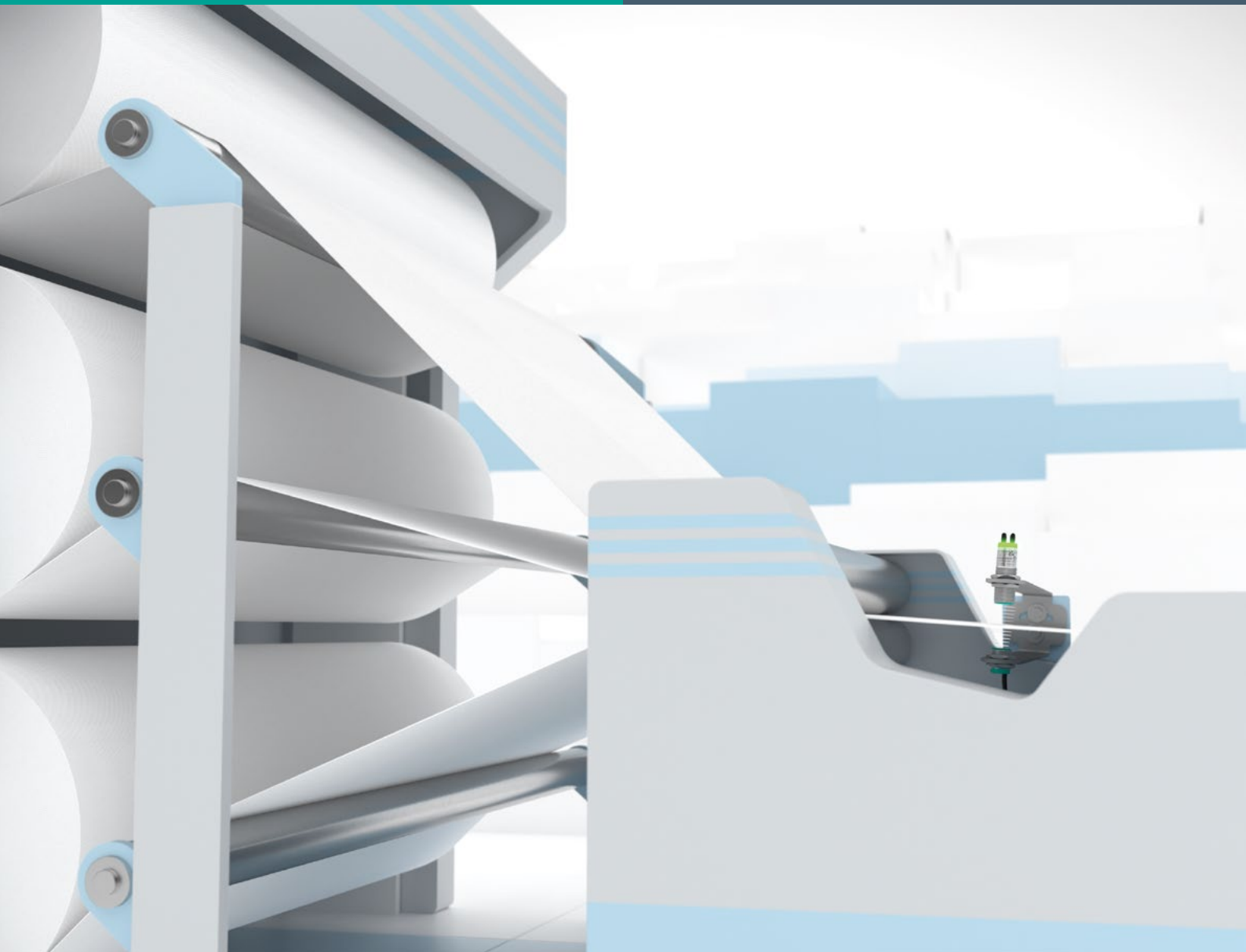


Material Detection for Multilayered Paper Products

A Single Double Sheet Sensor Is Sufficient for Reliable Detection

At a Glance

- Noncontact detection of a defined number of paper layers with just one device
- Very short reaction time in case of deviation from the required number of layers
- Simple, intuitive teach-in of the correct number of paper layers
- Detection independent of the optical characteristics of the material
- Unaffected by paper dust, or adhering contaminants



The Application

Paper towel, tissues, toilet paper, and other similar products consist of several layers of thin paper fleece. In production, each individual layer of material is unrolled from its roller. The layers are merged and usually fused together by pressing or embossing units. Heat and moisture can be used in this process step. Dry and damp paper dust is an unavoidable ambient condition in these plants. The entire process runs at a very high speed.

The Goal

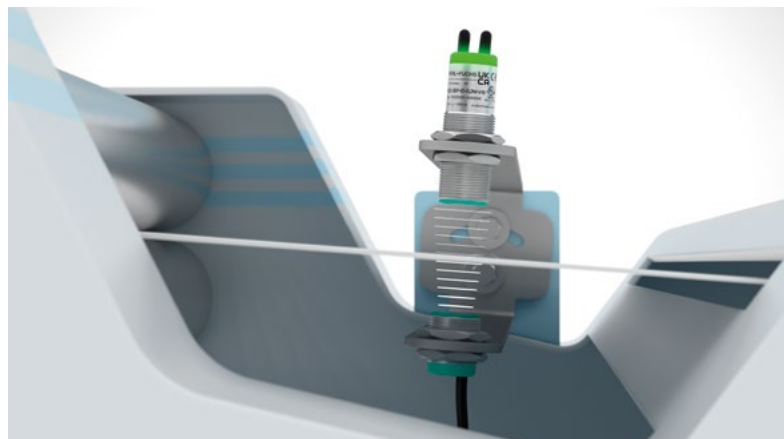
It must be ensured that the correct number of paper layers is always fed into the machine. If a web breaks, the process must be stopped immediately. In this case, a reaction rate in the lower single-digit millisecond range is required. The number of layers, their surface structure, color, or printed patterns must not impair the detection process. Contamination typical of the application due to loose or adhering paper dust must not influence the detection process. Simultaneously, stable and easy-to-adjust sensor technology is required. Given that the material is often very delicate, only a noncontact principle of measurement can be considered.

The Solution

If an M18 series double sheet sensor is used, just one device is needed for layer detection. Without any contact, the solution detects whether the correct number of layers is present and immediately signals any errors. Ultrasonic detection is not impaired by color or surface structure, or by environmental interference factors such as dust or dirt. The device can be set to the desired number of layers very easily via the teach-in function.

The Benefits

Optical sensors are often used in such applications, but they can only check one incoming web at a time. The UDC-18GS-*IO-* double sheet sensor performs this task for all webs simultaneously and independently of the optical characteristics of the material. Cabling and installation costs are significantly reduced. The device functions perfectly at very high speeds in the material feed and can react to deviations within 1.5 milliseconds. While optical sensors must be cleaned regularly, the double sheet sensor is unaffected by dust or dirt.



Technical Features

- Intuitive teach-in function
- Short reaction time of down to 1.5 ms possible
- Noncontact ultrasonic measurement
- Easy to mount
- Optimal alignment of emitter and receiver with MH-UDB01 mounting bracket
- IO-Link for diagnostics and access to process data

