
 $T_w = 20 \dots 500 \text{ mm}$ 


- long sensing range
- sensing distance adjustable via potentiometer
- suppression of mutual opt. interference

#### general data

|                                     |                          |
|-------------------------------------|--------------------------|
| type                                | background suppression   |
| light source                        | pulsed red LED           |
| alignment / soiled lens indicator   | flashing light indicator |
| light indicator                     | LED yellow               |
| sensing distance adjustment         | mechanical, 10 turn      |
| wave length                         | 660 nm                   |
| suppression of reciprocal influence | yes                      |

#### sensing distance $T_w = 20 \dots 350 \text{ mm}$

|                                     |               |
|-------------------------------------|---------------|
| sensing range $T_b$ (at $T_w$ max.) | 20 ... 350 mm |
| sensing range $T_b$ (at $T_w$ min.) | 5 ... 20 mm   |

#### sensing distance $T_w = 30 \dots 500 \text{ mm}$

|                                     |               |
|-------------------------------------|---------------|
| sensing range $T_b$ (at $T_w$ max.) | 30 ... 500 mm |
| sensing range $T_b$ (at $T_w$ min.) | 5 ... 30 mm   |

#### electrical data

|                             |                      |
|-----------------------------|----------------------|
| voltage supply range +Vs    | 10 ... 30 VDC        |
| current consumption max.    | 30 mA                |
| current consumption typ.    | 25 mA                |
| voltage drop Vd             | < 1,8 VDC            |
| output function             | light / dark operate |
| output current              | < 100 mA             |
| short circuit protection    | yes                  |
| reverse polarity protection | yes                  |

#### mechanical data

|                  |                     |
|------------------|---------------------|
| width / diameter | 14,8 mm             |
| height / length  | 43 mm               |
| depth            | 31 mm               |
| type             | rectangular         |
| housing material | plastic (PA12)      |
| front (optics)   | PA                  |
| connection types | connector M8, 4 pin |

#### ambient conditions

|                       |                |
|-----------------------|----------------|
| operating temperature | -25 ... +65 °C |
| protection class      | IP 67          |

#### connection diagrams



#### connectors

|              |       |              |
|--------------|-------|--------------|
| ESG 32AH0200 | 4 pin | 2 m straight |
| ESW 31AH0200 | 4 pin | 2 m angular  |

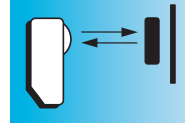
additional cable connectors and field wireable connectors, see accessories

#### accessories

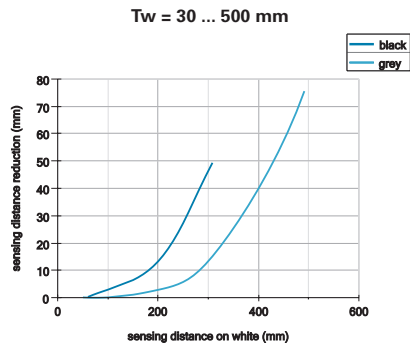
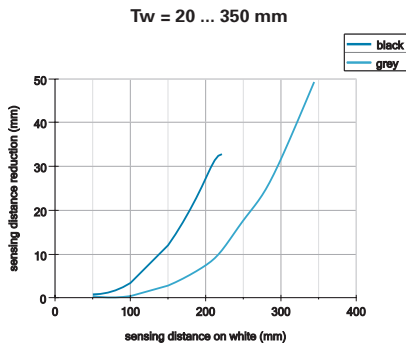
|                       |        |
|-----------------------|--------|
| SENSOFIX mounting kit | 149011 |
| mounting bracket      | 134964 |

for details, see accessories section

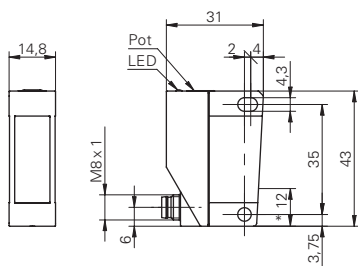
| order reference   | sensing distance $T_w$ | output circuit | response time / release time |
|-------------------|------------------------|----------------|------------------------------|
| FHDK 14N5101/S35A | 20 ... 350 mm          | NPN            | < 1 ms                       |
| FHDK 14N5104/S35A | 30 ... 500 mm          | NPN            | < 5 ms                       |
| FHDK 14P5101/S35A | 20 ... 350 mm          | PNP            | < 1 ms                       |
| FHDK 14P5104/S35A | 30 ... 500 mm          | PNP            | < 5 ms                       |



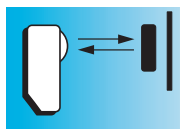
sensing distance diagram



dimension drawing



\* emitter axis



**Tw = 40 ... 200 mm**

**IO-Link**

- short response time
- sensing distance adjustable via Teach-in
- suppression of mutual optical interference



### general data

|                                     |                          |
|-------------------------------------|--------------------------|
| type                                | background suppression   |
| light source                        | pulsed red LED           |
| sensing distance Tw                 | 40 ... 200 mm            |
| sensing range Tb (at Tw max.)       | 2 ... 200 mm             |
| sensing range Tb (at Tw min.)       | 12 ... 40 mm             |
| alignment / soiled lens indicator   | flashing light indicator |
| light indicator                     | LED green                |
| output indicator                    | LED yellow               |
| sensing distance adjustment         | Teach-in                 |
| wave length                         | 660 nm                   |
| suppression of reciprocal influence | yes                      |

### electrical data

|                              |                      |
|------------------------------|----------------------|
| response time / release time | < 0,5 ms             |
| voltage supply range +Vs     | 10 ... 30 VDC        |
| current consumption max.     | 40 mA                |
| current consumption typ.     | 35 mA                |
| voltage drop Vd              | < 1,8 VDC            |
| output function              | light / dark operate |
| output current               | < 100 mA             |
| short circuit protection     | yes                  |
| reverse polarity protection  | yes                  |

### mechanical data

|                  |                     |
|------------------|---------------------|
| width / diameter | 14,8 mm             |
| height / length  | 43 mm               |
| depth            | 31 mm               |
| type             | rectangular         |
| housing material | plastic (PA12)      |
| front (optics)   | PA                  |
| connection types | connector M8, 4 pin |

### ambient conditions

|                       |                |
|-----------------------|----------------|
| operating temperature | -25 ... +65 °C |
| protection class      | IP 67          |

### order reference

|                          |     |
|--------------------------|-----|
| <b>FHDK 14N6901/S35A</b> | NPN |
| <b>FHDK 14P6901/S35A</b> | PNP |

### output circuit

### connection diagrams



### connectors

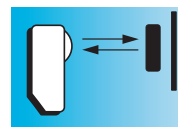
|              |       |              |
|--------------|-------|--------------|
| ESG 32AH0200 | 4 pin | 2 m straight |
| ESW 31AH0200 | 4 pin | 2 m angular  |

additional cable connectors and field wireable connectors, see accessories

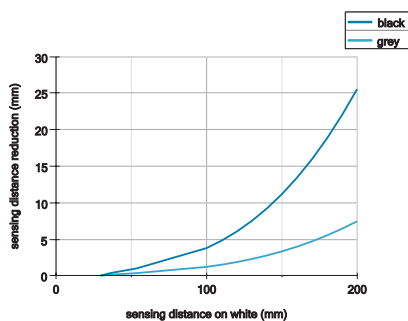
### accessories

|                       |        |
|-----------------------|--------|
| SENSOFIX mounting kit | 149011 |
| mounting bracket      | 134964 |

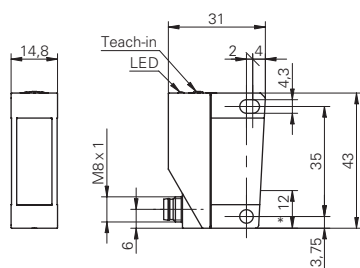
for details, see accessories section



sensing distance diagram



dimension drawing



\* emitter axis

FHDK 14 Tw = 40 ... 200 mm

Diffuse sensors with background suppression