

D-LAS Series

► D-LAS-CERO-...

The laser light barrier D-LAS-CERO has been developed especially for the use in ceramic kilns, respectively in the immediate vicinity of kilns.

This laser light barrier monitors for example whether material has piled up in the kiln, or also whether a caster is broken.

In particular suitable for the detection of objects exposed to very high temperatures.



Characteristics

Product name:

Transmitter: D-LAS-CERO-T

Receiver: M18 housing:
D-LAS-CERO-(output)-(type)-R
D-LAS-CERO-(output)-(type)-RA-R

Receiver: Rectangular housing:
D-LAS-CERO90-(output)-(type)-R
D-LAS-CERO90-(output)-(type)-RA-R

Attachment optics: EO-18 (for D-LAS-CERO-...-R)

Reflector top: CERO-RFL (for EO-18)

Switching output:

Q = npn dark-switching / pnp bright-switching

Qinv = pnp dark-switching / npn bright-switching

Type (switching frequency):

S = 0,3 Hz

M = 20 Hz

L = 1 kHz

Also available:

RA = Reduced Amplification

Collimated laser beam (< 1 mW optical power, laser class 2)

Laser diodes are light sources that are - due to their extremely small aperture - excellently suitable for the generation of almost parallel light. This guarantees that the diameter of the laser light beam can be kept small even at very large distances.

For a distance of 100 m the laser spot has an expansion of about 300 mm x 150 mm (at ambient temperature).

High sensitivity of the receiver

Due to the high temperatures in the kiln, the laser beam is additionally expanded and deflected.

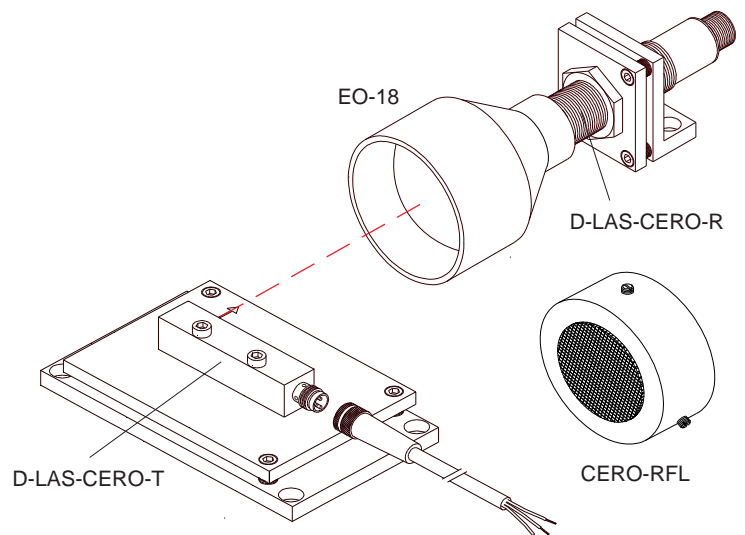
The large receiver optics (EO-18) with a diameter of 50 mm and a receiver electronic with a corresponding sensitivity guarantee the detection of the laser light.

Easy mounting

The visible red laser light, the available mounting angles, and the switching state indicator (LED) in the receiver cable guarantee an easy integration to new kilns; existing kilns can also be equipped without problems.


Help for the adjustment of the laser

- With the help of a mounting angle the transmitter is very exactly adjustable; this is very important especially for large transmitter/receiver distances (e.g. 100 m)
- Furthermore the reflector CERO-RFL, which is mounted onto the optics EO-18 during adjustment process, allows easy adjustment of the receiver





Technical Data

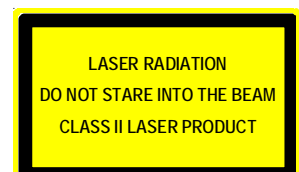
Type	D-LAS-CERO
Laser	Solid-state laser, 670 nm, AC operation, 1 mW max. opt. power, laser class 2 acc. to DIN EN 60825-1. The use of these laser transmitter requires no additional protective measures.
Max. distance transmitter/receiver	In the kiln: 150 m
Reproducibility	typ. 10 mm
Min. detectable object	typ. 10 mm
Optical filter	Interference filter and red light filter RG630
Voltage supply	+12VDC ... +32VDC, reverse-polarity protection, overcurrent protection
Alternating current/ direct current supply	AC operation (100 kHz), pulse/pause ratio 1:1
Ambient light	up to 5000 Lux, no influence on the receiver optics
Enclosure rating	IP67
Current consumption	approx. 110 mA
Laser beam dimensions	at transmitter outlet: typ. 4 mm x 2 mm
Beam divergency	typ. 2 mrad (at ambient temperature) typ. 10 mrad (through the kiln)
Operating temperature range	-20°C ... +50°C
Storage temperature range	-20°C ... +85°C
Housing material	Brass, nickel-plated
Connector type	Transmitter: 3-pole M8 connector Receiver D-LAS-CERO90-...-R: 3-pole M8 connector or D-LAS-CERO-...-R: 4-pole M12 connector
Switching frequency	Depends on the receiver type: with type "S": typ. 0.3 Hz with type "M": typ. 20 Hz with type "L": typ. 1 kHz
Max. switching current	100 mA, short-circuit protection
EMC test acc. to	DIN EN 60947-5-2 



Laser Warning

The transmitters of the laser one-way light barriers of D-LAS Series comply with laser class 2 according to EN 60825-1. The use of these laser transmitters therefore requires no additional protective measures.

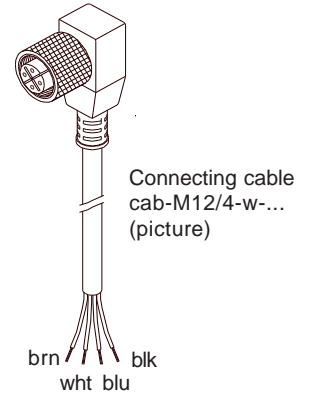
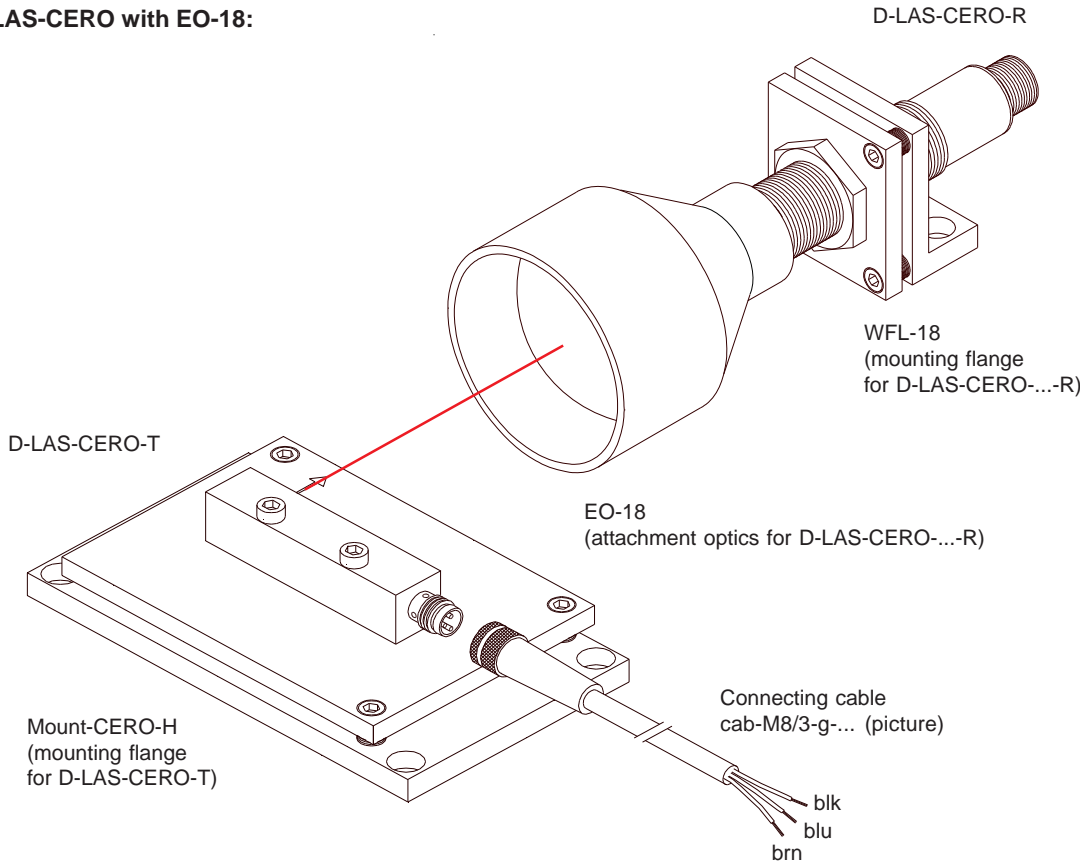
The transmitters of the D-LAS Series are supplied with a laser warning label.



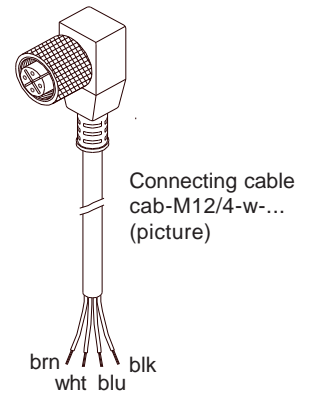
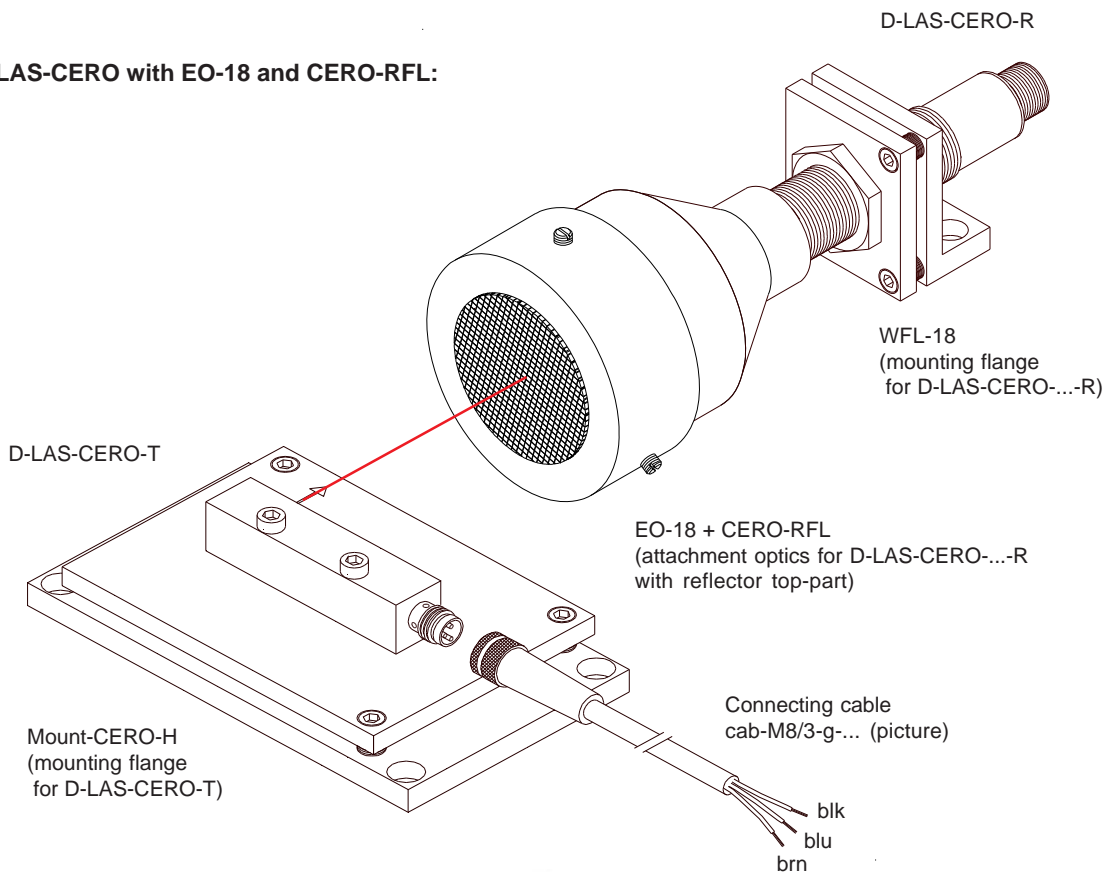


Design

D-LAS-CERO with EO-18:

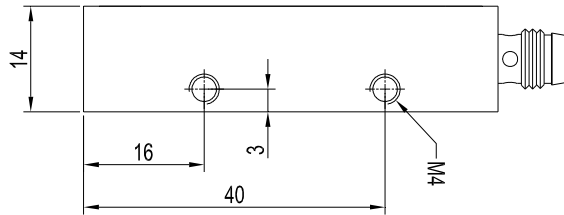
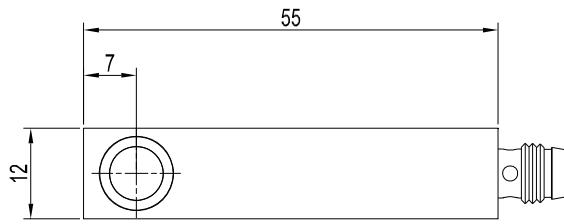


D-LAS-CERO with EO-18 and CERO-RFL:

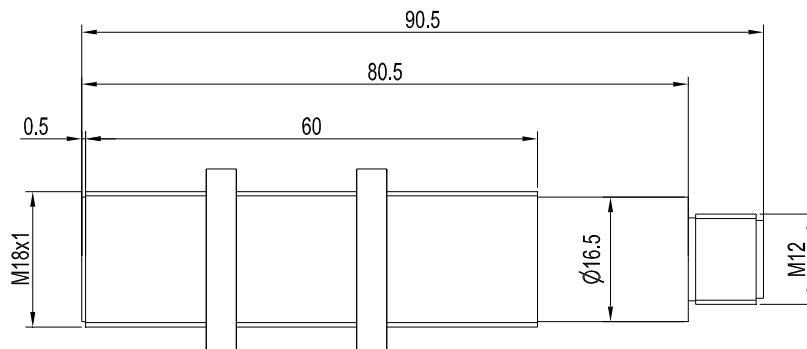


Dimensions

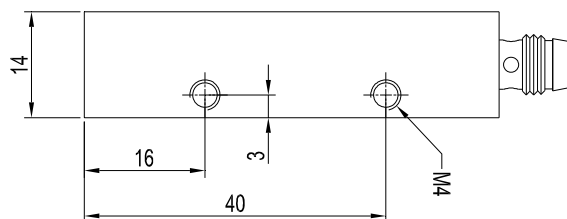
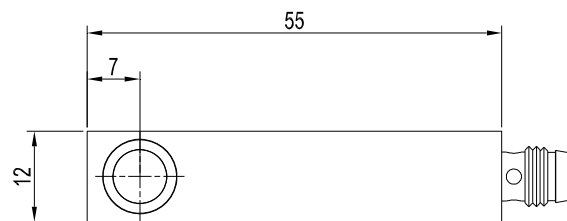
D-LAS-CERO-T



D-LAS-CERO-...-R



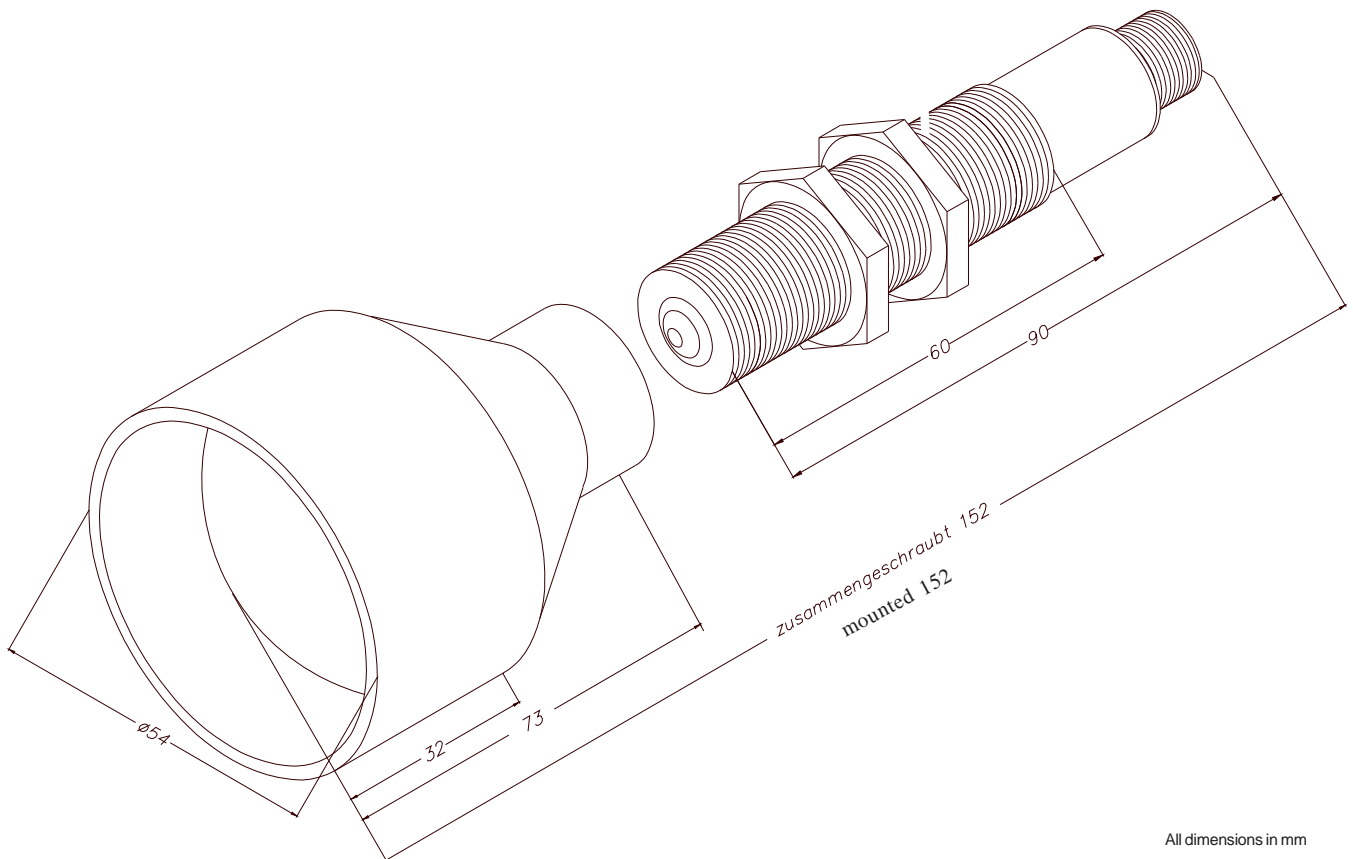
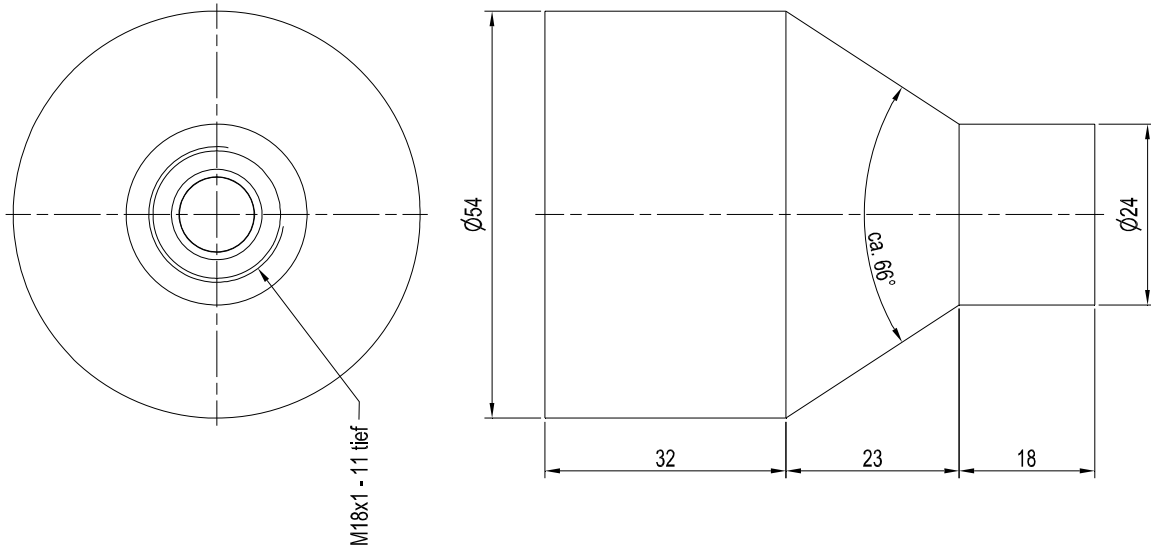
D-LAS-CERO90-...-R



All dimensions in mm

Dimensions

EO-18

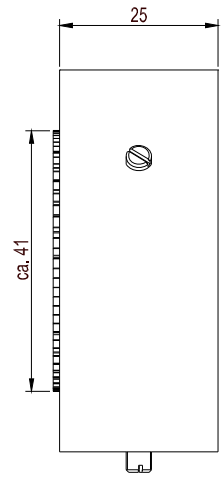
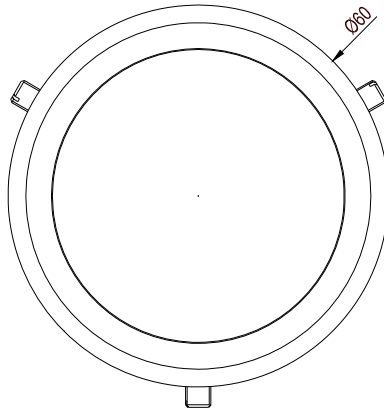
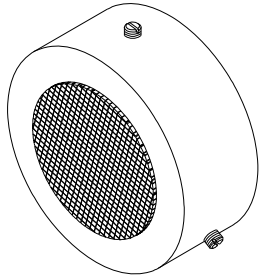


All dimensions in mm

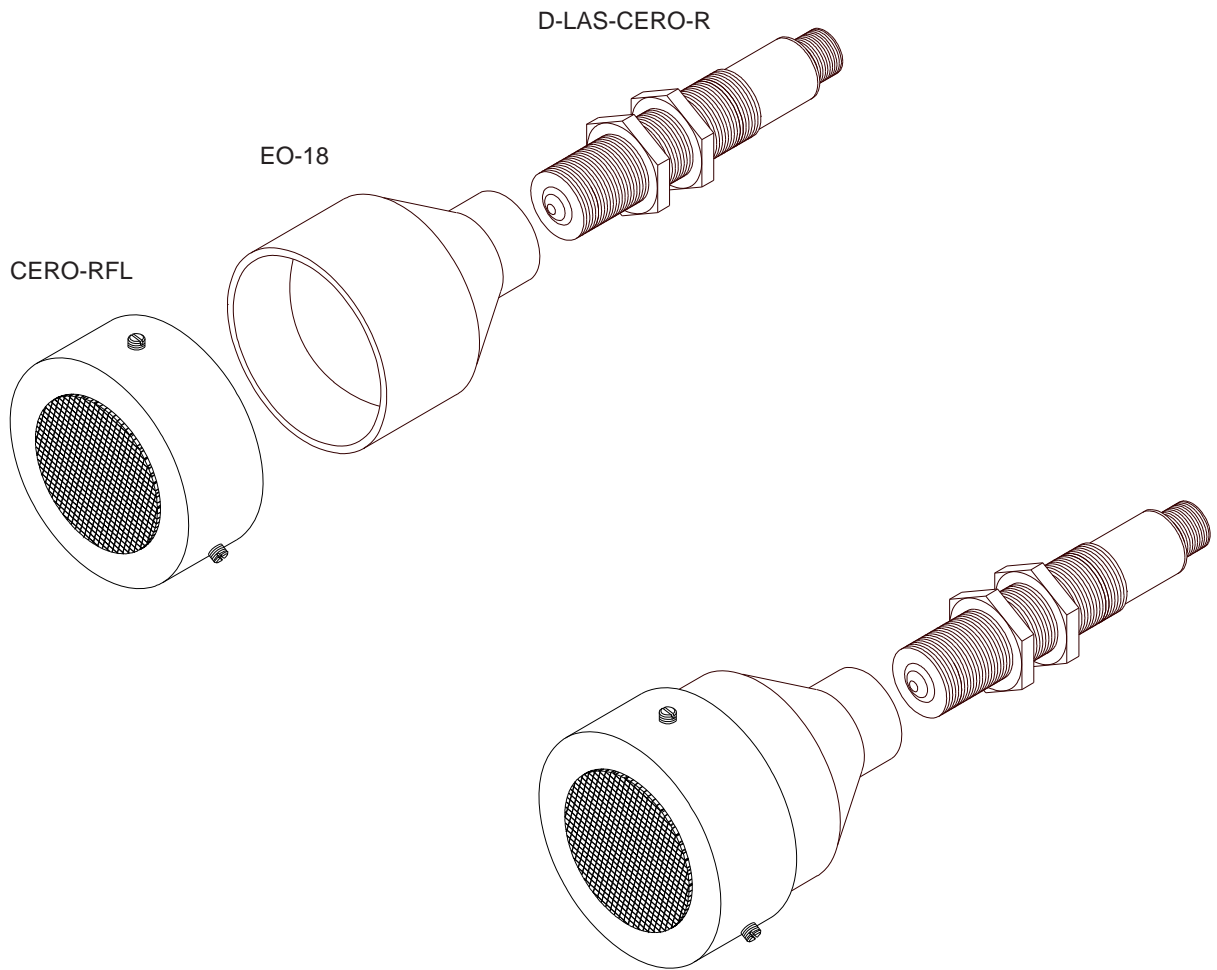


Reflector

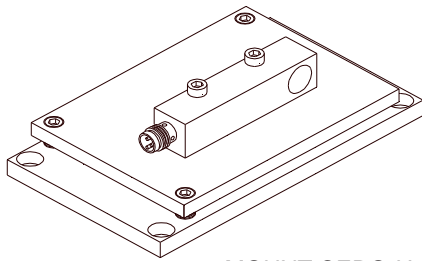
CERO-RFL



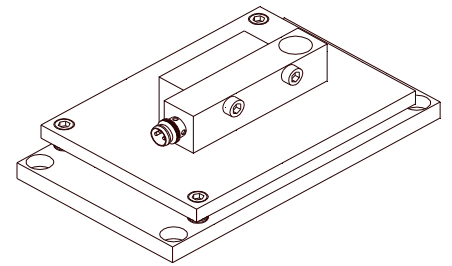
All dimensions in mm



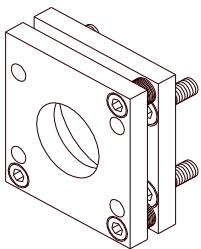
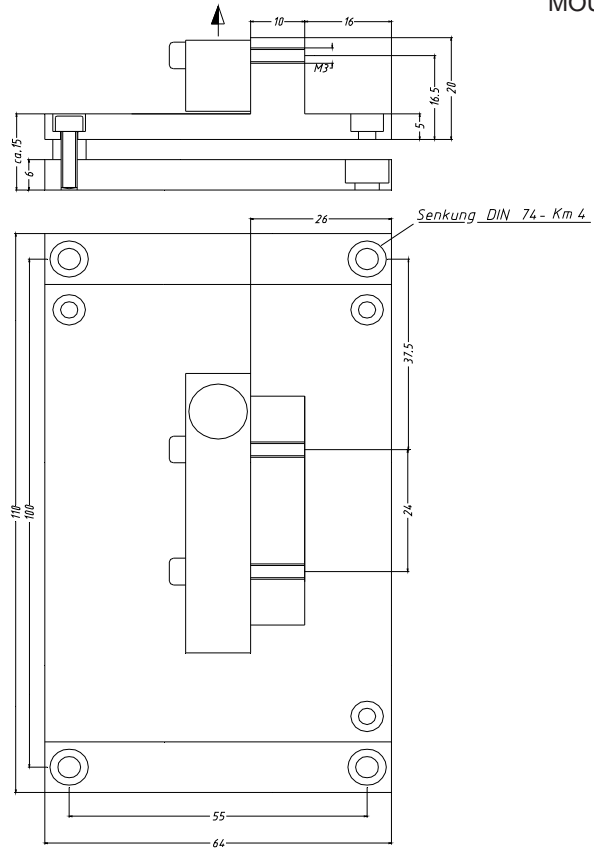
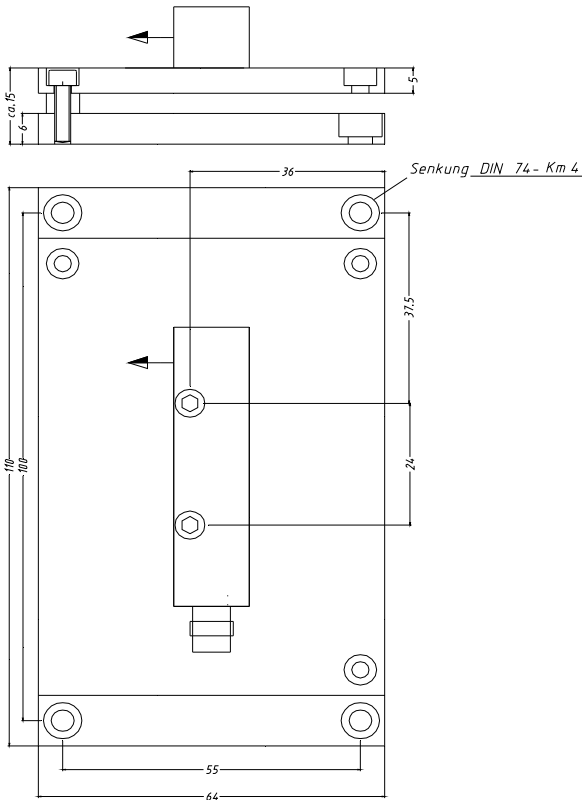
Mounting



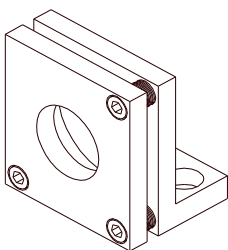
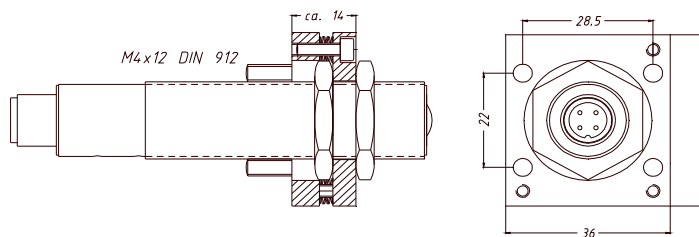
MOUNT-CERO-H



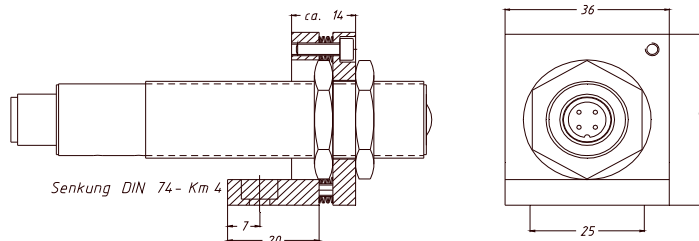
MOUNT-CERO-V



FL-18



WFL-18



All dimensions in mm



Connector Assignment

Transmitter D-LAS-CERO-T

3-pole M8-connector:

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

Connecting cable:
cab-M8/3-...



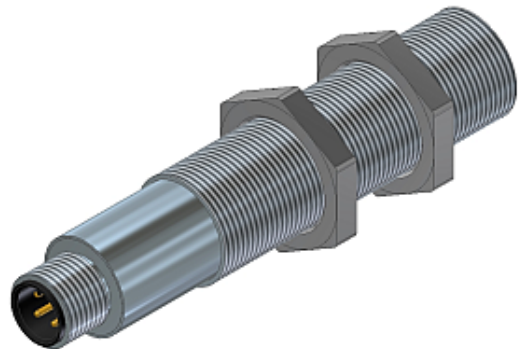
Receiver D-LAS-CERO-Q-...-R

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

4-pole M12-connector:

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

Connecting cable:
cab-M12/4-...



Receiver D-LAS-CERO-Qinv-...-R

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

4-pole M12-connector:

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

Connecting cable:
cab-M12/4-...

Receiver D-LAS-CERO90-Q-...-R

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

3-pole M8-connector:

Pin No.:	Color:	Assignment:
1	brn	+12VDC...+32VDC
3	blu	0V (GND)
4	blk	OUTPUT Q

Connecting cable:
cab-M8/3-w-...



Receiver D-LAS-CERO90-Qinv-...-R

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

3-pole M8-connector:

Pin No.:	Color:	Assignment:
1	brn	+12VDC...+32VDC
3	blu	0V (GND)
4	blk	OUTPUT Qinv

Connecting cable:
cab-M8/3-w-...



Connecting Cables

Available connecting cables:

for receiver D-LAS-CERO90-...-R:

cab-M8/3-w-npn-2	Length: 2m	Sheath: PUR	angle type, LED
cab-M8/3-w-npn-5	Length: 5m	Sheath: PUR	angle type, LED
cab-M8/3-w-pnp-2	Length: 2m	Sheath: PUR	angle type, LED
cab-M8/3-w-pnp-5	Length: 5m	Sheath: PUR	angle type, LED

for transmitter D-LAS-CERO-T:

cab-M8/3-g-2	Length: 2m	Sheath: PUR	
cab-M8/3-g-5	Length: 5m	Sheath: PUR	
cab-M8/3-w-2	Length: 2m	Sheath: PUR	angle type
cab-M8/3-w-5	Length: 5m	Sheath: PUR	angle type

for receiver D-LAS-CERO-...-R:

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

