.steute

WIRELESS NETWORK

The wireless **backbone** supporting communication

When automating intralogistics, the guiding principle has to be: information flow before material flow – the latter always being mobile. With a wireless network, processes are represented comprehensively and precisely at all times.

A wireless network provides transparency in assembly and production areas – a good prerequisite for extensive automation of intralogistics.

The basic concept is very simple – and yet the benefits are considerable and varied: a wireless network is spanned across the shop floor or assembly area, enabling different applications to communicate or to be controlled. In this way, all mobile units, such as pallets, containers, dollies, automated guided vehicles (AGV), autonomous robots or mobile eKanban racks can be captured in real time, facilitating the complete "illumination" of an entire production area. The steute nexy system with its many users, including in the automotive industry, is able to provide just such benefits.

What exactly is nexy? An industrial wireless network spanned across a production hall or assembly area forwards sensor data to a Sensor Bridge. The Sensor Bridge software then processes and analyses the raw data sent by the sensors. It generates a controlled event and sends it in the desired format to the superordinate software platform (ERP/ MES), facilitating uninterrupted communication from

FACT

With nexy a digital and current visualisation of all material stock emerges in line with the digital twin principle.

The new robust nexy wireless sensors create transparency for material stock in the dolly stations.

Wireless laser sensors detect the existence of pallets in the storage areas of materials stations and supermarkets.

the shop floor level to the material flow management or ERP system. At the same time, all flow data and material stock are transparent and available in the ERP system. The information is "collected" via different network-compatible wireless sensors and actors. This fulfils a key prerequisite for flexible utilisation. Preconfigured applications are available for the most common uses, permitting fast installation and configuration or adaptation to existing circumstances.

This development started with a truly "niche" application for AGV. Via the wireless system, individual vehicles can be put into a "deep-sleep" mode, for example, or "woken up" again. This has the huge advantage that vehicle batteries achieve longer lifetimes and consume less energy.

Information flow made to measure

Via wireless sensors at all the relevant locations, nexy guarantees a flow of information which is made to measure, including at the transfer points between fixed and mobile conveyors. The next application field to quickly establish itself was eKanban systems. Sensors developed especially for this application case detect the existence of containers, e.g. at an

assembly point, and manage the supply of replenishments.

The state of the art will be shown at the LogiMAT 2023 using a nexy demonstrator: an automated material requisition system which integrates different applications within one system. One typical – and already implemented – application case is the materials supermarkets used in the automotive industry.

Here, to name just one example, robust sensors in monorail tracks for dollies monitor their coming and going. At the same time, wireless laser sensors detect the existence of pallets in storage areas or the occupancy levels of large load carriers. Both of these sensors are new to the nexy range of wireless network products.

The digital twin principle

A precise, digital and current visualisation of all material stock thus emerges in line with the digital twin principle, which here has a very special function. Not only does the "twin" visualise physical material flow in the production and/or assembly without interruption and in real time, but it also makes this information available for planning and control purposes – via the Sensor Bridge as the network

Additional applications – for example control of stack lights or Andon buttons – can be integrated in an existing wireless network.

rack sensors are integrated in some eKanban applications. New sensors and actors are fast to install and "teach in", and there are hardware and software (i.e. preconfigured applications) for additional application fields. They include the integration of Andon buttons (for consignment) and stack lights (signalling columns for announcing changes in operational status) for the triggering of stop signals (via emergency pull-wire switches) along production lines.

"service manager", with a link to the appropriate WMS or ERP system.

One of the advantages of this wireless network is that it is scalable, extendable and flexible in several respects. Several thousand

The user interface is also being continually further developed and is increasingly com-fortable. For example, a new nexy app will be shown for the first time at the LogiMAT. It facilitates, amongst other things, the teaching in and managing of all components in one location, which makes initial operation much easier, particularly with large nexy installations including several hundred field devices. Users only have to scan in the ID code of the sensor or actor and then they can parameterise the sensors and actors in the Sensor Bridge from wherever they happen to be.

Author:

Andreas Schenk
Product Manager Wireless
steute Technologies

Images: steute Technologies GmbH & Co. KG