Sercos in connection with OPC UA
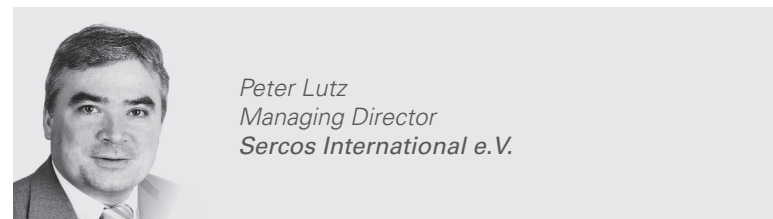
Peter Lutz, Managing Director Sercos International, talks about how Sercos connects with OPC UA.

How do you assess the future role of OPC UA in industrial production 4.0?

Peter Lutz: OPC UA plays a very important role in advancing the convergence of IT and automation technology, thus enabling the consistent exchange of information between the different control levels. From a technical perspective, OPC UA is characterized by the fact that it contains both mechanisms for data exchange and an information model which allows the structure and semantics of the information exchanged to be defined. In addition, OPC UA is standardized on an international basis and has very wide acceptance from manufacturers and users worldwide.

How will they regulate the cooperation between Sercos and OPC UA in detail?

Peter Lutz: The OPC UA Companion Specification, which was approved in November 2015, describes how the Sercos® information model is mapped onto OPC UA, making the functions and data provided by Sercos devices accessible via OPC UA. Thus, not only is data exchange between the machine components and superordinate IT systems simplified, but the requirements of Industry 4.0 with respect to semantic interoperability are also supported. The use of Sercos' multi-protocol capability is particularly interesting. This allows the OPC UA and Sercos protocols to be used in a common, uniform Ethernet infrastructure without impairing the real-time characteristics of Sercos in the process. Since protocols can coexist and are not tunneled in a Sercos network, consistent access to the machine components is possible via OPC UA even without continuous Sercos real-time communication.

Peter Lutz
Managing Director
Sercos International e.V.

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Within the framework of the machine initiative, Sercos International also cooperates with the ODVA and the OPC Foundation to mutually develop concepts for an optimization of machine integration (OMI). That initiative deals with the development of a machine information model that is mapped onto OPC UA, Sercos and CIP in order to enable protocol-neutral access to machine-related information, such as identification, machine status, diagnosis, etc.

Will the standard enable the transmission of OPC UA data in real-time or not? Is OPC UA data transmission in real-time even necessary and/or sensible?

Peter Lutz: The objective of the OPC UA Companion Specification for Sercos is to make process and device data defined in the Sercos specifications available not just locally via the Sercos real-time bus, but also via any superordinate network infrastructure via OPC UA, in an uniform and cross-manufacturer manner. In this context, real-time capability of OPC UA is not necessary, as the real-time communication is provided by the Sercos automation bus. Of course, application scenarios are possible in which a real-time capability of OPC UA is necessary, for example in machine-to-machine communication or in the linking of process-related machine periphery via OPC UA.

"Protocols can coexist and are not tunneled in a Sercos network."

How does your organization assess the coming real-time TSN Ethernet standard and what strategy does it pursue regarding it?

Peter Lutz: For the first time, Ethernet TSN makes time-controlled transmission of real-time critical messages via standard Ethernet components possible. An exciting and indicatory question is now whether and how extremely fast real-time applications can be realized with Ethernet TSN and how simple or complex use of this new technology will be.

The Sercos TSN task force, set up in November 2015, is studying the key features of the future IEEE 802.1 Time-Sensitive Networks (TSN) real-time standard, especially regarding the achievable performance (data throughput, processing times, and real-time characteristics), as well as the required network management with reference to various network characteristics. The results will then be analyzed in order to derive possible implementation and migration concepts for various application scenarios.

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