

Current State of Industrial Ethernet

Presenter:

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Brief description:

Since about ten years, Ethernet-based solutions have become popular in industrial communications. Like with the traditional fieldbus systems, there is a wide variety of mutually incompatible concepts addressing various application domains. Looking at the status of international standardization, there are even more standardized approaches than in the fieldbus era, which makes selection of the best solution for a given task even more difficult.

The tutorial intends to present an overview of industrial Ethernet solutions especially for real-time automation applications as considered by the IEC in the standards IEC 61158 and IEC 61784. The focus will be on the basic operation principles of the various approaches to give the audience an understanding of how Ethernet, which is essentially not designed for real-time operation, can cope with requirements typical for automation systems. The status of standardization will be briefly reviewed as well.

The second part of the tutorial will be devoted to practical aspects of using industrial Ethernet from an industry perspective. Key performance indicators will be introduced that attempt to make network solutions comparable, and different networks will be compared by means of concrete practical examples.

Presenter Biography:

Dietmar Bruckner works as a system architect for hard real-time industrial Ethernet-based control systems for Bernecker + Rainer Industrial Electronics since 2013. Before that, he worked, first as a research assistant, then as a University Assistant (i.e. Assistant Professor) and project manager at the Institute of Computer Technology of the Vienna University of Technology.

He started the study of Electrical Engineering in fall 1999, where he obtained an MSc in January 2004 and a PhD in January 2007. He finished his master study one semester earlier than minimum duration and passed both degrees with distinction. During study he received four merit awards from the faculty of Electrical Engineering and Information Technology and one from the state Lower Austria.

Bruckner is a Senior Member of IEEE, and an IES AdCom member and Section Austria Chapter Coordinator. He published ~70 reviewed scientific publications, and ~100 scientific publications in total. He is actively involved in organizing international conferences in various positions and editing high ranked international journals.