



Industry: Warehouse & Distribution
CHEP increases the availability for pallet transport with the Reflex Array Sensor

Waldkirch/Bornem (Belgium), Tour Stop No 27 2010 - Damaged pallets have to be detected before they are sent back out into the world again. A reflex array sensor reliably detects all kinds of pallets and reduces the investment of sensors in comparison to a small light grid

Challenge: Quality Control

CHEP distributes, collects, cleans and repairs pallets and containers. Around 285 million units a year, in 44 countries.

Today CHEP has 7,700 employees, 440 service centers and 300,000 customers.

Things are extremely busy at CHEP's Belgian site in Bornem, with dozens of trucks arriving and leaving every hour, bringing in stacks of blue pallets and picking them up again. Pallets which are sorted, inspected and repaired on site, so that they can be sent back out into the world again. But the quality of all these pallets isn't the same. How do you detect damaged pallets?

Every hour the handling machine at CHEP in Bornem processes 900 pallets, in both the 1200 x 800 mm and the 1200 x 1000 mm versions. Thanks to two detection positions, both dimensions are perfectly covered. The solution had to be robust and all-seeing, so a sensor with a single light beam was out of the running: if a corner of a pallet is missing, it sees absolutely nothing. It would therefore let some damaged pallets through, and that is wholly unacceptable. For CHEP, it is out of the question to allow damaged pallets back into circulation.

A firstly installed small light grid was too sensitive against dust in the air coming from transporting the pallets. The ambient conditions were underestimated. Therefore the detection of the pallets was not efficient and caused delays in the transport of the pallets sometimes.



Customer Solution: Reliable detection of all kinds of pallets with the WL27-3 Reflex Array Sensor

The reflex array sensor has a longer scanning range and a continuous adjustment of the switching threshold in comparison to the installed light grid. But the detection height of the WL27-3 reflex array sensor is 50 mm instead of 100 mm of the light grid. CHEP's engineers mount two WL27-3 one on top of the other, so that they always detect a height of 100 mm. Such a light array can detect a pallet perfectly, even if (for example) one block of the pallet is missing. Due to the continuous automatic adjustment of the switching threshold the sensor still works perfectly after 4 months operations in that harsh, dusty environment.

Fast and easy in commissioning

The two reflex array sensors were installed very easy. Only one sensor, only one power supply connection and only one reflector. The red light array – thanks to the PinPoint LED – is visible very well on the reflector. Furthermore the alignment of the reflex array sensor is supported by an optical alignment.

Extension of reliability with the active contamination compensation

The reliability of an optical detecting system is reduced due to dust depending on the operating time. The continuous adjustment of the switching threshold keeps a constant distance between the signal and the threshold over a certain time period. This new active contamination compensation increases the availability of the reflex array sensor significantly. That means the cleaning intervals for the optical surfaces will be extended and finally the effort will be reduced.



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Benefit:

- Position-independent detection within the 50 mm light array
- The installation costs could be reduced by up to 50 %
- Optical alignment aid
- More reliable operation due to the continuous automatic adjustment of the switching threshold
- Detection of the leading edges of objects having different heights, such as pallets or packages
- Avoiding of multiple switching when a perforated target has to be detected

Thanks to its 50 mm detection height, SICK's new photoelectric sensor, the WL27-3 reflex array sensor, detects even broken pallets. Thereby it helps CHEP to increase the availability of the pallet conveyor and keeps it on that high level.