



... 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.

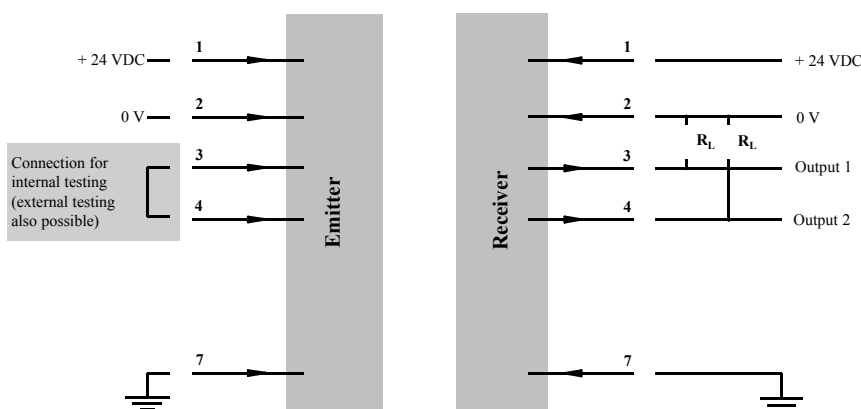
Safe4 is a user friendly and competitively priced system. A maximum range of 18 m is achieved with the 30 mm resolution version and 9 m with the 14 mm resolution version. This dynamic range is achieved with optical edges measuring only 30 mm x 40 mm in diameter. The protection height can be configured 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

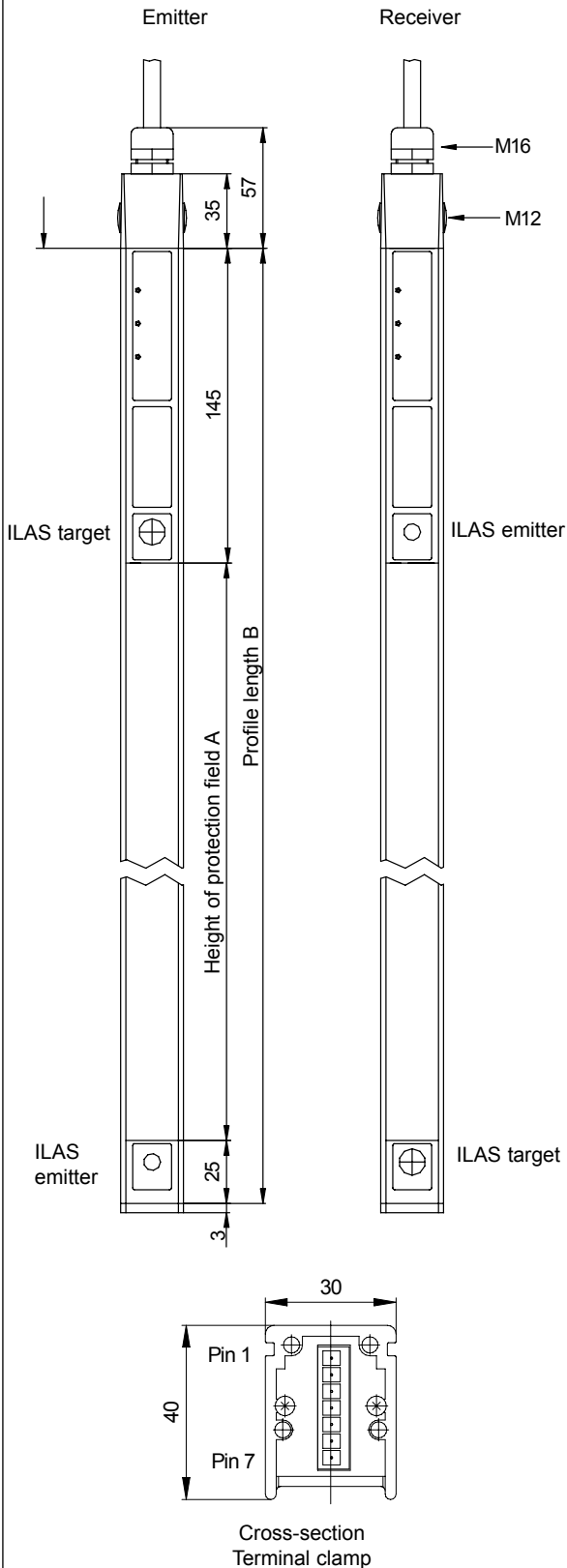


Technical Data

| | |
|----------------------------|--------------------------|
| 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 |

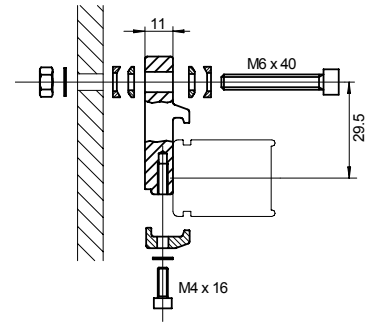
Safety Light Curtain Safe4

Dimensions (all dimensions in mm)

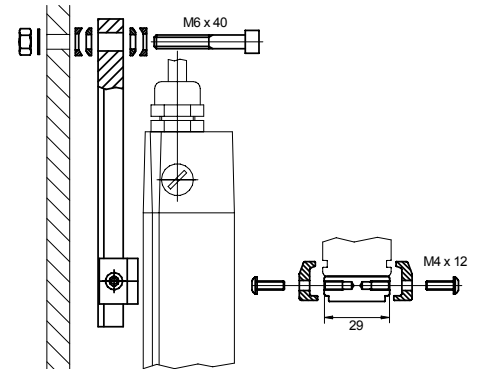


Mounting Sets

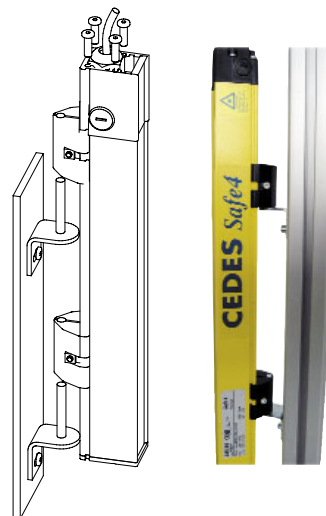
Standard Mounting
on aluminum profile, adjustable by $\pm 4^\circ$



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



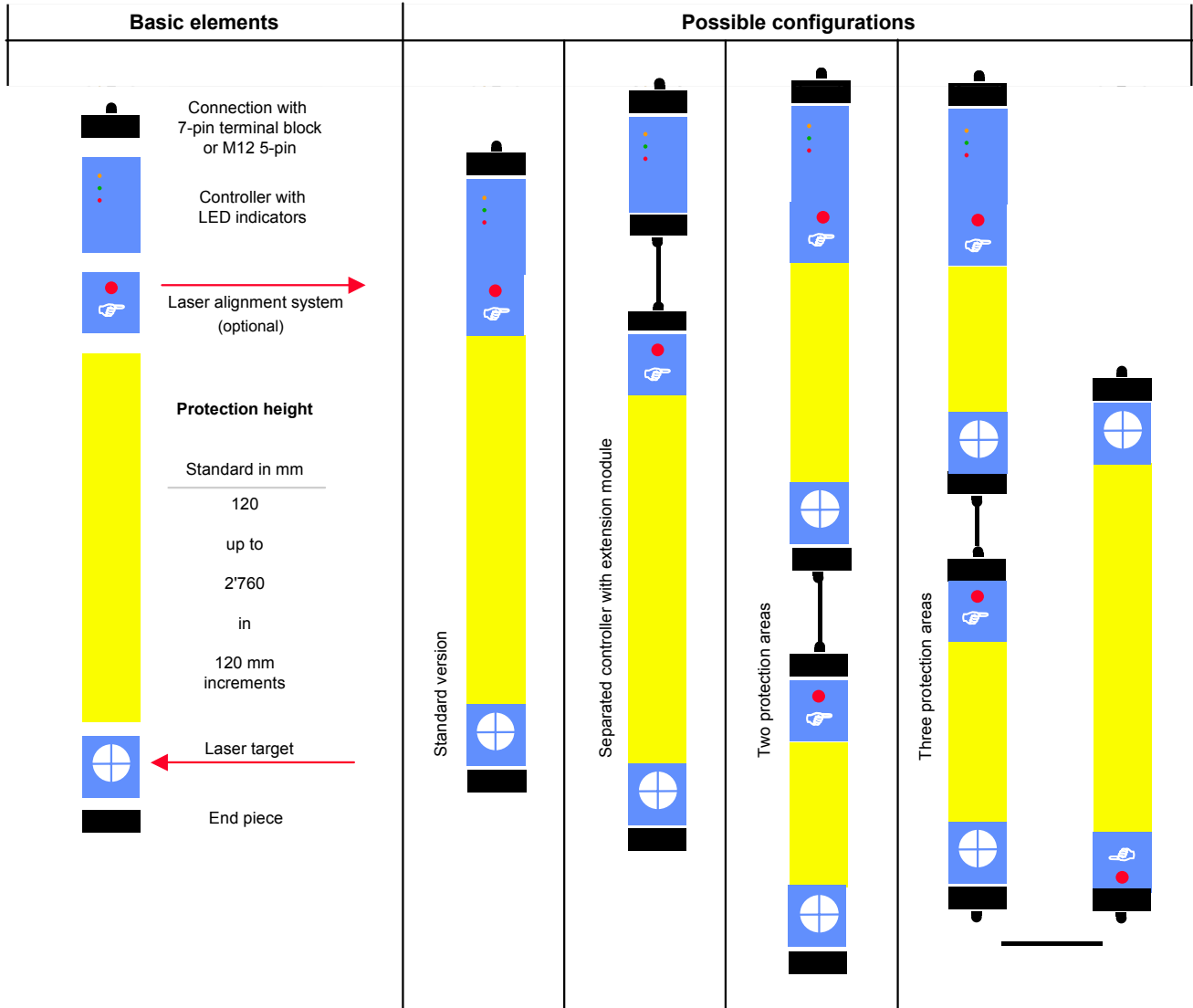
Optional:
180° Mounting, rotation $\pm 90^\circ$, for applications where the mounting angle is not set using the mounting frame.



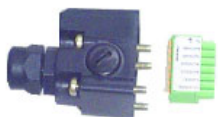
(These dimensions are also available as data files for implementing in CAD drawings (file format: *.dxf).)

Safety Light Curtain Safe4

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



Safety Light Curtain Safe4

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)

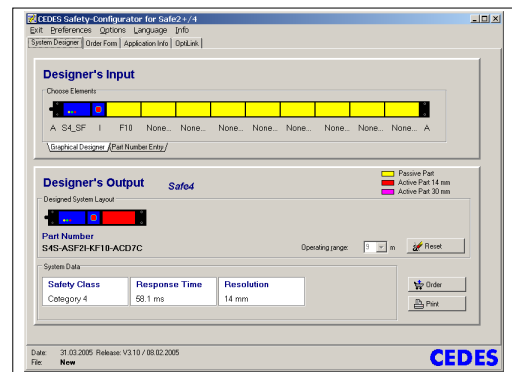
| Part Number | Type | Order indication | Response time [ms] | Protection height A [mm] | Profile length B [mm] |
|--------------|---------------|----------------------|-----------------------|-----------------------------|--------------------------|
| 103 000 0011 | Safe4-120-30 | S4S-ASF2I-KH1-ACD42 | 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).