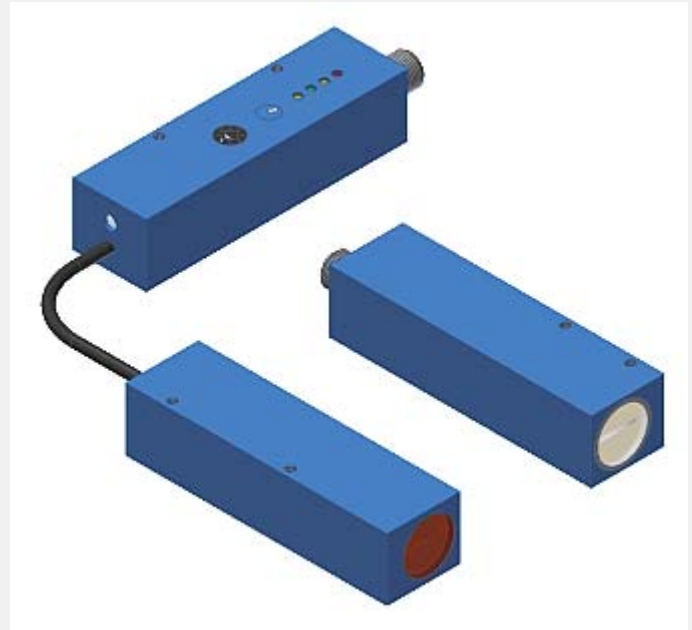


D-LAS Series

▶ D-LAS-24-ED-16x2-AC-SP-R D-LAS-24-ED-16x2-AC-T

(Glass Pane Detection)

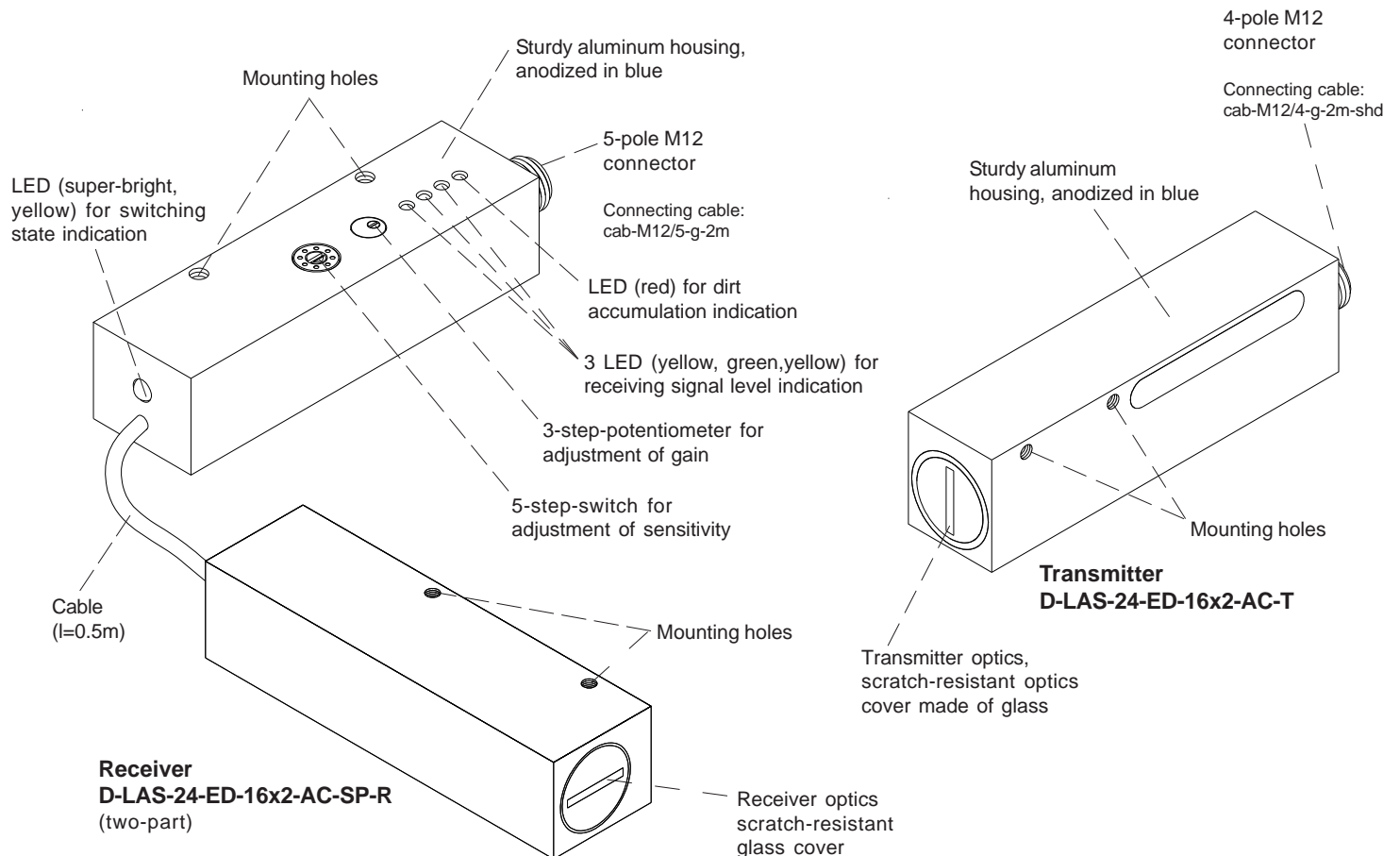
- Collimated laser beam (<math><0.4\text{ mW}</math>, 670 nm), **laser class 1**
- Big detecting range (laser spot 16 mm x 2 mm)
- Big transmitter/receiver distance (max. 4 m)
- High-sensitive (starting from 0.5 mm strength of glass)
- Insensitive to outside light due to interference filter and polarisation filter and due to pulsating light operation (100kHz)
- Adjustment of sensitivity via 5-step-switch
- Adjustment of gain via 3-revolutions-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-24-ED-16x2-AC-SP-R** (two-part)
Transmitter: **D-LAS-24-ED-16x2-AC-T**





Technical Data

Type	D-LAS-24-ED-16x2-AC-SP-R (receiver, two-part) D-LAS-24-ED-16x2-AC-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. 4 m
Min. detectable strength of glass	0.5 mm
Beam dimensions at transmitter output	typ. 16 mm x 2 mm
Optical filter	Interference filter, polarisation filter
Beam divergency	typ. 1 mrad
Voltage supply	+24VDC (± 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	Aluminum, anodized in blue
Housing dimensions (LxWxH)	Transmitter: approx. 100 mm x 28 mm x 24 mm (without connector) Receiver: approx. 100 mm x 24 mm x 28 mm (without connector), 2x
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 LED (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)



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.

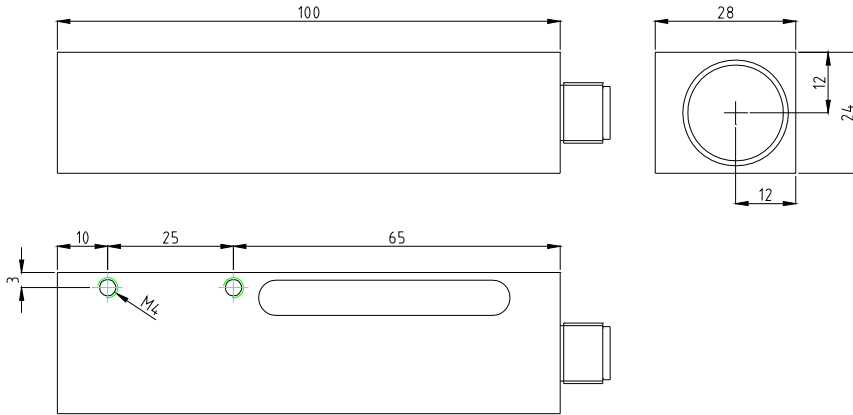
The laser transmitters of D-LAS series are supplied with an information label „CLASS 1 Laser Product“.

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

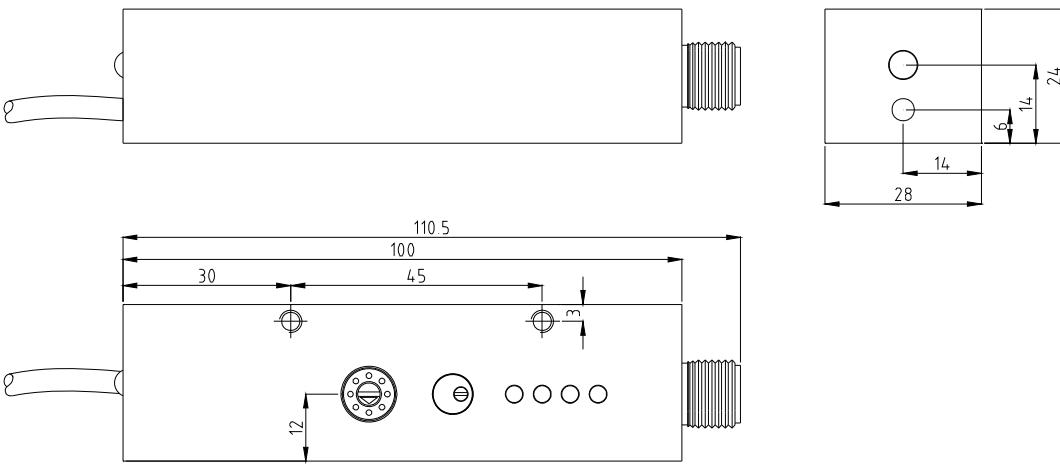


Dimensions

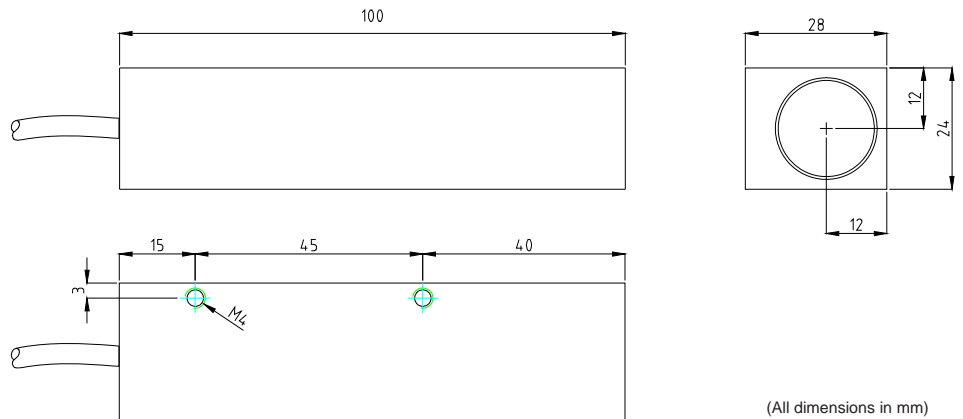
D-LAS-24-ED-16x2-AC-T
(transmitter):



D-LAS-24-ED-16x2-AC-SP-R
(receiver, two-part):



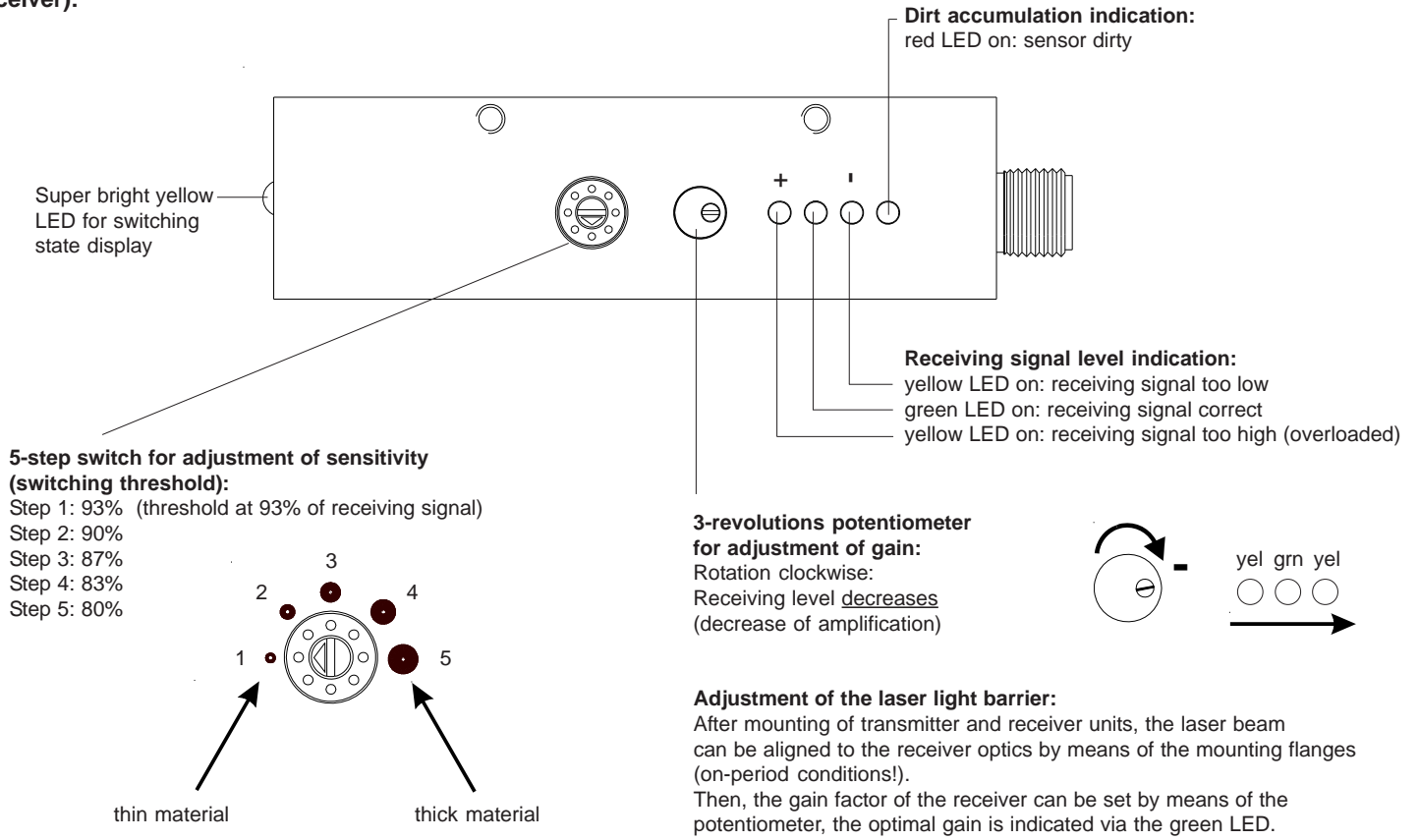
The two receiver parts are connected via a PUR-cable with 0.5 m in length (Ø 4 mm)



(All dimensions in mm)

Setting

D-LAS-24-ED-16x2-AC-SP-R
(receiver):

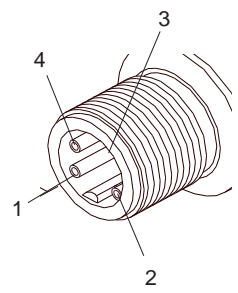


Adjustment of the laser light barrier:
 After mounting of transmitter and receiver units, the laser beam can be aligned to the receiver optics by means of the mounting flanges (on-period conditions!). Then, the gain factor of the receiver can be set by means of the potentiometer, the optimal gain is indicated via the green LED.

Connector Assignment

D-LAS-24-ED-16x2-AC-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-connector)

D-LAS-24-ED-16x2-AC-SP-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-female connector)



Application Example

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.

For safe detection of the glass pane, a correspondingly large detection area (16 mm x 2 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 red). Two digital signals (bright-, dark-switching), and one analog signal are provided at the output. An additional LED (yellow) provides information about the degree of dirtying of the analog laser light barrier. The operating frequency is 1 kHz.

