

# THEIA CONTROLPRO

## SITE MANAGEMENT UNIT

### Complete Supervision for PV Power Generation Plants



**A comprehensive** local and remote management system, the THEIA ControlPRO provides a single interface point to all components of a PV plant, so that all information, from a single inverter to the total power plant, can be viewed in an easy to use format accessible from anywhere.

ELTEK VALERE - RENEWABLE

## BACKGROUND

Due to the size and location of most photovoltaic power generation plants it is often not practical to have a person stationed on site to monitor the behaviour of the plant. As such the THEIA ControlPRO is invaluable in providing a single point of interface for local or remote access and automatic status notification.

## PRODUCT DESCRIPTION

### Overview

The THEIA ControlPRO supervision system allows the real-time monitoring of all parts of a photovoltaic power generation plant such as Eltek Valere's Solar Inverters, and Array Monitors, plus environment monitors and anti-theft devices, as well as the control of automated systems like cleaning mechanisms for PV modules.

cooling and cleaning systems for PV modules, to help ensure that the complete system is operating at its maximum efficiency. This monitoring and control is able to be at either an individual element level (single inverter, array monitor, etc.), a total PV plant level, or split into multiple groups of inverter systems to allow the detailed analysis of subsections of a PV plant. For increased site security multiple web cameras can also be viewed through the THEIA ControlPRO interface.

### Display

The collected data from the individual parts of the PV plant can then be used for the real-time display of a number of parameters, for example:

- ➔ Operational state of the PV plant, and any alarms.
- ➔ Electrical information:
  - voltage and current on individual PV strings
  - energy output for the day
  - energy output since PV plant was started
  - AC voltage and current delivered (total PV plant)



## Monitoring & Control

Using RS232, RS485 serial communication and/or KNX-bus connectivity, the THEIA ControlPRO is able to communicate with inverters, array monitors, standardised sensors, energy meters, and other network analyzers to obtain information from the PV plant, as well as automatically initiate a variety of actions. These actions can range from individual PV string isolation to the operation of



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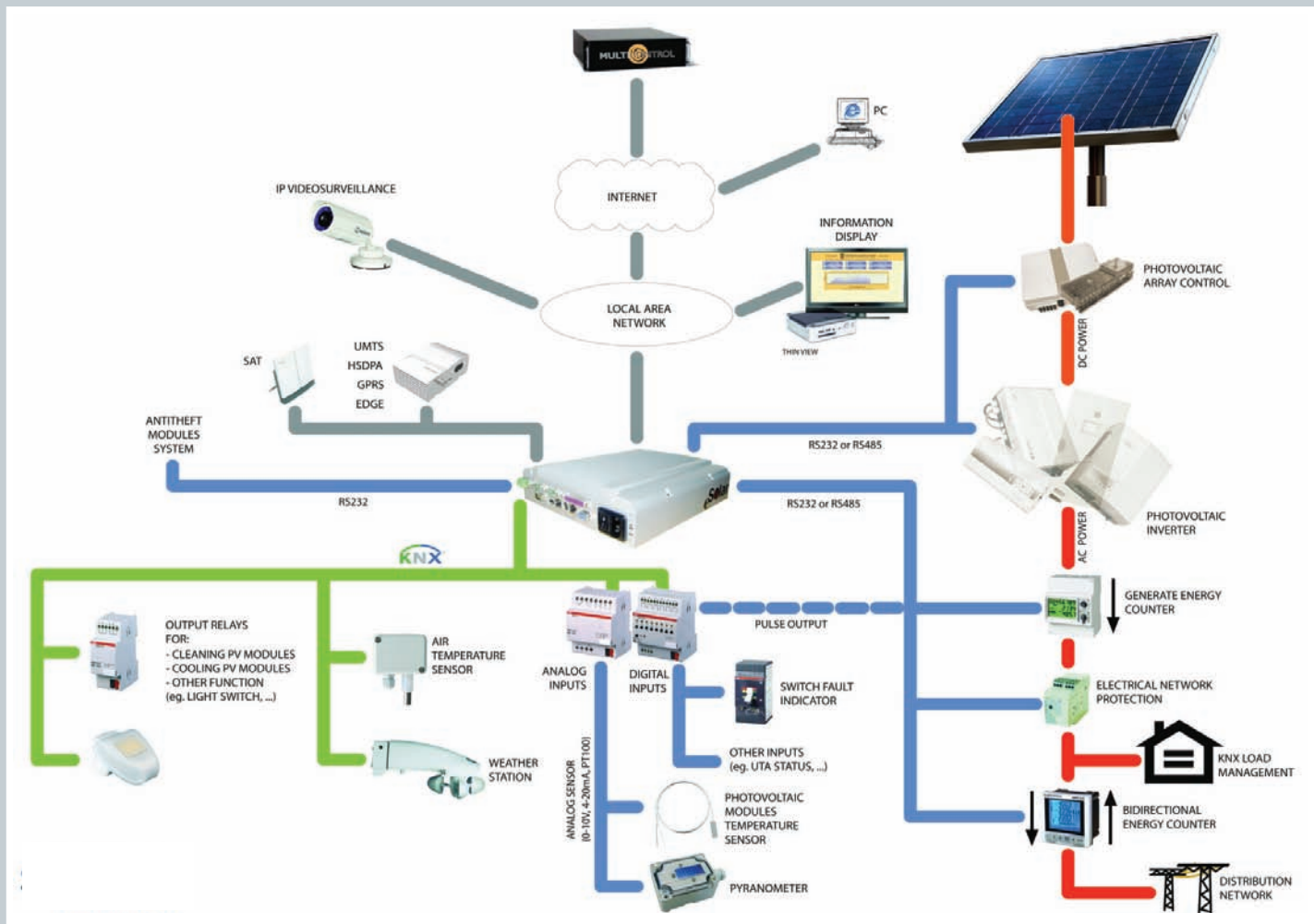
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- Environmental state:
  - temperature (ambient or PV module)
  - solar irradiation
  - wind speed
- Ecological and economical data:
  - CO2 savings
  - fossil fuel saved
  - revenue or savings generated per day
  - revenue or savings since PV plant was started
- Single or split-screen views from on-line web cameras

## PV PLANT MONITORING ARCHITECTURE



## HISTORY

The THEIA ControlPRO collects and stores all data, and then allows the graphical display of the historical data on a daily, monthly and yearly basis for the last ten years. This enables analysis of energy production, sensor information, performance data, and economic gains achieved from the different parts of the PV plant. A 2GB SD card can also be added to increase data storage capacity, or to provide data backup.

## INTERFACE

Housed within an IP65 rated enclosure, the THEIA ControlPRO contains an embedded web-server and is accessed, both locally and remotely, through a standard web browser with remote monitoring connectivity available using:

- LAN
- ADSL
- UMTS/HSPDA/GPRS/EDGE Modem

with password protected service access levels. The system is also able to provide automatic error reporting via SMS or email notification.