Multiple applications can exchange signals within a single wireless network.

Campus network with nexy

Same frequency for both AGV and eKanban

In flexible (serial) production, communication is increasingly remote controlled. With the steute nexy system, multiple applications such as AGV fleets and mobile eKanban systems can be integrated within a single wireless system.

In the future it will be normal to see automated guided vehicles (AGV) moving through assembly halls and materials being supplied by mobile eKanban systems, and the method of signal transmission will need to change accordingly – cabled communication will be replaced by wireless communication. But which wireless system is best suited to such a purpose? In theory, open networks

A new member of the nexy product range is an energy-efficient wireless receiver for the 48V on-board AGV power supply.

appear to have the advantage because they are manufacturer-independent. This is especially true for open low-power network standards such as LoRaWAN and Sigfox. In practice, however, standardised wireless systems are often so heavily adapted to suit the individual application that the customer once again becomes more or less dependent on a single manufacturer.

Proprietary wireless systems

Thus, the seeming benefits of a standard solution are on closer inspection often non-existent. It makes sense, then, also to take a look at proprietary wireless systems designed specifically for smart factory solutions. They have to fulfil special requirements. For example, they must be able to co-exist alongside other wireless networks, and they must facilitate signal transmission from multiple sensors communicating in close proximity – for example inside a production hall. The steute sWave.NET wireless technology has been designed specifically with such criteria in mind. Different strategies for collision avoidance mean that the wireless

systems function reliably, and that they can be combined with other wireless technologies without any interference.

Ecosystem design

On the basis of this technology, steute has developed nexy: a wireless system designed as an 'ecosystem' which can be adapted to the demands of the application in question. This is true not only at the software level, but also for the hardware infrastructure, from wireless terminal devices in the field via Access Points, Sensor Bridge and Gateway to the superordinate connected IT systems. Wireless switches and sensors from the steute Wireless range – as well as sensors from third-party manufacturers with an integrated sWave.NET wireless module – all communicate with Access Points distributed throughout the transmission zone. Each Access Point can manage up to 5,000 switches and sensors, whereby the number which can actually be managed in practice drops as the level of communication rises.

Portfolio expanded: wireless receiver for AGV

Both the software and the hardware in the nexy wireless system are undergoing further development and expansion all the time. One of the latest new features is a wireless receiver developed with AGV applications in mind. The new receiver does not require a voltage transformer for the 48V on-board power supply typically used by AGV, making its power consumption lower. In addition, switching is no longer triggered by a relay; instead, coupling to the AGV control system is taken care of by optocoupler outputs. This further reduces the power consumption of the wireless receiver, which rides pillion on the AGV.

About the Sensor Bridge

The Access Points in turn pass on the signals to a Sensor Bridge. The Sensor Bridge connects the customer applications with the wireless network and data from the wireless sensors, and it additionally facilitates administration of the entire wireless sensor network. In addition, it is a graphic human-machine interface (HMI) enabling the sWave.NET infrastructure to be configured and monitored. Other network components are a Gateway, facilitating a company-wide exchange of information and data, and an ERP connector which transfers data from the wireless network to the IT infra-structure. In addition to SAP, other software platforms are also supported, and an OPC-UA interface is also available.

A single network, multiple systems

The nexy system comprises preconfigured applications for uses such as AGV fleets, eKanban systems and mobile Andon terminals. From the user's point of view, they simplify the set-up and operation of the wireless system because fundamental functions are already programmed and only have to be configured to suit the individual requirements. Users of the

White papers on wireless networks

In two recently published white papers, steute provided a comprehensive overview of the various wireless networks available and their differences. One white paper describes selection criteria for applications in industry and intra-logistics, while the second concentrates on AGV applications. Both are available to download here:

https://www.nexy.net/de/service/whitepapers.html

wireless network can operate multiple applications with a single network infra-structure. For example, AGV can be set in motion as needed, while at the same time the material flow through the eKanban system can be managed, and mobile Andon devices can send commands to transfer goods into or out of stock. For eKanban systems, steute has developed a wireless sensor which checks whether slots within mobile racks are occupied or empty.

Alternative to standard networks

The wireless system is designed to enable users to set up and operate their own campus-style network with very little effort. The nexy system from steute is thus positioned in the marketplace as an alternative to available LPWAN-based standard wireless neworks, which should be of particular interest to small and medium-sized companies.

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