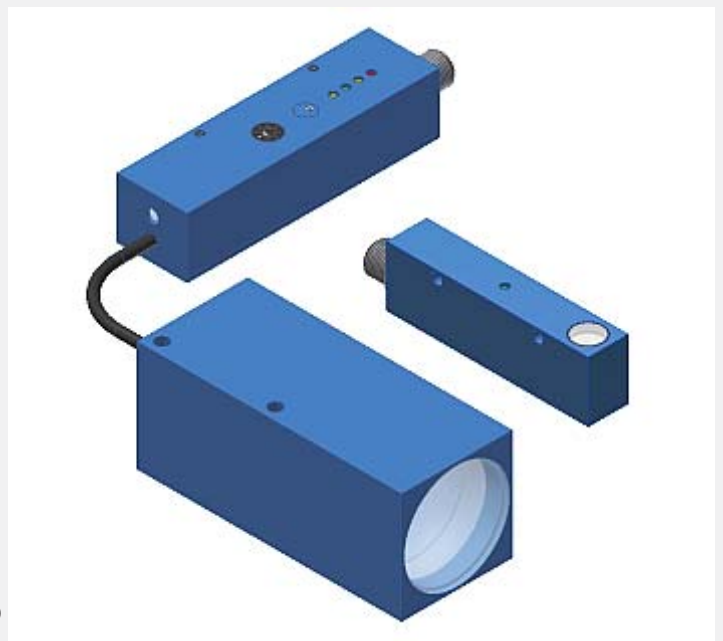


D-LAS Series

▶ D-LAS-44-ED-9.5x4-AC-R D-LAS-ED1-(9.5)-AC-T (Glass Pane Detection)

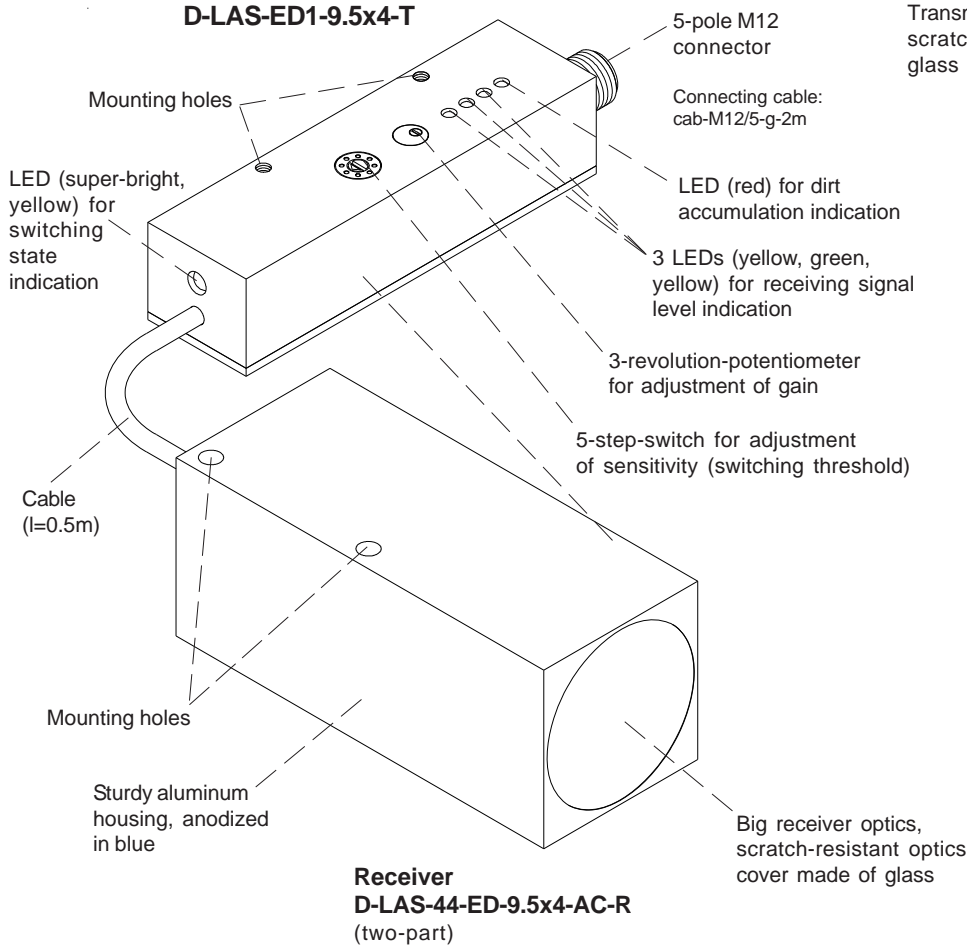
- Collimated laser beam (<math><0.4\text{ mW}</math>, 670 nm), **laser class 1**
- Big detecting range (laser spot 9.5 mm x 4 mm)
- Big receiver optics (easy adjustment of transmitter and receiver optics)
- Big transmitter/receiver distance (max. 12 m)
- High-sensitive (starting from 0.5 mm strength of glass)
- Insensitive to outside light (alternating light operation, 100 kHz)
- Sensitivity setting via 5-step-switch
- Adjustment of gain factor via 3-revolution-potentiometer
- Receiving signal level indication by means of 3 LED (yel/grn/yel)
- Switching state indication by means of a super-bright yellow LED
- Dirt accumulation indication by means of a red LED



Design

Product name:

Receiver: D-LAS-44-ED-9.5x4-AC-R (two-part)
Transmitter: D-LAS-ED1-4x9.5-T or D-LAS-ED1-9.5x4-T



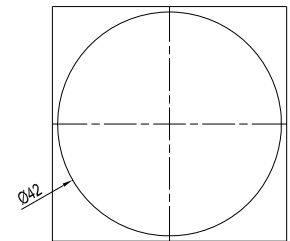
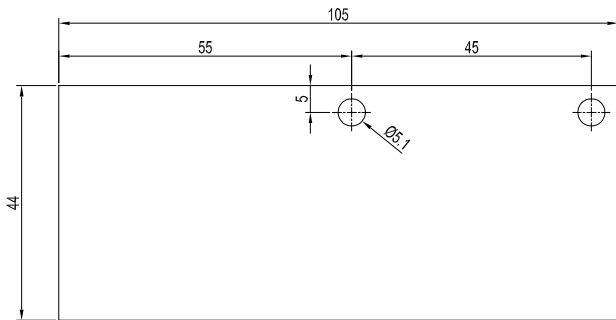
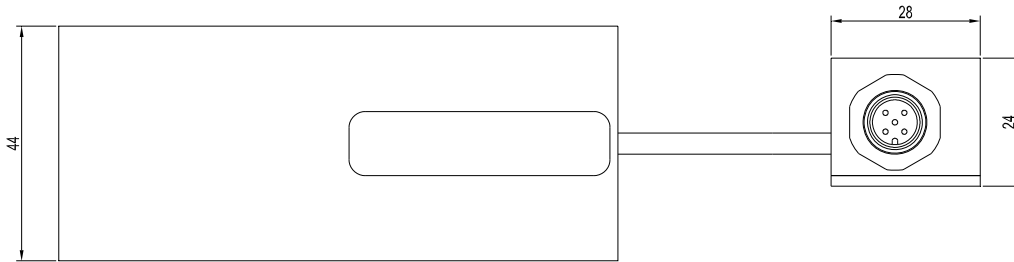


Technical Data

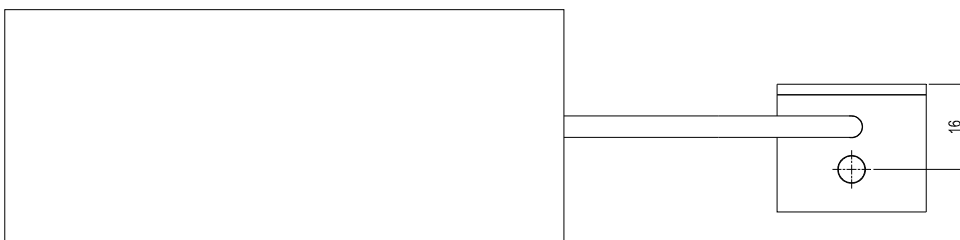
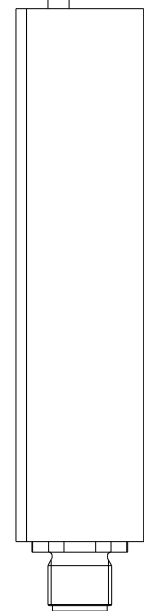
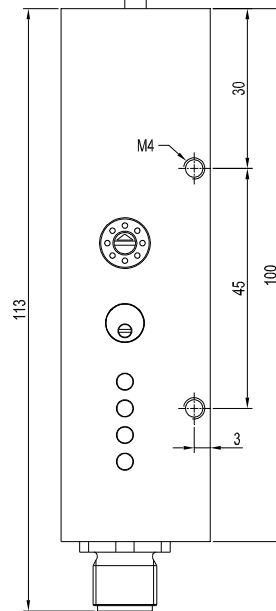
Type	D-LAS-44-ED-9.5x4-AC-R (receiver, two-part) D-LAS-ED1-4x9.5 or D-LAS-ED1-9.5x4-T (transmitter)
Laser	Semiconductor laser, 670 nm, AC operation, 0.4 mW max. opt. power, laser class 1 acc. to DIN EN 60825-1. The use of these laser transmitters therefore requires no additional protective measures.
Max. range	typ. 12 m
Min. detectable strength of glass	0.5 mm
Beam dimensions at transmitter output	typ. 9.5 mm x 4 mm
Optical filter	Red light filter RG630
Beam divergency	typ. 1 mrad
Voltage supply	+24VDC ($\pm 10\%$), protected against polarity reversal, overload protected
Alternating current/ direct current supply	AC operation (100 kHz)
Ambient light	Up to 5000 Lux
Sensitivity setting (switching threshold)	Adjustable by means of an integrated 5-step-switch (step 1: 93%, step 2: 90%, step 3: 87%, step 4: 83%, step 5: 80%)
Gain factor (analog signal)	Adjustable by means of an integrated potentiometer (3 revolutions)
Current consumption	Transmitter: typ. 60 mA Receiver: typ. 120 mA
Switching frequency	typ. 1 kHz
Switching outputs	Pin 2 (white): Analog output (0 ... +10V) Pin 4 (black): Output Q _{inv} (npn bright-switching, pnp dark-switching) Pin 5 (grey): Output Q (npn dark-switching, pnp bright-switching)
Enclosure rating	IP67
Operating temperature range	-20°C ... +50°C
Storage temperature range	-20°C ... +85°C
Housing material	Aluminum, anodized in blue
Housing dimensions	Transmitter: approx. 80 mm x 24 mm x 16 mm (M12 connector) Receiver: approx. 100 mm x 28 mm x 24 mm (without connector) and approx. 105 mm x 44 mm x 44 mm
Connector type	Transmitter: 4-pole M12 connector (stainless steel plug) Receiver: 5-pole M12 connector (stainless steel plug)
Max. switching current	100 mA, short-circuit-proof
EMC test acc. to	DIN EN 60947-5-2
Switching state indication	By means of a super-bright yellow LE (at receiver housing)
Dirt accumulation indication	By means of a red LED (at receiver housing)
Receiving signal level indication	By means of 3 LED: yellow/green/yellow (at receiver housing)
Operation indication	By means of a green LED (at transmitter housing)

Dimensions

D-LAS-44-ED-9.5x4-AC-R
(Receiver, two-piece):



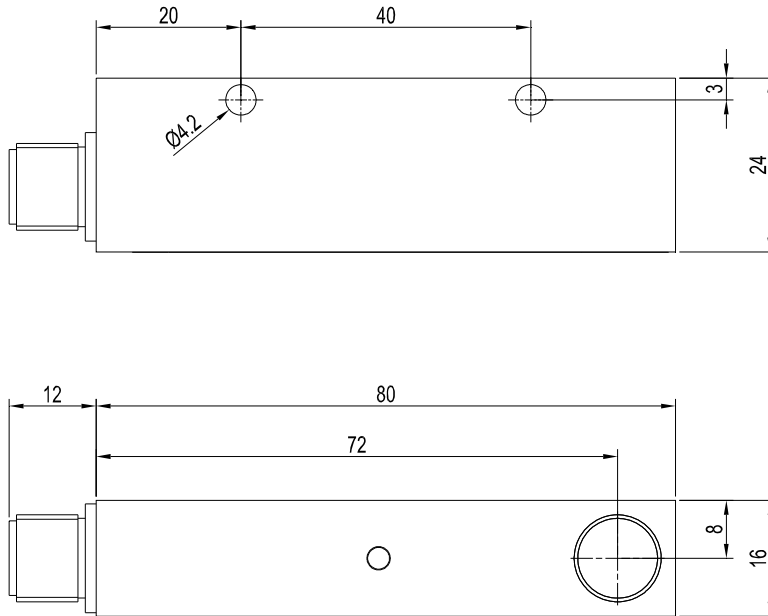
The two receiver parts are connected via a PUR-cable with 0.5 m in length (Ø 4 mm).



All dimensions in mm

Dimensions

D-LAS-ED1-4x9.5-T oder
D-LAS-ED1-9.5x4-T
(Transmitter):



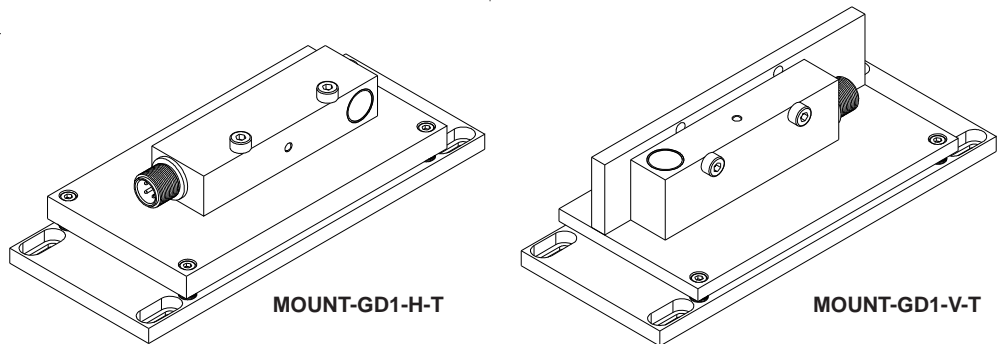
All dimensions in mm

Mounting

Mounting accessories:
(please order separately)

Mounting plates for
D-LAS-ED1-4x9.5-T
D-LAS-ED1-9.5x4-T:

MOUNT-GD1-H-T (for horizontal mounting)
MOUNT-GD1-V-T (für vertical mounting)



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.

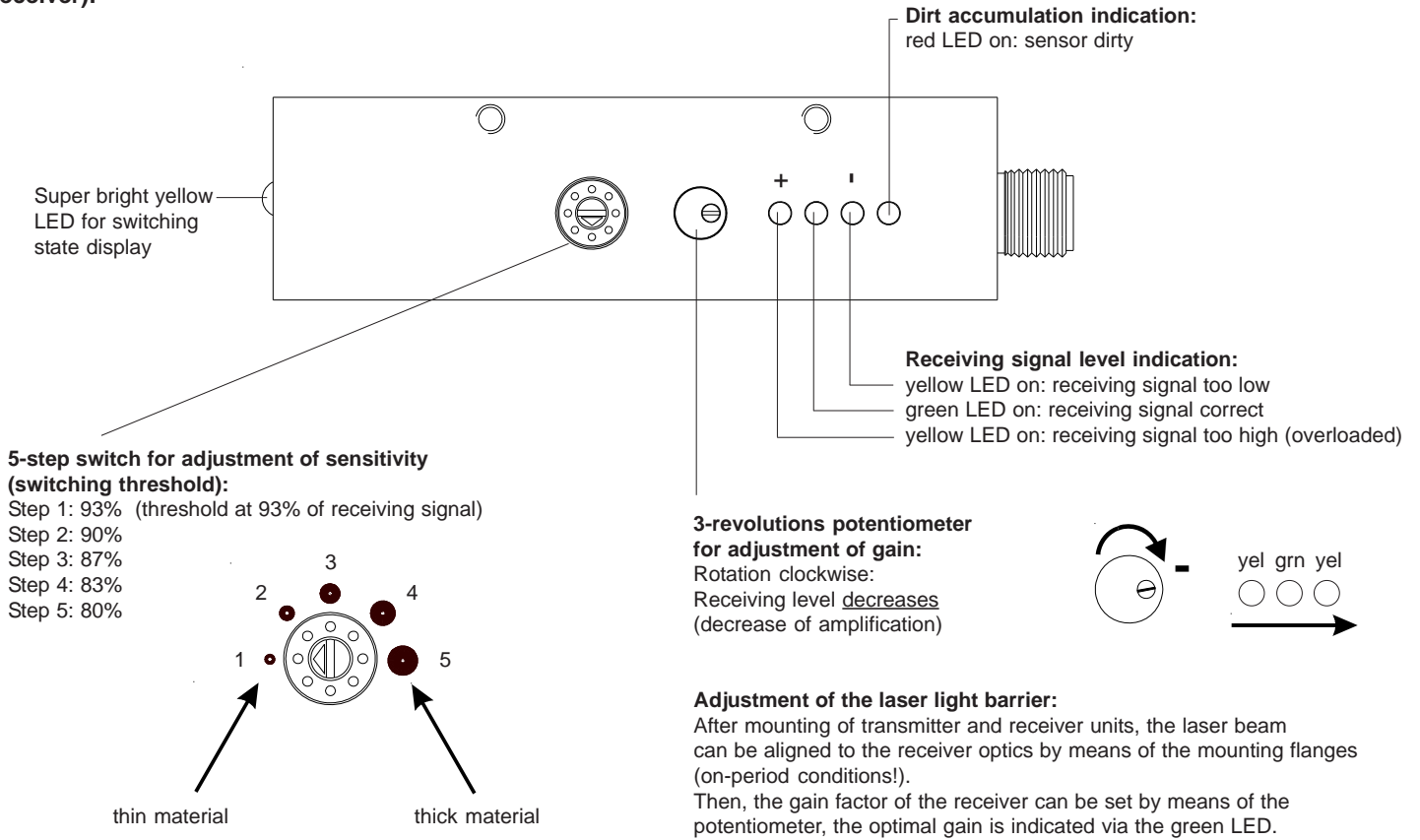
The laser transmitters of D-LAS series are supplied with an information label „CLASS 1 Laser Product“.

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



Setting

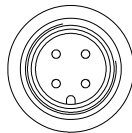
D-LAS-44-ED-9.5x4-AC-R
(Receiver):



Connector Assignment

D-LAS-ED1-...-T (transmitter):
4-pole M12-connector

Pin No.:	(Color)	Assignment:
1	(brn)	+24VDC (± 10%)
2	(wht)	not connected
3	(blu)	GND (0V)
4	(blk)	not connected
Shield		Housing

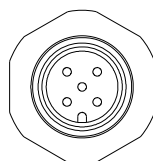


Connecting cable for transmitter:

cab-M12/4-g-2m-shd
(PUR-cable shielded, length 2 m, 4-pole M12 fem. connector)

D-LAS-44-ED-9.5x4-AC-R (receiver):
5-pole M12-connector

Pin No.:	(Color)	Assignment:
1	(brn)	+24VDC (± 10%)
2	(wht)	ANALOG (0V ... +10V)
3	(blu)	GND (0V)
4	(blk)	OUTPUT INV „Qinv“
5	(gry)	OUTPUT „Q“



Connecting cable for receiver:

cab-M12/5-g-2m
(PUR-cable, length 2 m, 5-pole M12 fem. connector)



Application Examples

High-precision triggering on thin glass panes starting from a thickness of 0.5 mm

In various glass handling plants, glass panes up to a height or width of several meters have to be positioned with highest accuracy (in the 0.1 mm range).

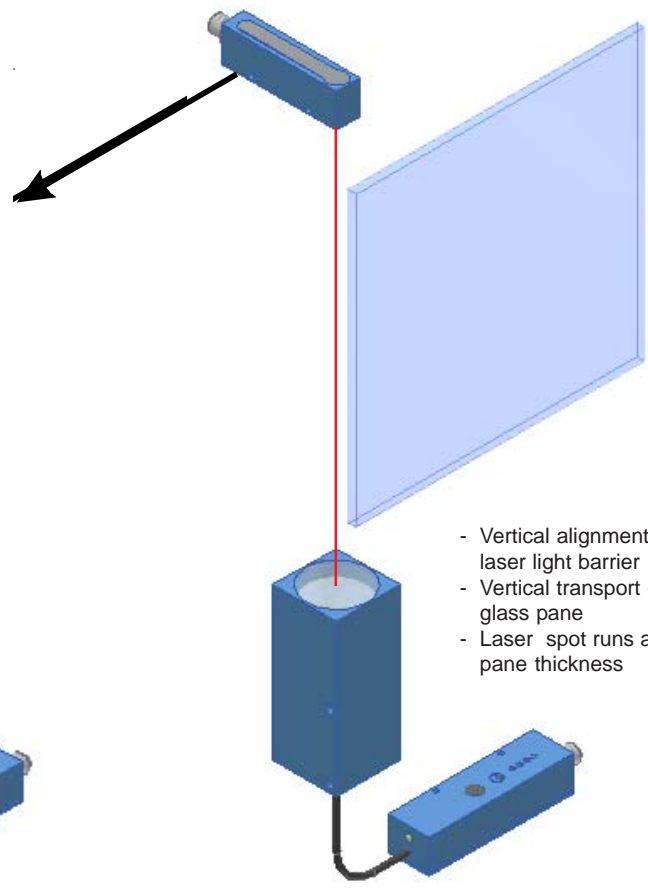
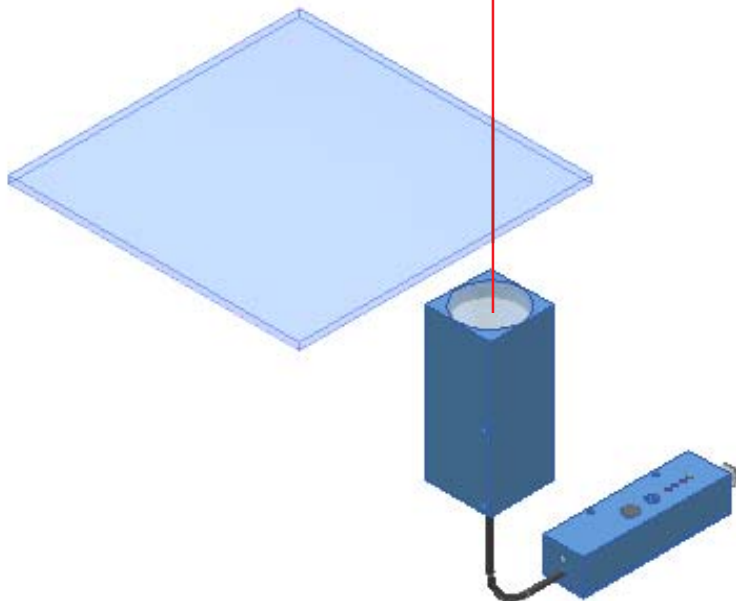
The problem is aggravated by the fact that the glass pane may have a thickness of 0.5 mm. With hardened glass, bending of several millimeters must also be taken into consideration. Moreover, when vibrations occur at the facilities the laser spot must not leave the receiver optics input area.

For safe detection of the glass pane, a correspondingly large detection area (9.5 mm x 4 mm laser light band) must be available on the one hand, and on the other hand it must be possible to set a correspondingly high sensitivity.

In this case, sensitivity setting is effected in 5 steps by step switches; a potentiometer is used to set the proper gain (3 LEDs as setting aid: 1 x green, 2 x yellow). One digital signal (bright-, dark-switching), one analog signal (0V ... +10V), and one signal for dirt accumulation are provided at the output. The operating frequency is 1 kHz.



- Vertical adjustment of the laser light barrier
- Horizontal transport of the glass pane
- Laser spot falls through the glass pane; please note that the long semiaxis of the laser spot must be vertical to the advance direction



- Vertical alignment of the laser light barrier
- Vertical transport of the glass pane
- Laser spot runs along the pane thickness



Application Examples

- Horizontal alignment of the laser light barrier
- Horizontal transport of the glass panes
- Laser spot runs along the pane thickness

