



## YOUR SOLAR PLANT AT YOUR FINGERTIPS

### WHAT IS AEG IMM?

IMM (Individual Module Monitoring) is an advanced solar plant monitoring technology at module level managed by artificial intelligence for smart Operation and Maintenance (O&M).

It allows you to detect even smallest errors from module level up to the whole plant, to optimize the performances of the solar plant and to reduce the O&M costs by locating precisely each defect and providing a detailed and optimized maintenance plan.



IMM Smart Monitoring: check your solar installation yields, a technical issue, or your investment - wherever you are.

### WHY IMM?



It helps you track and identify technical issues in the whole plant down to the affected module. IMM's artificial intelligence pinpoints the „fingerprint“ of any technical defect down to module level.



It localizes precisely each problem, saving inspection costs and time. IMM allows you to visualize each module with its power output and exact location on the power plant, together with the diagnosed problem.



It reduces the number of interventions and increases their precision - IMM elaborates an optimized O&M intervention plan with clear instructions for operators, who can then act precisely on the detected issue



It puts you in control of your power plant - IMM provides you the comfort of knowing always and exactly how well your plant is performing thanks to full-rounded monitoring and extensive analysis

# HOW IMM WORKS

IMM is enabled by a tiny sensor. The IMM Sensor is placed either in the junction box, as featured natively by AEG solar modules with integrated IMM Technology, or in a special plug-in box -IMM Upgrade- to be applied to existing solar modules. The sensor interactss with other system components:

## SENSOR

Placed in AEG solar modules or in the IMM Upgrade, it measures voltage and temperature and sends the information with module serial number to the String Reader via the existing powerline cable.

## STRING READER

Reads the module data and further measures string current and voltage, sending the data to the Gateway

## GATEWAY

Receives the data from every String Reader and sends via any desired router to the Web Portal

## WEB PORTAL

Analyses the data for the user. It does not only detect individual performance variations but can also pinpoint error patterns by means intelligent data analysis

# THE IMM WEB PORTAL

Based on advanced artificial intelligence, the IMM Web Portal elaborates the live data collected by the sensors, analyzes with large databases and translates them into user-friendly visualizations and instructions to help the plant owner understand the performances of their power plant. Thanks to vast analysis capabilities based on comparison, simulation and „fingerprint tracking“ the system is able to precisely locate the issues generating yield loss.

- At module level:** Shaded module / Underperforming module / Module offline
- At string level:** String Reader offline / Weak string / DC line error / Shaded string
- At inverter level:** Inverter offline/ Weak inverter / Inverter fault // Inverter error code (reading and rating);
- At plant level:** Plant offline / Gateway offline

With the Web Portal, you can see at a glance how your plant is performing in real-time and over time, thanks to the live data conveyed by the IMM sensors which are monitored and constantly pushed to the system´s records.

Thanks to a prompt warning system, IMM provides you with timely updates from remote when a yield-impacting issue is developing.

Thanks to its user-friendly interface, you are able to understand from remote and at a glance - down to the module level- where exactly intervention is needed for bringing your power plant back to its optimum and organize any intervention in an efficient way. The system further simplifies tracking the maintenance actions made on the plant thanks to its practical fault management system and O&M action plan.



## SUGGESTED SETTINGS

Internet connection from PC

Browsers: Mozilla Firefox, Google Chrome (suggested)

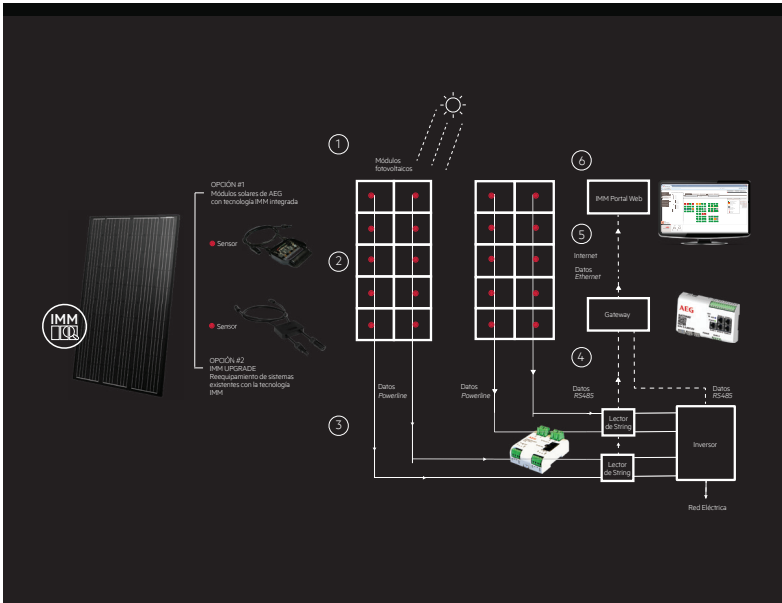
Screen settings: 1280 \* 600 or higher resolution



TEST IMM TECHNOLOGY!

Request a demo at  
[www.imm-portal.com](http://www.imm-portal.com)

# IMM SCHEME



1- Irradiated by sunshine, the AEG solar modules with integrated IMM Technology/the existing solar modules with IMM Upgrade produce clean energy.

2- The IMM Sensors within the IMM junction box/ within the IMM Upgrade measure the voltage of each module and the temperature of each junction box.

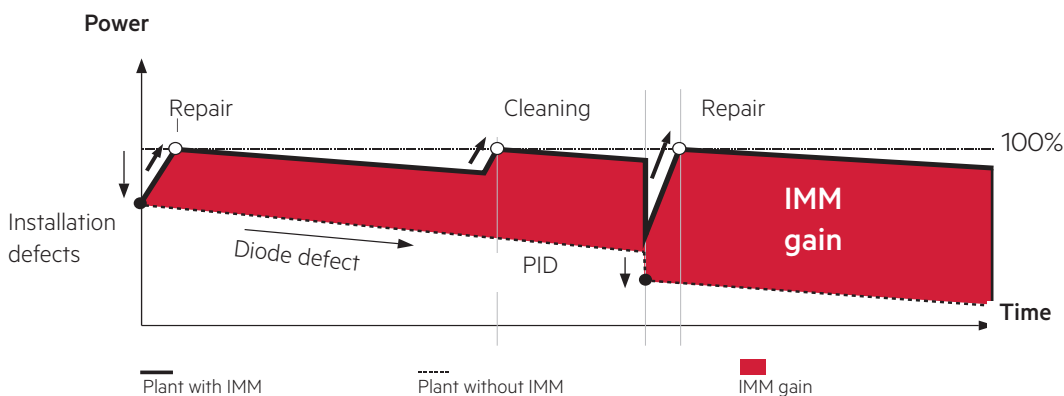
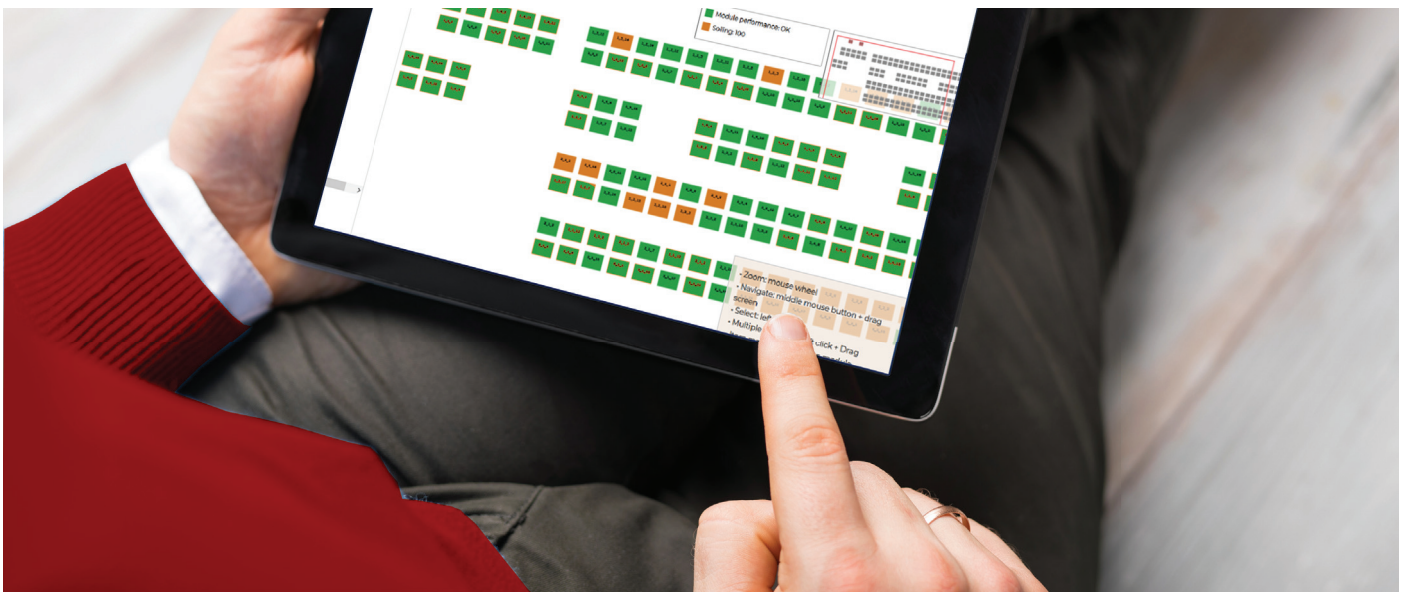
3- The data from the IMM Sensors are sent to the String Reader via smart Powerline communication (existing DC cabling)

4- The String Readers receive the data from the IMM Sensors and forward them to the Gateway. The String Reader too measures temperature, voltage and current.

5- The transmitted data of the String Reader are collected in the Gateway and sent via internet to the Web Portal.

6- The Web Portal elaborates the data and displays the analysis.

# THE IMM GAIN



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