

# CG APPLICATIONS

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**Market involved :** Solar renewable energy

**Product :** Eos-Array, Eos-Box and EM26-96

**Customer :** Panel Builder, installer and engineering company

**Subject :** Control system for photovoltaic plants

## CUSTOMER ISSUE :

The engineering company has to develop a 1MWp photovoltaic plant to produce energy from the sun.

The available control solutions are based on the information coming out from the inverters which are still the weakest component of the PV solar system.

The company doesn't like it, therefore looks for a system to acquire all information and local string measurement units to measure the necessary variables independently from the working of the inverters.

Moreover, to show to the investors how the solar plant pays back the investments they need to take into the full calculation the feed-in tariff and the generated energy to the grid.

## OUR SOLUTION:

An innovative local system based on :  
eighteen "Eos-Array" systems where every single one manages one VMU-M unit for data logging and local bus management;  
twelve VMU-S every Eos-Array for string control (single string of 7.6A\*30.3V\*20 modules = 4.6kW, 12 VMU-S\*4.6kW = 55.2kW per Eos-Array);  
one VMU-O for I/O managements and  
one (in the whole installation) VMU-P for environment measurements.

Last but not least, one Eos-Box to gather all the string yield efficiency and single string variables such as current, active power, voltage, energy, sun irradiation and PV cell temperature to manage the whole plant over internet in combination to an EM26-96 to measure the produced energy as well.

## ACHIEVED BENEFITS:

The engineering company thanks to the modular concept can size it according to the plant need. The installer can install the control system in a very easy and fast way.

A further cost saving is provided by the integrated string fuse protections. The system functions and controls are split into modules so to improve the global reliability of the system.

The integrated I/Os can acquire both status of local string box breaker and surge arrester status, while the relay outputs can enable either the panels cooling or the panels washing so to keep the efficiency of the plant as high as possible all the time.

The local string efficiency and the inverters are controlled continuously so to provide, in case of failure, an easy and fast "problem localisation" which is mandatory for a plant when either un-efficiency or a stop means money loss.

Eos-Array detects not only string failures but thanks to the integrated anti-theft control (no extra wiring is needed), provides a proper warning in case of unauthorized PV panels removal.

Eos-Box, promptly send alarm e-mails or SMS to the relevant people so to let them take immediate actions.

