

Surface Polarisation

LAXX-xxS Series Solar Modules use all-back contact solar cells for high efficiency.

This technology leads to possibly suffering from a temporary decrease in performance if installed according to common methods without grounding or with negative grounding.

Following our installation instructions (i.e. positive grounding) will increase the efficiency of the solar module.

Our LAXX-xxS type of solar modules require therefore less space then other solar modules making this LORENTZ product one of the best in the market.

The temporary decrease in performance that can be experienced by backcontact solar cells is due to a surface polarisation effect which is caused by a small amount of leakage current from the module.

All modules experience some amount of leakage current, however the surface polarisation effect seems to be unique to thin-film and back-contact solar cells.

If the frame of the module is on a low potential compared to the cells voltage, a tiny leakage current flows from the cells through the glas to the frame. This causes a negative effect in the cells which decreases the performance of the module.

This surface polarisation effect is 100% reversible and does not cause any damage to the module.

This means, that a system that has been installed according to common methods (without grounding or with negative grounding) and is suffering from decreased performance can be restored to full operational performance by wiring it as a positive-grounded system.

Positive Grounding

Caution:

If an AC inverter is used and the system is grounded on the positive, it must be an isolated type. Most standards forbid using a non-isolated (trafoless) inverter in a system grounded on the DC-side and it can be dangerous. There must be a real electrical separation between DC and AC.

To avoid the negative charge on the frame and thus the surface of the modules, the system has to be grounded on the most positive voltage in the system, which is the positive pole of a single module or the whole string.

In every case, ground has to be connected to the frame of the modules.

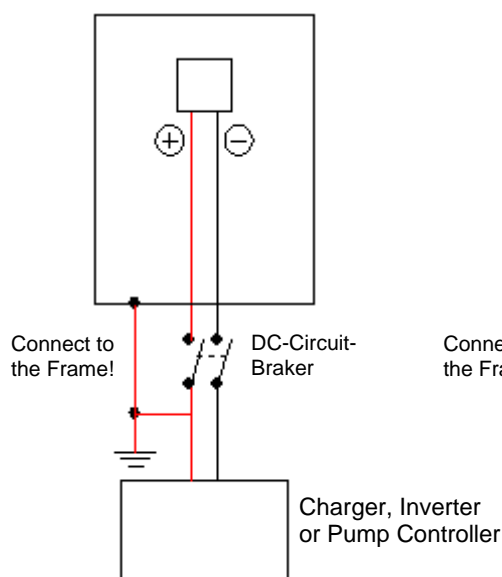
If real grounding is not possible, at least the frame has to be connected to the most positive in the system.

Basically ground has to be connected only at one single point to the most positive voltage of the system.

See the following schematics how connect the positive pole to the frame.

Please make sure to follow the local standards and codes.

Connecting one single Module



Connecting two or more Modules

