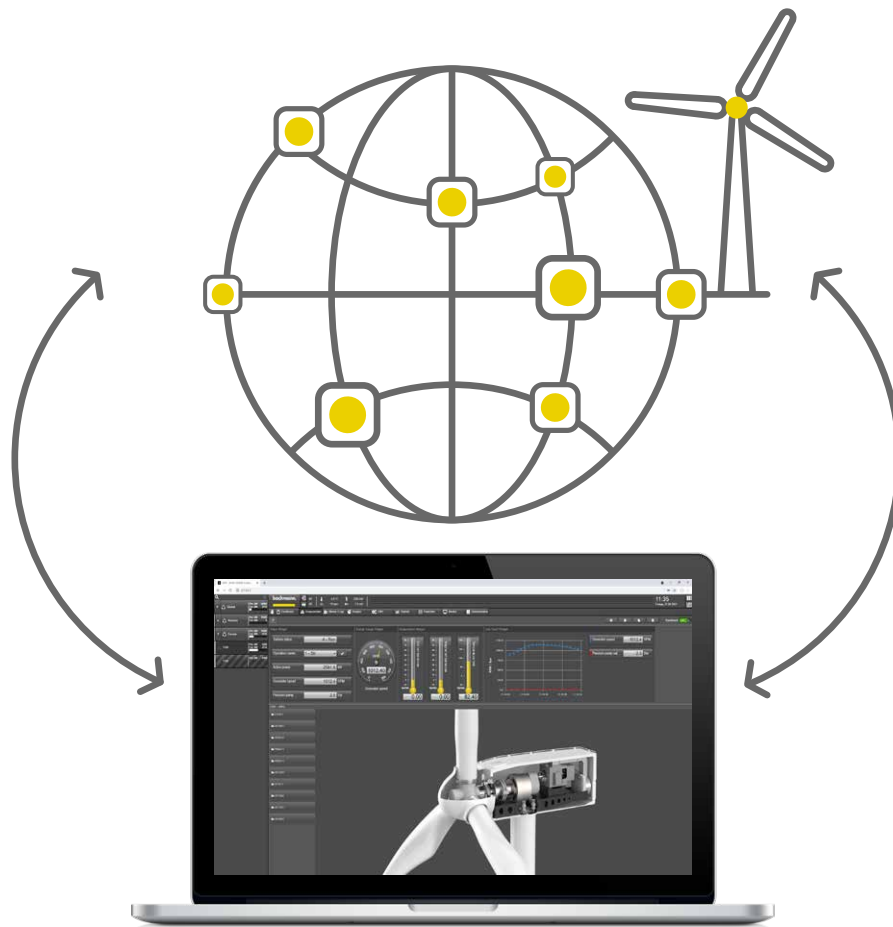bachmann.

Wind Power SCADA

SCADA system for modern wind farm control.

Designing Wind Power Efficiently

Sector-specific SCADA system for direct operation

Bachmann's Wind Power SCADA offers an easy-to-use engineering tool for wind farm projects. Maximum flexibility and openness ensure rapid implementation, good maintainability and the possibility to expand the installation efficiently. The comprehensive representation of process values according to the IEC 61400-25 interface not only simplifies internal communication but also provides external operators and energy companies with uniform access to the specific characteristic values.

Scalability

The fully browser-based visualization from WPS guarantees a perfect display on any device. The clear structure and numerous user-specific configurations within the visualization are ideally suited for single turbines as well as large wind farms.

OPC UA and IEC 61400-25

OPC UA and IEC 61400-25 Standard communication protocols provide the transparency to energy suppliers and other systems which can be monitored via the infrastructure.

Detailed analysis

The comparison of live data from different farms and turbines makes it possible to carry out an ad-hoc analysis. It also provides a range of different analysis types such as power curve, wind distribution, energy meters and switch counters in the form of graphs and/or tables.

History

Long-term data retention and compression, as well as the complete logging of user accesses and events, enable extensive and comprehensive analysis. Standardized database technology facilitates integration into third-party evaluation systems.

Flexible use

Shorter engineering, test and commissioning times thanks to object-oriented structures and complete generation on the PC.

Integration

The ISO-VDI 3834 compliant condition monitoring solution (CMS) from Bachmann Monitoring, WebLog Ticket System, as well as Bachmann's Smart Power Plant Controller are fully integrated in Wind Power SCADA.

Wind Power SCADA

Highly available automation solutions for wind power with state-of-the-art technology and many years of experience

Complete overview at any time

The development of Bachmann's open, flexible and future-oriented Wind Power SCADA system (WPS) was based on its many years of experience and knowledge acquired in the wind power sector. Using pure web technology as a basis, a wide range of different terminal devices can be used for running the SCADA system – a browser is all that's needed to access extensive and detailed information on the entire fleet.

Faster engineering to the target

The Wind Power SCADA (WPS) sector-specific system solution is a perfect addition to Bachmann's WindTurbineTemplate (WTT) turbine controller software, which provides the most important components, analyses and functions for the operational control of a wind turbine. WTT is based on the data structures of the IEC 61400-25 standard and depicts all process values using the standard compliant data area. This results in a complete generation of the object type, created automatically in WPS. The process data connection is therefore already completed and the turbine can be visualized with its components by simply using drag and drop to add the instance. This considerable reduction in development effort through the use of automatically-generated visualization components helps you to achieve your goal faster and more economically.

Field-proven technology for all areas

WPS is based on the generic atvise® scada product from Visutec, a company belonging to the Bachmann Group. Thanks to its multi-client server architecture, atvise® scada provides the ideal basis for Wind Power SCADA. Multi-lingual functionality as well as device and operating system independence complete the portfolio for keeping wind power in view from anywhere in the world. PCs, tablets or smartphones can access a Wind Power SCADA server simultaneously. The required information is scaled automatically and shown correctly on the target device.

Networking: WPS server – holisitc connection for wind turbines and park devices
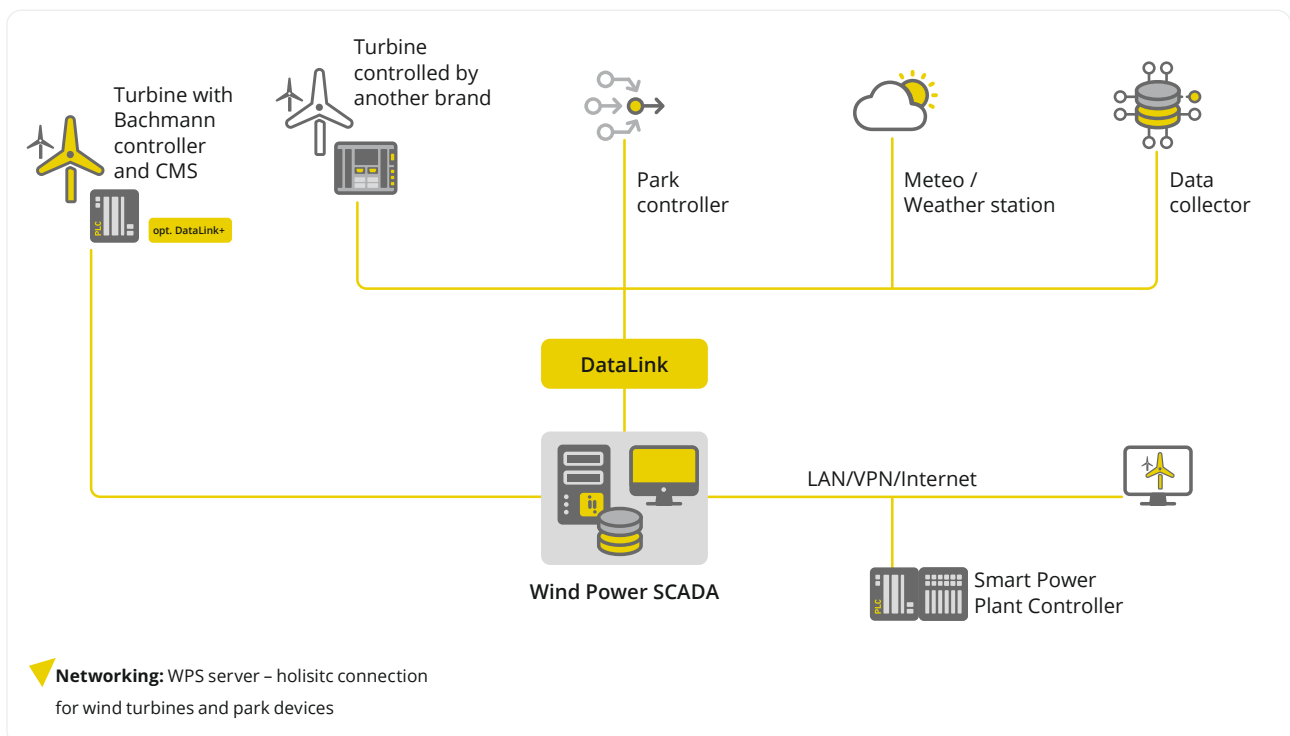
Safe operation – made easy

Bachmann WPS covers a wide range of operating levels – from the control center by using the Master WPS for cascaded system to the farm management system, right through to the individual turbine. Secure access to the turbine is ensured by means of location-dependent priorities and configurable, user-specific access permissions. A throughout logging of all activities at the turbine, as well as commands and parameter changes made via the WPS SCADA system, enables full traceability for maintenance in the event of a fault. An extensive reporting system completes the traceability required for plant operations and yield.

Standard communication via the OPC UA connection to external devices and controller systems

Using OPC UA as the communication protocol allows external devices or subsystems, such as weather or grid stations, to connect directly to the Wind Power SCADA system, provided the devices also support the IEC 16400-25 compliant structures. If this is not the case, the Bachmann product "DataLink/DataLink+" acts as a gateway and allows several other protocols such as the energy protocols in accordance with IEC 60870-103/-104, IEC 61850 or fieldbus protocols, such as Profinet, Profibus, CANBus etc., to be connected and the relevant data to be shown in WPS. To connect the turbines of multi-brand parks, also choose DataLink to integrate all data together in one sink. It maximizes the efficiency and saves time during monitoring and analysis.

Versatile Configuration

A new monitoring concept will impress users with a wide range of configuration options. Custom components with measurements, status values or commands can be created and then freely placed on a dashboard – all within the visualization and without the need for a development tool.

BENEFITS

- *Sector-specific SCADA system*
- *Use of standard OPC UA and IEC 61400-25 communication protocols*
- *High scalability, open system*
- *Live process data on all visualization levels*
- *Integrated wind farm/turbine configurator*
- *Automatic adaption of the graphic solution for PC, tablet or smartphone*
- *Standard user management for SCADA and turbine, also online*
- *Active status/access control*
- *Dashboards and Widgets*
- *Freely-configurable online reporting*
- *Online/offline trending*
- *Online language selection*
- *Alarm and data history*
- *Availability calculation acc. to IEC 61400-26-1/-3*
- *CMS WebLog Ticket System integration*
- *CMS ISO VDI 3834*

Measuring

Hierarchical structures provide a perfect over-view of the entire fleet. Freely configurable dashboards at each level ensure all important and distinctive values can be viewed at a glance. A detailed view of the turbine based on IEC 61400-25 components supplies the live process values clearly displayed.

Comparing

WPS offers the key values as status of the turbines, energy or produced power as well as meteorological data in clear and struc-tured views for the entire fleet or a single turbine. Freely-configurable diagrams allow measurements from different turbines to be displayed simultaneously. In addi-tion, power curves from all turbines can be directly compared with one another.

Analyzing

WPS offers online and offline trending, thus allowing the user to observe and evaluate live values of different turbines and wind farms in a graph. Event triggered snapshots can also be analyzed. All data and values are recorded with maximum precision and depict events on the controller at the precise time.

Operating

The IEC interface defines the sending of commands to the controller and thus to the turbine. WPS thus sends commands to the appropriate turbine, taking the access rights and the handling of the active status into account. This prevents several clients from making write accesses to the controller at the same time. This mechanism also allows any changes to be made to parameters as well as alarm acknowledgments.
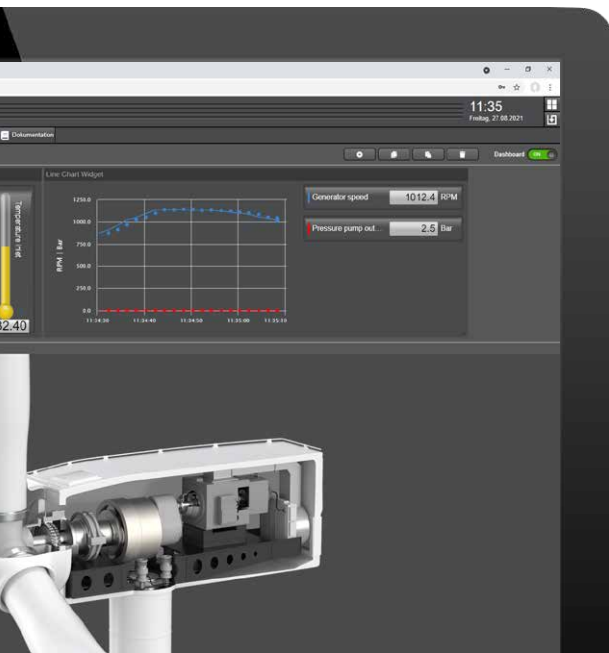
Informing

WPS integrates the Bachmann CMS according to ISO VDI 3834. This classification according to fault frequency provides useful information and can be traced with a trend diagram. It is used to provide information for the service personnel and is a useful addition to the professional CMS Remote Service. This is followed by the integration of the WebLog ticket server in WPS. Tickets created remotely can be displayed and responded to in WPS. In addition, important historical characteristic values relevant to the ticket are automatically displayed in WPS.

Archiving

A freely-configurable report generation function prepares necessary data for archiving. As an example, on-demand reports, displayed immediately in the WPS, as well as automatically generated time-triggered reports are both configurable. Report content can be created and managed individually by each user via the dashboard.

Configuring

The WPS complete generation of the turbine is processed by Bachmann's Wind Turbine Templates software package. This ensures all process data connections to the control system are already created and ready to use. Project planning for the wind farm can then be carried out in WPS via an online configurator. The user management can likewise be operated by WPS administrators from the online project.

Evaluating

The acquisition of power curves as well as wind distribution and availability values is just as much part of a modern SCADA system as the graphical or tabular display of energy and status meters. All tabular data can be exported as PDF, CSV or XLS files and thus made available for other analysis tools.

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