

Functional Earthing and Equipotential Bonding

Nordmount Hyper och Flow

National electrical installation regulations require that accessible conductive parts that may become live must be correctly connected to earth.

According to HD-IEC 60364-7-712, when equipotential bonding/earthing is required, the metallic structure supporting the photovoltaic modules – including metallic cable management systems – shall be electrically bonded.

This equipotential bonding conductor shall:

- be connected to a suitable earthing point
- have a minimum cross-sectional area of 4 mm²

Note that different conductor materials (e.g. copper or aluminium) may require different sizing. Purposes such as lightning protection, protective earthing, or specific EMC requirements may require a larger conductor cross-section. The responsible electrical installer shall ensure that the correct conductor type and dimension are used in each installation.

All connections shall be made in such a way that galvanic corrosion between cable lugs and the mounting system does not occur. Cable lugs and connection hardware shall be compatible with zinc-magnesium coated steel (ZM coating).

When aluminium structures are used, suitable connection devices shall be used to ensure long-term and reliable equipotential bonding.

Implementation in Nordmount Hyper and Flow

In Nordmount Hyper and Flow, electrical bonding is achieved by clamping the ZM-coated steel structures together to form a mechanically and electrically continuous unit. The mechanical connections are designed to allow metallic contact between the components and thereby create electrical continuity throughout the entire mounting system.

However, it must be emphasized that the system is not automatically electrically bonded solely by delivery or assembly of components. Electrical continuity requires that the installation is carried out in accordance with Nordmount's current installation and earthing instructions. All joints, connections and clamping connections shall be installed correctly and tightened according to the specified torque values to ensure proper metallic contact.

Only when the installation has been carried out according to the instructions and electrical continuity has been verified can the mounting system be considered an electrically continuous structure. Under these conditions, a separate earthing conductor does not need to be run to each individual corrosion-protected steel component, since the system then functions as a common conductive unit within the respective PV array.

The frames of photovoltaic modules are normally made of anodized aluminium and therefore have a surface coating with insulating properties. In order to ensure electrical contact, this surface must be penetrated.

Nordmount's module clamps are designed so that electrical contact between the module frame and the mounting system is automatically established when installed correctly. It is essential that all clamps are installed and tightened according to the specified torque in order to ensure proper electrical continuity.

Verification and Inspection

Earthing continuity and integrated equipotential bonding have been verified through physical testing carried out by Nordmount AB together with an independent third party, El-Tele-Data-Konsult Anders Sällberg.

Measured contact resistance during testing: $< 10 \Omega$

In addition to the system's type verification, the responsible electrical installer shall perform and document continuity measurements of the mounting system's electrical bonding for each installation. The measurement shall ensure that the equipotential bonding is continuous and that the connection to the earthing system meets applicable requirements before commissioning.

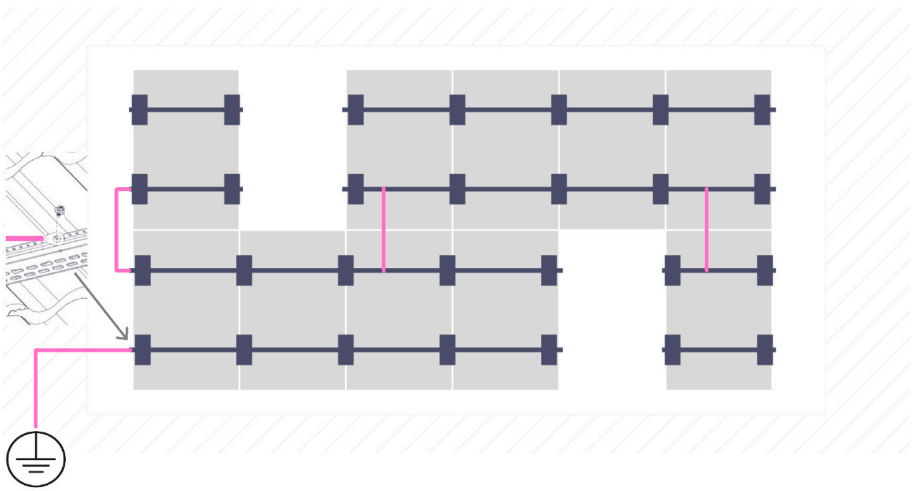
The verification shall form part of the system inspection prior to commissioning in accordance with applicable electrical installation regulations.

Connection to the Earthing System

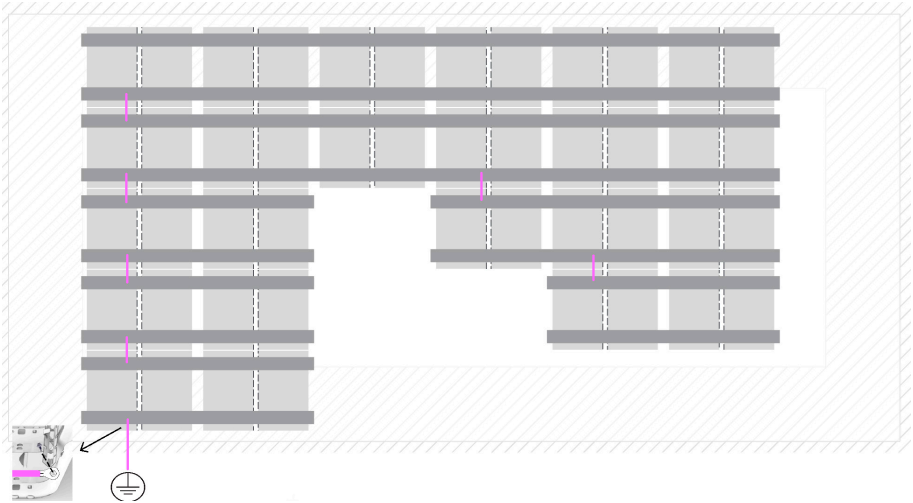
An earthing/equipotential bonding conductor ($\geq 4 \text{ mm}^2$) shall be installed per PV array and connected to at least one earthing bar in the inverter (earth terminal), which in turn shall be connected to the building's main earthing system.

Installation instructions

Hyper



Flow Ballast



Flow with stabilizer

