

# Positive Grounding

## Surface Polarisation

LA Series PV modules use all-back contact solar cells for higher efficiency. This technology can lead to a possible 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 usually restore the full efficiency of the PV module.

The temporary decrease in performance that can be experienced when using back contact solar cells is caused by a surface polarisation effect as a result of 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 small leakage current flows from the cells through the glass to the frame. This causes a negative effect in the cells that decreases the performance of the module.

This surface polarisation effect can normally be reversed by positive grounding. It usually does not cause any damage to the module. The performance of a system that has been installed according to

common methods (without grounding or with negative grounding) and is suffering from decreased performance can normally be restored by wiring it as a positive-grounded system.

## Positive Grounding

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 drawing for how to connect the positive pole to the frame.

Please make sure to follow the local standards and codes.



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



**Failure to comply with these requirements will reduce the performance of the system and void the Limited Power Warranty.**

