Management Software

The Software Energy Sentinel PV allows to keep constantly under control all the main information and parameters for managing the productive level of a photovoltaic system. The system includes an applicative server installed onto an industrial concentrator (fanless, operating temperature -20° +75° C) based on Linux architecture capable of capturing the data coming from the various apparatus (string control, solarimeters, pyranometers, inverters, fiscal meters, weather stations) distributed within a photovoltaic system. Once this information is acquired, stored and analyzed in accordance with standard or customized models, it's possible to identify:
> inverter efficiency
> mismatching and string efficiency
> photovoltaic system efficiency
> photovoltaic system performance
> inverter faults
> parallel switchboard faults (with CM2)
> discharger malfunction.

In addition to consultation via a web interface, this information can be used to generate early warnings, notifiable via text message or e-mail. Standard alerts are:
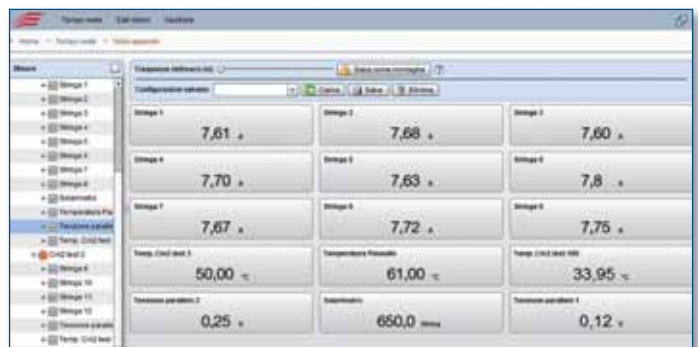> string current check
> field switchboard temperatures
> inverter connection status check compared with solar radiation
> inverter error status check
> opening/closing of contacts
> exceeding of thresholds
> apparatus communication error.

Web display is divided by two main areas: Real-time data can be consulted on the pages that can be easily configured (i.e: it is possible to create configurations specifying which fields to be viewed) in the shape of values or pie charts. Historical data can be displayed for a period selected depending on choice in a bar chart with two vertical axes to allow comparison between data with very different full-scale outputs. The viewed data can be arranged in a tabular format and exported into CVS or Excel files.

Energy Sentinel PV

Energy captured, produced and consumed in Energy Sentinel PV.

Screen showing synoptic system in Energy Sentinel PV.
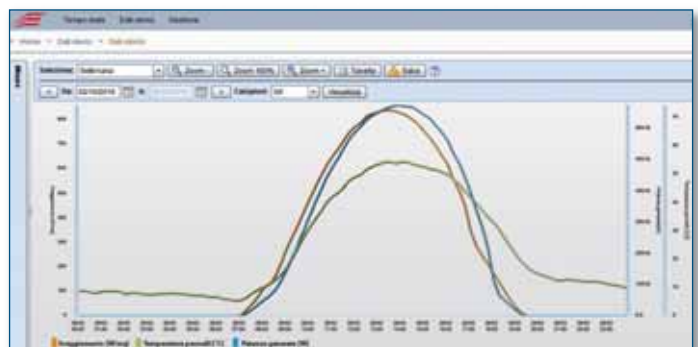

Main menu of Energy Sentinel PV program.

Pie chart created by Energy Sentinel PV.

Screen showing installation efficiency in Energy Sentinel PV.

Real-time installations displayed in Energy Sentinel PV.

Assembly diagram

INTERNET

UTF TABLE

OTHER SYSTEMS

ETHERNET

ELECTRICITY NETWORK

CONCENTRATOR

SMS
E-MAIL

MODEM GSM/GPRS

FISCAL
SL 7000
METER

X-Meter   Gold

PULSE OF
ENERGY
PRODUCED

MONITORING OF
EXCHANGE WITH
ENEL

RS 485

ON/OFF
GENERAL
INVERTER
ALARM

RS 485

FISCAL
PRODUCTION
METER

LOAD

INVERTER

AMBIENT
TEMPERATURE
PROBE

RS 485

Parallel switchboard

Parallel switchboard

Parallel switchboard

PANEL
TEMPERATURE
PROBE

SOLARIMETER

8 Stringhe

12 Stringhe

16 Stringhe

RS 485

RS 485

CM2 SOLAR

8 STRING

CM2 SOLAR   CM2 SOLAR

12 STRING

CM2 SOLAR   CM2 SOLAR

16 STRING

PHOTOVOLTAIC FIEL