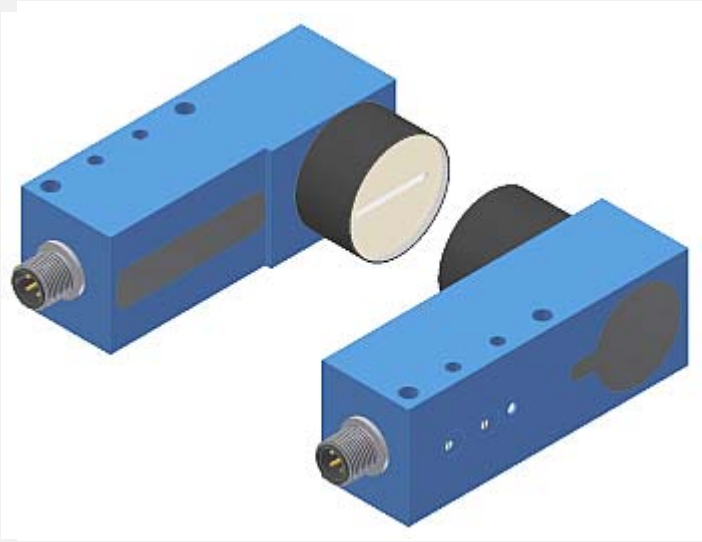
D-LAS Series



D-LAS-34/90-...

- Collimated laser beam (<0.4 mW, 670 nm), **laser class 1**
- Various apertures available
- Measuring range up to 27 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
- Switching output (npn- and pnp-compatible)
- Optics cover made of glass
- Sturdy aluminum housing (suits industrial needs), IP67

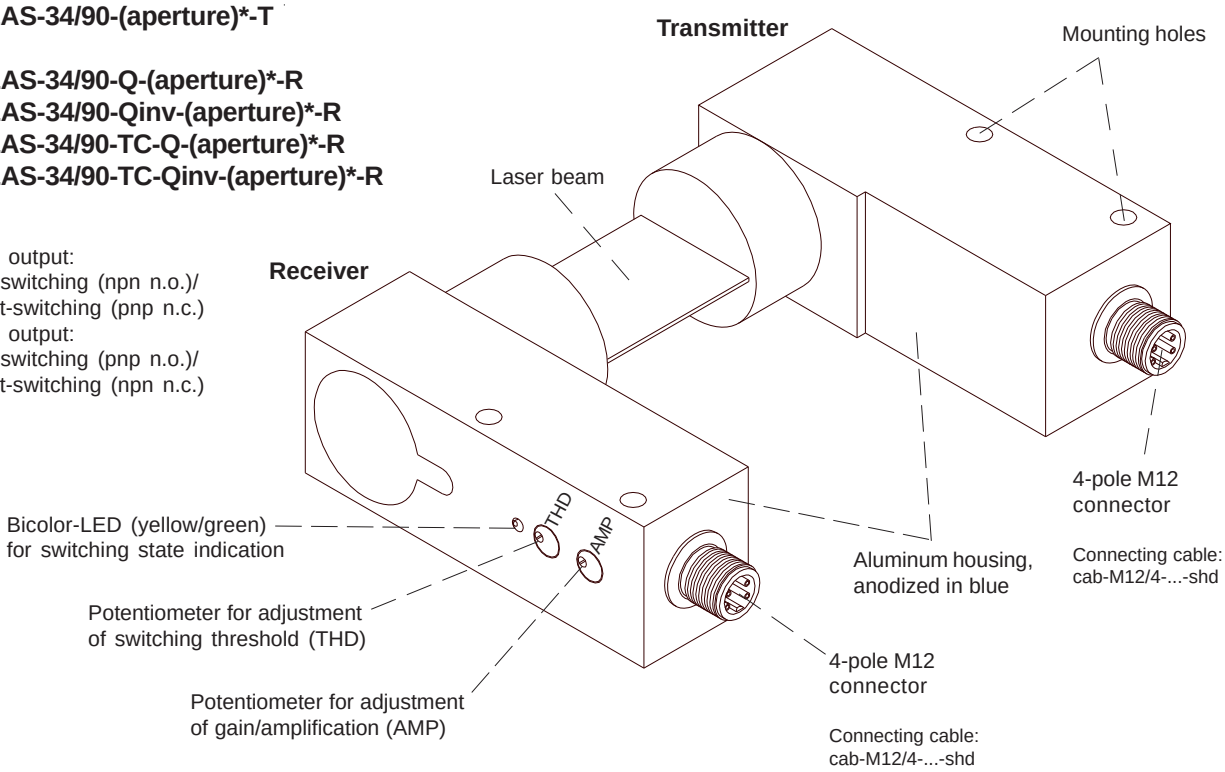
Design

Product name:

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

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

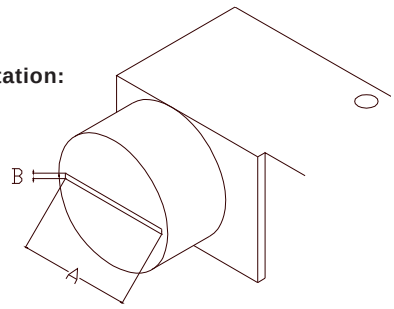
Q = Switching output:
npn dark-switching (npn n.o.)/
pnp bright-switching (pnp n.c.)
Qinv = Switching output:
pnp dark-switching (pnp n.o.)/
npn bright-switching (npn n.c.)



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

Aperture transmitter (AxB in mm):		Aperture receiver (AxB 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:

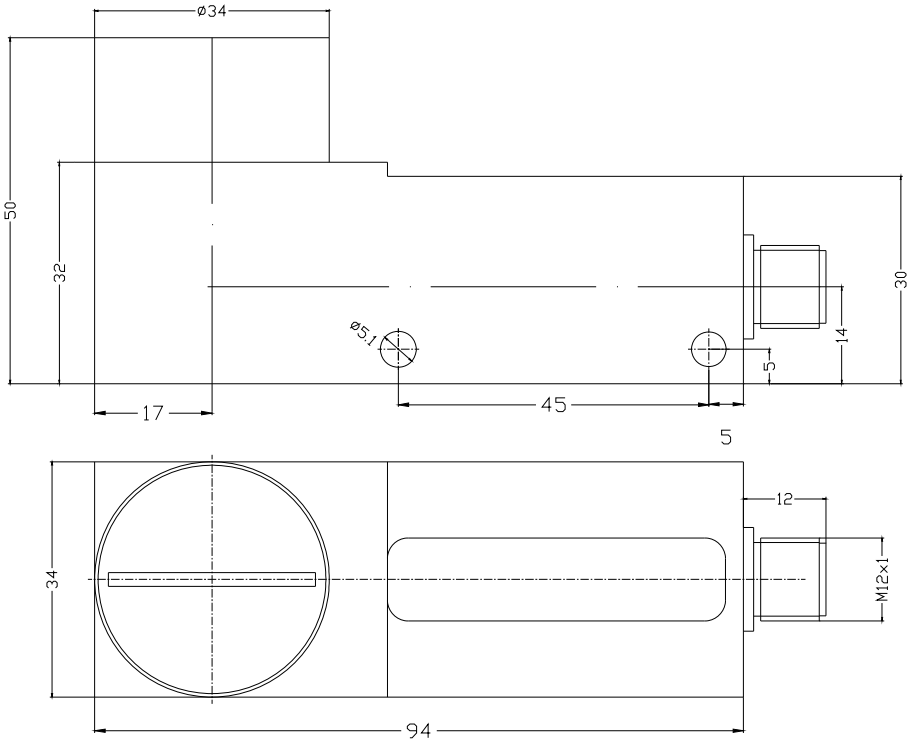


Technical Data

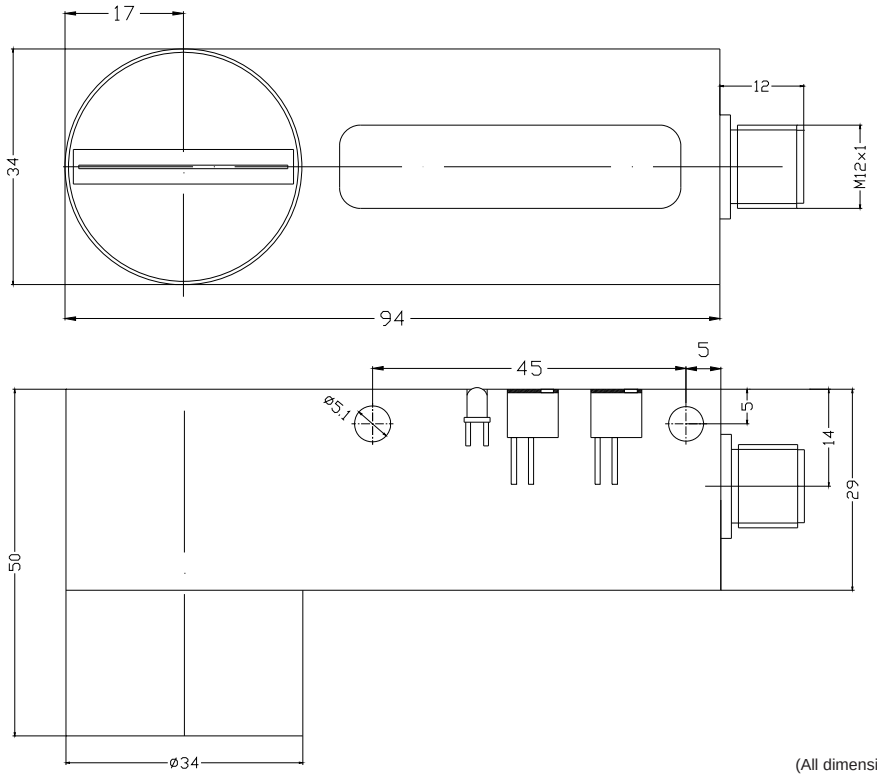
Type	D-LAS-34/90
Laser	Solid state laser, 670 nm, DC operation, 0.4 mW max. opt. power, laser class 1 acc. to DIN EN 60825-1. The use of these laser transmitters therefore requires no additional protective measures.
Measuring range	Depends on aperture used: up to 27 mm
Max. working range	typ. 5 m
Min. 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 with threshold correction "TC": typ. 0.1% of aperture size
Optical filter	interference filter + polarisation filter
Threshold correction	available with type "TC"
Voltage supply	+24VDC (± 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
Available aperture sizes	recommended aperture combinations (transmitter + receiver): 30x2 + 30x0.5 or 2x30 + 0.5x30 (measuring range 27 mm) 25x2 + 25x0.3 or 2x25 + 0.3x25 (measuring range 25 mm) 20x2 + 20x0.3 or 2x20 + 0.3x20 (measuring range 20 mm) 10x2 + 10x0.3 or 2x10 + 0.3x10 (measuring range 10 mm) 5x2 + 5x0.3 or 2x5 + 0.3x5 (measuring range 5 mm)
Current control input I-CONTROL	0V...+5V: laser power decreases linearily 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	aluminum, anodized in blue
Housing dimensions	transmitter and receiver: each LxWxH approx. 94 mm x 34 mm x 50 mm
Connector type	M12, 4-pole (plug made of refined steel)
Max. switching current	100 mA, short-circuit-proof
EMC test acc. to	DIN EN 60947-5-2 CE
Switching state display	by means of an integrated yellow/green LED
Switching frequency	typ. 25 kHz
Linearity	with aperture 30mm: Center aperture ± 10mm: typ. 3%, over ± 10mm: typ. 8% with aperture 25mm: typ. 5% with aperture 20mm: typ. 3% with aperture 10mm: typ. 1% with aperture 5mm: typ. 0.3%

Dimensions

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



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



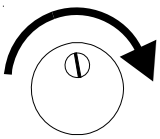
(All dimensions in mm)

Setting

Adjustment of potentiometers:

Gain factor:

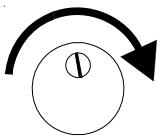
AMP



Rotation clockwise:
Gain max.

Switching threshold:

THD



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)

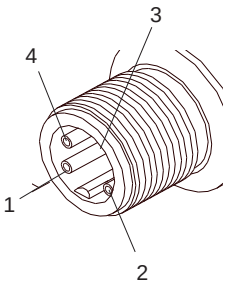
LED green:
Analog voltage > switching threshold

Connector Assignment

Receiver:
(4-pole M12-connector, shielded)

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

Pin No.:	Color:	Assignment:
1	brn	+24VDC (± 10%)
2	wht	ANALOG (0V...+10V)
3	blu	GND (0V)
4	blk	OUTPUT
Shield		Housing

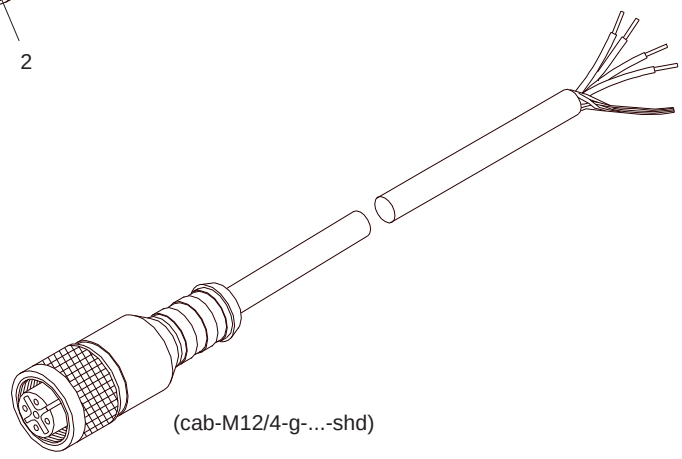


Type Qinv (pnp dark-switching / npn bright-switching):

Pin No.:	Color:	Assignment:
1	brn	+24VDC (± 10%)
2	wht	ANALOG (0V...+10V)
3	blu	GND (0V)
4	blk	OUTPUT INV
Shield		Housing

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



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

Available connecting cables:

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