

An aerial photograph of a vast photovoltaic (solar) farm in a desert region. The solar panels are arranged in neat, rectangular rows, interspersed with areas of dry vegetation and dirt paths. In the background, there are rolling hills and a clear blue sky with a bright sun in the upper right corner, creating a lens flare effect. The overall scene is brightly lit, suggesting a clear, sunny day.

SIEMENS

Efficient monitoring and control of photovoltaic plants

Plant visualization with SIMATIC WinCC

SINVERT PVS and PVM inverters

[siemens.de/sinvert](https://www.siemens.de/sinvert)

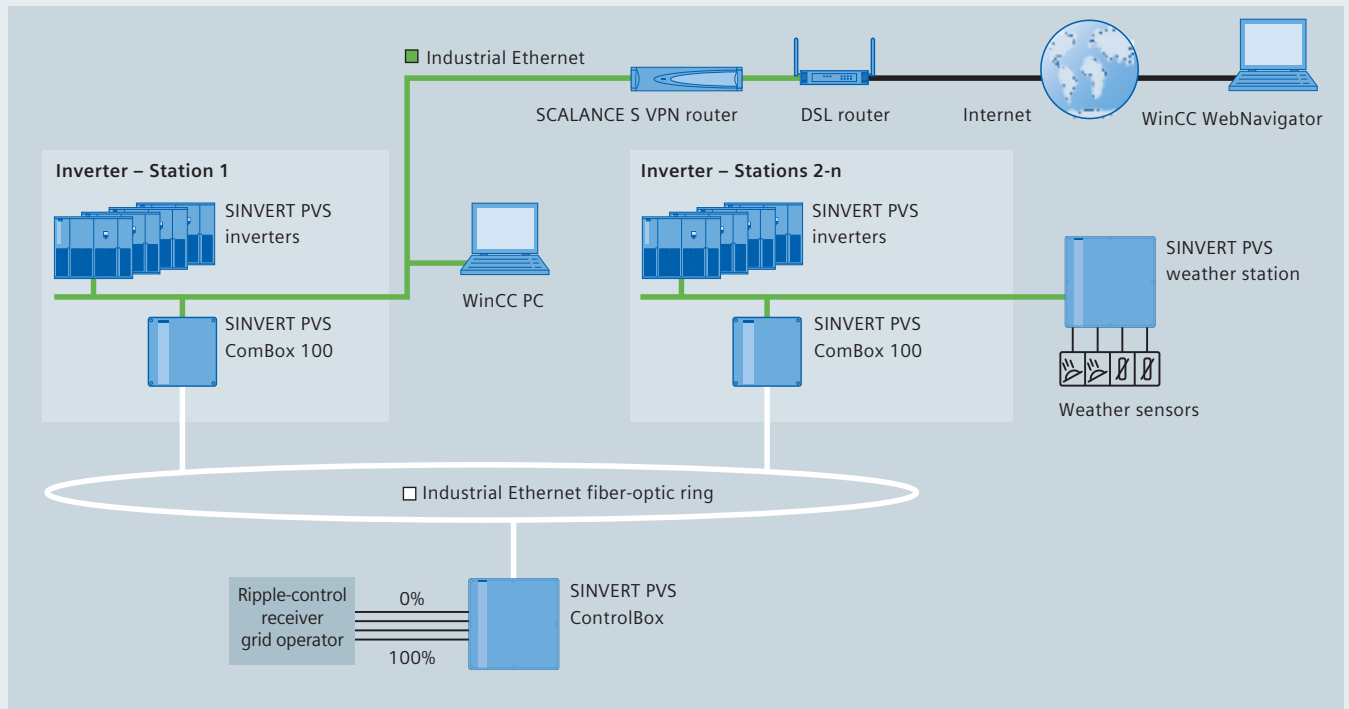


Keeping a constant watch on performance and energy yield – with SIMATIC WinCC

Cost effectiveness – with a view to the long term – is the top priority in photovoltaic plants.

For this reason, maximum availability must be guaranteed. It is also hugely important that the technical status of the overall system should be optimum at all times.

SIMATIC WinCC offers all the facilities for meeting these requirements: efficient data capture for fast, simple and low-cost monitoring of the performance and energy yield of the overall plant.



Typical configuration of a PV plant with SINVERT PVS inverters

Maximum transparency and efficient operation thanks to innovative plant visualization

SIMATIC WinCC is the optimal solution for monitoring and controlling PV plants in which SINVERT PVS and SINVERT PVM inverters are used. Our ground-breaking visualization system makes the status and the energy flow of the PV plant transparent. It is suitable for representing all possible plant data and can also be easily adapted and expanded at a later date.

Simple and efficient configuring:

Thanks to the use of a standardized PV library, customers can make adaptations by means of intuitive configuring with graphics support (drag&drop).

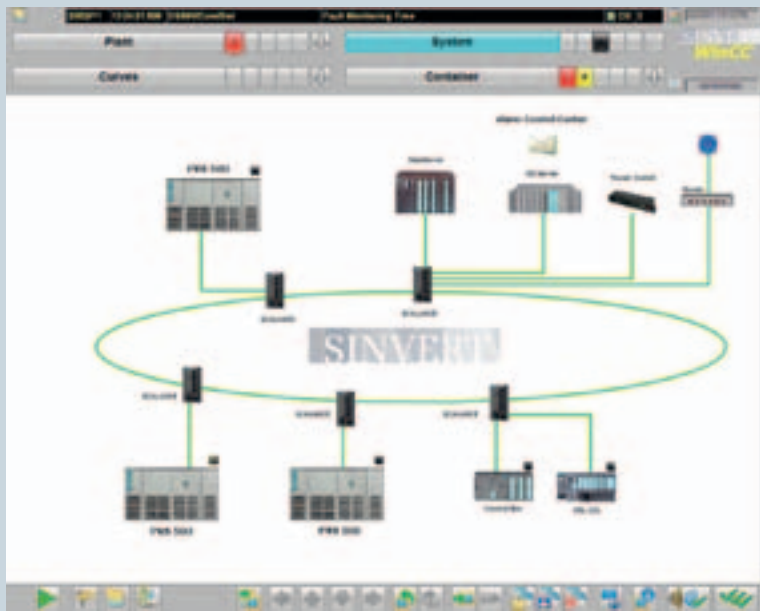
Highlights at a glance

Gap-free transparency regarding the plant status

- Input to grid
- Electrical parameters
- Performance ratio
- Faults, warnings and events (also available via SMS and e-mail)
- Ambient temperature, module temperature, insolation and other optional values such as wind speed or rain display (provided a weather station is available)
- Overall plant status, including status messages of the PV inverters and system components

Efficient operator input to the plant – even remotely

- Starting and stopping the PV inverters
- Adapting the SINVERT inverter settings
- Changing the IP configuration
- Acknowledging messages



Typical system monitoring view



Overview of meteorological data

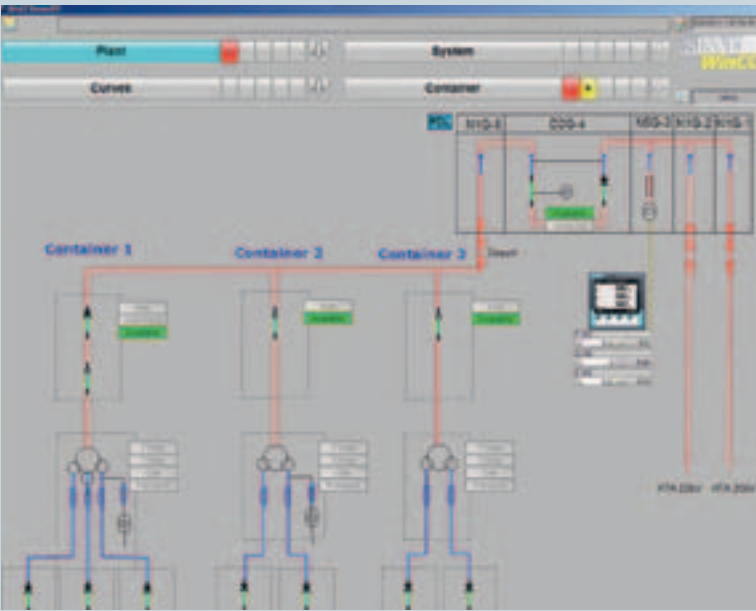
Boundless human machine interfacing – via the local network (LAN) or the Internet

Monitoring using SIMATIC WinCC can take place either via the local network (LAN) of a site or with the WinCC/Web Navigator via the Internet or the company intranet. This requires no modification of the existing WinCC project. In every case, the PV inverters from our SINVERT portfolio and the system components involved are networked together on the basis of Ethernet. Internet access is not absolutely necessary for remote access, since our solutions also enable access via GSM.

System requirements for remote access via the Internet include DSL access, Internet Explorer (V6 SP1 or higher), and a Windows 2003 Server (operating system Windows XP or 7). In this connection, the WinCC/Web Navigator enables independent access by several users simultaneously. The WinCC Premium add-on AlarmControlCenter also allows e-mail notification that can be converted to SMS.

Analyzing and editing data

If desired, you can export selected data online to a file in CSV format. This is necessary if the data is to be further edited later, using other tools such as Microsoft Excel.



Typical subplant view



Visualization of plant locations on a map

No compromise in securing energy yield – thanks to full transparency

SIMATIC WinCC is crucial if you want to significantly increase the availability of your plants: Alarms and messages facilitate fast and simple troubleshooting and error identification – thus accelerating their correction. Fault messages can be configured with maximum flexibility, and coordinated with your individual plant management, using notification by SMS or e-mail, for example.

Faults are displayed not only on the relevant tab on the message page, but also in a fault line. This is available both on the plant page and on the statistics page. This enables you to quickly take appropriate measures and thus minimize or completely avoid any losses in energy yield.

Last but not least, statistics functions facilitate the display of current and historic data in the form of trend diagrams or bar charts.

Your plants at a glance

SIMATIC WinCC not only represents the monitored plants on a map, it also visualizes entire plants, subplants, and inverters, including the associated detailed information.

- The plant view shows, for example, the insolation, energy and meteorological data, and the performance ratio for the entire plant.
- The subplant view shows the data of the inverters, transformers, and other components of this subplant.
- The inverter view shows the following information for each of the inverters connected to a transformer: the electrical data (e.g. daily, monthly, annual and total energy, active power, and rated output) upstream and downstream of the inverter, the statuses of the inverter contactors, and the operator panel of the inverter. The display of the operator panel is modeled on that of the actual inverter.

Further information

You can find an overview of our portfolio of products and services on the Internet:
www.siemens.com/sinvert

We will be pleased to respond, even personally, to any questions you may have:

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