Optical sensors Series FHDK 04
The smallest diffuse sensor with defined sensing distance and background suppression in the world
Diffuse sensor FHDK 04
4 x 45 x 6 mm small
and high-precision optics

Highlights

- Extremely small (4 x 45 x 6 mm)
- Defined sensing distance and highly efficient background suppression
- Small light spot (1,8 mm) permits detection of very small objects
- Suppression of interference when several sensors are used side by side
- Fixed sensing distance prevents unintentional misadjustment of the sensor
- No adjustment necessary
- Simple installation
- Compatible with IO-Link

Your benefits

- Accurate and repeatable detection of objects. Detection occurs almost independently of:
  - surface structure
  - color
- Detection of very small objects
- Reliable suppression of objects located outside the defined sensing distance
- Insensitive to:
  - ambient light
  - dirt

The details of background suppression

Diffuse sensors with background suppression evaluate the angle of the reflected light. With two receiver diodes, it is possible to establish whether the object is located within the sensing distance (T1) or whether it is an interfering object in the background (T2).

Illustration of the principle
Transfer systems
By installing the sensor directly in the extrusion frame, detection of the object carrier or other articles is protected and wastes no precious space. Mounting adapters simplify rapid installation.

Material detection
The separated material transported from the vibration conveyor is accurately detected regardless of its color, surface and soiling. The sensor is easily installed. Time-consuming adjustments such as teach-in procedures are unnecessary.

Tablet detection
Several FHDK 04s can be mounted one beside the other without interference between the sensors. Even small objects such as tablets or similar items can be efficiently detected with little space requirement.

Typical fields of application
- Transfer systems
- Handling/robotics industry
- Special machines
- Laboratory automation
- Semiconductor industry
- Pharmaceutical packaging machines

Other miniature and fiber-optic sensors
Baumer provides the right sensor solution for every application. For example, our MINOS series offers small dimensions as well as adjustable sensing distances in cable and plug variants. Numerous different combinations of fiber-optic sensors and optical fibers are available depending on the field of application.
### The most important technical properties

<table>
<thead>
<tr>
<th>Function</th>
<th>Diffuse sensor with background suppression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light source</td>
<td>Pulsed LED</td>
</tr>
<tr>
<td>Spot size (at the focus) at 50 mm</td>
<td>1.8 mm</td>
</tr>
<tr>
<td>Soiling/adjustment indicator</td>
<td>Flashing reception indicator</td>
</tr>
<tr>
<td>Interference suppression</td>
<td>Yes</td>
</tr>
<tr>
<td>Response time</td>
<td>&lt; 0.5 ms</td>
</tr>
<tr>
<td>Output circuit</td>
<td>Push-pull</td>
</tr>
<tr>
<td>Dimensions (WxHxD)</td>
<td>4 x 45 x 6 mm</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP 65</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-10...+50 °C</td>
</tr>
</tbody>
</table>

### Sensing distance 30 mm

- Sensing distance: 30 mm
- Function: Diffuse sensor with background suppression

### Sensing distance 50 mm

- Sensing distance: 50 mm
- Function: Diffuse sensor with background suppression

### Ordering information

<table>
<thead>
<tr>
<th>Part number</th>
<th>Sensing distance</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>FHDK 04G6101</td>
<td>30 mm</td>
<td>Light operate (PNP), dark operate (NPN)</td>
</tr>
<tr>
<td>FHDK 04G6101/KS35A</td>
<td>30 mm</td>
<td>Light operate (PNP), dark operate (NPN)</td>
</tr>
<tr>
<td>FHDK 04G6111</td>
<td>30 mm</td>
<td>Dark operate (PNP), light operate (NPN)</td>
</tr>
<tr>
<td>FHDK 04G6111/KS35A</td>
<td>30 mm</td>
<td>Dark operate (PNP), light operate (NPN)</td>
</tr>
<tr>
<td>FHDK 04G6102</td>
<td>50 mm</td>
<td>Light operate (PNP), dark operate (NPN)</td>
</tr>
<tr>
<td>FHDK 04G6102/KS35A</td>
<td>50 mm</td>
<td>Light operate (PNP), dark operate (NPN)</td>
</tr>
<tr>
<td>FHDK 04G6112</td>
<td>50 mm</td>
<td>Dark operate (PNP), light operate (NPN)</td>
</tr>
<tr>
<td>FHDK 04G6112/KS35A</td>
<td>50 mm</td>
<td>Dark operate (PNP), light operate (NPN)</td>
</tr>
</tbody>
</table>

### Dimension drawing

- Dimension drawing for 30 mm sensing distance
- Dimension drawing for 50 mm sensing distance

### Mounting kit

- Mounting kit diagram
- Part number: 10163196

### Mounting adapter

- Mounting adapter diagram
- Part number: 10163299

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**Baumer**

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