

D-LAS Series

► D-LAS2

- Optics cover made of glass
- Various apertures available
- Analog output (0V...+10V)
- Interference filter
- Switching output (npn + pnp)
- High reproducibility (in μm -range)
- High switching frequency (typ. 25 kHz)
- Sturdy housing made of brass, nickel-plated
- Compact design (M12)



Design

Product name:

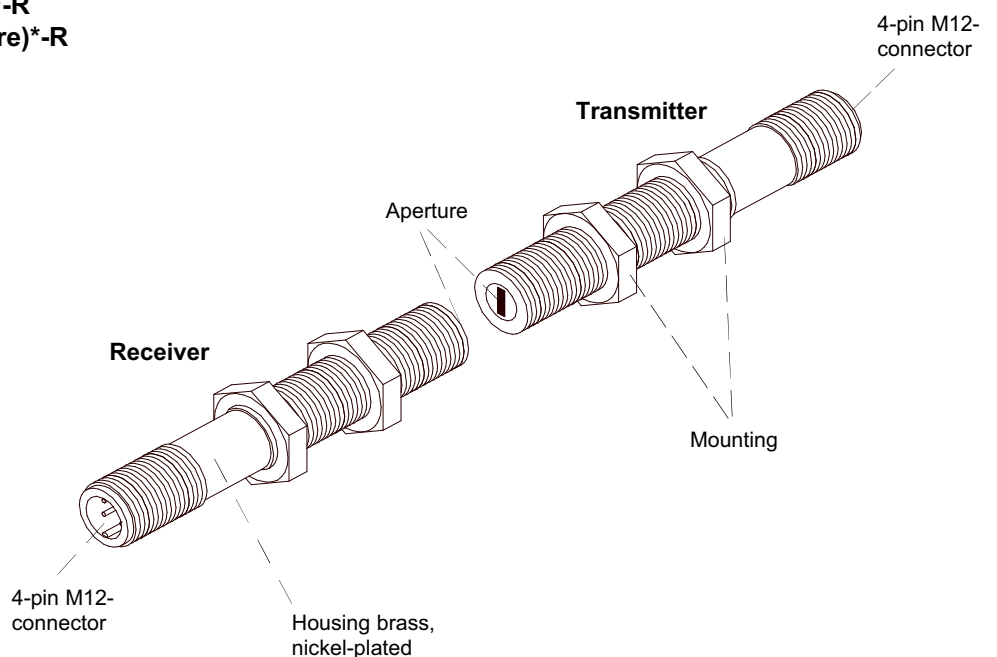
Transmitter: D-LAS2-(aperture)*-T

**Receiver: D-LAS2-Q-(aperture)*-R
D-LAS2-Qinv-(aperture)*-R
D-LAS2-TC-Q-(aperture)*-R
D-LAS2-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.)

TC = Threshold correction



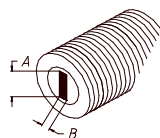
*Available apertures:

Round apertures
(\varnothing in mm):

d0.3
d0.5
d0.7
d1.0
d2.0
d3.0

Rectangular apertures
(AxB in mm):

1 x 0.3
1 x 0.5
1.5 x 0.3
2 x 0.75
2 x 1
3 x 0.3
3 x 0.75
4 x 0.5



Also available: „low-cost“ type
(with integrated plastic optics and round aperture \varnothing 1.0 mm)


Product name:

Transmitter: D-LAS2-LC-T

**Receiver: D-LAS2-LC-Q-R
D-LAS2-LC-Qinv-R**



Technical Data

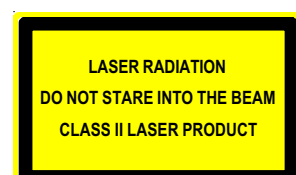
Model	D-LAS2
Laser	Solid state laser, 670 nm, DC-operation, 1 mW max. opt. power, laser class 2 acc. to DIN EN 60825. The use of these laser transmitters therefore requires no additional protective measures.
Max. range	30 m (depends on the aperture used)
Min. detectable object	Analog typ. 2% of aperture size, digital typ. 1% of aperture size
Reproducibility	Analog typ. 2% of aperture size, digital typ. 1% of aperture size, with threshold correction "TC": typ. 0.1% of aperture size
Optical filter	Interference filter
Threshold correction	with type "TC"
Voltage supply	+12VDC ... +32VDC, protected against polarity reversal, overload protected
Pulsating light or continuous light operation	DC-operation
Ambient light	up to 5000 Lux (depends on the aperture used)
Current consumption	Transmitter: typ. 60 mA Receiver: typ. 30 mA
Max. size of aperture	Round aperture: max. Ø 2.0 mm, rectangular aperture: max. 4 mm x 1 mm
Current control input I-CONTROL	0V...+5V: Laser power decreases linearly with increasing voltage +5V...+24V: 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 up to +50°C
Storage temperature range	-20°C up to +85°C
Housing material	Brass, nickel-plated
Housing dimensions	Transmitter respectively receiver: M12x1, length approx. 75 mm
Connector type	M12, 4-pin (V2A-plug)
Max. switching current	100 mA, short-circuit-proof
EMC test acc. to	IEC - 801... 
Switching frequency	typ. 25 kHz



Laser Warning

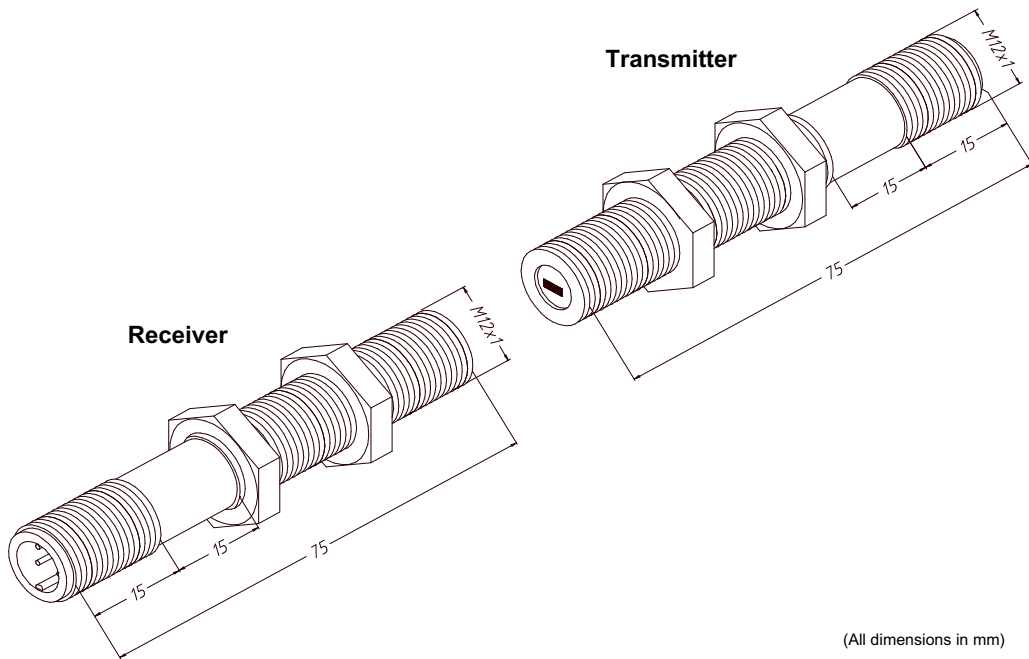
The transmitters of the laser one-way light barriers of D-LAS Series comply with laser class 2 according to EN 60825. The use of these laser transmitters therefore requires no additional protective measures.

The transmitters of the D-LAS Series are supplied with a laser warning label.



Dimensions

D-LAS2 transmitter
D-LAS2 receiver

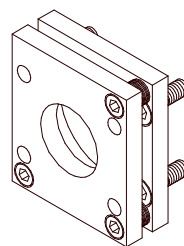


(All dimensions in mm)

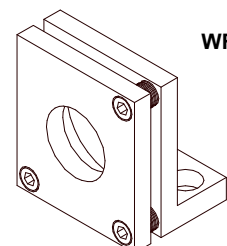
Mounting

Mounting accessories:
(please order separately)

Mounting flange FL-12
Mounting flange WFL-12



FL-12



WFL-12

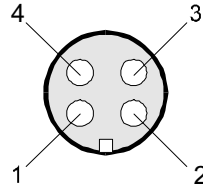
Connector Assignment

Receiver

(4-pin M12-connector, shielded)

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

Pin No.:	Color:	assignment:
1	brn	+12VDC...+32VDC
2	wht	ANALOG (0V...+10V)
3	blu	GND (0V)
4	blk	OUTPUT



Transmitter

(4-pin M12-connector, shielded)

Pin No.:	Color:	Assignment:
1	brn	+12VDC...+32VDC
2	wht	I-CONTROL (0...+24V)
3	blu	GND (0V)
4	blk	Shield - Housing

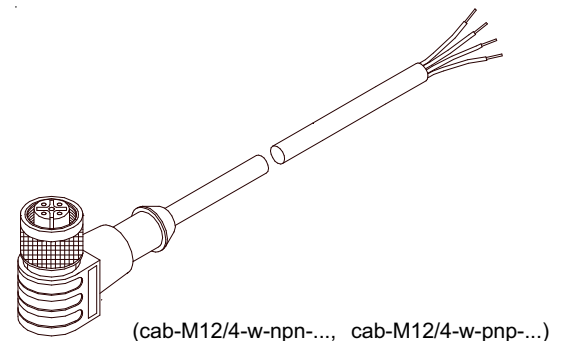
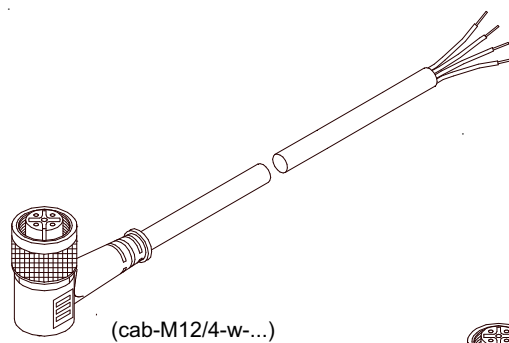
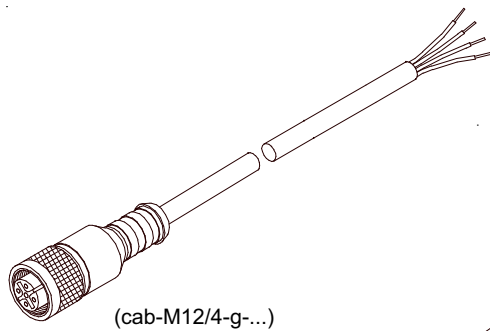
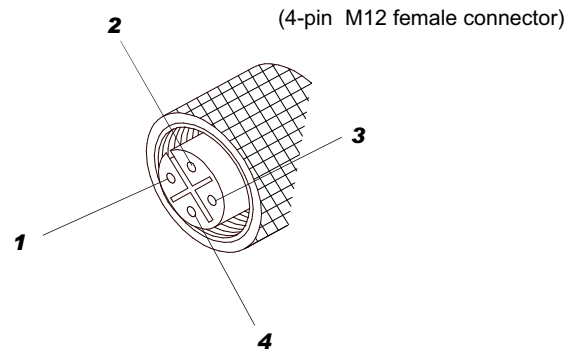
Type Qinv (pnp dark-switching / npn bright-switching):

Pin No.:	Color:	Assignment:
1	brn	+12VDC...+32VDC
2	wht	ANALOG (0V...+10V)
3	blu	GND (0V)
4	blk	OUTPUT INV

Connecting Cables

Available connecting cables:

cab-M12/4-g-2	Length: 2m	Outer jacket: PUR	
cab-M12/4-g-5	Length: 5m	Outer jacket: PUR	
cab-M12/4-w-2	Length: 2m	Outer jacket: PUR	angle type
cab-M12/4-w-5	Length: 5m	Outer jacket: PUR	angle type
cab-M12/4-w-npn-2	Length: 2m	Outer jacket: PUR	angle type, with LED
cab-M12/4-w-npn-5	Length: 5m	Outer jacket: PUR	angle type, with LED
cab-M12/4-w-pnp-2	Length: 2m	Outer jacket: PUR	angle type, with LED
cab-M12/4-w-pnp-5	Length: 5m	Outer jacket: PUR	angle type, with LED





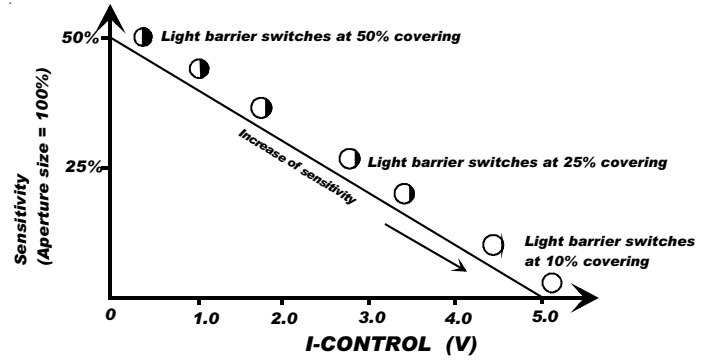
Setting

Adjustment of laser power

At the D-LAS2 transmitter the laser power can be adjusted with the current control input.

The voltage at the I-CONTROL current control input can be varied between 0V and +24V. The maximum laser power is reached at 0V; the laser power then decreases linearly with increasing voltage, and at +5V it reaches the 0 mW value (LASER OFF).

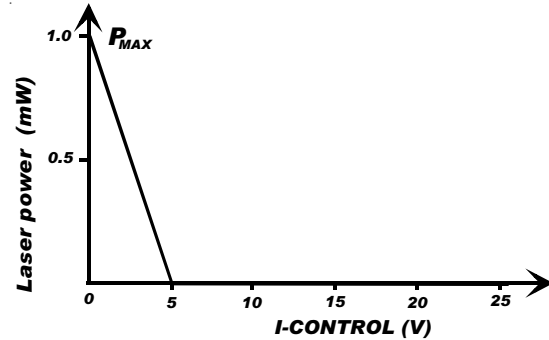
The current control input therefore can also be used as a test input for switching the laser light barrier on or off (0V = ON, +5V or +24V = OFF).



Adjustment of sensitivity

If a receiver with a fixed comparator threshold is used, the I-CONTROL input is used for setting the sensitivity.

Drawing at the right: Sensitivity increase in case of a receiver with fixed threshold (threshold set to a fixed value of 5V, which in case of an analog signal of 10V (with I-CONTROL = 0V) requires a 50% covering of the laser beam for a change of the switching state.



Monitoring Output

Dirt accumulation and cleaning

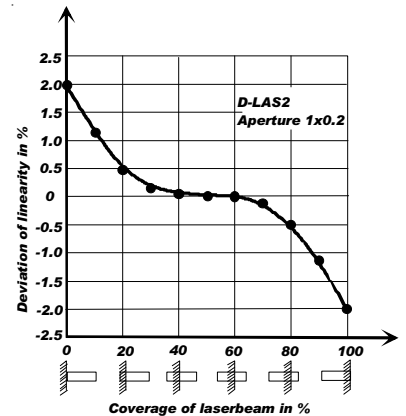
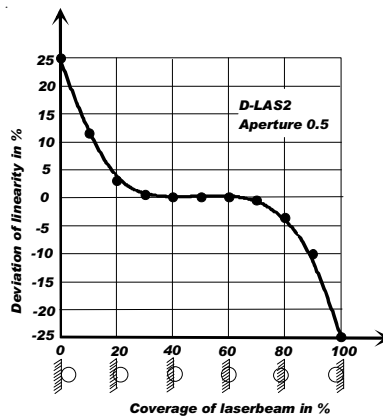
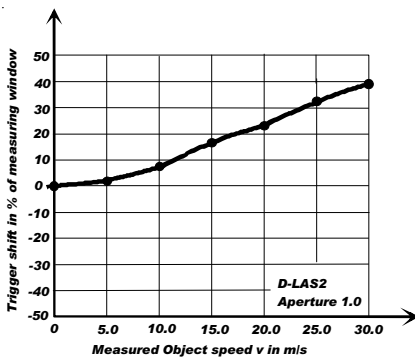
The monitor output of the receiver provides information on the dirt accumulation status of the laser light barrier. The lower the value of the analog signal (without measuring object in the beam path), the higher the dirt accumulation.

If possible, a dry cleaning method should be used for cleaning the glass covers and/or the glass lenses, preferably with a spectacles cleaning cloth, or a similar cloth.

The formation of drops on the glass cover or the glass lens might impair the measuring result (refraction of light at the convex drop surface). Drops should be removed with a dry cloth, preferably with a spectacles cleaning cloth, or a similar cloth.



Graphs





Notes