



Efficient paths to automation

Reliable optoelectric sensor technology does not have to be expensive

In consequence of globalisation, increasing price squeezes and costing pressures have been making themselves felt in the automation industry for years. Designers have to take these pressures into account even in the development phase of new systems, as well as in the modification of existing ones, if they are to remain internationally competitive. Reliable sensor technology that is at the same time cost-effective has an important part to play here. In view of the flexible options of use offered, and the increasing intelligence of the sensor, the choice of the designer often falls on optoelectronic sensors.

The productivity of a plant complex is decisively dependent on the sensor technology it uses. When faced with a task involving electrosensitive detection or identification, the choice of designers today is more and more frequently falling on optoelectronic sensors, such as optical distance sensors, light barriers, light grids or laser scanners. As well as technical aspects, like the increasing intelligence and multifunctionality of the optoelectronic sensors, the mounting pressure of costs, and so the price of the device, are increasingly important factors. Quite apart from the product properties, expert knowledge of the application and technical support from the sensor supplier are significant points both for the mechanical engineer and for the user of the system.

Milchwerke Berchtesgadener Land Chiemgau eG [Chiemgau Berchtesgaden Dairy Products] is one of the companies that benefits from the flexibility of optoelectric sensor technology. At the company's Piding works, 250 employees process some 168 million kilos of raw milk annually to make quality dairy products. The company's turnover in 2004 came to 113 million euros. Following on bottled milk production (1990), Production Section II (milk cartons) was put into operation in the spring of 1998, and an ultra-modern and fully automated high-bay warehouse was opened at the same time. This logistics centre accommodates 4000 refrigerated pallet slots. In October 2003 a second high-bay warehouse, with 6000 non-refrigerated pallet slots, was completed.



Installation position of the VARIO light grid for the detection of 7 µm thick foil

After the automated loading of the europallets with dairy products, the load is fixed in place with a transparent foil, applied by a fully automated foil wrapping unit. Following on the wrapping it is necessary to have a reliable system for the detection of any foil sections, known as "flags", with a thickness of no more than ca. 7 µm. In addition, further optoelectronic sensors are active in the immediate vicinity. Light grids of the VARIO product line, supplied by Leuze lumiflex GmbH & Co. KG, were used here. Decisive considerations for the choice of these sensors were their imperviousness to external sources of light and the possibility of adjusting the sensitivity of the sensors. The latter is required when it comes to detecting the presence of "flags". The calibration



that is needed here is automatic, and can be carried out within seconds without the help of any other accessories. To achieve this, when the installation is complete and the system is switched on for the first time, a charge of +24V is supplied to an input channel of the receiver for the space of about one second. The individual strength of the various infra-red signals is determined through this calibration procedure, and is then permanently stored in an EEPROM of the receiver's electronic system.

As mentioned earlier, the quality and reliability of the sensors are among their most important product properties. Threefold quality controls, and a broad basis of installation, are arguments in favour of the use of the VARIO. This example shows that optoelectronic sensor technology can be the ideal solution, even against a background of acute costing pressures.

Last checks before approval of the VARIO light grid



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