Gantner Instruments Environment Solutions GmbH

Monitoring, control and analytics solutions for utility scale PV power plants

Gantner Instruments Environment Solutions

Zwönitz / Germany

- Monitoring, control and analytics solutions for utility scale PV power plants
- Data logger & power plant controller **Q.reader,** 100% development and manufacturing in Germany
- Monitoring and analytics software **Gantner.webportal**
- Customized R&D
- **Gantner.service**
- Certificates & quality management systems according to ISO 9001
- information security management system according to ISO 27001
- Product certificates according to e.g. VDE-AR-N 4110, VDE-AR-N 4120, VDE-AR-N 4130

Top projects in 2023-24

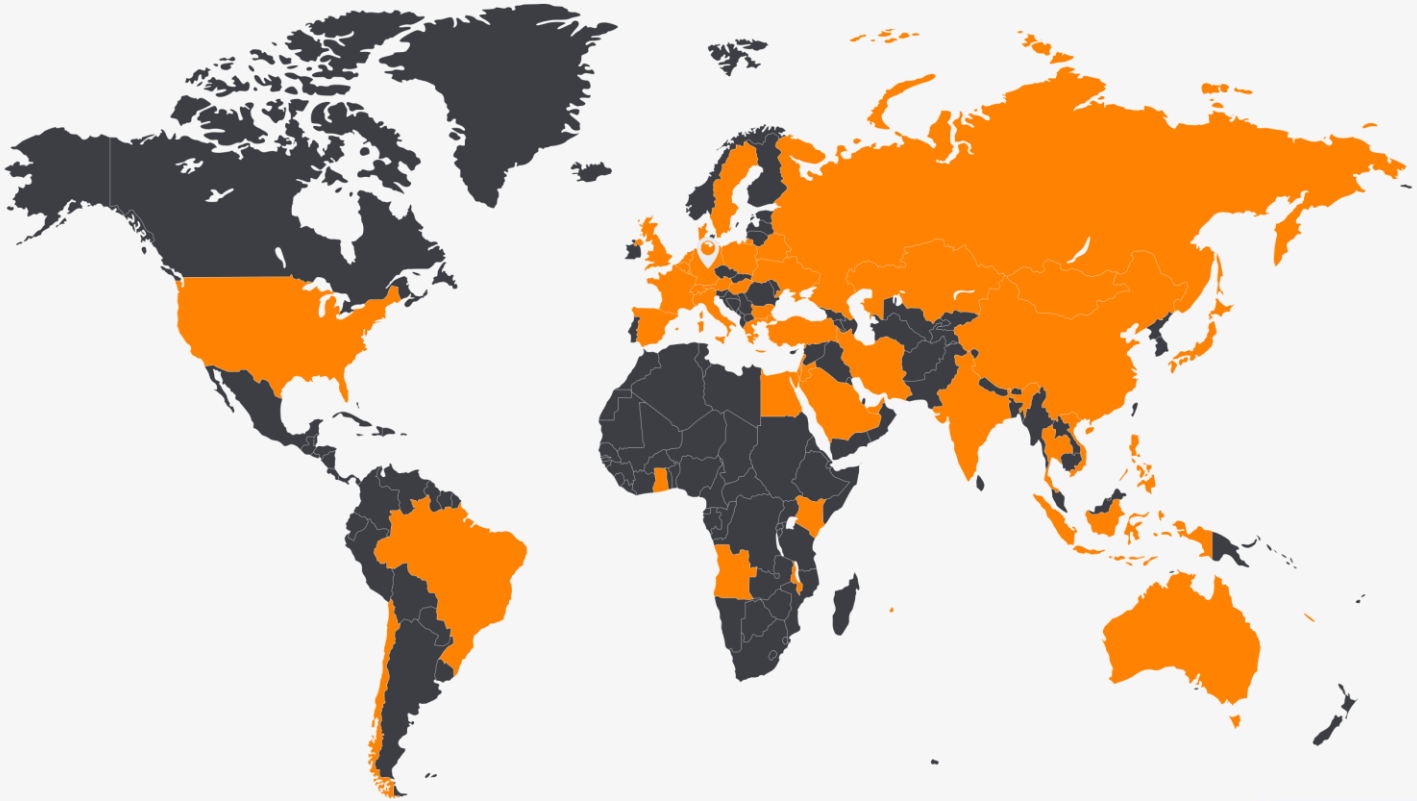
Success story

Key projects

- 650 MW largest solar park in Germany
- 500 MW largest solar cluster in Germany
- 300 MW largest solar project in Denmark
- 300 MW largest solar park in Angola
- 230 MW largest solar park in Poland
- 180 MW largest solar project in Spain
- World largest PV-diesel hybrid plan in Sudan
- 110 MW largest solar project in the Netherlands
- 110 MW largest solar project in Italy
- 1000 MW ground mounted systems in Germany

Project references in 48 countries

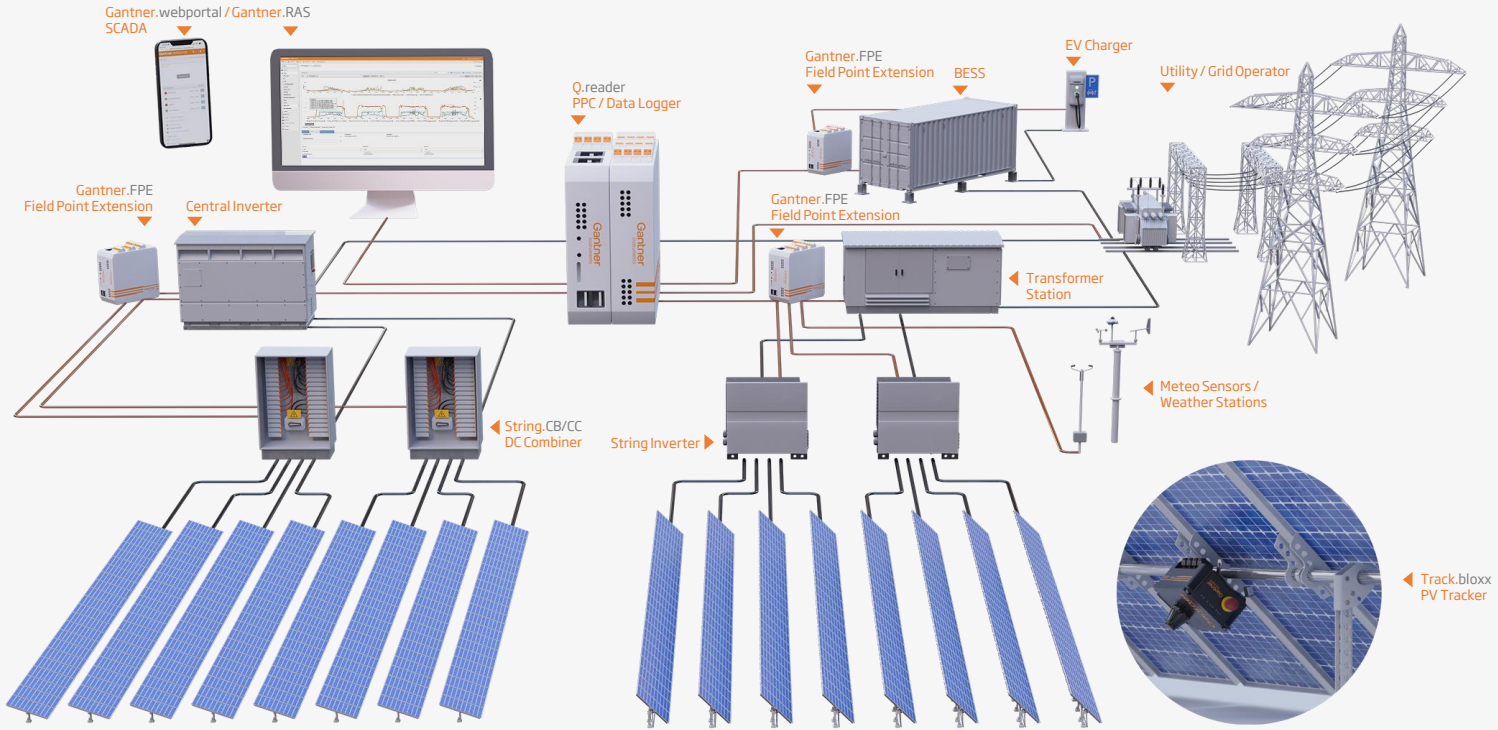
Global competence



References - PV Segment (selection, not sorted by priority)

Gantner.world

Data acquisition and control concept of utility scale PV power plants



Gantner.service ▸ Consulting ▸ Design ▸ Development ▸ Construction ▸ Engineering ▸ Commissioning ▸ Support ▸ Configuration ▸ Maintenance

Q.reader | Data Logger and Power Plant Controller “PPC”

Data logging and control unit

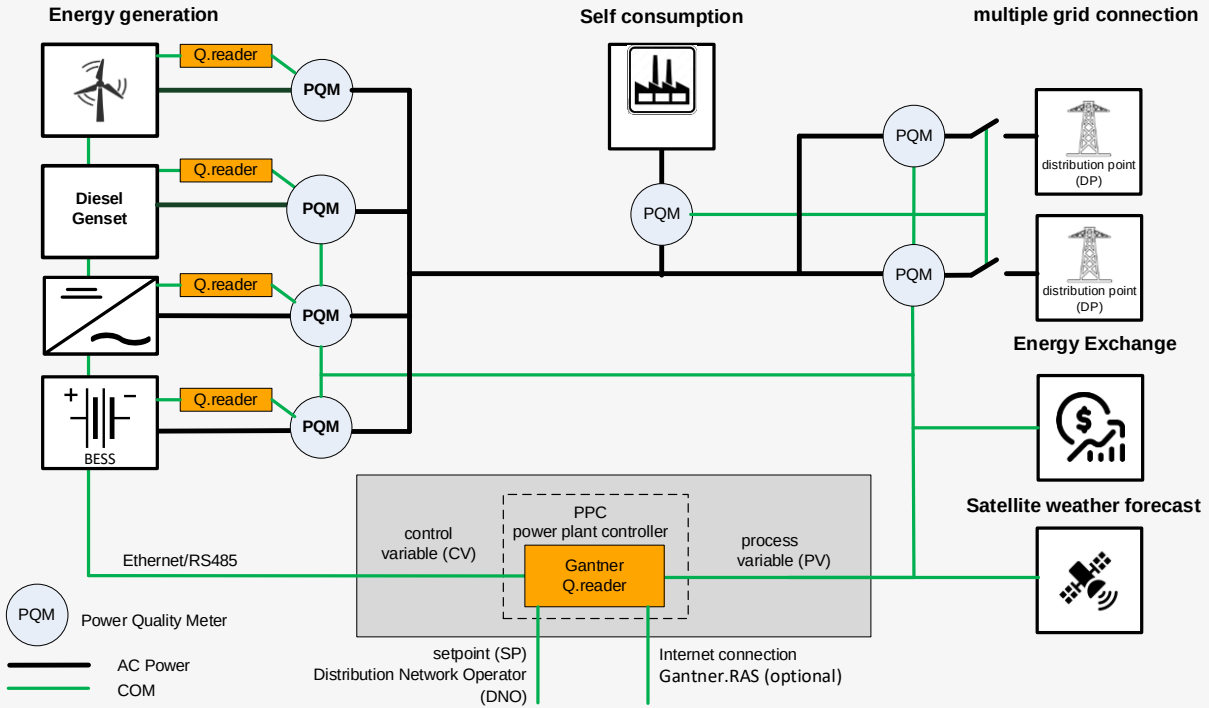
Main features

- Data logging and power plant control “PPC“
- Certified PPC VDE-AR-N 4110, 4120, 4130 for medium voltage to extra high-voltage
- Supports multiple grid connection points with up to 380kV voltage
- Supports all leading electrical grid simulation and modeling tools
- PSS/E, PSCAD, PowerFactory including EMT simulations
- Industrial fanless design with scalable Linux based system architecture
- Supports multiple industry standard communication protocols such as IEC60870, DNP3, Modbus and proprietary protocols from solar inverter, PQM and sensor manufactures
- Software platform independent configuration via web frontend
- Scalable distributed IO’s analog and digital and communication interfaces e.g., RS-485, Ethernet
- Compliant with new IEC 61724 Ed.2 “Photovoltaic System Performance Monitoring Guidelines for Measurement, Data Exchange and Analysis”
- ISO27001 information security management system

Q.reader | Power Plant Controller PPC Features

Main features

- Multi feeder, distribution point support
- Absolute production constraint
- Power gradient constrain
- Voltage and Frequency Control
- Active / Reactive /PF Power Control
- Power Factor Control
- Frequency Control
- Zero feed IN
- Self consumption optimization
- Battery Control “BESS”
- Data logging
- Browser based HMI
- Remote configuration by **Gantner.RAS**
- VDE-AR-N 4110, 4120, 4130



World largest PV-diesel hybrid power plant

The Al Shamal Cement Plant PV Power Project

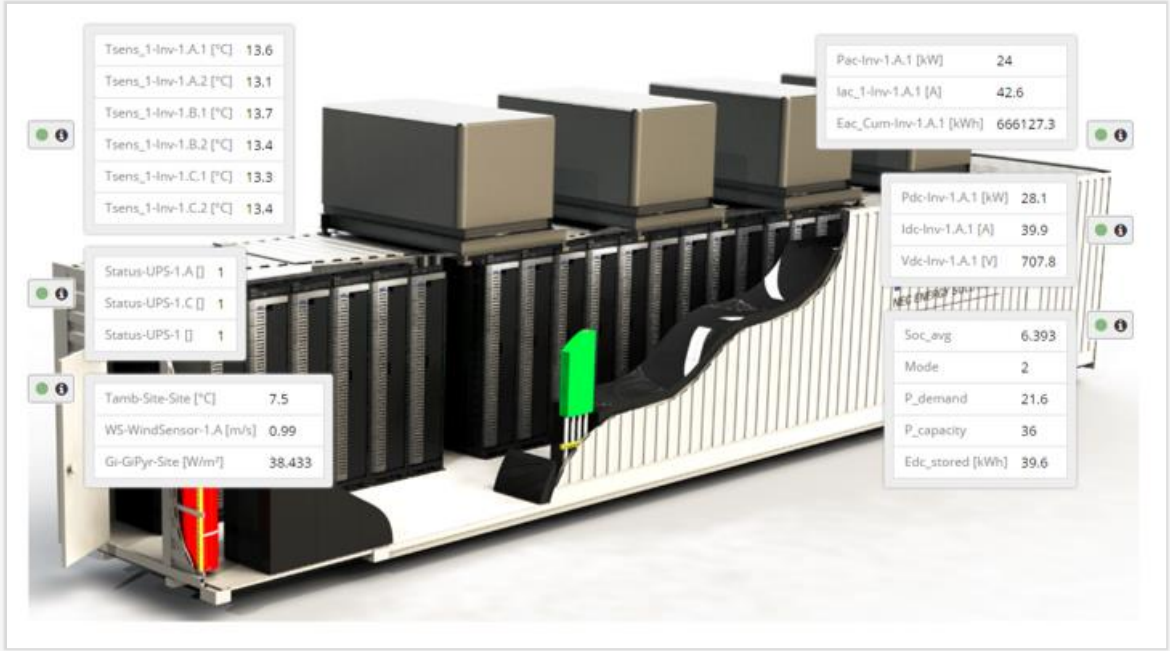
The Al Shamal Cement Plant PV Power Project isn't just a static installation; it's a dynamic ecosystem capable of seamlessly switching between pure PV mode connected to one or both connection points, and PV-diesel hybrid mode connected to one or both connection points.

- the solution includes data loggers, power plant controllers, active network technology and sensors
- 5 diesel gensets with a combined output of 18.51 MW
- PV array 54.1 MW
- two limited-capacity grid connection points
- control logic for 61 operating scenarios with Gantner PPC, ensuring the cement factory's uninterrupted and safe operation
- interactive HMI screens provide on-site personnel with real-time insight into the operation of the switchgear
- highest cyber security standards by providing tools for continuous network monitoring and health monitoring

Q.reader PPC and BESS Controller

Battery Energy Storage Solution “BESS” controller features

- Peak shaving
- Energy shifting
- Ramp rate management
- Power dispatch management
- PV power plant optimized self-consumption
- Spinning reserve
- Frequency regulation (feed-in, consumption)
- Power flow optimization
- Grid system stability improvement
- Fails safe algorithm
- Charge prevention



Q.reader cabinet

Data logging and control unit

Details

- Data acquisition and power plant controller
- Q.reader central
- IP65 enclosure
- UPS
- Battery pack
- 4G VPN Router
- Ethernet Switch
- FX (optical fiber)
- Surge Protection
- Digital Analog IOs

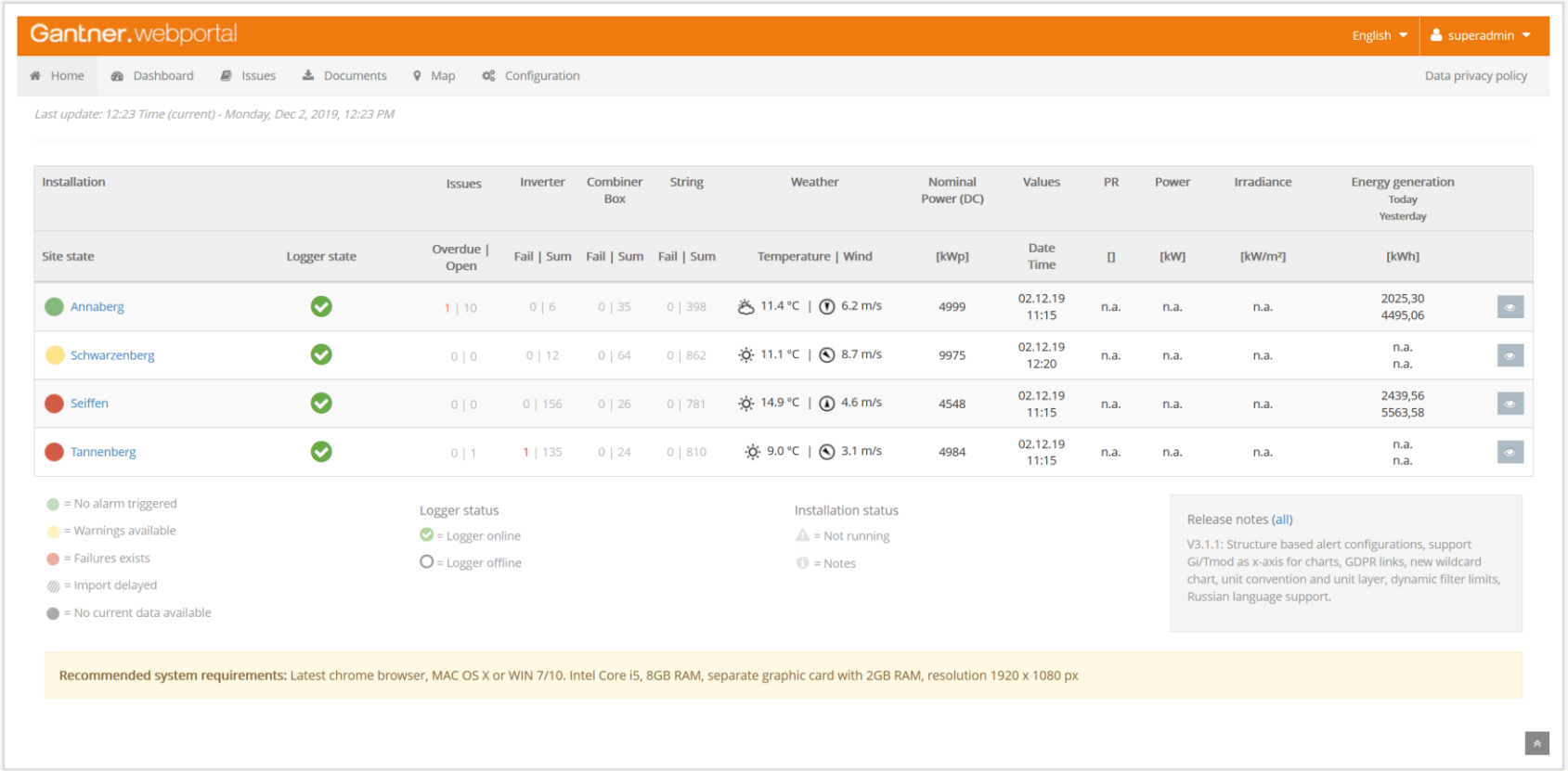
Gantner.webportal

Main benefits

- Vendor-independent PV Plant monitoring
- Digital twin with Gantner mechanistic power model MPM
- Fully compliant with international standards like IEC 61724 Ed.2
- Optimized PV production leads to increased asset value
- API for access by third party solutions
- 100% data access by customer (measured and calculated data)
- ISO 27001 based information security management system (ISMS)
- Reduced risk for owner/investor and operator
- Comprehensive Financial KPIs for Investors
- One unified platform for effective and automated PV plant management

Gantner.webportal

Plant overview and traffic light alert system



Gantner.service

Service for reliable monitoring, control and analytics of energy and ressources

- Consulting
- Customized design, construction and engineering
- Worldwide commissioning „on-site“ and via remote support
- Configuration and programming
- Maintenance
- Lifecycle management e.g. software and hardware updates
- Maintenance agreements / service level agreements
- Customer trainings

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