



... more than an investment!

Safe4

Safety Light Curtain category 4 according to IEC 61496-1, -2



IEC 61496 EN 954-1

ISO 9001: 2000

Description

CEDES' Safe4 safety light curtain meets the highest safety requirements. It was developed in close cooperation with leading automotive manufacturers, stressing simple handling under severe factory conditions. An integrated intelligent laser alignment system allows quick and easy alignment of the optical edges and simplifies installation and operation, especially when troubleshooting. Expensive experts are no longer needed to align a category 4 light curtain.

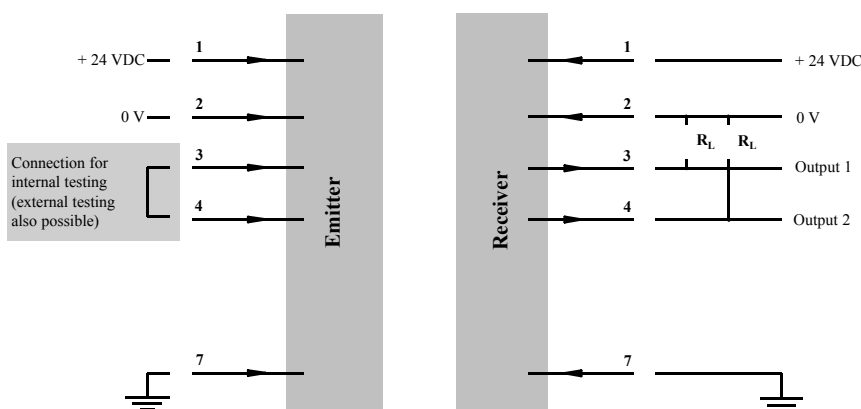
Safe4 is a user friendly and competitively priced system. A maximum range of 18 m is achieved with the 30 mm resolution version and 9 m with the 14 mm resolution version. This dynamic range is achieved with optical edges measuring only 30 mm x 40 mm in diameter. The protection height can be configured in 120 mm increments. All systems are extremely tolerant to foreign light and are therefore suitable for special applications like welding robot systems.

A cascading system allows for more than one protection field to be monitored by one controller and one safety relay, thereby making the system even more cost-effective.

Features

- Integrated laser alignment system (ILAS)
- Integrated self test mode
- Max. 256 beams per system
- Large operating range
- Fast response time
- Semi-conductor outputs (short-circuit proof)
- Optical synchronisation, no electrical cable needed between emitter and receiver
- Several protection fields by cascading (up to 3)
- Perimeter systems according EN 999
- Quick and easy installation
- Standard mounting kits (inclusive)
- Several mounting kits available

Principle

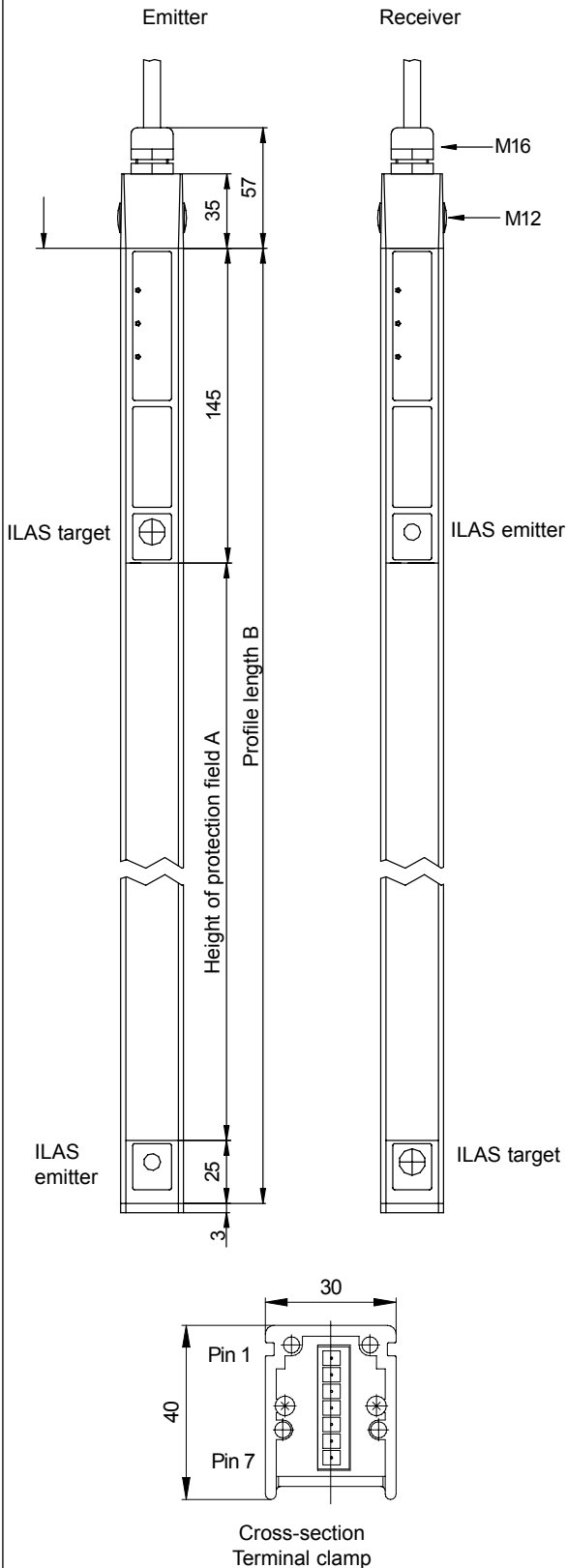


Technical Data

Power Supply	24 VDC \pm 20 %
Current consumption	< 500 mA (without load)
Output receiver	2 channel
	PNP 24 V / 0.3 A
	short circuit monitoring
Synchronisation	optical
Diagnostics	LED display, OptiLink
Response time	min. 7.8 ms
Resolution	14 or 30 mm
Operating range	
- Resolution 14 mm	up to 9 m
- Resolution 30 mm	up to 18 m
- optional	6 m or 5 ... 30 m
Length of protection field	120 ... 2'280 mm
Connecting plug	7-pole terminal block
- Optional	M12, 5-pin
Max ambient light	5'000 Lux
Optical window	Polycarbonate
Enclosure rating	IP65
Temperature range	0 ... +55° C
ILAS laser class	2 (IEC 60825-1)
Certificates	TÜV, CSA, CE

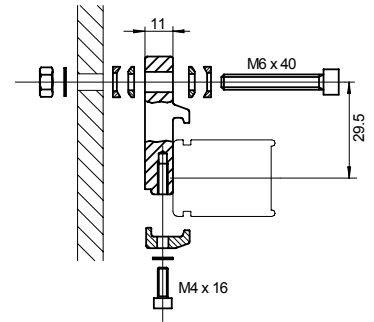
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Dimensions (all dimensions in mm)

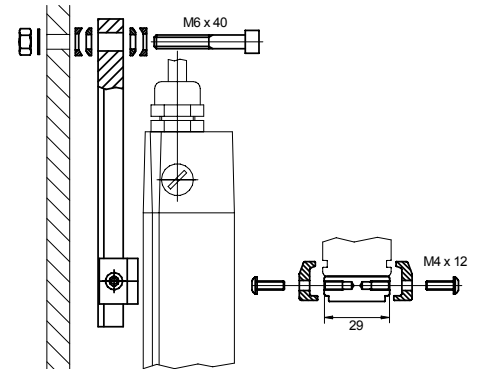


Mounting Sets

Standard Mounting
on aluminum profile, adjustable by $\pm 4^\circ$



Optional:
Vertical mounting, adjustable by $\pm 4^\circ$



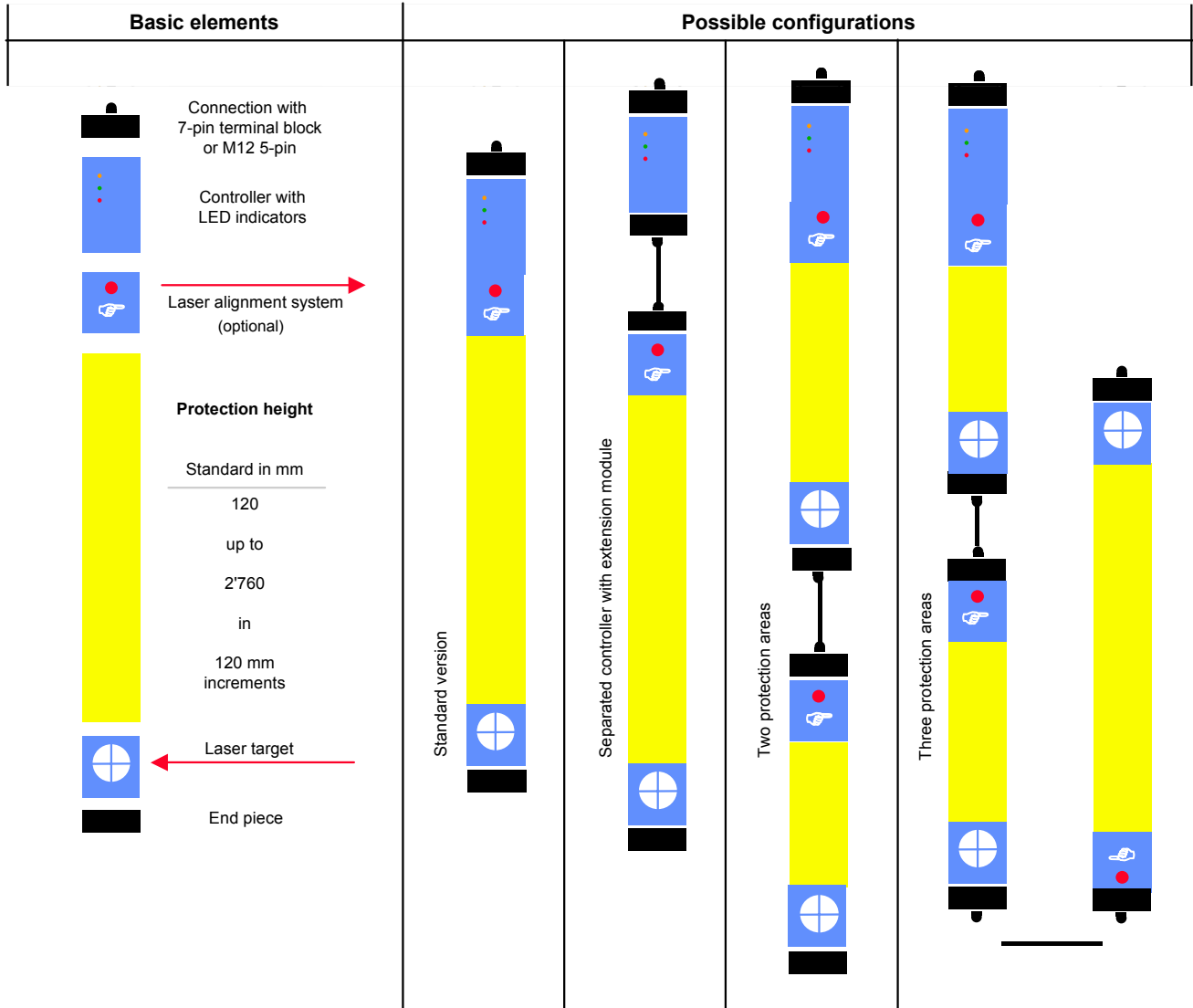
Optional:
180° Mounting, rotation $\pm 90^\circ$, for applications where the mounting angle is not set using the mounting frame.



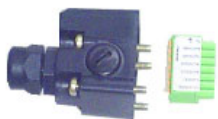
(These dimensions are also available as data files for implementing in CAD drawings (file format: *.dxf).)

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Possible configurations and type description



Connetion possibilities



Cable connection cap (fit with M16)



Cable connection cap (fit with M12)



Connection cap with M12 5 pin plug

Separated controller



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Safety light curtain with 14 mm resolution, operating range 9 m

Part Number	Type	Order indication	Response time [ms]	Protection height A [mm]	Profile length B [mm]
103 000 0001	Safe4-120-14	S4S-ASF2I-KF1-ACD4C	10.5	120	290
103 000 0002	Safe4-240-14	S4S-ASF2I-KF2-ACD4F	15.8	240	410
103 000 0003	Safe4-360-14	S4S-ASF2I-KF3-ACD4E	21.1	360	530
103 000 0004	Safe4-480-14	S4S-ASF2I-KF4-ACD49	26.3	480	651
103 000 0005	Safe4-600-14	S4S-ASF2I-KF5-ACD48	31.6	600	771
103 000 0006	Safe4-720-14	S4S-ASF2I-KF6-ACD4B	36.9	720	891
103 000 0007	Safe4-840-14	S4S-ASF2I-KF7-ACD4A	42.2	840	1'011
103 000 0008	Safe4-960-14	S4S-ASF2I-KF8-ACD45	47.5	960	1'132
103 000 0009	Safe4-1080-14	S4S-ASF2I-KF9-ACD44	52.8	1'080	1'252
103 000 0010	Safe4-1200-14	S4S-ASF2I-KF10-ACD7C	58.1	1'200	1'372

Protection height up to 2'760 available on request.

Safety light curtain with 30 mm resolution, operating range 18 m (optional 6 m or 5 up to 30 m)

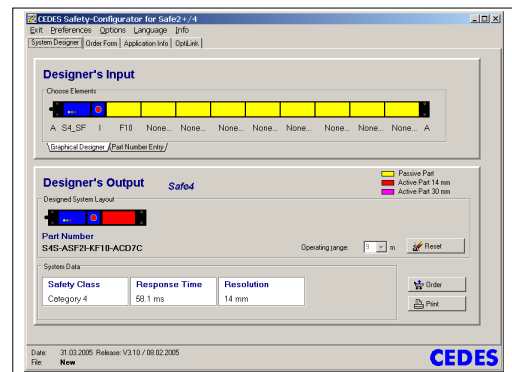
Part Number	Type	Order indication	Response time [ms]	Protection height A [mm]	Profile length B [mm]
103 000 0011	Safe4-120-30	S4S-ASF2I-KH1-ACD42	7.8	120	290
103 000 0012	Safe4-240-30	S4S-ASF2I-KH2-ACD41	10.5	240	410
103 000 0013	Safe4-360-30	S4S-ASF2I-KH3-ACD40	13.1	360	530
103 000 0014	Safe4-480-30	S4S-ASF2I-KH4-ACD47	15.8	480	651
103 000 0015	Safe4-600-30	S4S-ASF2I-KH5-ACD46	18.4	600	771
103 000 0016	Safe4-720-30	S4S-ASF2I-KH6-ACD45	21.1	720	891
103 000 0017	Safe4-840-30	S4S-ASF2I-KH7-ACD44	23.7	840	1'011
103 000 0018	Safe4-960-30	S4S-ASF2I-KH8-ACD4B	26.3	960	1'132
103 000 0019	Safe4-1080-30	S4S-ASF2I-KH9-ACD4A	29.9	1'080	1'252
103 000 0020	Safe4-1200-30	S4S-ASF2I-KH10-ACD72	31.6	1'200	1'372
103 000 0021	Safe4-1320-30	S4S-ASF2I-KH11-ACD73	34.3	1'320	1'492
103 000 0022	Safe4-1440-30	S4S-ASF2I-KH12-ACD70	36.9	1'440	1'613
103 000 0023	Safe4-1560-30	S4S-ASF2I-KH13-ACD71	39.6	1'560	1'733
103 000 0024	Safe4-1680-30	S4S-ASF2I-KH14-ACD76	42.2	1'680	1'853
103 000 0025	Safe4-1800-30	S4S-ASF2I-KH15-ACD77	44.9	1'800	1'973

The profile length B of systems without the ILAS (laser alignment system) will be 50 mm shorter.
Other protection heights in increments of 120 mm or cascading systems available on request.

There are other characteristics integrated into the order indication code:

Example: S4S-ASF2I-KF3-ACD4E

I: with ILAS
 N: without ILAS
 Connection Type: A - Terminal block
 B - Plug M12 / 5 pin



The modular construction of the Safe4 allows for the most varied formations. To clarify these configuration varieties, CEDES offers a configuration software called "Configuration Tool" (free download from www.cedes.com).