

pvServe –

The multifunctional service tool for solar technicians, the electrical specialist and experts in the field of photovoltaics.

The service power supply unit pvServe is the multifunctional tool for solar technicians, the electrician and experts, who are specialized in the inspection and maintenance of photovoltaic systems.

The device has a freely adjustable DC voltage between 0 and 1000 V, so that solar module strings with up to 19 solar modules with 72 five-inch cells and up to 22 solar modules with 60 six-inch cells in series can be fed back with it..

The maximum current is 5 A. However, the actual current that can be set depends on the system voltage, as the unit has been limited to a maximum power of 3.3 kW. This makes it possible to operate the power supply unit at a conventional 230 V socket. (The circuit should be fused with 16 A.) At a current strength of 5 A, only 660 V is available, which is absolutely sufficient for solar generators with up to 12 solar modules with 72 five-inch cells and 15 solar modules with 60 six-inch cells in series.

Technical data of pvServe:



- Freely adjustable DC voltage: 0 ... 1.000 V
- Freely adjustable current limit: 0 ... 5 A
- Maximum power: 3.3 kW
- Weight: 18,5 kg
- Connection to 230 V (16 A) AC voltage with IEC-60320 C13 / C14 plug
- Operation über Graphic display
- Connection of the DC voltage (plus and minus) via banana plugs 4 mm

This is what pvServe does:

Reverse-flow thermography

The power supply unit offers the possibility to supply the solar module string with power in a targeted manner. This makes it possible to take thermographic images to detect hotspots without the minimum irradiation of 400 W/m² normally required for this. The measurements can be carried out at any time, even at night. Thus, possible damage to a thermographic camera by direct sunlight can be safely avoided.

Electroluminescence

The power supply unit can be used to take high quality electroluminescence images with an additionally required infrared camera. With this technique it is possible to detect the smallest micro-cracks in the solar cells.

Bypass diodes test

If you connect the power supply with reversed polarity to a darkened solar generator, you can check the function of all bypass diodes of the solar module string.

Inverter commissioning

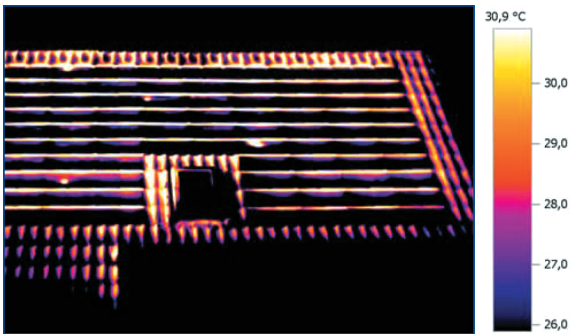
With the service power supply unit, inverters can be easily commissioned without the solar generator having to be installed. This means that electrical work can be completed at any time and checked for fault-free operation even before the roof work is completely finished.

thaw out snow

The surface temperature of the module glass can be raised by approx. 2 to 4°C by means of reverse flow into the solar modules. This can cause snow on a solar generator to slide off prematurely - for roof pitches from 30°.

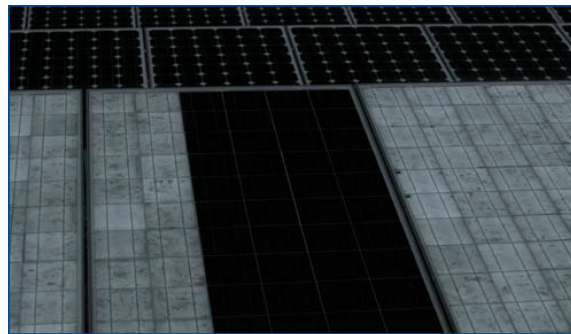
Example pictures

Reverse flow thermography

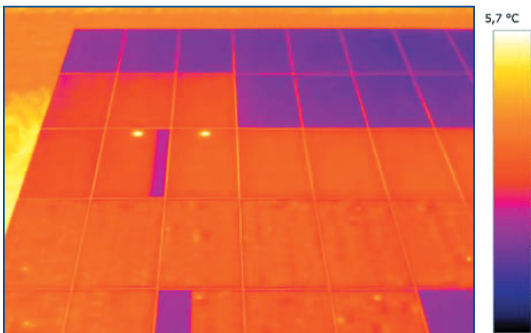


The thermographic image clearly shows 4 hotspots

Electroluminescence



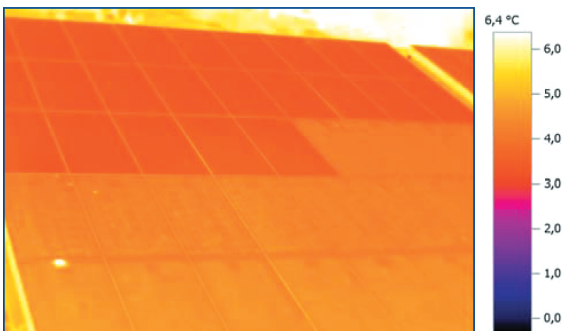
The electroluminescence image shows 2 defective bypass diodes



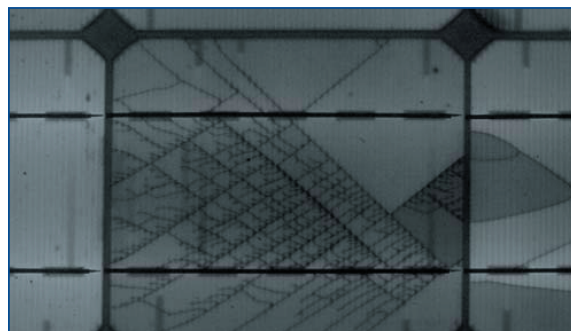
Corroded cell connections on two modules lead to partial failures



Electroluminescence image for the detection of a module strand



Solar module with a hotspot on the junction box



Electroluminescence image of a cell with many microcracks