

Checkbox Compact: Orientation detection of transparent parts

FESTO



The Controls division of Diehl AKO Stiftung & Co. KG specialises in open and closed loop control for the household appliances and heating systems industry. Diehl AKO takes advantage of the Checkbox Compact from Festo for inspecting optical fibres, which represents a demanding challenge for optical inspection systems due to their transparency.

The Task:

- Orientation detection of optical fibres for a dishwasher module
- Automatic rejection of incorrectly oriented and defective parts
- Gentle handling of parts to be inspected
- Less inspection time and reduced costs in comparison with mechanical solutions
- 100% quality inspection

Solution – using the Festo

Checkbox Compact:

- Reliable orientation detection and quality inspection of transparent display components
- Extremely easy to integrate into a process via the trouble-free Festo plug & work® concept
- Economy through the use of the existing bowl feeder
- No wearing parts thanks to contactless inspection
- Reduced downtime as a result of integrated quality inspection

Checkbox Compact



The Checkbox Compact consists of a housing which comprises all the necessary components. In addition to the user interface (keys, LEDs, displays), the connectors for the electrical

connection of actuators, buffer zone sensors, diagnostics PC, voltage supply, encoder and master PLC, there is the entire imaging sensor system (optics, lighting and camera). The optical

channel underneath the Checkbox Compact is open towards the rear side, thus it can be easily integrated in the material flow.

Advantages of the Checkbox Compact at a glance:

- Standardised hardware and software system with world-wide availability
- 100% inline quality inspection
- The entire feed process is controlled without the need for an additional PLC
- Easy installation and commissioning by means of parameter configuration
- Insensitive to ambient influences
- Easy visualisation and analysis options
- Parts are learnt via the “Teach-in” process

Technical Data

Type	Compact Classic	Compact PLC	Compact Plus
Part range	Rotationally symmetrical parts/pre-oriented parts of any shape		
Length [mm]	Depends upon belt speed and required resolution		
Diameter [mm]	0.5...25		
Internal passage of optical channel [mm]	60		
Internal height of optical channel [mm]	40		
Camera resolution [mm]	6/100		
Exposure time [µs]	128...1000		
Number of part memories	1	4	12
Counting function	–	yes	
Quantity pre-selection	–	Desired quantities of good parts can be pre-selected via the diagnostics interface	
Counting range	–	1...2 billion	
Max. number of orientations	8		
Operating temperature range	–5...+50 °C		
Storage temperature range	–20...+70 °C		
Protection	IP64		
Installation site	Dry, screened from extreme external light sources, cleanest possible ambient air		



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