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Siemens drives new advances in process bus communication for energy automation

Taking part in a joint innovation project, Siemens and the Russian manufacturer of instrument transformers, Profotech, have demonstrated the interoperability of unconventional (fiber-optic) current and voltage instrument transformers connected to digital protection devices via process bus. Siemens and Profotech are thus taking process bus communications technology in energy automation a step closer to commercial deployment. One of the greatest challenges here is to ensure interoperability so that the connected devices can also communicate together without error regardless of the manufacturer. In the case of Profotech's optical current and voltage instrument transformers, for example, the current and voltage values can now be transmitted digitally in the form of digital sampled values from the primary system via the process bus to the secondary system over the Ethernet. There they are further processed in smart terminals such as protection devices or energy meters.

The global trend toward digitalization is also finding its way into time-critical applications such as electrical power supply. However, it is only through the use of new communications processes such as process bus technology that it has become possible to ensure adequate performance in terms of availability, time response and data security. In energy automation, for example, ethernet-based communication processes have become the established "state-of-the-art" technology. The international standard IEC61850 in particular has played an important role as the communications standard for station automation because it takes all aspects relating to the power supply – such as data exchange, availability and interoperability – into account.

With ethernet-based communication, the process bus now also dominates the lower

level in energy automation, which is referred to as the process level. This means that not only messages but also the current and voltage measured values from sensors, for example current and voltage transducers, are transmitted digitally over the Ethernet to the protection device or monitoring system. In this context, the communications standards IEC61850-9-2 (Process bus) and IEC 62439-3 (PRP/HSR Redundancy protocols) form the basis for the necessary high availability and precision timing of data transmission at process level.

The trend toward greater digitalization is not only technology-driven; on the contrary, it is creating possibilities for realizing new ideas and concepts that offer more than the previously used technologies for everyone involved. This includes, for example, increased availability, greater security and lower costs throughout the entire system lifecycle. As one of the market leaders and trendsetters in the field of energy automation, Siemens is continuously working on new technologies and concepts so that power supply systems can be operated at optimum efficiency. That's why Siemens is one of the first manufacturers investing in process bus technology and driving new advances.

This press release is available at www.siemens.com/press/PR2017020174EMEN

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Contact for journalists

Dietrich Biester

Phone: +49 9131 7-33559; E-mail: dietrich.biester@siemens.com

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