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SUNLUMO CC-BLADE

CELL CRACK QUICK INSPECTION TOOL FOR PHOTOVOLTAIC PLANTS

- FOR UTILITY SCALE SOLAR PARKS AND ROOFTOP SYSTEMS
- PREVENTIVE MAINTENANCE BY THE NAKED EYE
- QUICK, EASY AND EFFICIENT INSPECTION INSTEAD OF EXPENSIVE AND TIME CONSUMING TESTING PROCEDURES

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QUICK CHECK OF PHOTOVOLTAIC MODULES

Sunlumo **CC-BLADE** detects cell cracks with special designed LED and light filter technology. A defined ultraviolet light spectrum shows failure patterns and cell cracks in photovoltaic panels.

Under special ultraviolet spectrum, PV modules exhibit fluorescence that can be seen by the naked eye. Damaged areas, like cell cracks or hot spots show variation in their fluorescence. This allows you to detect damaged modules by simply moving Sunlumo **CC-BLADE** over the modules.

Sunlumo **CC-BLADE** can be used by O&M teams, plant operators, technicians, auditors or researchers.

WHEN THE SUN SETS, IT IS TIME FOR SUNLUMO CC-BLADE

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The Sunlumo CC-BLADE enables you to:

- Detect failing modules quickly and cost-efficiently
- Find cell cracks and hot spots with the naked eye
- Take pictures with a customary digital camera using appropriate exposure time
- Switch between detection mode and red flashlight to walk safely in the dark

What is the main advantage of Sunlumo CC-BLADE?

- It is the fastest and cheapest method to inspect photovoltaic modules for cell cracks or hot spots
- A single person can find and mark faulty modules with a throughput of approximate 300 kW_p/hour
- Inspections with Sunlumo CC-BLADE are independent of weather conditions like wind and clouds

Which type of photovoltaic modules can be inspected with Sunlumo CC-BLADE?

- Glass-foil modules with crystalline cells (mono or multi)

When is it possible to perform the inspection with Sunlumo CC-BLADE?

- Every night is Sunlumo CC-BLADE inspection time, independent from environemental conditions like wind and temperature.
- Inspection can start about one hour after sunset.

Comparison of technologies:

Sunlumo CC-BLADE

- Visible by the naked eye, quick inspection
- 24 MP pictures possible with camera
- Works every night, independent of temperature and humidity
- No angle dependance
- Shows cracks visually
- Low investment

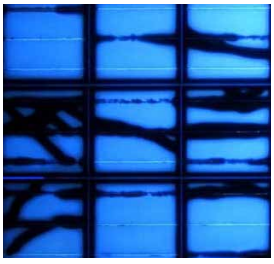
Thermography

- Vsible on screen only
- 1 MP pictures possible
- Needs day, sun, clear sky, no wind and dry condititions
- Angular effects
- Shows energetic problems
- High investment

Electroluminescence

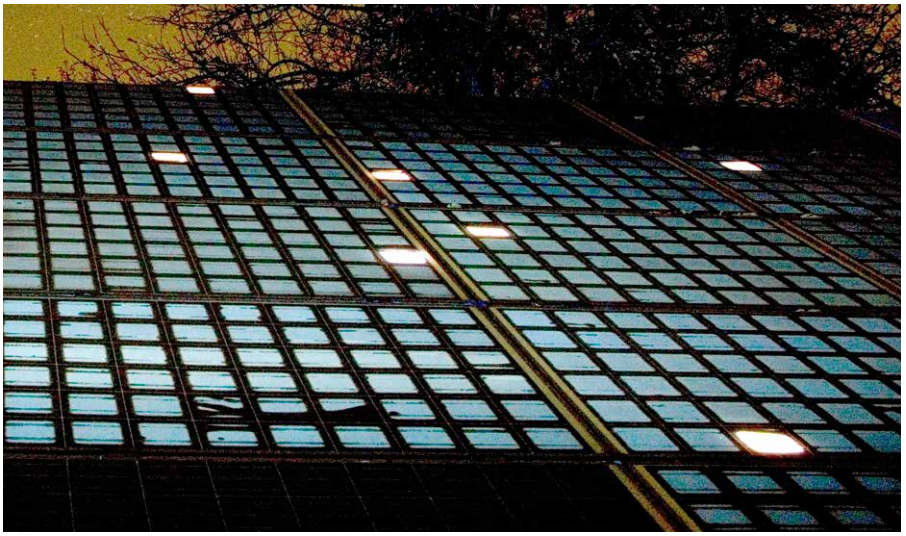
- Vsible with camera only
- Need special equipment
- Needs portable dark room
- Modules/strings have to be disconnected
- High investment
- Big efforts on site

CC-BLADE picture
showing the cracked cells made with a digital camera



Electro-luminescence picture
of the same module area

CC-BLADE picture
showing hot solar cells



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HIP BELT WITH EXCHANGEABLE BATTERY

SUNLUMO CC-BLADE

Sunlumo offers **CC-BLADE**: A low-cost, mobile and hand-held cell crack detection tool, powered by a transportable battery pack. This high power detection tool enables a single person to find and mark faulty modules with a throughput of around 300 kW_p/hour in the field. Supplementary to visual evaluation, pictures can be taken with a customary digital camera using appropriate exposure.

Sunlumo CC-BLADE technical data:

- CC-Blade size: 84 x 6 x 3 cm
- CC-Blade weight: 0.7 kg
- Switchable detection light and red flashlight
- Runtime: approx. 1 hour per battery
- Power source weight: ~1 kg

Included in delivery:

- 1 Ni-MH or 1 Li-ion battery 3.0/3.3 Ah
- Battery charger
- Cable 1 m
- Hip belt
- Sunlumo eye protection goggles
- Carrying case

Technology developed by:

AIT AUSTRIAN INSTITUTE OF TECHNOLOGY

AIT Austrian Institute of Technology GmbH
Giefinggasse 4, 1210 Vienna, Austria
www.ait.ac.at

Distributed by:

SUNLUMO

Sunlumo Technology GmbH
Technologiepark 17
4320 Perg, Austria
Tel. +43 7262 9396-4000
office@sunlumo.at
www.sunlumo.at

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