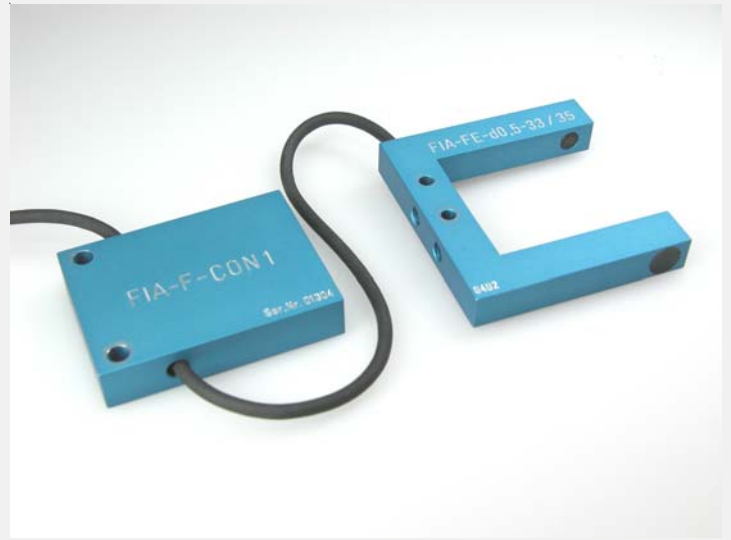


# FIA Series

## ► FIA-F-CON1 + FIA-FE-...-33/35

- Integrated electronics
- High switching frequency (typ. 300 kHz)
- Infrared light beam (IR LED 905 nm)
- Switching state indication by means of a yellow/green LED
- Dirt accumulation indication by means of a red LED
- Scratch-resistant optics
- Oil-resistant cable (PUR)
- Sturdy aluminum housing
- Compact design



### Design

#### Product name:

**FIA-F-CON1** (Electronic control unit)

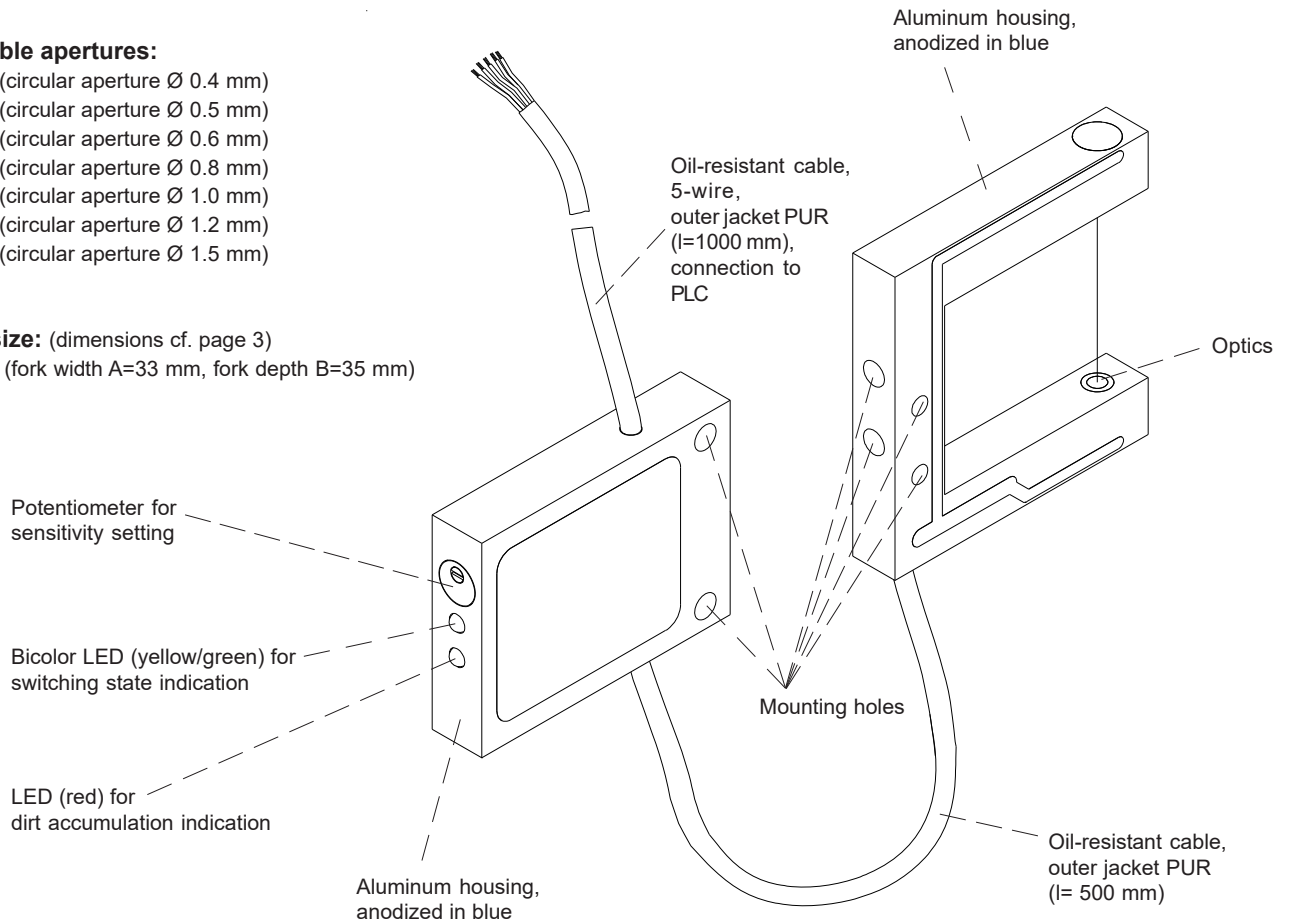
**FIA-FE-(aperture)-33/35** (Frontend / light barrier)

#### Available apertures:

- d0.4** (circular aperture Ø 0.4 mm)
- d0.5** (circular aperture Ø 0.5 mm)
- d0.6** (circular aperture Ø 0.6 mm)
- d0.8** (circular aperture Ø 0.8 mm)
- d1.0** (circular aperture Ø 1.0 mm)
- d1.2** (circular aperture Ø 1.2 mm)
- d1.5** (circular aperture Ø 1.5 mm)


**Fork size:** (dimensions cf. page 3)

**33/35** (fork width A=33 mm, fork depth B=35 mm)





**Technical Data**

| Type                        | FIA-F-CON1 + FIA-FE-...-33/35   |
|-----------------------------|---|
| Transmitter                 | IR LED: 905 nm  |
| Min. detectable object      | typ. 0.01 mm  |
| Reproducibility             | typ. 0.005 mm   |
| Optical filter              | Daylight block filter   |
| Voltage supply              | +24VDC ( $\pm 10\%$ ), reverse polarity protected   |
| Ambient light               | up to 5000 Lux  |
| Current consumption         | typ. 130 mA   |
| Aperture size               | Circular aperture $\varnothing 0.4$ mm / $\varnothing 0.5$ mm / $\varnothing 0.6$ mm / $\varnothing 0.8$ mm / $\varnothing 1.0$ mm / $\varnothing 1.2$ mm / $\varnothing 1.5$ mm                    |
| Analog output               | 0 ... +5V   |
| Switching output            | Q (pnp bright-switching = pnp n.c. / npn dark-switching = npn n.o.) and<br>Qinv (pnp dark-switching = pnp n.o. / npn bright-switching = npn n.c.)   |
| Enclosure rating            | IP67  |
| Operating temperature range | -20°C ... +70°C   |
| Storage temperature range   | -20°C ... +85°C   |
| Housing                     | Aluminum, anodized in blue  |
| Housing dimensions          | FIA-F-CON1: LxWxH approx. 50 mm x 37,5 mm x 10 mm<br>FIA-FE-...-33/35: LxWxH approx. 51 mm x 53 mm x 8.5 mm   |
| Connecting cable            | to PLC (fixed at the housing of the electronic control unit): 5-wire, outer jacket PUR, length 1000 mm  |
| EMC test acc. to            | DIN EN 60947-5-2   |
| Current output              | Max. output current with pnp-output: 2 mA<br>Max. output current with npn-output: 10 mA<br>Min. resistance to 0V (GND): 10 kOhm (with pnp-output)<br>Min. resistance to +: 2 kOhm (with npn-output) |
| Switching state indicator   | yellow/green LED  |
| Dirt accumulation indicator | red LED   |
| Potentiometer               | 3-revolutions potentiometer for gain setting (amplification)  |
| Switching frequency         | typ. 300 kHz  |



**Connector Assignment**
**Cable configuration FIA-F-CON1**  
 (5-conductor cable):

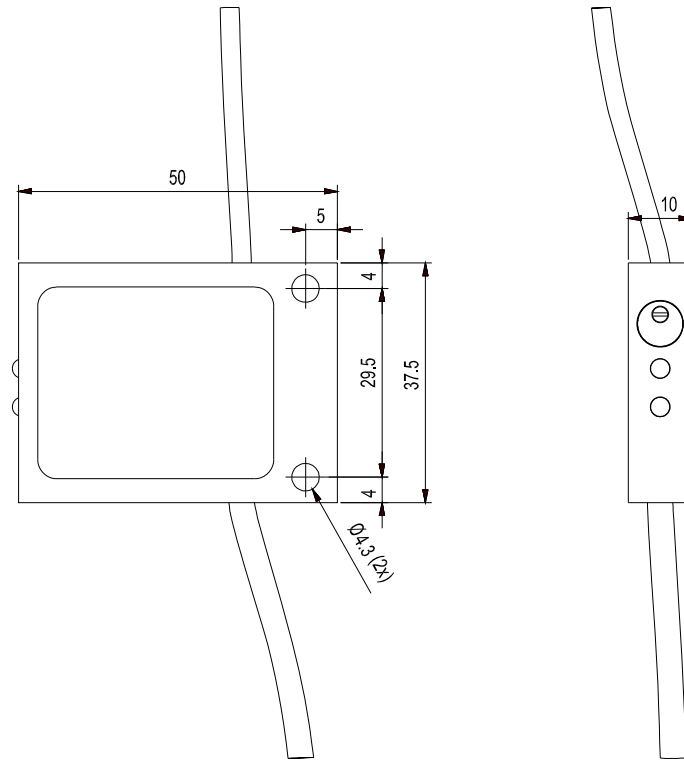
|        |   |
|--------|---|
| Color: | Assignment:   |
| Brown  | +Ub (+24VDC $\pm 10\%$ )  |
| White  | ANALOG (0 ... +5V)  |
| Blue   | GND (0V)  |
| Black  | Output Q (pnp bright-switching = pnp n.c. / npn dark-switching = npn n.o.)    |
| Grey   | Output Qinv (pnp dark-switching = pnp n.o. / npn bright-switching = npn n.c.) |



Dimensions

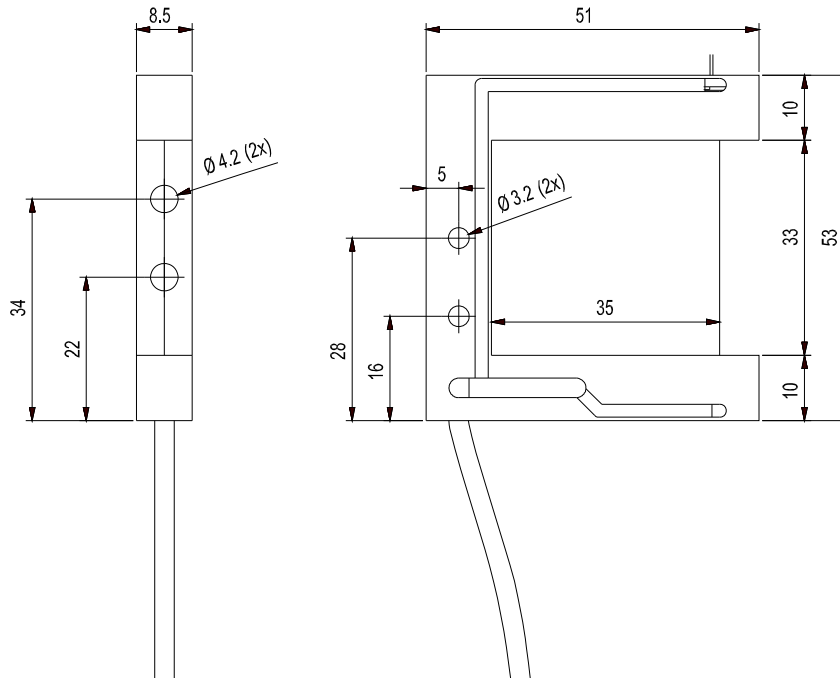
**FIA-F-CON1**

Electronic control unit

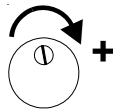


**FIA-FE-d0.5-33/35**

Frontend / Light barrier



(All dimensions in mm)



**Potentiometer for sensitivity setting**  
 Increase of sensitivity: Rotation clockwise  
 (3-revolutions potentiometer)



**LED yellow/green (switching state indication)**

LED yellow= Sensor covered  
 LED green = Sensor free



**LED red (dirt accumulation indication)**

LED red = Sensor dirty  
 LED off = No dirt accumulation

**Setting**



**Application Example**

**100% inspection of plug contacts**

100% inspection of the parts is performed during the production of punched parts. What is checked, for example, is the so-called "gap-size" (plug gap), the width of the plug contact, and its height.

A high-precision trigger light-barrier of type FIA-FE with high-switching frequency is employed in order to guarantee that these dimensions are picked up at the right time. This trigger light barrier is positioned on the so-called gauge holes of the punching strip.

