

PR122015

04th August 2015

Husum Wind 2015

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Beckhoff at Husum Wind 2015: Hall 5, Booth B25

TwinCAT 3 Wind Framework: Industry 4.0 is gaining a foothold in wind farms

Première: Easy engineering with TwinCAT Wind

As a highlight of Husum Wind 2015, Beckhoff will present its TwinCAT 3 Wind Framework, effectively setting a milestone in the engineering of wind turbines. The new software framework incorporates all basic functions from management through state machine, event management and database connection to simulations. It will enable manufacturers to quickly and easily program their wind turbines themselves. A ready-to-use application template reduces development time and costs and facilitates modular engineering. This not only saves work resources and cuts costs, it also reduces the time-to-market.

In the past, Beckhoff customers had two ways of programming their wind turbines: they could either develop their own application programs or make use of application support by Beckhoff. These applications have developed into the TwinCAT 2 Wind Libraries, which have established themselves many times over in successful field installations. TwinCAT 3 Wind Framework now provides a modular software package that includes all necessary functions and tools for the modern and efficient engineering of wind turbines, and allows users to quickly and easily develop their own operational management. The new framework incorporates the consolidated control expertise from the over 40,000 wind turbines around the world that have been automated using Beckhoff technology, plus experience gathered during ten years of customer-specific development in the wind

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energy sector: in addition to basic management and state machine functions, it includes software modules for event management, parameter configuration, user administration, power and Condition Monitoring as well as simulation. The integrated database connection records all necessary data in real-time and makes it available in a standard format that facilitates detailed analysis.

Modular engineering for modular wind turbines

It is already standard practice to modularise the mechanical and electrical elements of wind turbines. Along with the modular architecture of its TwinCAT 3 Wind Framework, Beckhoff now provides corresponding modular software: all basic functions in TwinCAT 3 have been implemented as TcCOM modules, which means that the functionality is encapsulated in easy-to-use function blocks that constitute a "programming kit". This not only simplifies the task of developing application software, it also makes it safer and more flexible: each of the prefabricated software modules and application templates has been tried and tested, and shown to be of high quality and future-proof. Individual software modules can be added or removed – in the same way as hardware modifications are carried out.

This makes the engineering process as simple as possible, so that developers can focus on the actual system functions. Development work can also be optimised by subdividing the team: customised modules can be developed and tested in parallel, which further reduces your time-to-market.

From Industry 4.0 to Wind 4.0.

In its TwinCAT 3 Wind Framework, Beckhoff makes consistent use of both the Industry 4.0 concept and its own experience and expertise in the wind sector. Big Data facilitates the comprehensive real-time

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collection, analysis and provision of data from Condition Monitoring and power management. All this data is continually recorded, accumulated in the central controller and evaluated.

For example, wear and tear on individual components of the wind turbine installation – which could otherwise lead to an outage – can be detected at an early stage, thus increasing the availability of the system.

Support for all common bus systems, such as EtherCAT, Ethernet and PROFIBUS, plus complete connectivity via ADS, OPC UA, live diagnostics, etc., guarantee secure vertical and horizontal communication.

The available programming languages for object-oriented, modular programming are IEC 61131-3, plus C/C++ and MATLAB®/Simulink®. In line with the Industry 4.0 concept, the engineering process is automated and the engineering tools are able to exchange data. TwinCAT 3 Wind Framework facilitates uniform and integrative engineering throughout the life cycle of your installation.

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Press picture:



Picture caption:

The TwinCAT 3 Wind Framework combines Industry 4.0 technologies with the proven Beckhoff wind industry expertise. TwinCAT Wind enables manufacturers of wind turbines to quickly and easily program their systems themselves. All important functions are integrated into one software package: from management and state machine through event management and database connection to simulation.

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Please send readers' questions regarding "Husum Wind" to:

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