

# D-LAS Series

## ► D-LAS-34/90-...-STST

- Collimated laser beam (<0.4 mW, 670 nm), **laser class 1**
- Big measuring range up to 30 mm
- Max. working range 5 m
- Analog output 0V ... +10V
- Switching output (npn- and pnp-compatible)
- Switching state display via yellow/green LED
- Sensitivity and amplification adjustable by means of an integrated 3-revolutions potentiometer
- Optics cover made of glass
- **Housing made of stainless steel (V2A)**



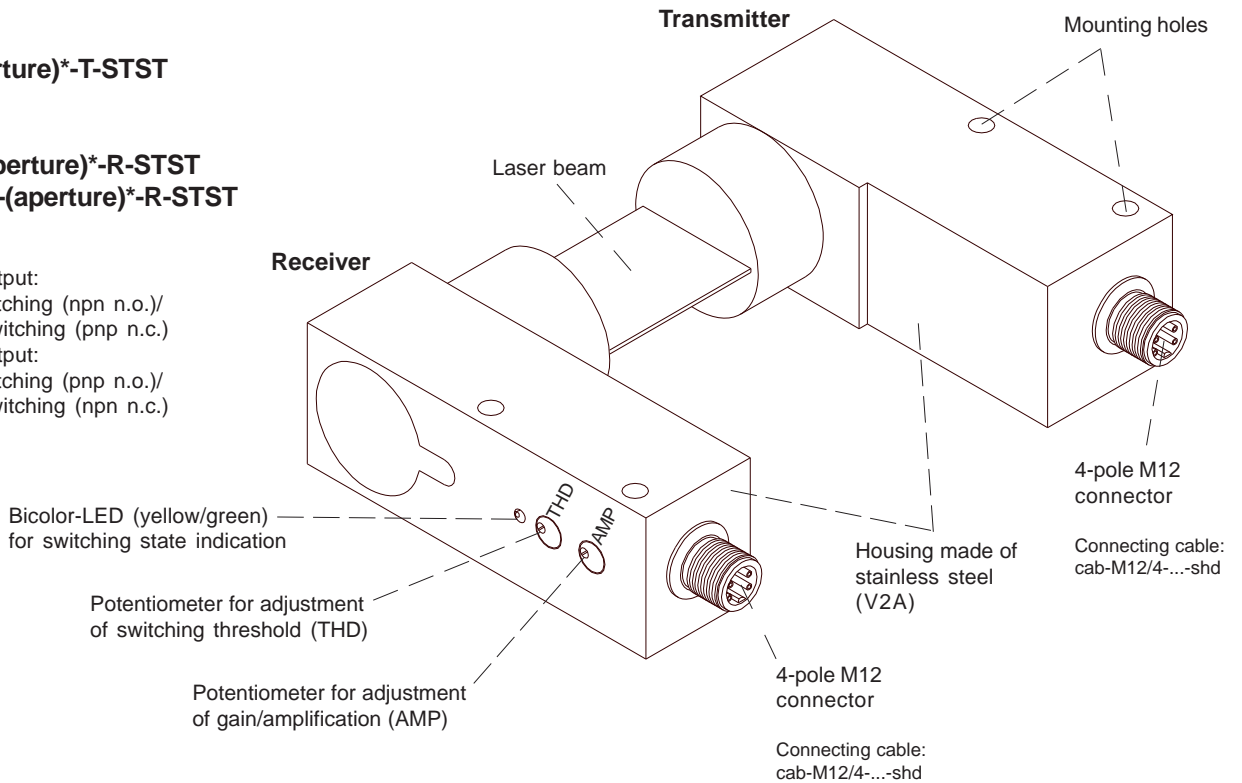
### Design

#### Product name:

**Transmitter:**  
D-LAS-34/90-(aperture)\*-T-STST

**Receiver:**  
D-LAS-34/90-Q-(aperture)\*-R-STST  
D-LAS-34/90-Qinv-(aperture)\*-R-STST

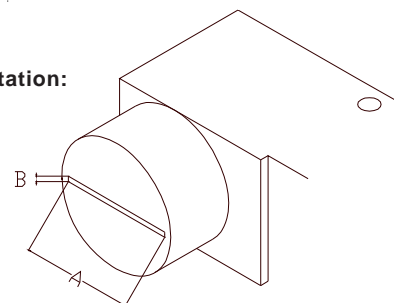
- Q = Switching output:  
npn dark-switching (npn n.o.)/  
pnp bright-switching (pnp n.c.)
- Qinv = Switching output:  
pnp dark-switching (pnp n.o.)/  
npn bright-switching (npn n.c.)



#### \*Aperture combination for transmitter/receiver:

Aperture transmitter (AxB in mm):		Aperture receiver (AxB in mm):	
25x2	and	25x1	
30x1	and	30x2	

#### Aperture orientation:





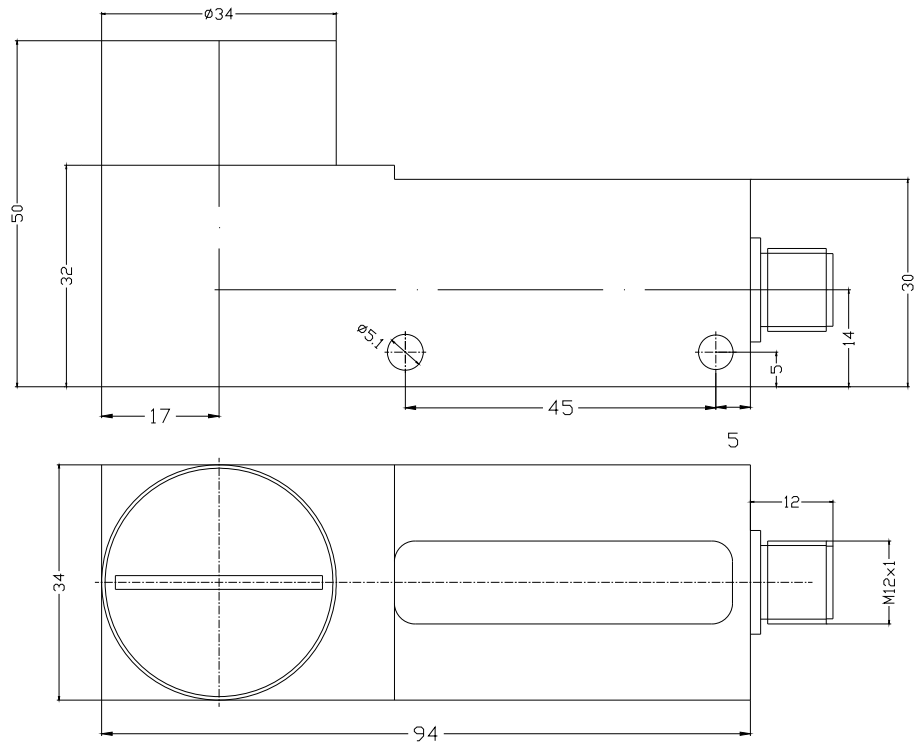
**Technical Data**

Type	D-LAS-34/90-...-T-STST (Transmitter) D-LAS-34/90-...-R-STST (Receiver)
Laser	Solid state laser, 670 nm, DC operation, <0.4 mW opt. power, laser class 1 acc. to DIN EN 60825-1. The use of these laser transmitters therefore requires no additional protective measures.
Measuring range	depends on the aperture used: up to 27 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
Optical filter	interference filter + polarisation filter
Voltage supply	+24VDC ( $\pm 10\%$ ), protected against polarity reversal, overload protected
Alternating current/ direct current supply	DC operation
Ambient light	up to 5000 Lux (depending on the aperture used)
Sensitivity setting (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    receiver: typ. 30 mA
Aperture size (mm)	recommended aperture combinations (transmitter + receiver): 30x1 (transmitter) + 30x2 (receiver)    (measuring range 27 mm) 25x2 (transmitter) + 25x1 (receiver)    (measuring range 25 mm)
Current control input I-CONTROL	0V...+5V: laser power decreases linearly with increasing voltage + 5V...+32V: laser OFF max. MODULATION/FREQUENCY: 2 kHz
Monitoring output (analog output)	0V...+10V (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	stainless steel (V2A)
Housing dimensions	transmitter and receiver: each LxWxH approx. 94 mm x 34 mm x 50 mm
Connector type	M12, 4-pole (connector made of stainless 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 30 mm: center aperture $\pm 10$ mm: typ. 3%, over $\pm 10$ mm: typ. 8% with aperture 20 mm: typ. 5%

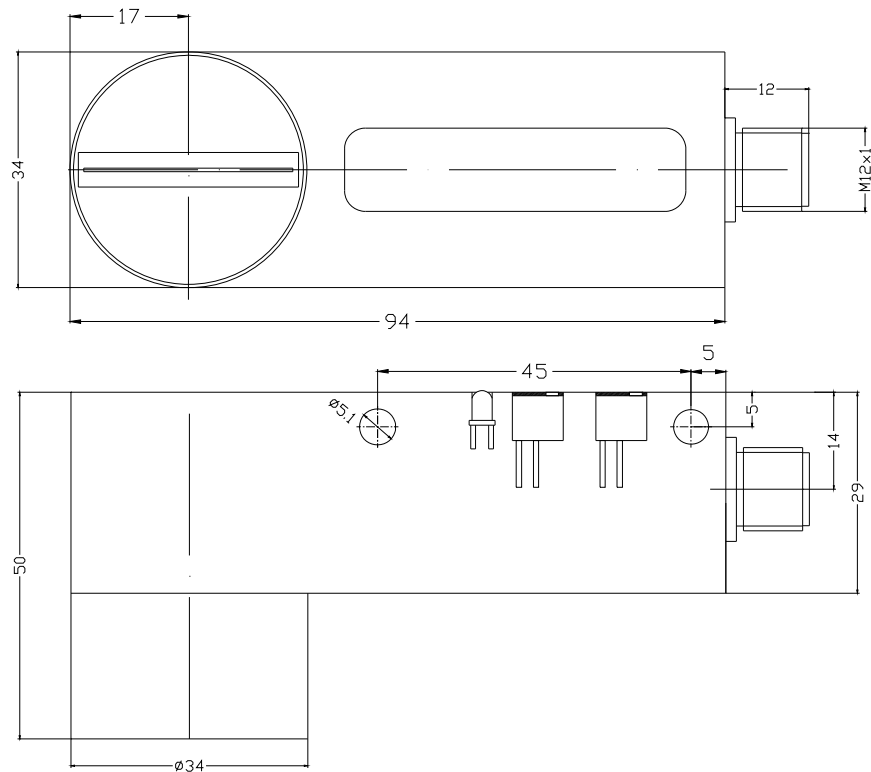


Abmessungen

D-LAS-34/90-...-T-STST  
(transmitter):



D-LAS-34/90-Q-...-R-STST  
D-LAS-34/90-Qinv-...-R-STST  
(receiver):



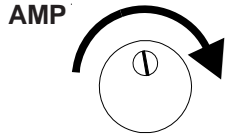
(All dimensions in mm)



**Setting**

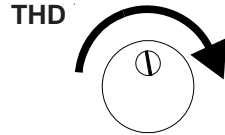
**Adjustment of potentiometers:**

**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



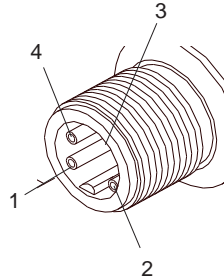
**Connector Assignment**

**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)
3	blu	GND (0V)
4	blk	OUTPUT
Shield		Housing



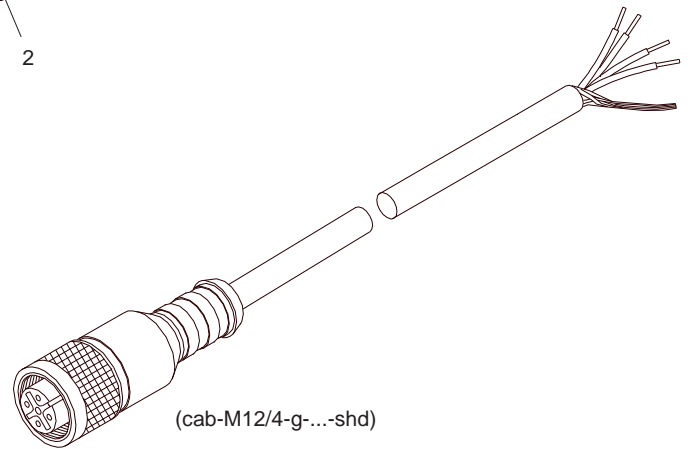
**Transmitter:**

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

Pin No.:	Color:	Assignment:
1	brn	+24VDC (± 10%)
2	wht	ANALOG (0V...+10V)
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

