## **SunGuard**

## MONITORING PROGRAM

Everyday more and more photovoltaic systems, both civil and industrial, are installed without providing for adequate maintenance. Technological systems, above all when undergoing significant development, require routine and special maintenance operations to be carried out by specialised technicians. This, however, does not guarantee the complete and constant efficiency of the photovoltaic system and, even less, preventive interventions in the case of imminent energy loss or malfunction due to exogenous and/or endogenous causes. That's why SunGuard has been developed.

A professional system that closely monitors every type of photovoltaic system, as well as the environment in which it is installed. Useful for smaller installations, necessary for medium to large sized installations. SunGuard communicates data and information in real time to both the operators who perform the monitoring, as well as to the specialised technicians, thereby allowing for targeted, timely and preventive interventions. SunGuard provides for the real time monitoring of the systems' performance and, through the SunGuard Box interface, sends the data to the central calculation unit over an SNMP Protocol. The elaboration of this data, in addition to that which is received from weather stations, pyranometers, toroids and video cameras positioned upon the system, provides for the constant supervision of our systems and allows us to offer a service which is even more oriented towards maximum customer satisfaction.

## **Technical characteristics summary**

- Remote web-based management through UMTS, GPRS, LAN network and Wi-Fi connectivity;
- · monitoring of each individual inverter;
- connection to every type of environmental
- numerical and graphical display of the periodic data and reports regarding the system's productivity;
- · notifications sent by email and SMS;
- pro-active management of maintenance interventions;
- web-based system management for the installers, maintenance personnel, technical assistance, help desk and final customer, through dedicated administration panels.

## **Main functions**

- Centralised multi-system management
- multi-user functionality with various access levels
- · data storage in SQL databases
- · advanced formula editor
- events and actions management
- reporting system
- · performance analysis
- · graphics management
- integrated video camera management
- SNMP standard for extended monitoring
- · access to data collected

