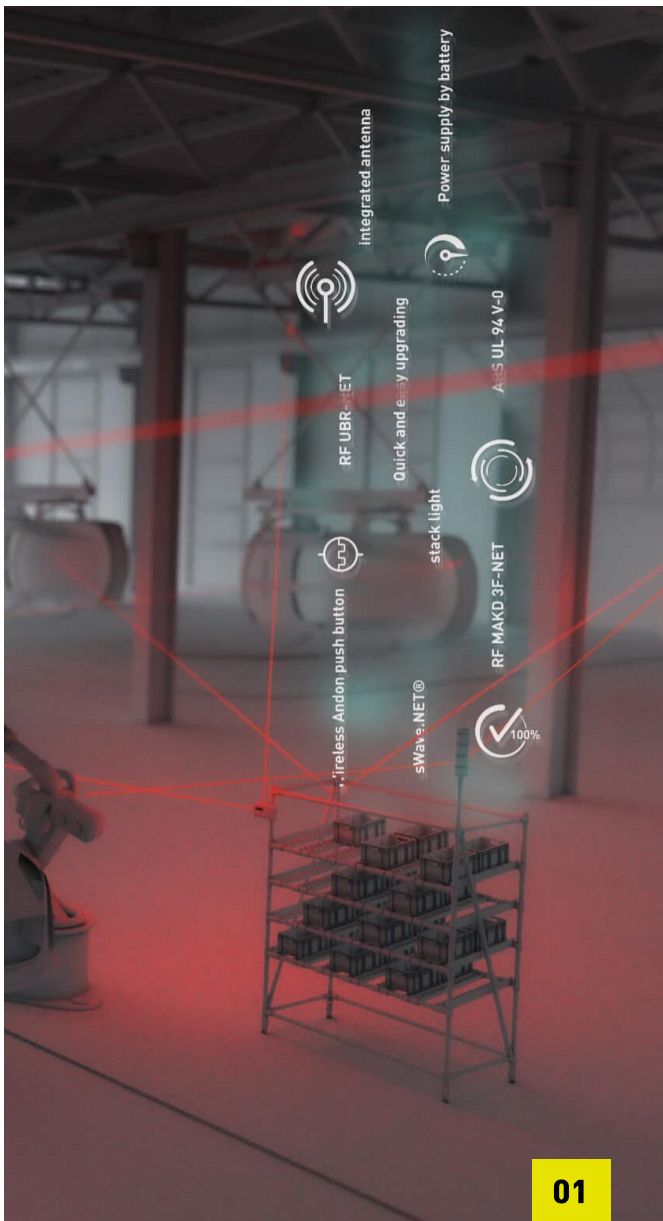




**Information flow before material flow: this is an old principle established for e.g. ERP and warehouse management systems. Practice has shown, however, that even with this principle there can still be gaps in the material supply – especially in the manufacture of variants. A wireless-based requisition system can help in such cases, and can also assume additional tasks.**

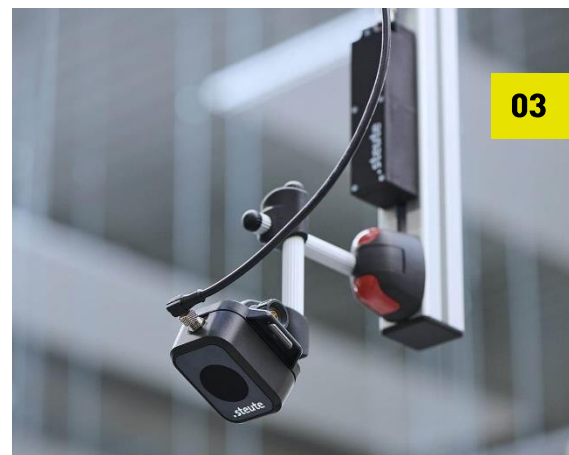
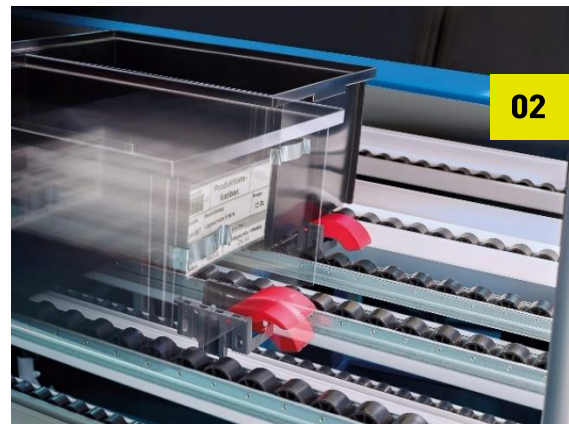
**F**or many users, dissatisfaction with the accuracy of their material flow management has been a reason to install a wireless-based automated material requisition system at the shop floor level which

can communicate in real time with their existing ERP system, PPS or WMS. The results can be summarised as follows: stock levels are managed more precisely because containers or components to be can be localised exactly and



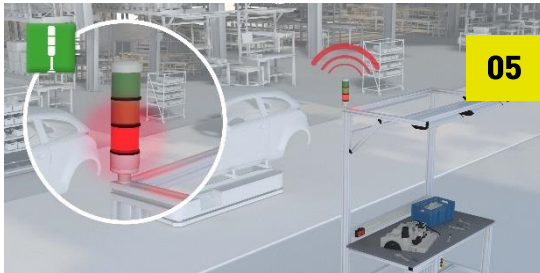
without delay. This is achieved in the steute nexy network by an "ecosystem" of wireless sensors connected to the company IT via Access Points and a Sensor Bridge.

The sensors (sometimes in conjunction with electromechanical switching devices) have been developed or adapted specifically for this task. They monitor e.g. the presence of SLC containers in flow racks and can then trigger



- 01** A wireless-based real-time stock management "to the last metre" increases the efficiency of assembly processes
- 02** Sensors detect containers in racks and transmit signals via a Sensor Bridge to the ERP, WMS or PPS
- 03** Part of the replenishment process: laser sensors monitor e.g. the presence of pallets or the fill levels of palletized goods

the supply of replenishments. Other sensor series detect the fill levels of small parts in larger containers, while others in turn monitor e.g. parking areas in consignment zones for the presence of pallets or a quantity of packages. Because the sensors transmit their signals by remote control, they can also monitor and communicate mobile locations – for example containers or components in mobile eKanban



racks, on dollies or tugger trains, or on automated guided vehicles (AGV). The result is an uninterrupted tracking of all materials, leading in practice to an elimination of bottlenecks or oversupplying, including for parts which are not inventory-managed.

#### A TRIED AND TESTED CONCEPT – DEVELOPED FURTHER

Users of this wireless network include renowned automotive suppliers, as well as manufacturers of household devices or electrical and electronic components. In some cases, several thousand wireless sensors are installed at a single location, in one or multiple nexy systems. The system is easy to configure and scalable in larger areas – and is continually expanding to include new practical functions. The latest new features will be presented by steute at the LogiMAT – "live" using various demonstrators. At the hardware level, there are e.g. long-range laser sensors for monitoring larger zones, as well as robust dolly sensors which can be mounted in the guide rails of supermarket and FiFo stations. The nexy software has gained new logic functions which facilitate improved sensor-actor communication at the field level. The corresponding

**04** The wireless network facilitates uninterrupted stock control and monitoring

**05** Additional applications can be integrated in the wireless system – for example visualisation of operational status using stack lights and warning lamps

software module docks onto the Sensor Bridge.

#### ALL-INCLUSIVE – WITH DASHBOARD FOR PREDICTIVE MAINTENANCE

Also new in the nexy system is the Predictive Maintenance Dashboard. This monitor visualises the wireless network with all its component parts both spatially and functionally. It shows the "health status" of the overall system, as well as of each individual sensor in the field. It thus helps to pinpoint irregularities and potential sources of interference and – as a consequence – avoid downtimes. This new development will all be available to see at the LogiMAT (Hall 5, Booth D61).

#### TRANSPARENCY AND CONTINUAL IMPROVEMENT

Through simple integration of the nexy automated requisition system in the IT landscape, intralogistics processes can be precisely controlled across the entire material flow and different means of transport and load carriers. Moreover, the system enables the specific data from supply chain activities to be captured and continually improved. Users can monitor all areas of the network and thus increase their efficiency and minimise their risks: the material flow simply runs more smoothly. Also beneficial in practice is that the system is simple to operate and adapt to changing circumstances via the dashboard or by app on the shop floor.

## GAUGING THE BENEFITS, EFFORT AND COST

Is installation and maintenance of an in-house wireless network worth it for the seemingly small gain of more sophisticated material requisition and improved material flow control? The answer is yes – because the effort required for the installation is low and the benefits are high. In model calculations, steute has proven that the amortisation period is short, and users have confirmed that these calculations reflect their experience in practice.

Fast amortisation, as well as additional benefits, are further provided by the fact that the nexy system has "multi-client capability". This means: a single network, including the Sensor Bridge as the interface to the company IT, can be used not only for the material requisition, but also in parallel for other applications. The sensors and actors in the field, as well as the interface parameters, are always only assigned to the appropriate "client" – i.e. the application in question. In this way, a conflict-free parallel operation of different applications and functions within one production area is guaranteed using a single, uniform infrastructure.

Practical benefits are to be had from different preconfigured applications which are easy to implement and which complement production environments with material requisition – e.g. assembly areas with variant manufacturing.

One example of such an application which is easy to integrate and use is the transfer of

materials and containers from stationary conveyors to automated guided vehicles (AGV) and vice versa. Here the synergy with the automated material requisition is very clear. But it is also possible to run independent applications – for example stack lights and warning lamps for displaying operational status, or Andon systems for wireless-based consignment with a connection to the ERP system or WMS.

## UNIVERSAL COMMUNICATION NETWORK

With "nexy", a sustainable and universal Industry 4.0 communication network has been created which is driving forward digitalisation in shop floor logistics, as well as process optimisation. This wireless sensor network solution can be flexibly integrated and offers a multitude of short and long-term benefits. On the basis of precise real time information, which is captured and visualised using innovative hard and software, users have an overview of their industrial production processes at all times and can considerably reduce their costs for intralogistics. The complete data transparency of the material flow means, in particular, that material replenishment times can be shortened, overcapacities avoided and material stocks reduced.

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Images: steute Technologies GmbH & Co. KG