

LOCATION

San Maurizio D'Opaglio, Province of Novara.

PLANT FEATURES

The photovoltaic system is actually divided into three sections, each installed on a different roof of a series of adjacent buildings: section 1 - 846kW, section 2 - 100kW, section 3 - 48kW. The production is entrusted to inverters of different brands. The buildings on the roof are installed the three sections, they are production plants wired with KNX bus technology.

PROJECT DESCRIPTION

The client's needs were manifold:

- to monitor the production of the plant, with details on sections and inverters for a punctual maintenance in case of alarms from the field
- Supervise partial production counters for simple reporting of the readings register to the GSE
- monitor the string control panels arranged in the field for section 1
- analyze by performance of each individual section in relation to the actual irradiation conditions
- monitor the consumption of electricity inside buildings according to modular requirements according to any changes in the building's production processes

There were also many structural/plant constraints to be observed:

- Use of the existing bus system (KNX) for the management/reading of alarms by the plant supervisor.
- electricity consumption monitoring through meters with KNX communication interface
- use of fiber backbones for communication between string frames (located on one of the roofs) and monitoring system

SINAPSI ROLE

PV system monitoring

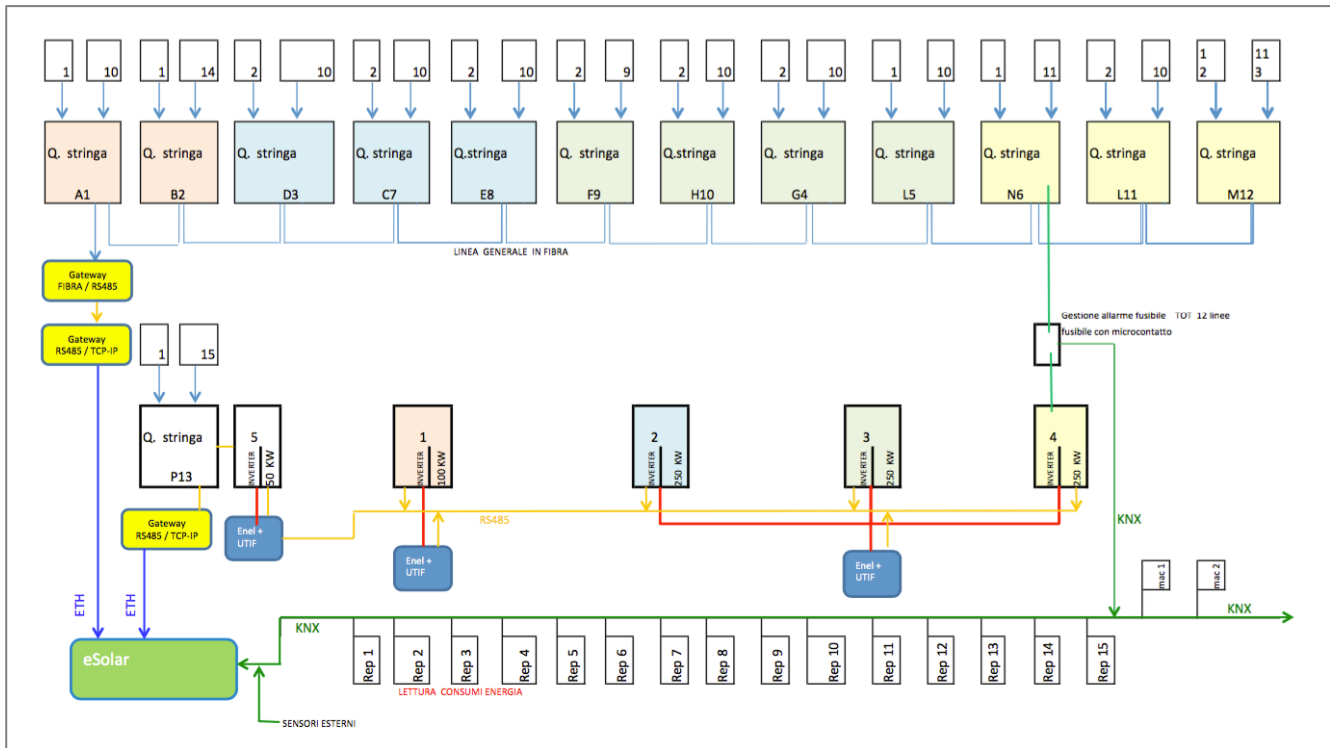
The eSolar CUBO system was chosen for the possibility to interface inverters, meters, string controllers and radiation, temperature, rain, wind sensors at the same time. The KNX bus played a key role in acquiring signals and ensuring scalability and flexibility towards future changes.

MONITORING SYSTEM

- Monitoring of the inverters of the three sections (ECOJOLE, ASTRID/BORRI, HOLIDAY ELECTRONICS - RS485 and gateway RS485 to TCP-IP) with grouped display
- Real time and daily production data reading
- Monitoring of string frames (Gavazzi eos-array - fiber backbone interfaced via RS485 to TCP-IP gateway)
- Monitoring of all meters installed in the field (SIN.EM21 production meter, bidirectional meter SIN.EM24 - RS485), electrical meters for department consumption (KNX)
- Monitoring of module temperature sensors, solar radiation (one group for each section), outdoor temperature, wind speed, rain presence (KNX)
- Interfacing digital alarm triggering signals (KNX)
- Single section performance ratio calculation referenced under specific real irradiance conditions



SYSTEM ARCHITECTURE



Giacomini system architecture