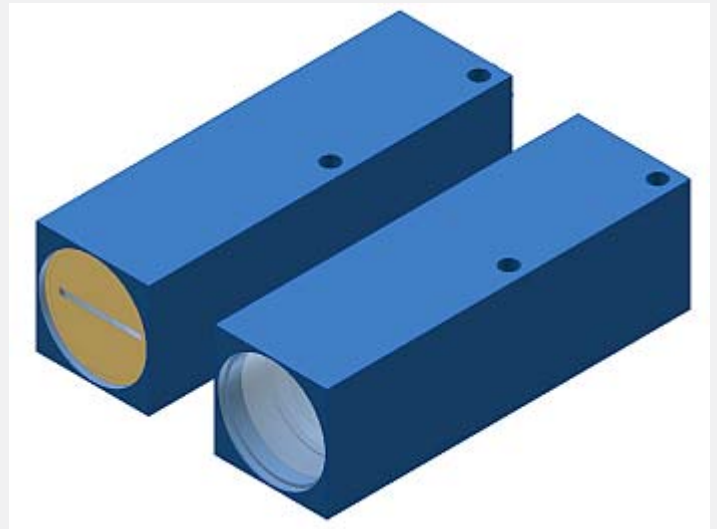


# D-LAS Series

## ▶ D-LAS-34-...

- Collimated laser beam (<0.4 mW, 670 nm), **laser class 1**
- Various apertures available
- Measuring range up to 30 mm (depends on aperture used)
- Max. working range 5 m
- Sensitivity and amplification adjustable by means of an integrated 3-revolutions potentiometer
- Switching state display via yellow/green-LED
- Analog output 0V...+10V, optional: 4mA...20mA
- Switching output (npn- and pnp-compatible)
- Optics cover made of glass
- Sturdy aluminum housing (suits industrial needs), IP67



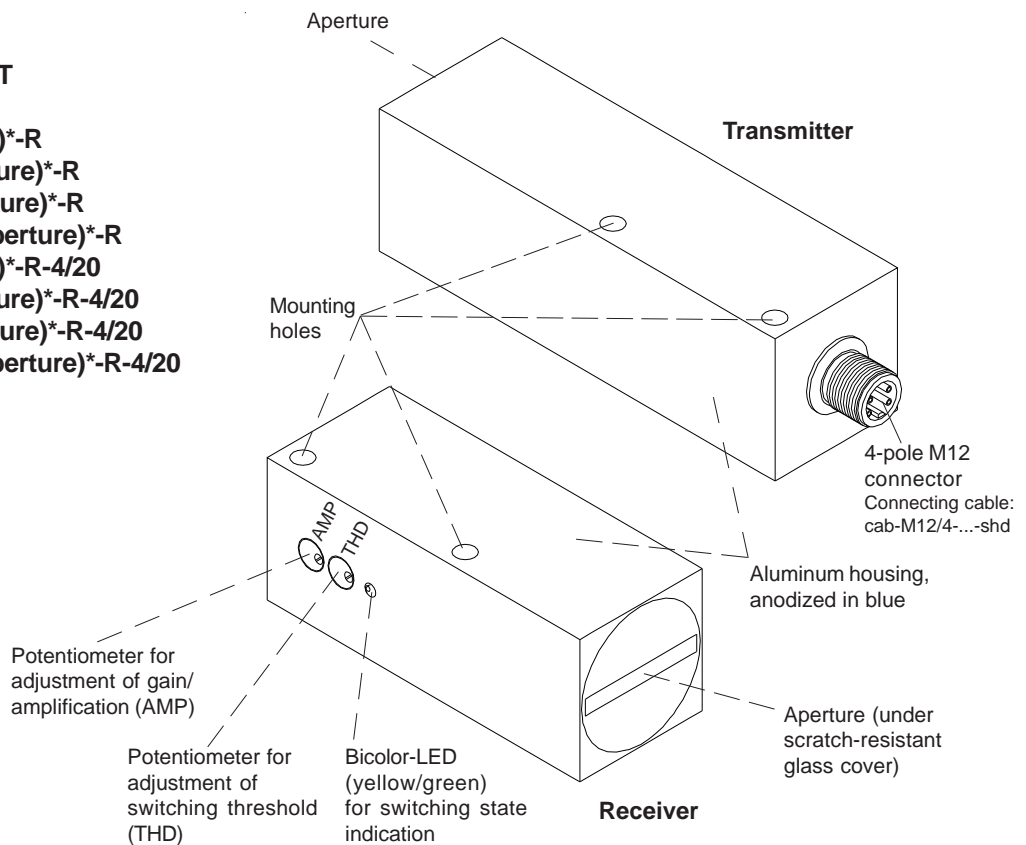
## Design

**Product name:**

**Transmitter:** D-LAS-34-(aperture)\*-T

**Receiver:** D-LAS-34-Q-(aperture)\*-R  
 D-LAS-34-Qinv-(aperture)\*-R  
 D-LAS-34-TC-Q-(aperture)\*-R  
 D-LAS-34-TC-Qinv-(aperture)\*-R  
 D-LAS-34-Q-(aperture)\*-R-4/20  
 D-LAS-34-Qinv-(aperture)\*-R-4/20  
 D-LAS-34-TC-Q-(aperture)\*-R-4/20  
 D-LAS-34-TC-Qinv-(aperture)\*-R-4/20

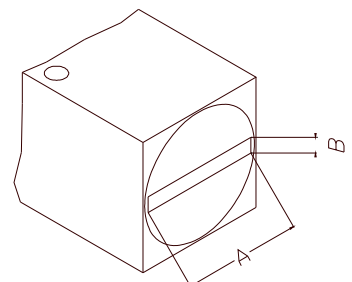
- Q = Switching output:  
 npn dark-switching (npn n.o.)/  
 pnp bright-switching (pnp n.c.)
- Qinv = Switching output:  
 pnp dark-switching (pnp n.o.)/  
 npn bright-switching (npn n.c.)
- TC = Threshold correction
- 4/20 = Analog output 4mA...20mA



**\*We recommend aperture combinations for transmitter/receiver as follows:**

| Aperture transmitter<br>(Ax B in mm): | and | Aperture receiver<br>(Ax B in mm): |
|---------------------------------------|-----|------------------------------------|
| 30x2 (2x30)                           | and | 30x0.5 (0.5x30)                    |
| 25x2 (2x25)                           | and | 25x0.3 (0.3x25)                    |
| 20x2 (2x20)                           | and | 20x0.3 (0.3x20)                    |
| 10x2 (2x10)                           | and | 10x0.3 (0.3x10)                    |
| 5x2 (2x5)                             | and | 5x0.3 (0.3x5)                      |

**Aperture orientation:**





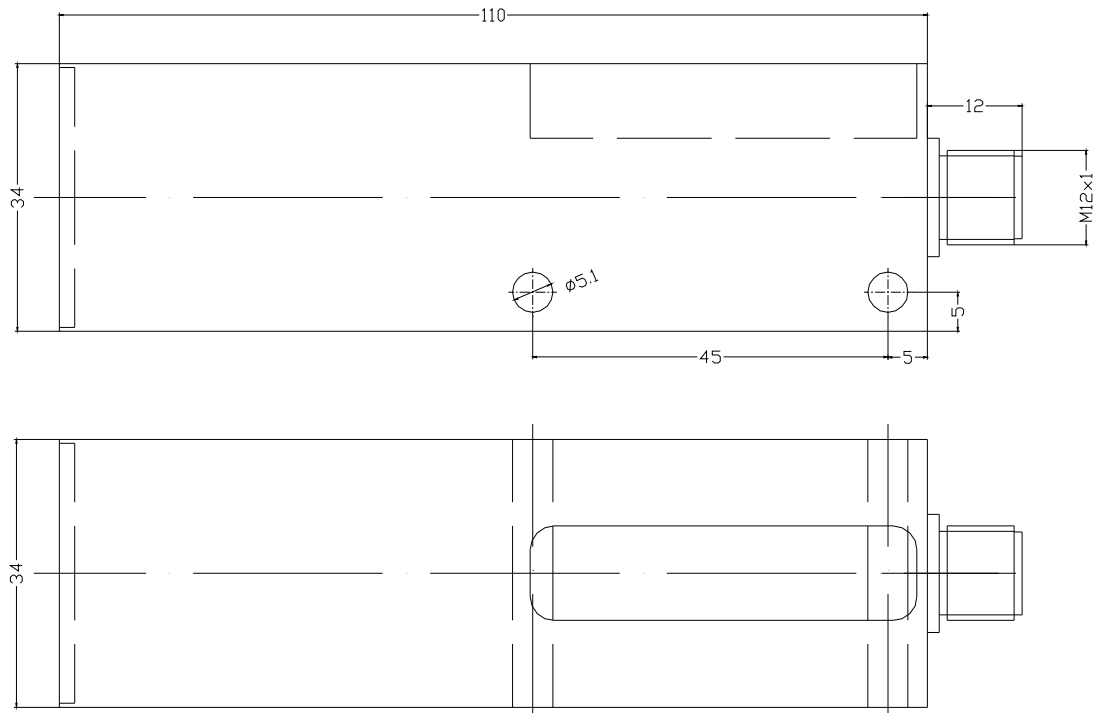
**Technical Data**

| Type  | D-LAS-34-...   | D-LAS-34-...-4/20                    |
|---|--|--------------------------------------|
| Laser   | Solid state laser, 670 nm, DC operation, 0.4 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.  |                                      |
| Measuring range                               | Depends on aperture used: up to 30 mm  |                                      |
| Max. working range                            | typ. 5 m   |                                      |
| Min. detectable object                        | analog typ. 1% of aperture size, digital typ. 0.5% of aperture size  |                                      |
| Reproducibility                               | analog typ. 1% of aperture size, digital typ. 0.5% of aperture size<br>with threshold correction "TC": typ. 0.1% of aperture size  |                                      |
| Optical filter                                | interference filter + polarisation filter  |                                      |
| Threshold correction                          | with type "TC"   |                                      |
| Voltage supply                                | +24VDC ( $\pm 10\%$ ), protected against polarity reversal, overload protected   |                                      |
| Alternating current/<br>direct current supply | DC operation   |                                      |
| Ambient light                                 | up to 5000 Lux (depending on the aperture used)  |                                      |
| Sensitivity setting<br>(switching threshold)  | adjustable by means of an integrated potentiometer (3 revolutions)   |                                      |
| Amplifier gain (analog signal)                | adjustable by means of an integrated potentiometer (3 revolutions)   |                                      |
| Current consumption                           | transmitter: typ. 60 mA<br>receiver: typ. 30 mA  |                                      |
| Available aperture sizes                      | recommended aperture combinations (transmitter + receiver):<br>30x2 + 30x0.5 or 2x30 + 0.5x30 (measuring range 30 mm)<br>25x2 + 25x0.3 or 2x25 + 0.3x25 (measuring range 25 mm)<br>20x2 + 20x0.3 or 2x20 + 0.3x20 (measuring range 20 mm)<br>10x2 + 10x0.3 or 2x10 + 0.3x10 (measuring range 10 mm)<br>5x2 + 5x0.3 or 2x5 + 0.3x5 (measuring range 5 mm) |                                      |
| Current control input I-CONTROL               | 0V...+5V: laser power decreases linearly with increasing voltage<br>+ 5V...+32V: laser OFF<br>max. MODULATION/FREQUENCY: 2 kHz   |                                      |
| Monitoring output<br>(analog output)          | 0V...+10V (typ. 100 kHz band width)  | 4mA...20mA (typ. 100 kHz band width) |
| Type of protection                            | IP67   |                                      |
| Operating temperature range                   | -20°C to +50°C   |                                      |
| Storage temperature range                     | -20°C to +85°C   |                                      |
| Housing material                              | aluminum, anodized in blue   |                                      |
| Housing dimensions                            | transmitter: LxWxH approx. 110 mm x 34 mm x 34 mm<br>receiver: LxWxH approx. 87 mm x 34 mm x 34 mm   |                                      |
| Connector type                                | 4-pole M12 connector (plug made of refined steel)  |                                      |
| Max. switching current                        | 100 mA, short-circuit-proof  |                                      |
| EMC test acc. to                              | DIN EN 60947-5-2   |                                      |
| Switching state display                       | by means of an integrated yellow/green LED   |                                      |
| Switching frequency                           | typ. 25 kHz  |                                      |
| Linearity                                     | with aperture 30mm: typ. 5%<br>with aperture 25mm: typ. 3%<br>with aperture 20mm: typ. 2%<br>with aperture 10mm: typ. 1%<br>with aperture 5mm: typ. 0.3%   |                                      |

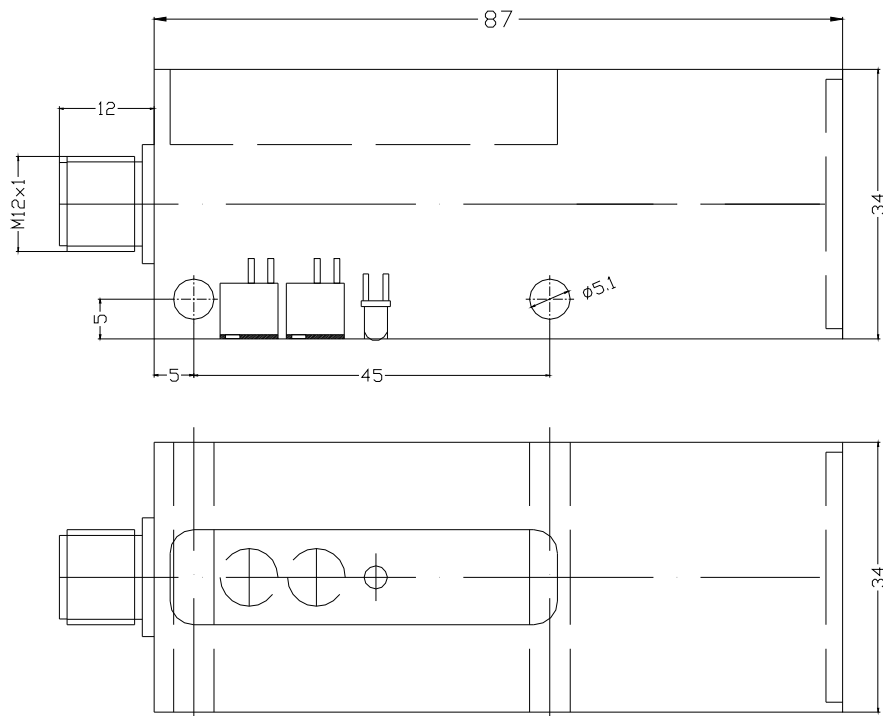


Dimensions

D-LAS-34-...T  
(transmitter)



D-LAS-34-...-R  
D-LAS-34-...-R-4/20  
(receiver)



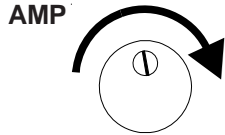
(All dimensions in mm)



**Setting**

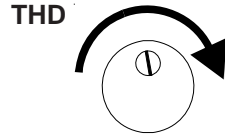
**Adjustment of potentiometers:**

**Gain factor:**



Rotation clockwise:  
Gain max.

**Switching threshold:**



Rotation clockwise:  
Threshold max.

**Switching state indication:**

**Bi-Color-LED:**



**LED yellow:**  
Analog voltage < switching threshold  
(Crossing the threshold from a higher level to a lower level causes a change of the switching state at the digital output --> LED is switching from green to yellow)



**LED green:**  
Analog voltage > switching threshold



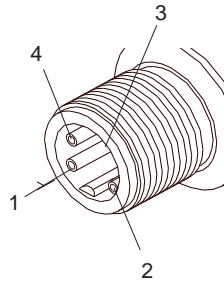
**Connector Assignment**

**Receiver:**

(4-pole M12-connector, shielded)

**Type Q (npn dark-switching / npn bright-switching):**

| Pin No.: | Color: | Assignment:  |
|----------|--------|--|
| 1        | brn    | +24VDC (± 10%)   |
| 2        | wht    | ANALOG (0V...+10V)<br><b>in case of type -4/20: 4mA...20mA</b> |
| 3        | blu    | GND (0V)   |
| 4        | blk    | OUTPUT   |
| Shield   |        | Housing  |



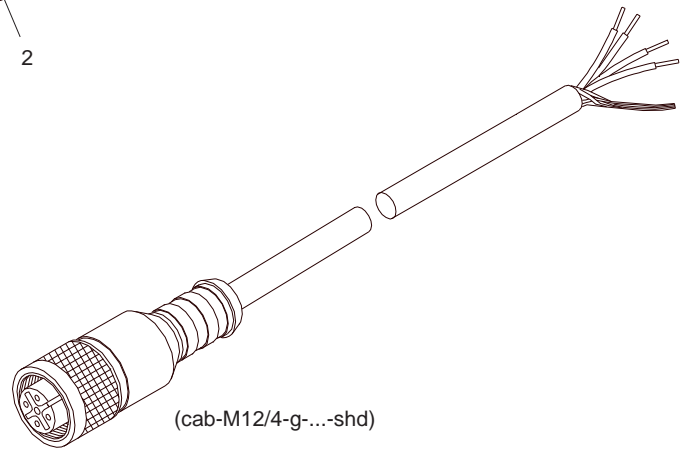
**Transmitter:**

(4-pole M12-connector, shielded)

| Pin No.: | Color: | Assignment:          |
|----------|--------|----------------------|
| 1        | brn    | +24VDC (± 10%)       |
| 2        | wht    | I-CONTROL (0...+32V) |
| 3        | blu    | GND (0V)             |
| 4        | blk    | GND (0V)             |
| Shield   |        | Housing              |

**Type Qinv (pnp dark-switching / npn bright-switching):**

| Pin No.: | Color: | Assignment:  |
|----------|--------|--|
| 1        | brn    | +24VDC (± 10%)   |
| 2        | wht    | ANALOG (0V...+10V)<br><b>in case of type -4/20: 4mA...20mA</b> |
| 3        | blu    | GND (0V)   |
| 4        | blk    | OUTPUT INV   |
| Shield   |        | Housing  |



(cab-M12/4-g-...-shd)

**Available connecting cables:**

|                           |            |                   |                      |
|---------------------------|------------|-------------------|----------------------|
| <b>cab-M12/4-g-2m-shd</b> | Length: 2m | Outer jacket: PUR | shielded             |
| <b>cab-M12/4-g-5m-shd</b> | Length: 5m | Outer jacket: PUR | shielded             |
| <b>cab-M12/4-w-2m-shd</b> | Length: 2m | Outer jacket: PUR | angle-type, shielded |
| <b>cab-M12/4-w-5m-shd</b> | Length: 5m | Outer jacket: PUR | angle-type, shielded |



**Laser Information**

The laser transmitters of D-LAS 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 transmitters of D-LAS series are supplied with an information label „CLASS 1 Laser Product“.

**CLASS 1 Laser Product**  
IEC 60825-1: 2008-05  
THIS LASER PRODUCT COMPLIES  
WITH 21 CFR 1040 AS APPLICABLE

