CG APPLICATIONS

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Application Note:	**December 30th 2008**
Market involved :	**Solar renewable energy**
Product :	**Eos-Array**
Customer :	**Panel Builder and installers**
Subject :	**Control system for photovoltaic plants**

CUSTOMER ISSUE :

The installer has to provide to his customer a 50kWp photovoltaic plant to be mounted on the roof of a production facility, in order to produce energy mainly for their own use.

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

The company doesn't like it and as an alternative looks for a system capable to measure the string currents in order to keep them under control.

A data logging system is also needed to understand how the solar installation works and behaves along the time.

OUR SOLUTION:

An innovative local system based on the "Eos-Array" system composed by one VMU-M unit for data logging and local bus management, ten VMU-S units for string control (50kW total for 228x220W PV panels, 12.5A/400V single string), one VMU-O for I/O managements and one VMU-P for environment measurements.

Last but not least one freeware Eos-ArraySoft software to be installed in a local PC to gather string efficiency and single string variables such as current, active power, voltage, energy, sun irradiation and PV cell temperature to built up the plant history.

ACHIEVED BENEFITS:

Thanks to the modular concept the installer can size the installation according to his project philosophy and install it 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/O VMU-O unit can acquire the status of the overvoltage protection and acquire the pulses coming out from the local utility watt-hour meter so to measure the generated energy. As far as outputs is concerned the first relay can provide a physical failure alarm so to promptly warn the maintenance people and the second alarm, by means of the integrated antitheft control system (no extra wiring is needed) can provide a proper warning in case of unauthorized PV panels removal.
The local string efficiency and the inverters are controlled locally and 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.