C-LAS Series

C-LAS-LT-65-...

Laser displacement sensor with background suppression

- High dynamic range, high switching accuracy
- Automatic laser power correction
- Working range typ. 35 mm ... 120 mm
- Two switching outputs (PNP no/nc or NPN no/nc)
- Scratch-resistant optics made of glass
- Short circuit protection, reversed polarity protection
- 4-pole M8-connector made of metal, LED indicator
- Visible red laser light 670 nm, class 2 laser product

Design

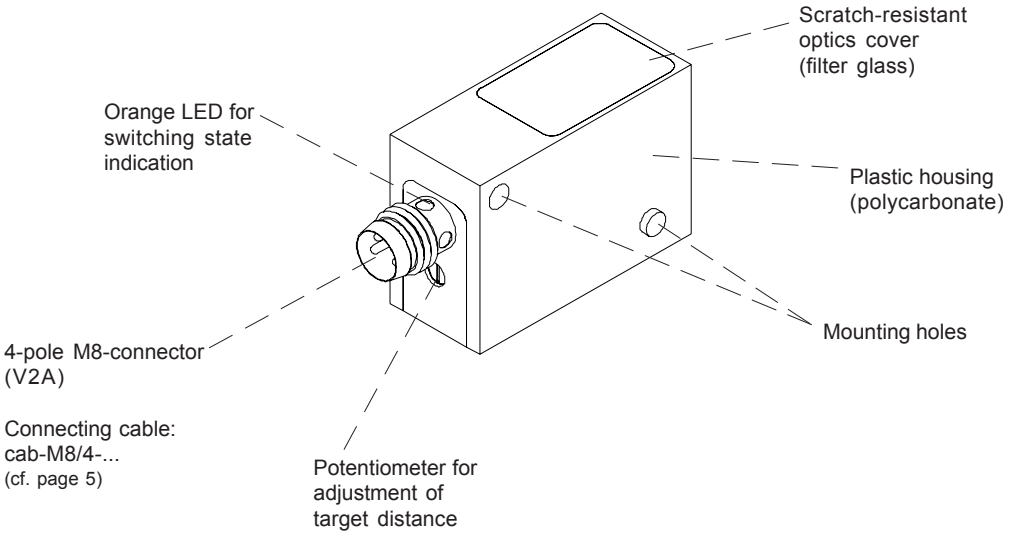
Product name:

C-LAS-LT-65-(switching output)

Switching outputs:

P = 1x PNP dark-switching (PNP n.o.),
1x PNP bright-switching (PNP n.c.)

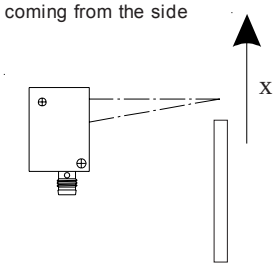
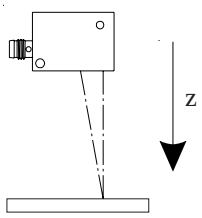
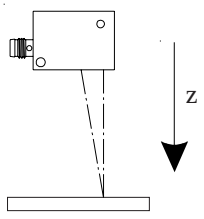
N = 1x NPN dark-switching (NPN n.o.),
1x NPN bright-switching (NPN n.c.)



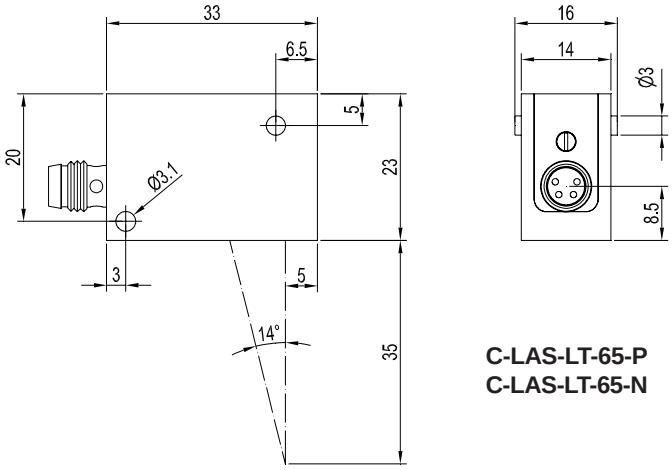
Technical Data

Model	C-LAS-LT-65-P	C-LAS-LT-65-N
Laser	Semiconductor laser: 670 nm, 1 mW max. opt. output, class 2 laser product acc. to DIN EN 60825-1. The use of these laser transmitters therefore requires no additional protective measures.	
Reference distance	typ. 65 mm	
Min. detectable object (at a distance of 50 mm)	typ. 50 µm	
Target distance	typ. 35 mm ... 120 mm; with KODAK white and KODAK black: typ. 40 mm ... 100 mm	
Laser spot diameter	beam diameter in the focus (at 50 mm distance): typ. < 0,2 mm beam diameter at transmitter optic output: typ. < 2 mm	
Optical filter	Red light filter RG645	
Voltage supply	+10VDC ... +32VDC, reversed-polarity protection, overcurrent protection	
Power supply	AC-operation, typ. 100 kHz	
Ambient light	Up to 5000 Lux	
Enclosure rating	IP67	
Current consumption	Approx. 50 mA	
Focusing of laser beam	At a distance of 50 mm (typ.)	
EMC test acc. to	DIN EN 60947-5-2 CE	
Connector type	Connection to PLC: 4-pole M8-connector	
Working temperature range	-20°C to +55°C	
Storage temperature range	-20°C to +85°C	
Housing	Polycarbonate, black	
Rise time / fall time	<= 1 ms	
Max. switching current	100 mA, short-circuit protection	
Switching frequency	typ. 1 kHz	
Outputs	1x PNP normally open 1x PNP normally closed	1x NPN normally open 1x NPN normally closed
Switching state indication	By means of an orange LED (integrated in the M8-plug)	
Laser power correction	Due to integrated laser power correction, the sensor is largely independent of brightness of measuring object (for instance KODAK white and KODAK black)	

Technical Data

Model	C-LAS-LT-65
Repeatability for targets coming from the side 	to the target (black mat): typ. ± 30 µm (at distance 0 mm ... 70 mm) to the target (white mat): typ. ± 20 µm (at distance 40 mm ... 70 mm) from the target (black mat): typ. ± 30 µm (at distance 40 mm ... 70 mm) from the target (white mat): typ. ± 20 µm (at distance 40 mm ... 70 mm) Switching hysteresis (to the target/from the target): typ. < 100 µm
Offset caused due to change of the target from white mat to black mat (target coming from the side)	typ. < 250 µm (at distance 40 mm ... 70 mm)
Repeatability for targets moved directly to the sensor respectively from the sensor 	to the target (black mat): typ. ± 100 µm (at distance 0 mm ... 70 mm) to the target (white mat): typ. ± 50 µm (at distance 0 mm ... 70 mm) from the target (black mat): typ. ± 100 µm (at distance 40 mm ... 70 mm) from the target (white mat): typ. ± 50 µm (at distance 40 mm ... 70 mm) Switching hysteresis (to the target/from the target): typ. 2 mm (at distance 40 mm ... 50 mm) typ. 3 mm (at distance 50 mm ... 60 mm) typ. 5 mm (at distance 70 mm)
Offset caused by a target change from white mat to black mat (target moved directly to the sensor) 	typ. < ± 150 µm (at distance 40 mm ... 70 mm)

Dimensions

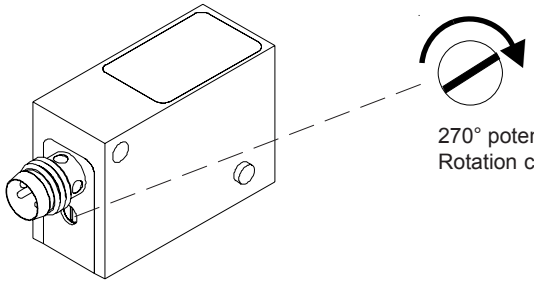


C-LAS-LT-65-P
C-LAS-LT-65-N

(All dimensions in mm)

Adjustment

Potentiometer for adjustment of target distance:



270° potentiometer:
Rotation clockwise = reduction of target distance

Laser Warning

The transmitters of the laser sensors of C-LAS Series comply with laser class 2 according to EN 60825-1. The use of these transmitter requires no additional protective measures.

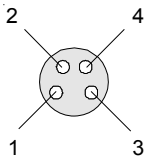
The transmitters of C-LAS Series are supplied with a laser warning label.

Connector Assignment

Connection to PLC:

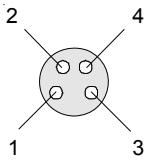
Type C-LAS-LT-65-P (switching output P):
4-pole M8-connector

Pin No.:	Color:	Assignment:
1	brown	+10VDC ... +32VDC
2	white	OUTPUT PNP dark-switching (PNP n.o.)
3	blue	GND (0V)
4	black	OUTPUT PNP bright-switching (PNP n.c.)



Type C-LAS-LT-65-N (switching output N):
4-pole M8-connector

Pin No.:	Color:	Assignment:
1	brown	+10VDC ... +32VDC
2	white	OUTPUT NPN dark-switching (NPN n.o.)
3	blue	GND (0V)
4	black	OUTPUT NPN bright-switching (NPN n.c.)

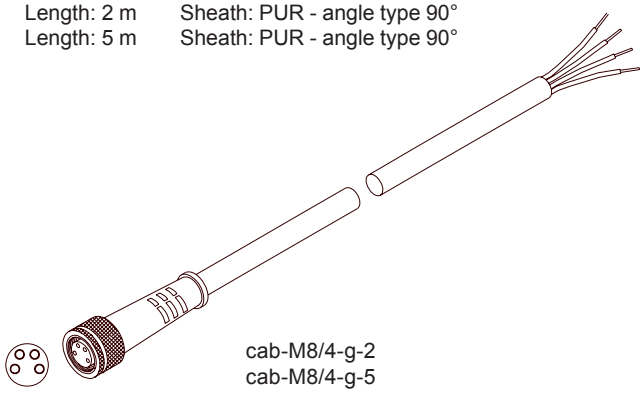


Connecting cable for each type:
cab-M8/4-g-(length) or
cab-M8/4-w-(length) (angle type 90°)
(standard length 2m)

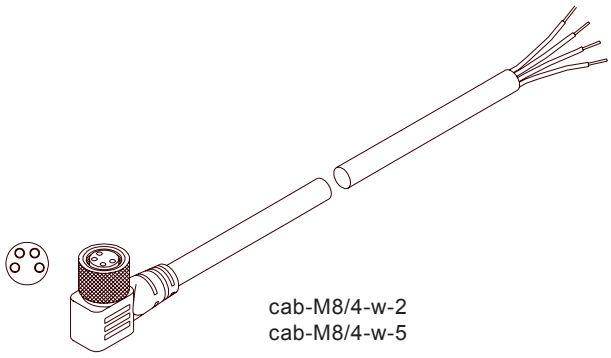
Connecting Cables

Available connecting cables:

cab-M8/4-g-2	Length: 2 m	Sheath: PUR
cab-M8/4-g-5	Length: 5 m	Sheath: PUR
cab-M8/4-w-2	Length: 2 m	Sheath: PUR - angle type 90°
cab-M8/4-w-5	Length: 5 m	Sheath: PUR - angle type 90°



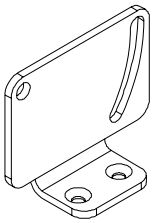
cab-M8/4-g-2
cab-M8/4-g-5

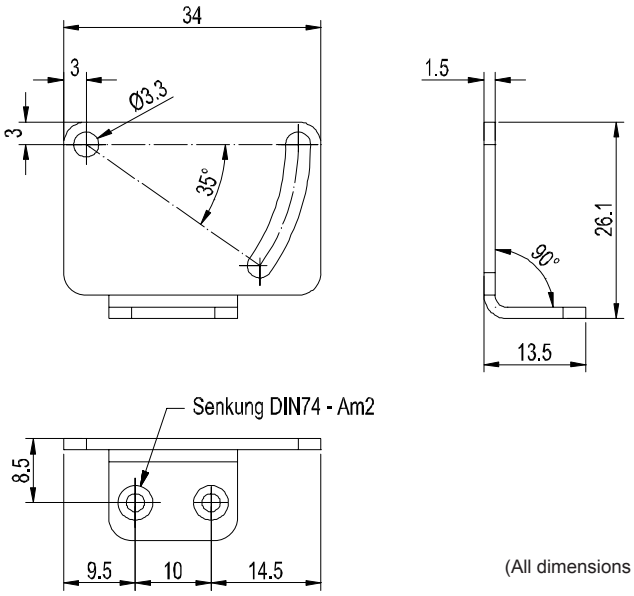


cab-M8/4-w-2
cab-M8/4-w-5

Mounting

Mounting device: MOUNT-23/34 (please order separately)





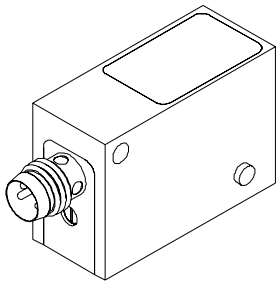
(All dimensions in mm)

Product Line

Summary Compact Laser Sensors:

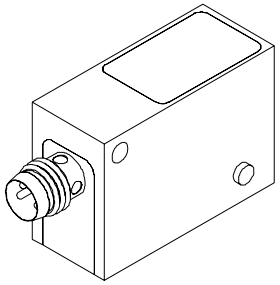
C-LAS-LT-35
C-LAS-LT-65

Laser displacement sensor
with background suppression



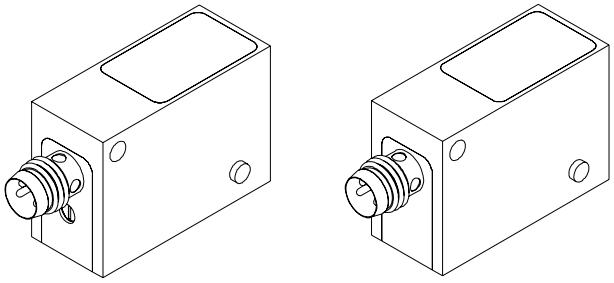
C-LAS-LT-35-ANA
C-LAS-LT-65-ANA

Laser displacement sensor
with analog output



C-LAS-14 (transmitter and receiver)

Laser oneway light barrier



C-LAS-LR-RP2
C-LAS-LR-OP2

Laser reflection light barriers