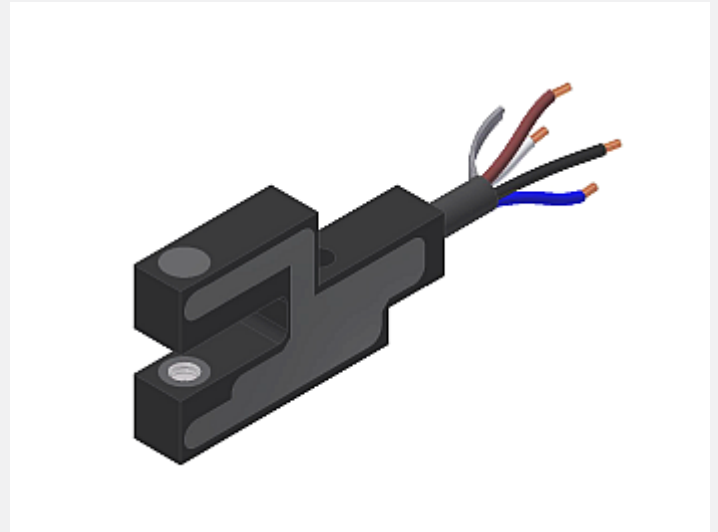


# FIA Series

## ► FIA-L-06-d0.2-...-C-RL-...

- Visible red laser light
- Class 1 laser product (680 nm, P<0.39 mW)
- Integrated electronics
- Various fork sizes available
- Laser beam typ. Ø 0.2 mm
- Insensitive to dirt accumulation, insensitive to outside light
- Optical long-pass filter
- High switching frequency (typ. 50 kHz)
- Switching state indicator (yellow LED)
- Scratch-resistant optics
- Oil-resistant PUR cable (length 500 mm or 1000 mm)
- Sturdy aluminum housing, compact design
- Also available with tool plug (TP, TPO or TPX)



## Design

### Product name:

**FIA-L-06-d0.2-(fork size)-C-RL-(length)**

**FIA-L-06-d0.2-(fork size)-C-RL-TP-(length)** (with tool plug TP-M12, s. below)

**FIA-L-06-d0.2-(fork size)-C-RL-TPO-(length)** (with tool plug TPO-01, s. below)

**FIA-L-06-d0.2-(fork size)-C-RL-TPX-(length)** (with tool plug TPO-03, s. below)

### Laser beam diameter:

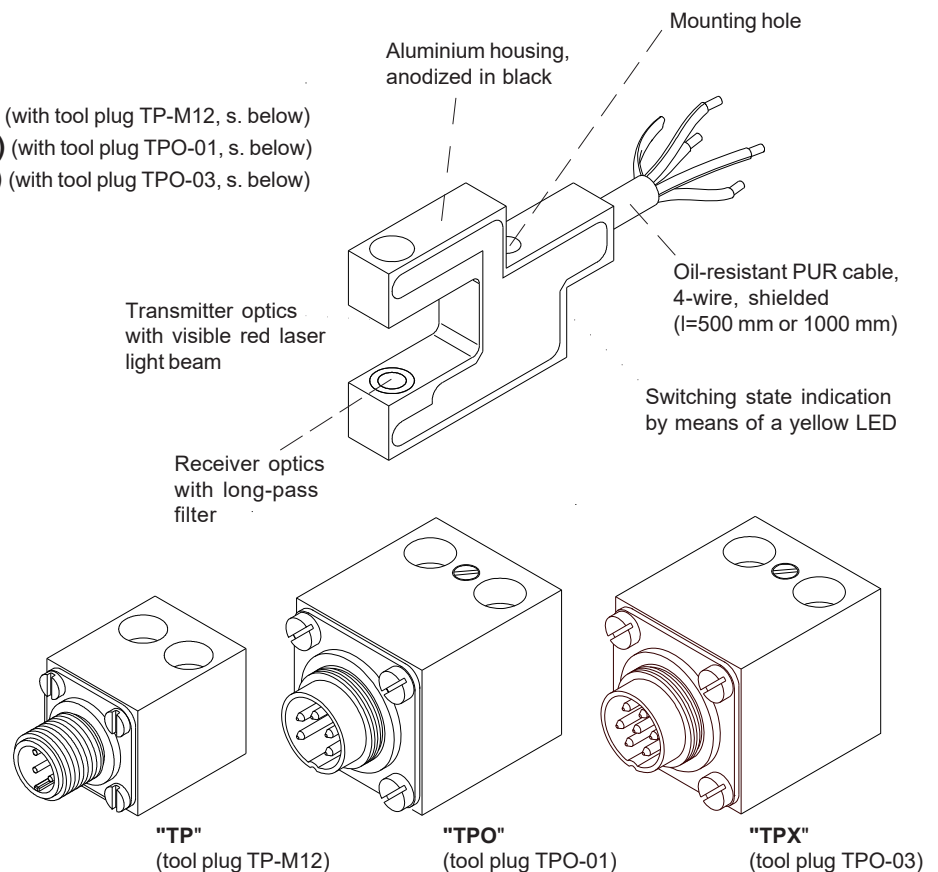
**d0.2** (Ø 0.2 mm)

### Available fork sizes: (cf. dimensions page 3)

- 5/10** (fork width A=5 mm, fork depth B=10 mm)
- 10/10** (fork width A=10 mm, fork depth B=10 mm)
- 10/15** (fork width A=10 mm, fork depth B=15 mm)
- 10/20** (fork width A=10 mm, fork depth B=20 mm)
- 10/30** (fork width A=10 mm, fork depth B=30 mm)
- 15/10** (fork width A=15 mm, fork depth B=10 mm)
- 20/10** (fork width A=20 mm, fork depth B=10 mm)
- 20/30** (fork width A=20 mm, fork depth B=30 mm)

### Available lengths:

- 500** (cable length = 500 mm)
- 1000** (cable length = 1000 mm)



### Available also with tool plug, three variants to choose from: (cf. page 4)

- TP** (tool plug TP-M12 with 4-pole M12-connector, fixed to the sensor cable)
- TPO** (tool plug TPO-01 with 5-pole connector 680, fixed to the sensor cable)
- TPX** (tool plug TPO-03 with 7-pole connector 680, fixed to the sensor cable)

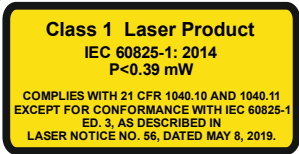
Technical Data

|                                |                                                                                                                                                                                                     |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                           | FIA-L-06-d0.2-...-C-RL                                                                                                                                                                              |
| Laser                          | Solid state laser 680 nm, DC operation, 0.39 mW max. opt. power, laser class 1 acc. to DIN EN 60825-1.<br>The use of these laser transmitters therefore requires no additional protective measures. |
| Laser beam                     | typ. Ø 0.2 mm                                                                                                                                                                                       |
| Min. detectable object         | typ. 0.2 mm                                                                                                                                                                                         |
| Reproducibility                | typ. 5 µm                                                                                                                                                                                           |
| Optical filter (receiver side) | long-pass filter                                                                                                                                                                                    |
| Voltage supply                 | +24VDC (± 10%), reverse polarity protected                                                                                                                                                          |
| Ambient light                  | up to 5000 Lux                                                                                                                                                                                      |
| Current consumption            | typ. 20 mA                                                                                                                                                                                          |
| Aperture size (receiver side)  | Circular aperture Ø 0.5 mm                                                                                                                                                                          |
| Switching outputs (2x)         | Q = pnp bright-switching (pnp n.c.) / npn dark-switching (npn n.o.)<br>Qinv = pnp dark-switching (pnp n.o.) / npn bright-switching (npn n.c.)<br>100mA, short-circuit protection                    |
| Enclosure rating               | IP67                                                                                                                                                                                                |
| Operating temperature range    | -20°C ... +50°C                                                                                                                                                                                     |
| Storage temperature range      | -20°C ... +85°C                                                                                                                                                                                     |
| Housing material               | Aluminum, anodized in black                                                                                                                                                                         |
| Housing dimensions             | see page 3                                                                                                                                                                                          |
| Cable type                     | Cable integrated in the sensor housing: 4-wire PUR-sheath, shielded, length 500 mm or 1000 mm                                                                                                       |
| EMC test acc. to               | DIN EN 60947-5-2                                                                                               |
| Switching frequency            | typ. 50 kHz                                                                                                                                                                                         |
| Switching state indicator      | by means of a yellow LED integrated in the sensor housing:<br>LED on = sensor free LED off = sensor covered                                                                                         |

Laser Information

The laser transmitter of FIA-L Series comply with laser class 1 according to EN 60825-1. Under reasonably foreseeable conditions a class 1 laser is safe. The reasonably foreseeable conditions are kept during specified normal operation. The use of these laser transmitters therefore requires no additional protective measures.

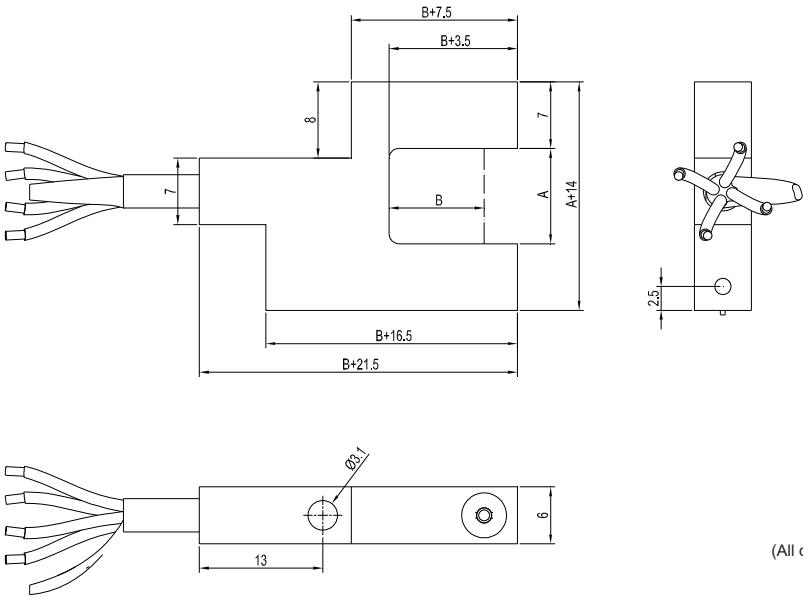
The laser transmitter of FIA-L Series are supplied with an information label „CLASS 1 LASER PRODUCT“.



Dimensions

FIA-L-06-d0.2-...-C-RL-...:

| Fork size | dim. A | dim. B |
|-----------|--------|--------|
| 5/10      | 5 mm   | 10 mm  |
| 10/10     | 10 mm  | 10 mm  |
| 10/15     | 10 mm  | 15 mm  |
| 10/20     | 10 mm  | 20 mm  |
| 10/30     | 10 mm  | 30 mm  |
| 15/10     | 15 mm  | 10 mm  |
| 20/10     | 20 mm  | 10 mm  |
| 20/30     | 20 mm  | 30 mm  |

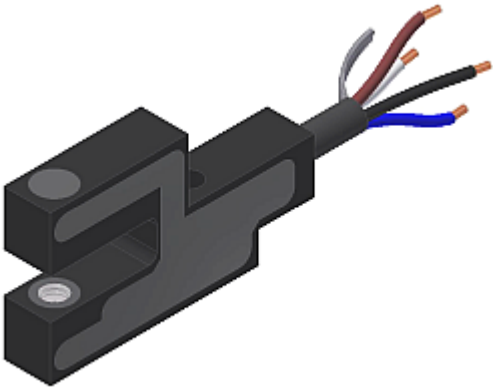


(All dimensions in mm)

Connector Assignment

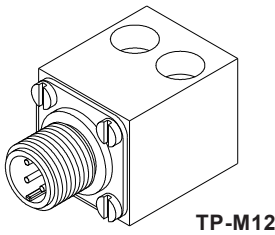
Assignment of cable wires of FIA-L-06-d0.2-...-C-RL-...  
(4-wire cable, PUR sheath, shielded):

| Color: | Assignment:                                     |
|--------|-------------------------------------------------|
| Brown  | +Ub (+24VDC ± 10%)                              |
| White  | Qinv (pnp dark-switching, npn bright-switching) |
| Blue   | GND (0V)                                        |
| Black  | Q (pnp bright-switching, npn dark-switching)    |
| Shield | Housing                                         |



Connector assignment of  
FIA-L-06-d0.2-...-C-RL-TP-...  
(with tool plug TP-M12)  
(4-pole connector M12)

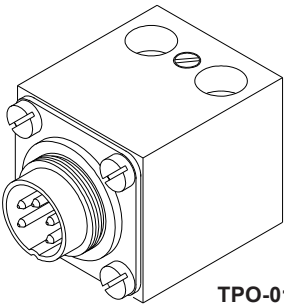
| Pin: | Assignment:        |
|------|--------------------|
| 1    | +Ub (+24VDC ± 10%) |
| 2    | Output Qinv        |
| 3    | GND (0V)           |
| 4    | Output Q           |



TP-M12

Connector assignment of  
FIA-L-06-d0.2-...-C-RL-TPO-...  
(with tool plug TPO-01)  
(5-pole connector Binder 680)

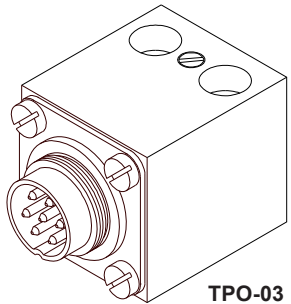
| Pin: | Assignment:        |
|------|--------------------|
| 1    | GND (0V)           |
| 2    | +Ub (+24VDC ± 10%) |
| 3    | Output             |
| 4    | n.c.               |
| 5    | Monitoring output  |



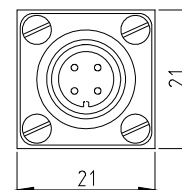
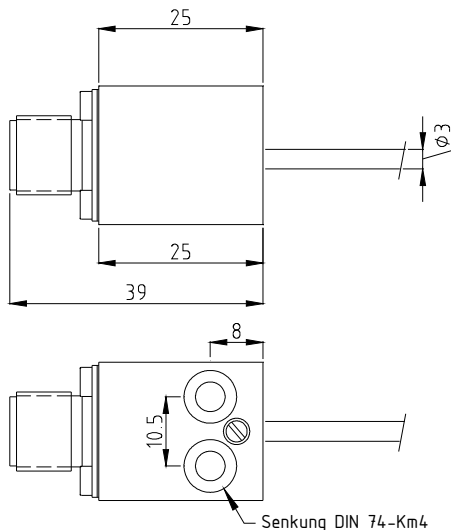
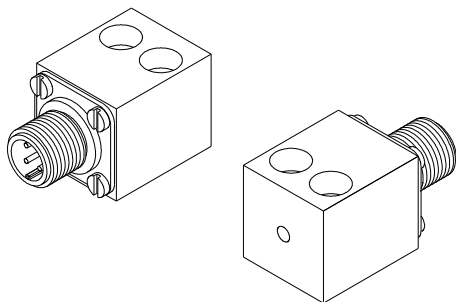
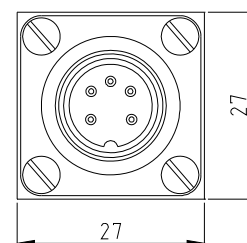
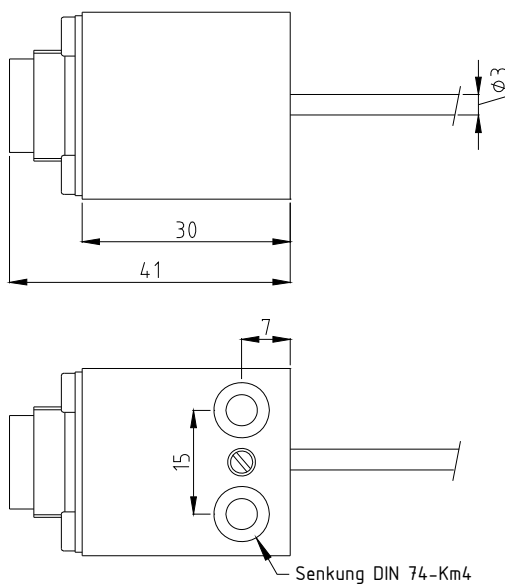
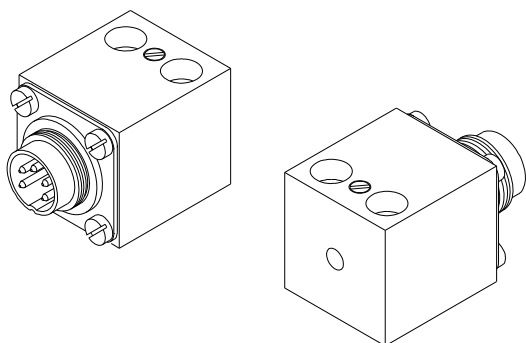
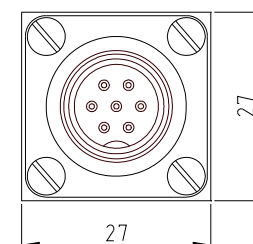
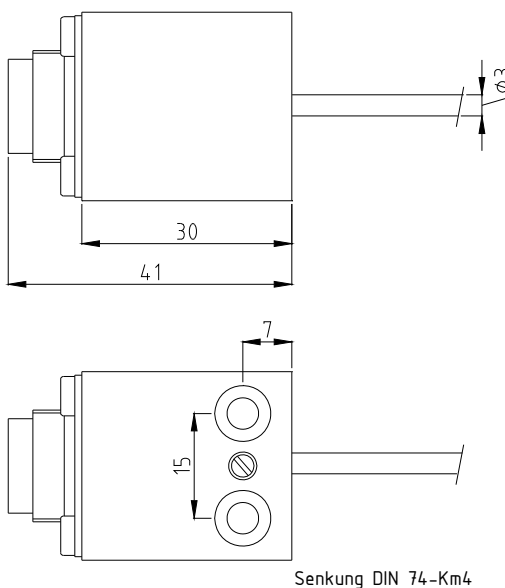
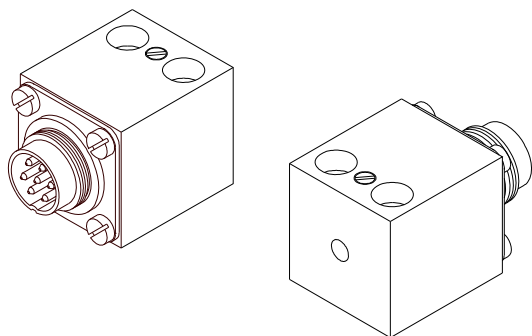
TPO-01

Connector assignment of  
FIA-L-06-...-C-IR-TPX-...  
(with tool plug TPO-03)  
(7-pole connector Binder 680)

| Pin: | Assignment:            |
|------|------------------------|
| 1    |                        |
| 2    |                        |
| 3    |                        |
| 4    | (to be determined yet) |
| 5    |                        |
| 6    |                        |
| 7    |                        |



TPO-03


**Tool Plugs**
**Tool plug TP-M12:****Tool plug TPO-01:****Tool plug TPO-03:**

(All dimensions in mm)