64 Ω /Km => 0.64 m Ω /m
(values taken from cable supplier and @ 20° C).

0.64 m Ω x 25 m = 16 m Ω .

Adding 1 m Ω or 2.5 m Ω depending on the frame, the measured value should be between 17 and 18.5 m Ω .

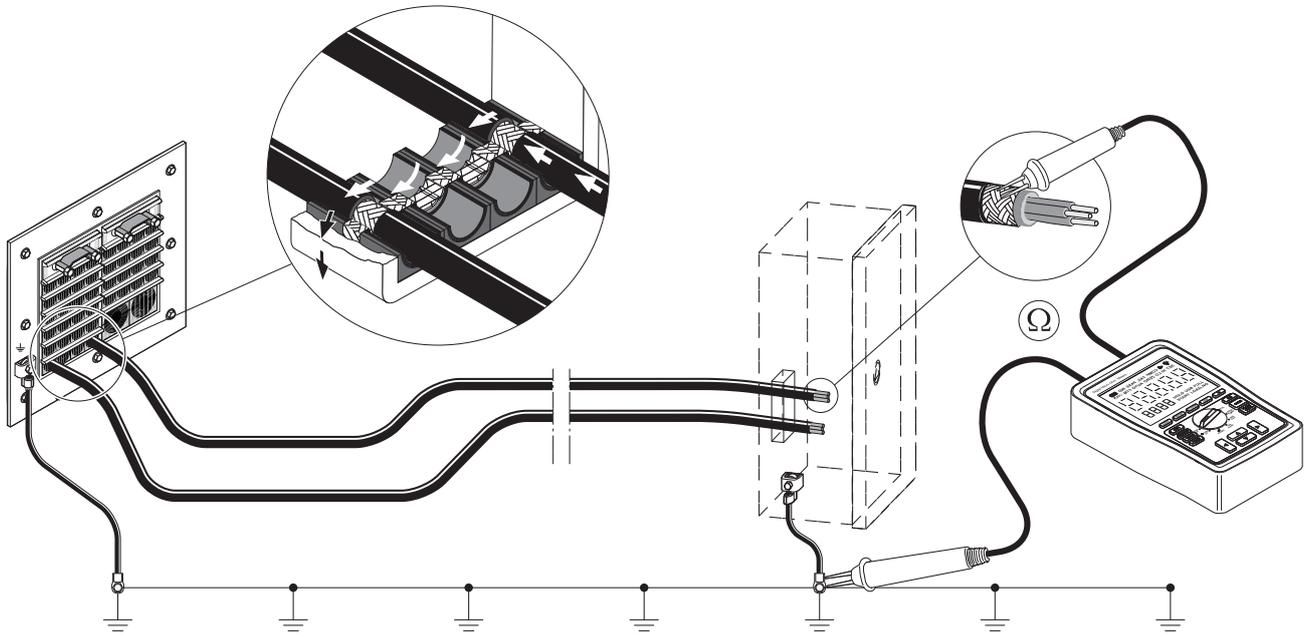
Method A



1. Measure the resistance from the Roxtec frame earth point to the cable armor/shield.
2. Repeat until all cables have been tested.

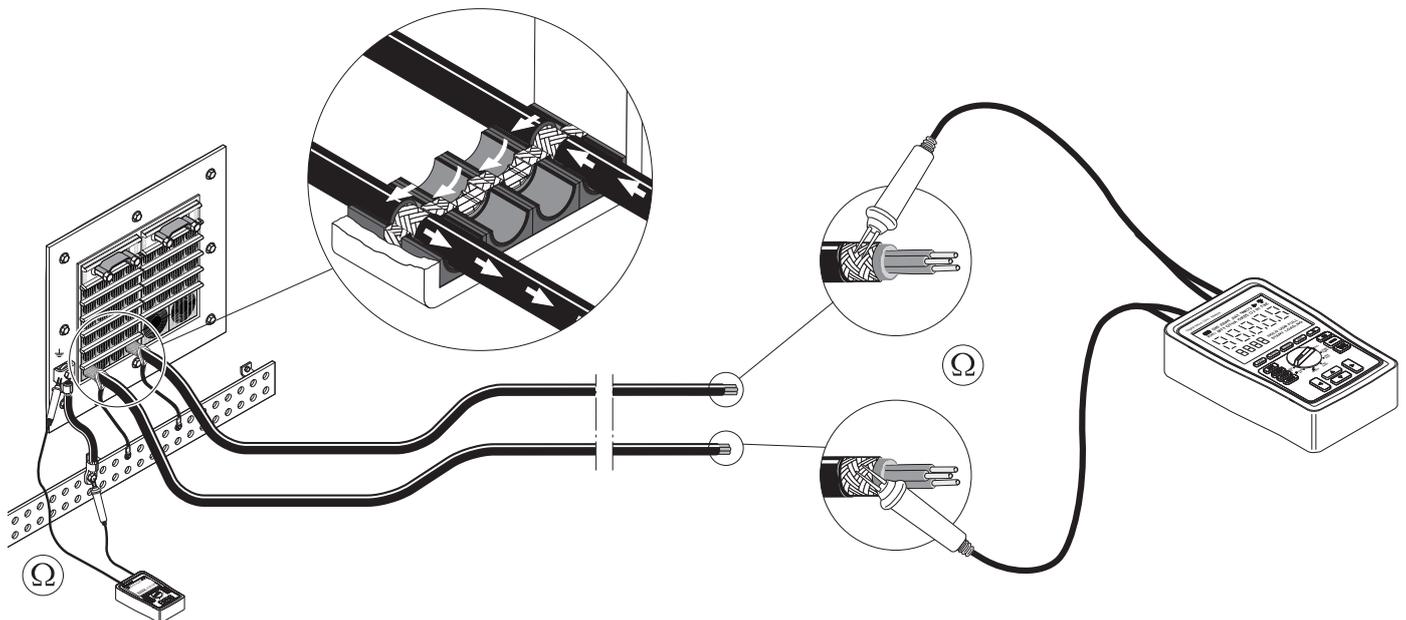
Alternative methods when cable ends are not accessible within reach of the system Method B

- 1 Check that the frame is connected to earth.
- 2 Measure the resistance from end of armor/shield to local earthed object. The result will be depending on armor type, size, length and the resistance in the local earth loop.
- 3 Repeat until all cables are tested.



Alternative methods when cable ends are not accessible within reach of the system Method C

- 1 Check that the frame is connected to earth.
 - 2 Measure the resistance from cable to cable. The actual value will be the result of 2 cables and depending of armor type, size and lengths.
 - 3 Repeat until all cables are tested.
- It's assumed that there is more than one cable installed for this method to work.



Note

- The described methods can be applied to verify contact resistance for the various Roxtec PE and ES products also. High frequency properties, such as shielding effectiveness cannot be verified this way.
- An ordinary digital multimeter with 2-pole ohm-meter function will not show actual contact resistance cable armor/shield to frame, but will just work as a continuity check.

DISCLAIMER

*The Roxtec cable entry sealing system ("the Roxtec system") is a modular-based system of sealing products consisting of different components. Each and every one of the components is necessary for the best performance of the Roxtec system. The Roxtec system has been certified to resist a number of different hazards. Any such certification, and the ability of the Roxtec system to resist such hazards, is dependent on all components that are installed as a part of the Roxtec system. Thus, the certification is not valid and does not apply unless all components installed as part of the Roxtec system are manufactured by or under license from Roxtec ("authorized manufacturer"). Roxtec gives no performance guarantee with respect to the Roxtec system, unless (I) all components installed as part of the Roxtec system are manufactured by an authorized manufacturer and (II) the purchaser is in compliance with (a), and (b), below.

(a) During storage, the Roxtec system or part thereof, shall be kept indoors in its original packaging at room temperature.

(b) Installation shall be carried out in accordance with Roxtec installation instructions in effect from time to time.

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