

The confusion of Babylon is history

New communication standards for the semiconductor industry

If you consider a semiconductor factory as a whole, it consists of a number of different systems and machines. The operator is only guaranteed optimum performance if the functions of all components are harmonized with one another. The issue of communication plays a key role in this. Communication standards, as driven forward by the SEMI standards organization for the semiconductor industry for many years now, are aimed at achieving low-cost integration of the individual systems and enabling the operator to run optimized production operations.

Two recently released SEMI standards, SEMI E54.14 (Profinet) and SEMI E54.8 (Profibus) describe modern communication strategies for equipment and facilities. Siemens was actively involved in developing these standards and is now offering compliant products for the benefit of customers.

Profinet - increased functionality with guaranteed investment protection

Thanks to successful approval of the SEMI standard for Profinet, SEMI E 54.14, which defines the use of Ethernet-based actuators/sensor buses in the semiconductor industry, the dawn of a new communication

era can now also be experienced in the manufacture of semiconductors.

Profinet now facilitates the implementation of distributed automation structures, the interfacing of decentralized field devices with the Ethernet and the operation of motion control applications. In such instances, real time applications and standard TCP/IP services, such as remote diagnostics, can be used at the same time. All Simatic products supplied by Siemens to the semiconductor industry, especially in the equipment sector, are already suitable for use with Profinet. Future additions will also be promptly integrated.

Standardized communication in the fab building sector

In the past, the operation of involved systems such as waste water treatment, ultra pure water, chemicals, gases, and HVAC has changed from being purely lo-

cally managed Facility Package Units (FPU) to a combination of (rarely) locally and (mostly) remotely run FPUs. Communication standards that allow effective data exchange between the FPUs, the Facility Monitoring and Control System (FMCS) and the MES level, were lacking in this area. This usually resulted in higher levels of effort in terms of design and construction, as well as during operation.

With SEMI F97 the first of a series of standards is now in place for the semiconductor industry. This standard specifies the requirements of the architecture, common services, data and their semantic meaning in order to integrate facility package units into the FMCS.

This standard has also already been implemented in Siemens products for the semiconductor industry. The use of concepts based on Simatic S7/WinCC and PCS 7 for fab building automation will therefore lead to a reduction in lead time and planning, as well as project execution costs for users. ■

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