

## LOCATION

Wymeswold, England (UK).

## PLANT FEATURES

Plant divided into 2 main areas (SOUTH/NORTH), about 400mt far from each other. In the two areas there are a total of 7 communication backbones (3xSUD / 4xNORTH). In each backbone is connected a variable number of GROWATT 40000TL3 inverters, for a total of N°103 units (RS485 communication). It is also necessary to monitor an ELSTER A17000 production meter (communication via IrDa interface).

## PROJECT DESCRIPTION

The system was installed in 2015. The constraint of distance between the two main areas precluded the possibility of making wiring arrangements. It was decided to install point-to-point antennas capable of remoteizing the communication of the backbones to a single data acquisition point: eSolar PV PARK.

## SINAPSI ROLE

### PV System monitoring

Sinapsi's eSolar PV PARK system was chosen for monitoring performance, production efficiency and remote management and maintenance. In addition to production efficiency aspects, the eSolar PV PARK system monitors environmental parameters:

No. 2 Class II pyranometers

No. 2 photovoltaic panels temperature probes

N°1 weather station (wind speed, Ext. temp., rain presence)

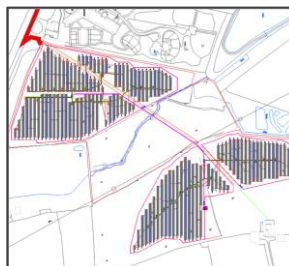
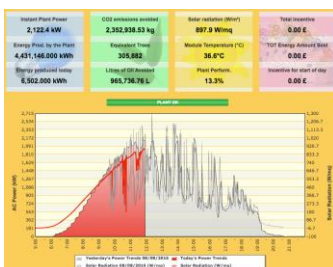
N°1 technical local temperature

The remote backbones have been interfaced via RS485 to TCP-IP gateway, then routed to a dedicated Tx/Rx antenna. The production meter, installed near the monitoring system, was interfaced with a suitable optical probe and relative RS232 to TCP-IP gateway.

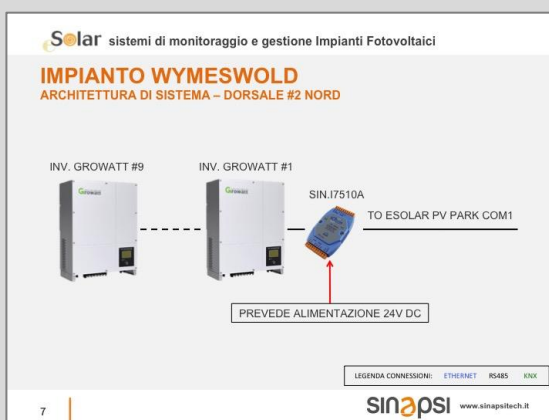
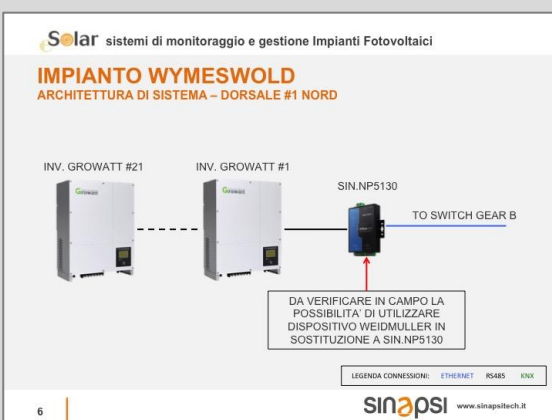
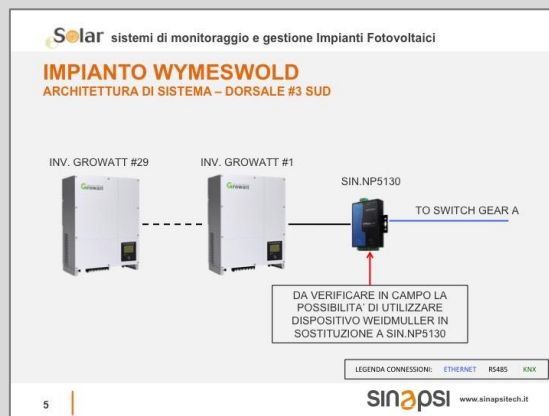
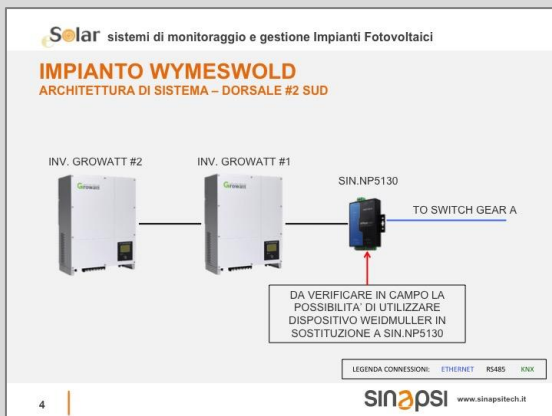
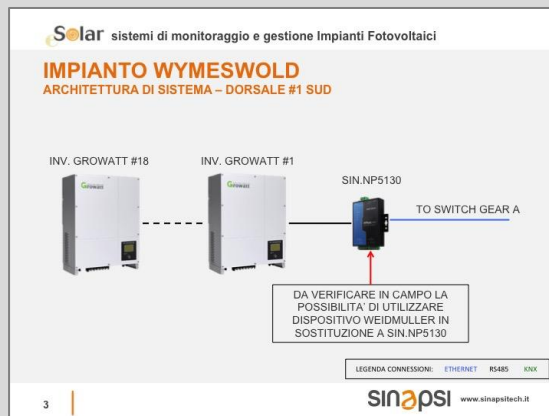
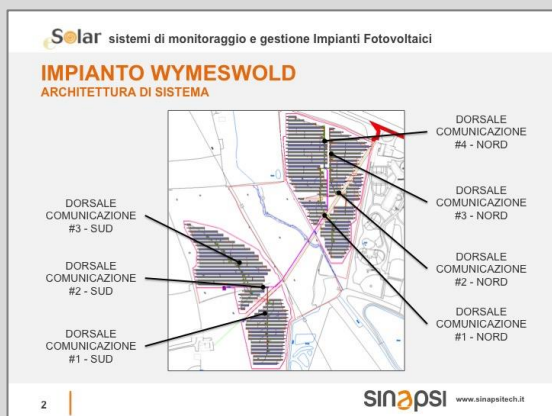
Thanks to dedicated KNX components, "dry contact" type alarm signals are interfaced in the main technical room (interface protection triggered), as well as remote actuation control.

## MONITORING SYSTEM

- Monitoring of 103 inverters installed in the field with RS485 communication
- Real time and daily production data reading
- Production meter monitoring via optical interface with communication via RS232 to TCP-IP gateway
- Monitoring of module temperature sensors, solar radiation (pyranometers), ambient temperature, wind speed, rain presence
- Point-to-point wireless communication between SOUTH area (No. 3 backbones with remote inverters via RS485 to TCP-IP gateway) and NORTH area (No. 4 inverter backbones converted for convenience via RS485 to TCP-IP gateway).
- Alarm status acquisition and remote control of users via KNX bus

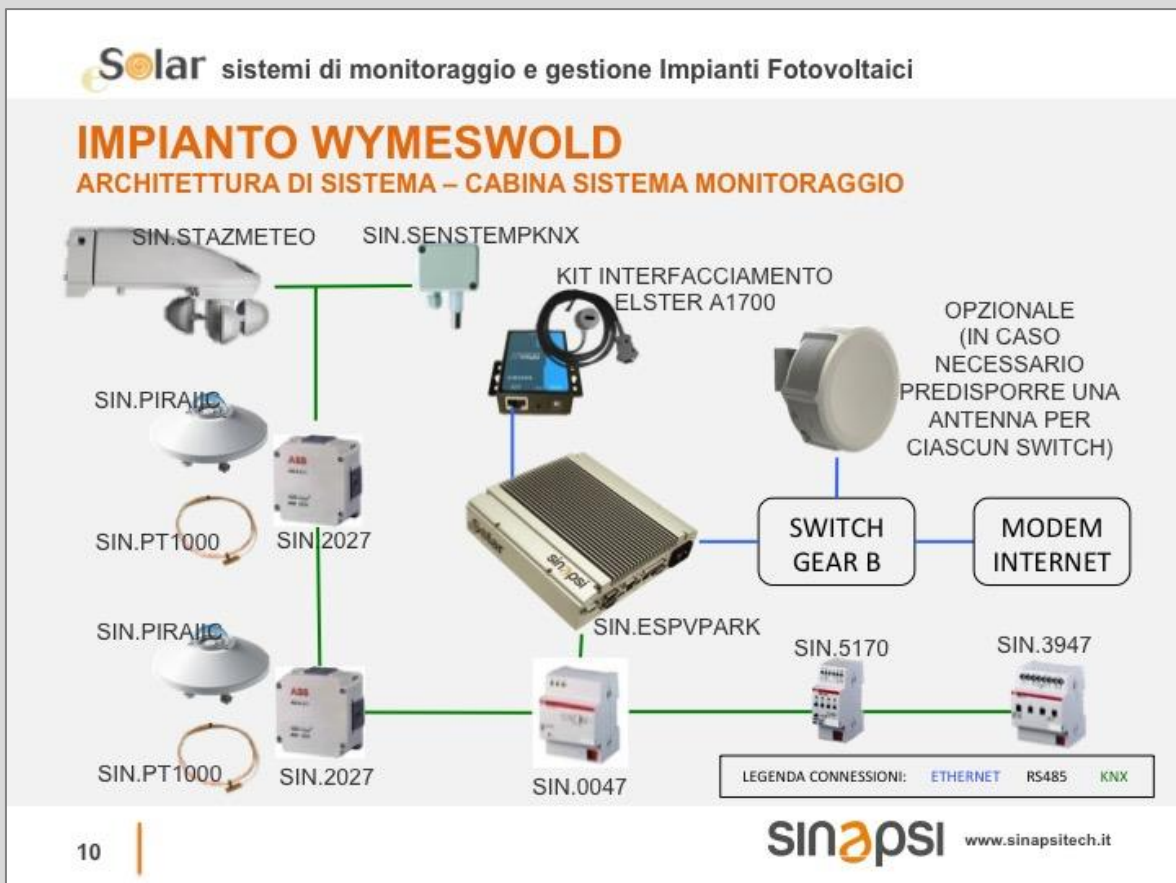
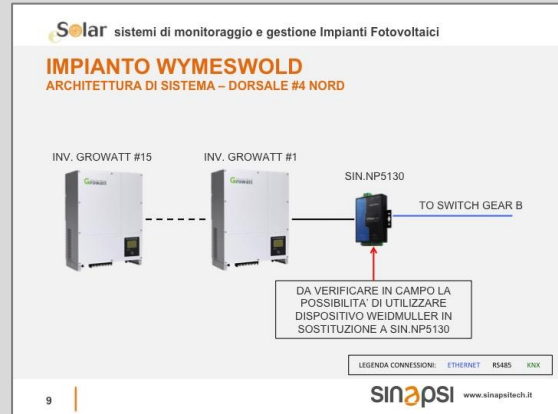
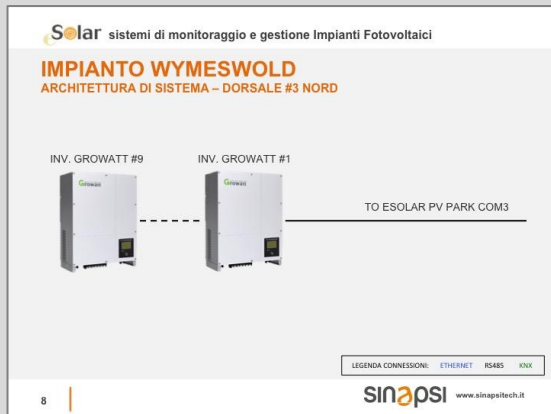


## SYSTEM ARCHITECTURE - 1



WYMESWOLD 4.12MW plant monitoring system architecture

## SYSTEM ARCHITECTURE - 2



WYMESWOLD 4.12MW plant monitoring system architecture

## PHOTO GALLERY

TODAY'S INSTANT VALUES 09/08/2016 LAST SAMPLE TIME 15:30:24									
Inverter Name	AC Voltage [V]	AC Current [A]	AC Power [W]	DC Voltage [V]	DC Current [A]	DC Power [W]	Meter [kWh]	State	CSQ
CB01A_1	421.8 • 422.7 • 425.2	39.9 • 40.3 • 40.3	9706.9 • 9829.0 • 9876.5	620.8 • 601.7	24.0 • 24.4	14858.0 • 14635.0	26229.801	OK	100%
CB01A_2	422.4 • 423.5 • 424.7	38.6 • 38.9 • 38.7	9344.2 • 9454.4 • 9458.9	605.7 • 617.1	23.6 • 23.2	14352.9 • 14191.2	26534.500	OK	100%
CB01A_3	422.3 • 422.8 • 423.5	38.5 • 37.9 • 38.5	9332.2 • 9233.4 • 9384.4	616.0 • 608.2	23.2 • 23.2	14457.3 • 13803.1	25970.699	OK	100%
CB01B_1	419.5 • 420.3 • 421.9	47.1 • 47.4 • 47.4	11471.3 • 11567.2 • 11599.9	595.7 • 596.9	29.4 • 29.6	17421.8 • 17542.7	26223.500	OK	70%
CB01B_2	420.4 • 420.7 • 420.4	47.3 • 47.4 • 47.6	11496.6 • 11531.3 • 11569.0	595.7 • 598.3	29.6 • 29.4	17629.1 • 17650.7	26220.699	OK	90%
CB01B_3	420.3 • 420.3 • 421.0	46.6 • 46.7 • 46.8	11311.4 • 11349.4 • 11386.7	598.5 • 604.4	29.8 • 28.0	17838.2 • 16921.6	25869.699	OK	90%
CB14A_1							9484	- No communication	
CB14A_2							19606	- No communication	
CB14A_3							19552	- No communication	
CB14B_1	417.1 • 418.9 • 419.8	34.3 • 33.9 • 34.4	8648.0 • 8591.4 • 8732.7	604.8 • 592.1	20.1 • 25.4	13456.4 • 16111.3	24366.000	OK	100%
CB14B_2	418.8 • 419.6 • 418.0	31.8 • 31.8 • 31.6	8295.2 • 8300.6 • 8231.5	596.2 • 589.6	21.2 • 22.6	14545.0 • 15551.9	25694.801	OK	100%
CB14B_3	419.0 • 418.2 • 419.1	28.0 • 27.7 • 28.2	6764.5 • 6659.2 • 6816.9	596.3 • 598.5	18.7 • 16.0	11185.9 • 9616.6	24827.400	OK	100%
CB15A_1							19404	- No communication	
CB15A_2							19579	- No communication	
CB15A_3							19394	- No communication	
CB15B_1	414.9 • 414.5 • 414.7	22.8 • 22.7 • 22.7	5485.6 • 5469.2 • 5474.5	597.0 • 586.0	14.0 • 14.4	8398.3 • 8660.0	26351.500	OK	100%
CB15B_2	414.2 • 413.4 • 414.4	22.2 • 22.6 • 22.6	5319.1 • 5401.3 • 5414.4	592.9 • 592.9	14.0 • 13.8	8294.7 • 8178.2	26189.500	OK	50%
CB15B_3	415.3 • 414.6 • 415.0	22.5 • 22.5 • 22.6	5383.5 • 5376.0 • 5399.1	591.5 • 584.7	13.8 • 13.8	8193.4 • 8106.5	25949.699	OK	90%

*Reading inverter parameters in real time*