# WIRELESS RACK COMMUNICATION: OPTIMISED INFORMATION FLOW IN PRODUCTION AND LOGISTICS

Flexible production and flexible intralogistics require flexible information flow. Here the limits of cabled communication are soon reached. Wireless networks are the better choice – for example eKanban systems. The company steute has developed a wireless network for such applications which meets intralogistics requirements. Read more here.

One of the current trends in intralogistics is flexible material flow. Planners are increasingly eliminating stationary conveyor equipment. Automated guided vehicles (AGV) replenish assembly lines; smaller autonomous vehicles assume feeder functions; and small parts are supplied in mobile eKanban racks. Information flow is an issue here because cabled communication throughout the factory is no longer viable. With this in mind, steute has developed a wireless network called nexy which precisely meets the requirements of intralogistics.
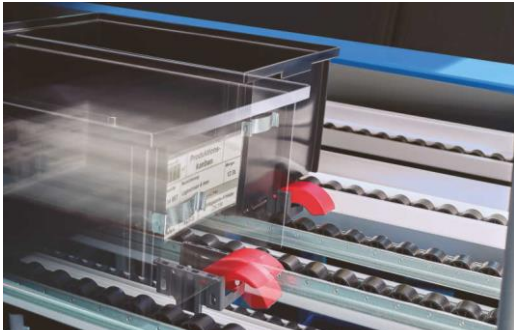
Wireless sensors register slot occupancy and communicate this to the warehouse management system via the wireless network

EKANBAN: MATERIAL SUPPLIES BY REMOTE CONTROL

eKanban racks are a major application field for nexy, and steute has developed its own software for this purpose. A typical case illustrates how it can be used: an OEM of medical equipment has equipped its assembly points with dynamic Kanban racks designed according to the FIFO principle. Whenever an assembly worker removes the front container from a roller conveyor within the rack, the ones behind it roll forward – through gravity – to take its place.

Wireless switches or sensors are installed in every slot of a rack shelf or row. They register whether a slot is occupied or whether a container has been removed, and send a corresponding notification via the wireless network to the material flow control system. Replenishments for each individual workstation are thus requested electronically – according to the Pull principle and without the need for Kanban cards.

WIRELESS SENSORS COMMUNICATE SLOT OCCUPANCY

steute has developed a wireless sensor for just such applications. A rocker switch containing a tilting sensor detects when a small load carrier (SLC) or box is removed from the shelf. A flexible mounting system enables the sensor to be mounted to the rack systems of many leading manufacturers without any need for tools. Individual settings, such as transmission intervals or the angle of inclination required for the sensor to transmit a signal, can be configured in the software.

The sensors transmit their signals to Access Points, which bundle the wireless signals similarly to routers and then pass them on via Ethernet to a Sensor Bridge. This middleware serves as an interface to superordinate IT systems – e.g. ERP, production planning (PPS) or warehouse management (WMS) systems. Communication is thus uninterrupted from the shop floor to the management level of the company IT or the Internet of Things (IoT).

This wireless communication takes place using sWave.NET, a tried and tested, industry-compatible wireless standard featuring high transmission reliability and low power consumption. It enables networks to be scaled up more or less without limits.

EKANBAN APPLICATIONS DEVELOPED BY STEUTE

The steute nexy system is perfect for eKanban. Various eKanban applications are available, reducing the level of adjustment required. For example, eKanban system configurations are available with just one sensor per row or with multiple sensors for rapid moving articles. In this way, nexy digitalises, integrates and automates the Kanban process. A dashboard clearly visualises the status of all eKanban slots at all times.

This wireless rack sensor is just one of many network-compatible switches and sensors in the steute portfolio. However, since nexy is an open system, the options are even wider: if an application demands the integration of sensors not included within the steute range, third-party sensors can be fitted with an additional sWave.NET module – facilitating unlimited network compatibility, as well as increasing the ways to use and expand the wireless network.

From the point of view of the operator, it is also beneficial that several applications can communicate via one and the same nexy infrastructure. For example, AGV can be integrated in the wireless system and individually deactivated and then reactivated. AGV operators can park individual vehicles anywhere on the shop floor, i.e. without connection to a charging station. Another intralogistics application is a wireless Andon system used to send notifications, such as to-stock and from-stock commands.

NEW FUNCTIONS: UPDATES "ON AIR"
The planning and installation of nexy wireless networks is project business and thus a new business model for steute – one of the reasons why the new brand name nexy was created within the business unit steute Wireless. The nexy development and application team is continually driving the market launch of new functions and features, e.g. an OPC-UA interface for cross-platform data exchange.

Also new is the possibility to operate the Sensor Bridge on an industrial PC (IPC) and thus to increase the reaction and processing speeds of data from the field. In addition, the latest software version enables the Sensor Bridge to communicate with the SAP system of the user, while connected nexy field devices receive new firmware updates "on air", i.e. by remote control. These updates are made available on the Sensor Bridge and then distributed throughout the local network. This guarantees with minimum effort that all terminal devices have the latest software at all times.

Author:

Andreas Schenk
Product Manager Wireless
steute Technologies

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