



Your future's safe!



ADMIRAL/VISION

type 4 and type 2 safety light curtains

product catalogue

ADMIRAL

Long range versions
Up to 80 meters

Hardware configuration
No programming necessary

IP65

Blanking functions
Ideal to protect
press brakes

Dual beams system
Ideal for outdoor
applications

Muting functions
With additional Muting arms

Finger, Hand, Body
detection and Multibeam
for access control



Type 4 Safety Light Curtains
See page 4

VISION

Hand, Body detection and
Multibeam for access
control

Muting function
With additional accessory
Muting arms

IP65

Hardware configuration
No programming necessary

Long range versions
Up to 60 meters



Type 2 Safety Light Curtains
See page 22

MAIN FEATURES

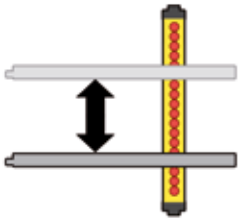
The Admiral Type 4 range of safety light curtains is the ideal solution for the protection of the majority of high-risk industrial applications. Its features includes:

- Extremely easy connection and installation, thanks to the M12 connectors and the use of standard cables
- Integration of the main safety functions, including self monitoring of the safety circuits and, for the X models, external device monitoring (EDM) and the Start / Restart interlock function

BLANKING FUNCTION

Information on the blanking function can be found in the Safety Guide. The Floating Blanking function is available on the Admiral AX BK models.

Floating Blanking allows the detected object to move freely inside the light curtain's protected field, under the condition that the intercepted beams are adjacent and that their number is not higher than the configured one.



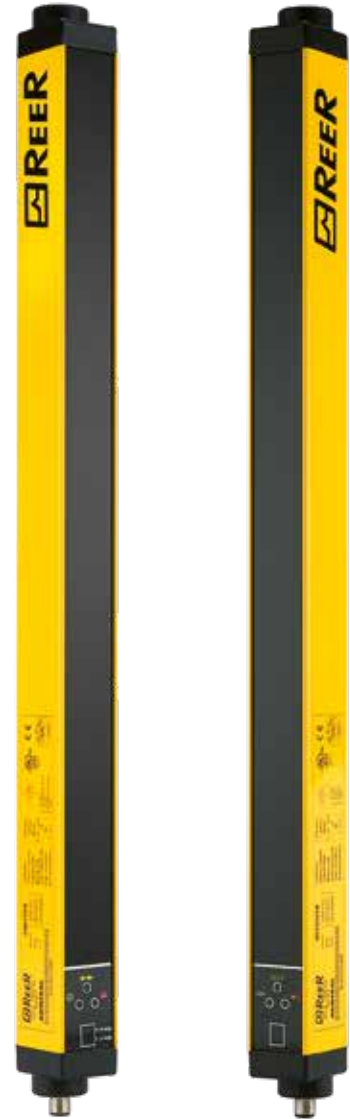
The ideal light curtain for protecting press brakes, automatic machines and robotised areas, where the material being processed or moving parts of the machine cross the field protected by the light curtain.

Configuration modes of the blanking function

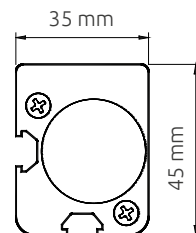
| Mode | Type of blanking configuration | N. of beams in blanking | Detection characteristics |
|------|--|-------------------------|--|
| A1 | 1 beam without compulsory object presence | 1 | 1 beam can be obstructed with the light curtain remaining in an ON condition |
| A2 | 2 beams without compulsory object presence | 2 | 1 or 2 adjacent beams can be obstructed with the light curtain remaining in an ON condition |
| A3 | 3 beams without compulsory object presence | 3 | 1, 2 or 3 adjacent beams can be obstructed with the light curtain remaining in an ON condition |
| B1 | 2 beams with compulsory object presence | 1/2 | At least 1 beam and no more than 2 adjacent beams must be obstructed for the light curtain to remaining in an ON condition |
| B2 | 3 beams with compulsory object presence | 1/2/3 | At least 1 beam and no more than 3 adjacent beams must be obstructed for the light curtain to remaining in an ON condition |

WARNING

The AX BK light curtains with blanking function do not have the feedback input (EDM); therefore, they cannot be combined with the AD SR0 and AD SR0A relay modules but they should be connected with the AD SR1 or AD SRM safety interfaces. The use of the blanking function and the type of configuration selected depend on the characteristics of the application to be protected. You need to verify, based on the risk analysis of your application, whether the use of this function is permitted or not and what configuration it is possible to use. Reer SpA does not assume responsibility for the improper use of the blanking function and for any consequent damage. The use of the blanking function may need a recalculation of the safety distance due to the modified detection capability.



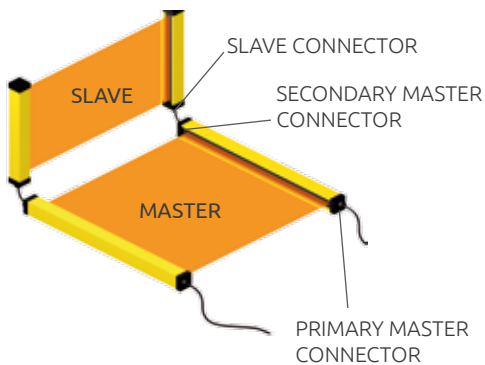
Cross section



1:2 scale

CASCADING FUNCTION

Master/slave models with built-in control functions



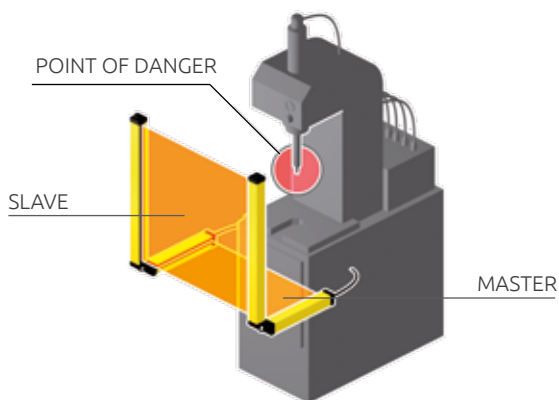
Master/Slave models allow series connection of two light curtains with the following major benefits:

- Combined detection (hand + presence of a person or protection of more sides of the machine)
- Single pair of safety outputs is used
- No interference between light curtains installed adjacent to one another

All electrical connections made using M12 5-pole connectors, except for Master receivers which necessitate the adoption of M12 8-pole connectors.

Pre-wired cables with twin connectors are available for the connection between Master and Slave.

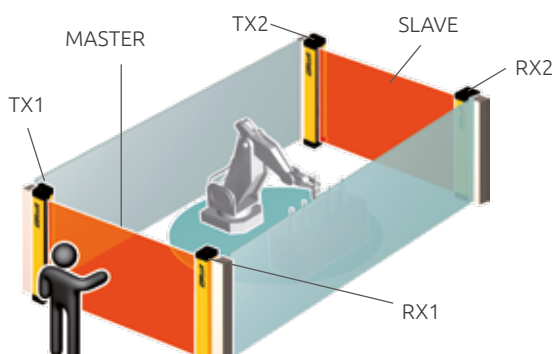
Applications examples



The application shown is one of the most common: horizontal curtains are used to prevent the operator from being undetected in the space between vertical light curtain and dangerous machine, upon system start-up or restarting.

Master light curtain is placed horizontally for detection of the person and Slave light curtain is placed vertically to detect fingers or hands.

The arrangement can be reversed to have the Master light curtain vertical for finger and hand detection and the Slave light curtain horizontal for detecting the presence of a person.



Example of series connection of master and slave light curtains for protection of two sides of the machine.

Thus, two series connected curtains may be located one at the front of the machine and the other at the rear, with a single connection to the machine power and control circuitry.

DUAL BEAM SYSTEM

Special version of the Admiral Long Range features an innovative Dual Beam System.

Ideal light curtain in outdoor applications or in harsh environments for decreasing the sensitivity of the light curtain to small objects that could interrupt the light link, i.e. birds or leaves but also heavy rain or snow.



MUTING FUNCTION

Additional arms with built-in Muting crossed beams photoelectric sensors, combined with the Admiral light curtains series form a one way access control system with L logic (exit only) or a bi-directional access control system with T logic (entry and exit).

Can be mounted on Admiral light curtains of any height and resolution.

IMPORTANT NOTE

The Muting function is created by using an external interface module (Mosaic or AD SRM), where both the light curtains and the sensors of the Muting arms are connected.

Installation note: the arm transmitter must be mounted on the light curtain receiver and vice versa.



One-way Muting with 2 sensors – Exit only 2 integrated photoelectric sensors with crossed beams

The light curtain only allows pallet outfeed.

The Muting function can only be activated from inside the protected zone. No possibility to activate a Muting sequence from the outside.

Elimination of bulk outside the protected area, as the Muting sensors are only present inside the area.

Correct Muting sequence even in the presence of a pallet with reduced width and/or length or not centred with respect to the conveyor.

Muting enable input allows to start a Muting sequence only when needed by the machine cycle. i.e. Muting enabled only when the conveyor is moving.



Two-way Muting with 2 sensors – Entry/Exit 2 integrated photoelectric sensors with crossed beams

Standard solution for the most common entry/exit pallet applications.

Muting enable input allows to start a Muting sequence only when needed by the machine cycle. i.e. Muting enabled only when the conveyor is moving.



Operating temperature: 0 ... +55 °C



IP65 protection rate
Special versions in WT/WTH IP67 protection rate watertight housing with or without heating system. See "ADMIRAL WT / WTH" on page 16

With watertight housing

THE ADMIRAL RANGE

| ADMIRAL AD | ADMIRAL AX | ADMIRAL AXM - AXS | ADMIRAL AX LR (Long Range) | ADMIRAL AX LR DB (Dual Beam) | ADMIRAL AX BK (Blanking) |
|---|--|---|--|--|--|
| Automatic Start/Restart | Built-in manual or automatic re-start, selectable | Master and Slave models for serial connection of two light curtains | Max. range 60 m | Special version of the Admiral Long Range features a Dual Beam System | Built-in functions of floating blanking with 5 selectable configurations |
| Start/Restart interlock and EDM via external AD SR1 interface | Feedback input for control of external relays (EDM) | | | | Start/Restart interlock and EDM via external AD SR1 interface |
| Electrical connections: M12 5-pole connectors for emitter and receiver | Electrical connections: M12 5-pole for emitter M12 8-pole for receiver | | | | |
| Selectable operating range: 0 ... 6 m - low range 1 ... 18 m - high range 14 mm resolution models: 0 ... 2 m - low range 0 ... 5 m - high range | | | Selectable operating range: 10 ... 22 m - low range 18 ... 60 m - high range | Selectable operating range: 12 ... 25 m - low range 22 ... 80 m - high range | Selectable operating range: 0 ... 6 m - low range 3 ... 18 m - high range 14 mm resolution models: 0 ... 2 m - low range 0 ... 5 m - high range |
| Types of detection: Finger detection: 14 mm resolution Hand detection: 20, 30, 40 mm resolution Body detection (in a dangerous area): 50, 90 mm resolution Access control: 2, 3, 4 beams for body detection | | | Types of detection: Access control: 2, 3, 4 beams for body detection | Types of detection: Access control: 2, 3, 4 beams for body detection | Types of detection: Finger detection: 14 mm resolution Hand detection: 20, 40 mm resolution Body detection (in a dangerous area): 90 mm resolution |
| 2 self-testing solid state PNP safety outputs protected against short circuits and overloads | | | | | |

APPROVALS

- 2006/42/EC: "Machine Directive"
- 2014/30/EU: "Electromagnetic Compatibility Directive"
- 2014/35/EU: "Low Voltage Directive"
- IEC 61496-1 (ed. 3) "Safety of machinery - Electro sensitive protective equipment - General requirements and tests"
- IEC 61496-2 (ed. 3) "Safety of machinery - Electro-sensitive protective equipment - Particular requirements for equipment using active opto-electronic protective devices (AOPDs)"
- IEC 62061 (ed. 1) "Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems"
- ISO 13849-1:2006 (Cat. 4, PL e) "Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design"
- EN 50178:1997 "Electronic equipment for use in power installations"
- EN 55022:2010 "Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement"
- UL (C+US) mark for USA and Canada
- ANSI / UL 1998: "Safety Software in Programmable Components"
- The mark TS indicates that the product has been approved by the government of Taiwan

SAFETY LEVEL

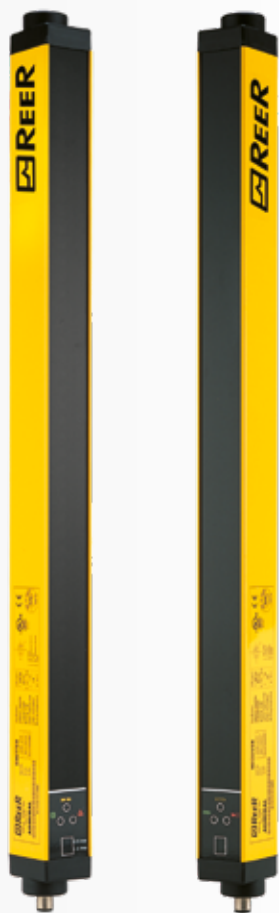
TYPE 4

SILCL 3
PL e - Cat. 4



ADMIRAL AD

WITH AUTOMATIC START/RESTART



| Resolution (mm) | Start/Restart |
|------------------------|----------------|
| 14, 20, 30, 40, 50, 90 | Automatic |
| Access control | Safety outputs |
| 2, 3, 4 beams | 2 |

SAFETY LEVEL

TYPE 4

SILCL 3
PL e - Cat. 4

All connections and configurations by means of M12 connectors. Unshielded cables up to 100 meter long can be used to connect the light curtain.

Protected heights: 160 mm ... 2250 mm (2250 only for 30, 40, 50 and 90 mm resolution).

TECHNICAL FEATURES

| | |
|--------------------|--|
| Max. range (m) | Selectable 2 or 5 for 14 mm resolution Selectable 6 or 18 for 20, 30, 40, 50, 90 mm resolutions and 2, 3, 4 beams |
| Response time (ms) | 6 ... 27 |
| Safety outputs | 2 PNP - 500 mA at 24 VDC with short-circuit, overload, polarity reversal protection |
| Status display | Seven-segment display and LEDs for light curtain's status and diagnostic |
| Power supply (VDC) | 24 ± 20% |
| Fastening | Back slot, side slot or to the top and lower end with swivel brackets |

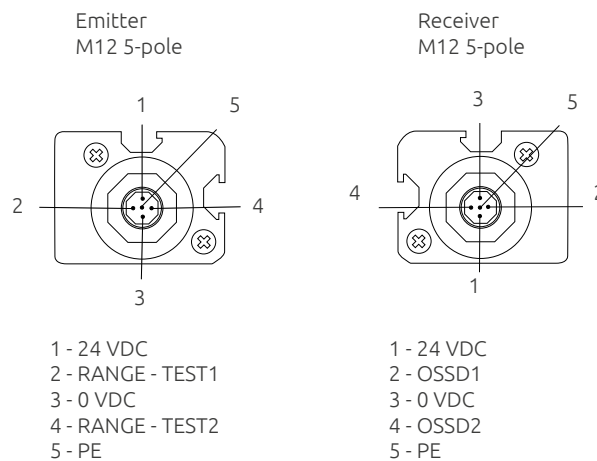
CABLES NEEDED

- Emitter: M12 5-pole.
See [page 50](#) (CDx, CDx SB, CD9x, CDM9)
- Receiver: M12 5-pole.
See [page 50](#) (CDx, CDx SB, CD9x, CDM9)

ACCESSORIES

- Start/Restart interlock and EDM through external interface. See [AD SR1 on page 46](#)
- Muting function through external interface. See [AD SRM on page 47](#)
- Additional Muting arms. See [SLA, STA on page 56](#)
- Support columns. See [page 57](#)
- Deflecting mirrors. See [page 60](#)
- Laser alignment device. See [page 62](#)
- Vibration dumpers. See [page 61](#)
- Brackets. See [page 61](#)

CONNECTORS



PART NUMBERS

Finger detection - AD models - Max. range: selectable 2 or 5 m



| | | | | | | | | | | | | |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Resolution 14 mm | AD 151 | AD 301 | AD 451 | AD 601 | AD 751 | AD 901 | AD 1051 | AD 1201 | AD 1351 | AD 1501 | AD 1651 | AD 1801 |
| Ordering codes | 1330000 | 1330001 | 1330002 | 1330003 | 1330004 | 1330005 | 1330006 | 1330007 | 1330008 | 1330009 | 1330010 | 1330011 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| Overall height (mm) | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 |

Hand detection - AD models - Max. range: selectable 6 or 18 m



| | | | | | | | | | | | | |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Resolution 20 mm | AD 152 | AD 302 | AD 452 | AD 602 | AD 752 | AD 902 | AD 1052 | AD 1202 | AD 1352 | AD 1502 | AD 1652 | AD 1802 |
| Ordering codes | 1330100 | 1330101 | 1330102 | 1330103 | 1330104 | 1330105 | 1330106 | 1330107 | 1330108 | 1330109 | 1330110 | 1330111 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| Overall height (mm) | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 |



| | | | | | | | | | | | | | | | |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Resolution 30 mm | AD 153 | AD 303 | AD 453 | AD 603 | AD 753 | AD 903 | AD 1053 | AD 1203 | AD 1353 | AD 1503 | AD 1653 | AD 1803 | AD 1953 | AD 2103 | AD 2253 |
| Ordering codes | 1330200 | 1330201 | 1330202 | 1330203 | 1330204 | 1330205 | 1330206 | 1330207 | 1330208 | 1330209 | 1330210 | 1330211 | 1330212 | 1330213 | 1330216 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 | 1960 | 2110 | 2260 |
| Nr. beams | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 | 80 | 88 | 96 | 104 | 112 | 120 |
| Overall height (mm) | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 | 2061 | 2211 | 2361 |



| | | | | | | | | | | | | | | |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Resolution 40 mm | AD 304 | AD 454 | AD 604 | AD 754 | AD 904 | AD 1054 | AD 1204 | AD 1354 | AD 1504 | AD 1654 | AD 1804 | AD 1954 | AD 2104 | AD 2254 |
| Ordering codes | 1330301 | 1330302 | 1330303 | 1330304 | 1330305 | 1330306 | 1330307 | 1330308 | 1330309 | 1330310 | 1330311 | 1330312 | 1330014 | 1330017 |
| Protected height (mm) | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 | 1960 | 2110 | 2260 |
| Nr. beams | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 |
| Overall height (mm) | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 | 2061 | 2211 | 2361 |

Body detection - AD models - Max. range: selectable 6 or 18 m



| | | | | | | | | | | | | | | |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Resolution 50 mm | AD 305 | AD 455 | AD 605 | AD 755 | AD 905 | AD 1055 | AD 1205 | AD 1355 | AD 1505 | AD 1655 | AD 1805 | AD 1955 | AD 2105 | AD 2255 |
| Ordering codes | 1330401 | 1330402 | 1330403 | 1330404 | 1330405 | 1330406 | 1330407 | 1330408 | 1330409 | 1330410 | 1330411 | 1330412 | 1330415 | 1330018 |
| Protected height (mm) | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 | 1960 | 2110 | 2260 |
| Nr. beams | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 52 | 56 | 60 |
| Overall height (mm) | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 | 2061 | 2211 | 2361 |



| | | | | | | | | | | | | | | |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Resolution 90 mm | AD 309 | AD 459 | AD 609 | AD 759 | AD 909 | AD 1059 | AD 1209 | AD 1359 | AD 1509 | AD 1659 | AD 1809 | AD 1959 | AD 2109 | AD 2259 |
| Ordering codes | 1330501 | 1330502 | 1330503 | 1330504 | 1330505 | 1330506 | 1330507 | 1330508 | 1330509 | 1330510 | 1330511 | 1330512 | 1330515 | 1330019 |
| Protected height (mm) | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 | 1960 | 2110 | 2260 |
| Nr. beams | 5 | 7 | 9 | 11 | 13 | 15 | 17 | 19 | 21 | 23 | 25 | 27 | 29 | 31 |
| Overall height (mm) | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 | 2061 | 2211 | 2361 |

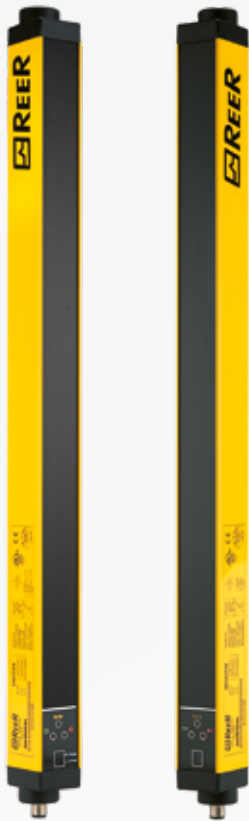
Access control - AD models - Max. range: selectable 6 or 18 m



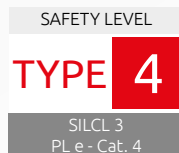
| | | | |
|-----------------------|---------|---------|---------|
| 2, 3, 4 beams | AD 2B | AD 3B | AD 4B |
| Ordering codes | 1330600 | 1330601 | 1330602 |
| Nr. beams | 2 | 3 | 4 |
| Beam spacing (mm) | 500 | 400 | 300 |
| Protected height (mm) | 510 | 810 | 910 |
| Overall height (mm) | 711 | 1011 | 1111 |

ADMIRAL AX

WITH BUILT-IN CONTROL FUNCTIONS



| | |
|------------------------|-----------------------|
| Resolution (mm) | Start/Restart |
| 14, 20, 30, 40, 50, 90 | Manual or Automatic |
| Access control | Safety outputs |
| 2, 3, 4 beams | 2 |



Start/restart interlock, selectable.

Integrated feedback input for external device monitoring (EDM).

All connections and configurations by means of M12 connectors. Unshielded cables up to 100 meter long can be used to connect the light curtain.

Protected heights: 160 mm ... 2250 mm (2250 only for 30, 40, 50 and 90 mm resolution).

NOTE: available resolution 100 mm (long range up to 50 m) on request only.

TECHNICAL FEATURES

| | |
|---------------------------|--|
| Max. range (m) | Selectable 2 or 5 for 14 mm resolution Selectable 6 or 18 for 20, 30, 40, 50, 90 mm resolutions and 2, 3, 4 beams Selectable 22 or 60 for 2, 3, 4 beams Long Range Selectable 25 or 80 for 2, 3 beams Long Range DB |
| Response time (ms) | 3 ... 27 |
| Safety outputs | 2 PNP auto-controlled – 500 mA at 24 VDC with short-circuit, overload, polarity reversal protection |
| Status display | Seven-segment display and LEDs for light curtain's status and diagnostic |
| Power supply (VDC) | 24 ± 20% |
| Fastening | Back slot, side slot or to the top and lower end with swivel brackets |

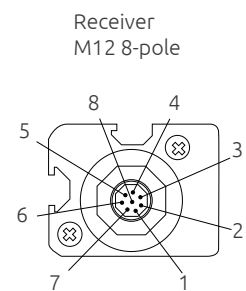
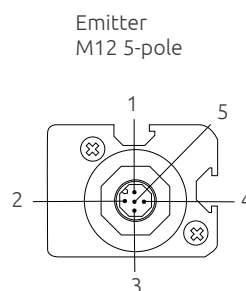
CABLES NEEDED

- Emitter: M12 5-pole.
See [page 50](#) (CDx, CDx SB, CD9x, CDM9)
- Receiver: M12 8-pole. (C8Dx, C8Sx SB, C8D9x, C8DM9, C8DM11). See [page 52](#)

ACCESSORIES

- Muting function through external interface. See: [AD SRM on page 47](#)
- Safety relay. See [AD SR0 - AD SR0A on page 48](#)
- Additional Muting arms. See [SLA, STA on page 56](#)
- Support columns. See [page 57](#)
- Deflecting mirrors. See [page 60](#)
- Laser alignment device. See [page 62](#)
- Vibration dumpers. See [page 61](#)
- Brackets. See [page 61](#)

CONNECTORS



1 - 24 VDC
2 - RANGE - TEST1
3 - 0 VDC
4 - RANGE - TEST2
5 - PE

1 - OSSD1
2 - 24 VDC
3 - OSSD2
4 - K1 K2 FEEDBACK
5 - SEL A
6 - SEL B
7 - 0 VDC
8 - PE



PART NUMBERS

Finger detection - AX models - Max. range: selectable 2 or 5 m



| | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Resolution 14 mm | 151 | 301 | 451 | 601 | 751 | 901 | 1051 | 1201 | 1351 | 1501 | 1651 | 1801 |
| Ordering codes | 1334000 | 1334001 | 1334002 | 1334003 | 1334004 | 1334005 | 1334006 | 1334007 | 1334008 | 1334009 | 1334010 | 1334011 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| Overall height (mm) | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 |

Hand detection - AX models - Max. range: selectable 6 or 18 m



| | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Resolution 20 mm | 152 | 302 | 452 | 602 | 752 | 902 | 1052 | 1202 | 1352 | 1502 | 1652 | 1802 |
| Ordering codes | 1334100 | 1334101 | 1334102 | 1334103 | 1334104 | 1334105 | 1334106 | 1334107 | 1334108 | 1334109 | 1334110 | 1334111 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| Overall height (mm) | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 |



| | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Resolution 30 mm | 153 | 303 | 453 | 603 | 753 | 903 | 1053 | 1203 | 1353 | 1503 | 1653 | 1803 | 1953 | 2103 | 2253 |
| Ordering codes | 1334200 | 1334201 | 1334202 | 1334203 | 1334204 | 1334205 | 1334206 | 1334207 | 1334208 | 1334209 | 1334210 | 1334211 | 1334450 | 1334414 | 1334456 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 | 1960 | 2110 | 2260 |
| Nr. beams | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 | 80 | 88 | 96 | 104 | 112 | 120 |
| Overall height (mm) | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 | 2061 | 2211 | 2361 |



| | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----|
| Resolution 40 mm | 304 | 454 | 604 | 754 | 904 | 1054 | 1204 | 1354 | 1504 | 1654 | 1804 | 1954 | 2104 | 2254 | |
| Ordering codes | 1334301 | 1334302 | 1334303 | 1334304 | 1334305 | 1334306 | 1334307 | 1334308 | 1334309 | 1334310 | 1334311 | 1334451 | 1334454 | 1334457 | |
| Protected height (mm) | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 | 1960 | 2110 | 2260 | |
| Nr. beams | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | |
| Overall height (mm) | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 | 2061 | 2211 | 2361 | |

Body detection - AX models - Max. range: selectable 6 or 18 m



| | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----|
| Resolution 50 mm | 305 | 455 | 605 | 755 | 905 | 1055 | 1205 | 1355 | 1505 | 1655 | 1805 | 1955 | 2105 | 2255 | |
| Ordering codes | 1334401 | 1334402 | 1334403 | 1334404 | 1334405 | 1334406 | 1334407 | 1334408 | 1334409 | 1334410 | 1334411 | 1334452 | 1334413 | 1334458 | |
| Protected height (mm) | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 | 1960 | 2110 | 2260 | |
| Nr. beams | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 52 | 56 | 60 | |
| Overall height (mm) | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 | 2061 | 2211 | 2361 | |



| | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----|
| Resolution 90 mm | 309 | 459 | 609 | 759 | 909 | 1059 | 1209 | 1359 | 1509 | 1659 | 1809 | 1959 | 2109 | 2259 | |
| Ordering codes | 1334501 | 1334502 | 1334503 | 1334504 | 1334505 | 1334506 | 1334507 | 1334508 | 1334509 | 1334510 | 1334511 | 1334453 | 1334455 | 1334459 | |
| Protected height (mm) | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 | 1960 | 2110 | 2260 | |
| Nr. beams | 5 | 7 | 9 | 11 | 13 | 15 | 17 | 19 | 21 | 23 | 25 | 27 | 29 | 31 | |
| Overall height (mm) | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 | 2061 | 2211 | 2361 | |

Access control - AX models - Max. range: selectable 6 or 18 m



2, 3, 4 beams

| | AX 2B | AX 3B | AX 4B |
|-----------------------|---------|---------|---------|
| Ordering codes | 1334600 | 1334601 | 1334602 |
| Nr. beams | 2 | 3 | 4 |
| Beam spacing (mm) | 500 | 400 | 300 |
| Protected height (mm) | 510 | 810 | 910 |
| Overall height (mm) | 711 | 1011 | 1111 |

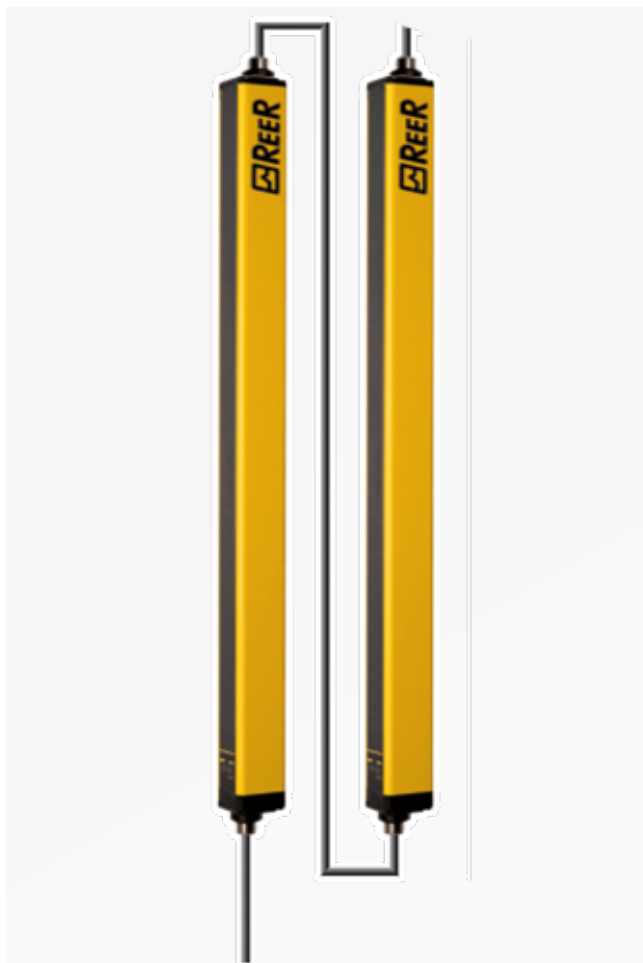
AX LR Models - Max. range: selectable 22 or 60 m

AX LR DB Models - Max. range: selectable 25 or 80 m

| | AX 2B LR | AX 3B LR | AX 4B LR | AX 2B LR DB | AX 3B LR DB |
|-----------------------|----------|----------|----------|-------------|-------------|
| Ordering codes | 1334603 | 1334604 | 1334605 | 1334606 | 1334607 |
| Nr. beams | 2 | 3 | 4 | 2 | 3 |
| Beam spacing (mm) | 500 | 400 | 300 | 500 | 400 |
| Protected height (mm) | 510 | 810 | 910 | 510 | 810 |
| Overall height (mm) | 711 | 1011 | 1111 | 772 | 1072 |

ADMIRAL AXM / AXS

MASTER/SLAVE MODELS WITH BUILT-IN CONTROL FUNCTIONS



| | |
|------------------------|-----------------------|
| Resolution (mm) | Start/Restart |
| 14, 20, 30, 50 | Manual or Automatic |
| Access control | Safety outputs |
| 2, 3 beams | 2 |



Master/Slave models permit series connection of the light curtains.

Integrated feedback input for external device monitoring (EDM).

All connections and configurations by means of M12 connectors. Unshielded cables up to 100 meter long can be used to connect the light curtain. (50 m between Master and Slave with M12 5-pole for emitter and receiver).

Protected heights: 160 mm ... 1510 mm.



TECHNICAL FEATURES

| | |
|--------------------------------------|--|
| Max. range (m) | Selectable 2 or 5 for 14 mm resolution Selectable 6 or 18 for 20, 30, 50 mm resolutions and 2, 3, 4 beams |
| Response time (ms) Master + Slave | $t_{tot} = t_{slave} + t_{master} + 1,8$ |
| Safety outputs | 2 PNP auto-controlled – 500 mA at 24 VDC with short-circuit, overload, polarity reversal protection |
| Status display | Seven-segment display and LEDs for light curtain's status and diagnostic |
| Power supply (VDC) | 24 ± 20% |
| Fastening | Back slot, side slot or to the top and lower end with swivel brackets |

CABLES NEEDED

- Emitter: M12 5-pole.
See [page 50](#) (CDx, CDx SB, CD9x, CDM9)
- Receiver: M12 8-pole.
See [page 52](#) (C8Dx, C8Sx SB, C8D9x, C8DM9, C8DM11)
- Between Master and Slave: M12 5-pole.
See [page 54](#) (CDS03, CJBEx)

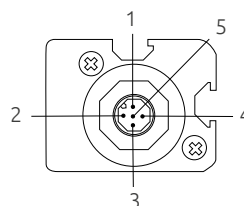
ACCESSORIES

- Laser alignment device. See [page 62](#)
- Vibration dumpers. See [page 61](#)
- Brackets. See [page 61](#)

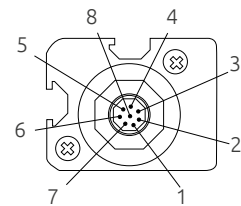
CONNECTORS

Master Emitter,
Master secondary
connector and Slave
M12 5-pole

Master Receiver
M12 8-pole



- 1 - 24 VDC
- 2 - RANGE - TEST1
- 3 - 0 VDC
- 4 - RANGE - TEST2
- 5 - PE



- 1 - OSSD1
- 2 - 24 VDC
- 3 - OSSD2
- 4 - K1 K2 FEEDBACK
- 5 - SEL A
- 6 - SEL B
- 7 - 0 VDC
- 8 - PE

MASTER/SLAVE MODELS WITH BUILT-IN CONTROL FUNCTIONS

PART NUMBERS

Finger detection - AX M, AX S models - Max. range: selectable 2 or 5



| | | | | | | | | | |
|-------------------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|
| MASTER Resolution 14 mm | - | AX 301M | AX 451M | AX 601M | AX 751M | AX 901M | AX 1051M | AX 1201M | AX 1501M |
| Ordering codes | - | 1334021 | 1334022 | 1334023 | 1334024 | 1334025 | 1334026 | 1334027 | 1334029 |
| SLAVE Resolution 14 mm | AX 151S | AX 301S | AX 451S | AX 601S | AX 751S | AX 901S | AX 1051S | AX 1201S | AX 1501S |
| Ordering codes | 1334040 | 1334041 | 1334042 | 1334043 | 1334044 | 1334045 | 1334046 | 1334047 | 1334049 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1510 |
| Nr. beams | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 150 |
| Overall height (mm) * | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1611 |

Hand detection - AX M, AX S models - Max. range: selectable 6 or 18 m



| | | | | | | | | | |
|-------------------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|
| MASTER Resolution 20 mm | - | AX 302M | AX 452M | AX 602M | AX 752M | AX 902M | AX 1052M | AX 1202M | AX 1502M |
| Ordering codes | - | 1334121 | 1334122 | 1334123 | 1334124 | 1334125 | 1334126 | 1334127 | 1334129 |
| SLAVE Resolution 20 mm | AX 152S | AX 302S | AX 452S | AX 602S | AX 752S | AX 902S | AX 1052S | AX 1202S | AX 1502S |
| Ordering codes | 1334140 | 1334141 | 1334142 | 1334143 | 1334144 | 1334145 | 1334146 | 1334147 | 1334149 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1510 |
| Nr. beams | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 150 |
| Overall height (mm) * | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1611 |



| | | | | | | | | | |
|-------------------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|
| MASTER Resolution 30 mm | - | AX 303M | AX 453M | AX 603M | AX 753M | AX 903M | AX 1053M | AX 1203M | AX 1503M |
| Ordering codes | - | 1334221 | 1334222 | 1334223 | 1334224 | 1334225 | 1334226 | 1334227 | 1334229 |
| SLAVE Resolution 30 mm | AX 153S | AX 303S | AX 453S | AX 603S | AX 753S | AX 903S | AX 1053S | AX 1203S | AX 1503S |
| Ordering codes | 1334240 | 1334241 | 1334242 | 1334243 | 1334244 | 1334245 | 1334246 | 1334247 | 1334249 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1510 |
| Nr. beams | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 80 |
| Overall height (mm) * | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1611 |

Body detection - AX M, AX S models - Max. range: selectable 6 or 18 m



| | | | | | | | | | |
|-------------------------|---|------------|------------|------------|------------|------------|-------------|-------------|-------------|
| MASTER Resolution 50 mm | - | AX 305M | AX 455M | AX 605M | AX 755M | AX 905M | AX 1055M | AX 1205M | AX 1505M |
| Ordering codes | - | 1334421 | 1334422 | 1334423 | 1334424 | 1334425 | 1334426 | 1334427 | 1334429 |
| SLAVE Resolution 50 mm | - | AX 305S | AX 455S | AX 605S | AX 755S | AX 905S | AX 1055S | AX 1205S | AX 1505S |
| Ordering codes | - | 1334441 | 1334442 | 1334443 | 1334444 | 1334445 | 1334446 | 1334447 | 1334449 |
| Protected height (mm) | - | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1510 |
| Nr. beams | - | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 40 |
| Overall height (mm) * | - | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1611 |

Access control - AX M, AX S models - Max. range: selectable 6 or 18 m

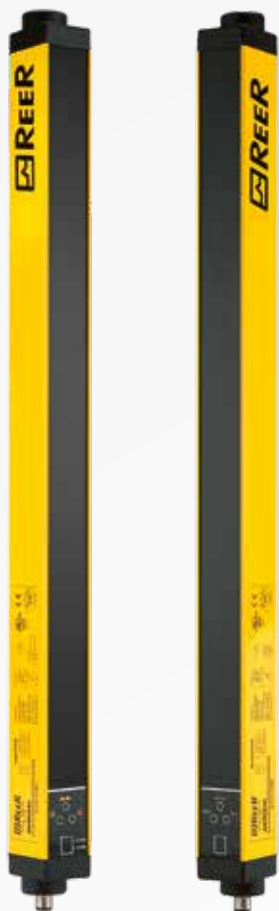


| | | |
|-----------------------|---------|---------|
| MASTER 2, 3 beams | AX 2BM | AX 3BM |
| Ordering codes | 1334620 | 1334621 |
| SLAVE 2, 3 beams | AX 2BS | AX 3BS |
| Ordering codes | 1334640 | 1334641 |
| Nr. beams | 2 | 3 |
| Beam spacing (mm) | 500 | 400 |
| Protected height (mm) | 510 | 810 |
| Overall height (mm) * | 711 | 1011 |

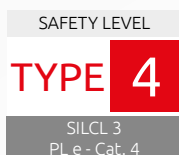
* Overall height is referred to the slave models.
In the Master models the total light curtain height is increased by 10 mm due to the presence of the secondary connector

ADMIRAL AX BK

WITH BLANKING FUNCTION



| | |
|------------------------|-----------------------|
| Resolution (mm) | Start/Restart |
| 14, 20, 40, 90 | Automatic |
| Access control | Safety outputs |
| 2, 3, 4 beams | 2 |



Built-in floating blanking function with 5 configuration modes.

All connections and configurations by means of M12 connectors. Unshielded cables up to 100 meter long can be used to connect the light curtain.

Master and Slave models for serial connection of 2 light curtains.

Start/Restart interlock and EDM via external AD SR1 interface.

Protected heights: 160 mm ... 1810 mm.



TECHNICAL FEATURES

| | |
|-------------------------|---|
| Max. range (m) | Selectable 2 or 5 for 14 mm resolution Selectable 6 or 18 for 20, 40, 90 mm resolution |
| Response time (ms) | 6 ... 27 |
| Safety outputs | 2 PNP auto-controlled – 500 mA at 24 VDC with short-circuit, overload, polarity reversal protection |
| Status display | Seven-segment display and LEDs for light curtain's status and diagnostic |
| Blanking | Floating, selectable |
| Blanking configurations | 5 modes: 1, 2 or 3 beams without compulsory object presence 1 or 2 beams with compulsory object presence |
| Power supply (VDC) | 24 ± 20% |
| Fastening | Back slot, side slot or to the top and lower end lower end with swivel brackets |

CABLES NEEDED

- Emitter: M12 5-pole.
See [page 50](#) (CDx, CDx SB, CD9x, CDM9)
- Receiver: M12 8-pole.
See [page 52](#) (C8Dx, C8Sx SB, C8D9x, C8DM9, C8DM11)
- Between Master and Slave: M12 5-pole.
See [page 54](#) (CDS03, CJBEx)

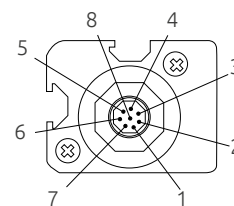
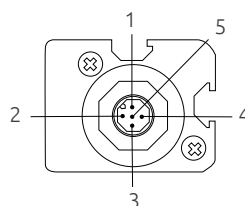
ACCESSORIES

- Start/Restart interlock and EDM through external interface. See [AD SR1 on page 46](#)
- Vibration dumpers. See [page 61](#)
- Brackets. See [page 61](#)

CONNECTORS

Emitter, Master secondary connector and Slave M12 5-pole

Receiver, Master primary connector M12 8-pole




- 1 - 24 VDC
- 2 - RANGE - TEST1
- 3 - 0 VDC
- 4 - RANGE - TEST2
- 5 - PE


- 1 - OSSD1
- 2 - 24 VDC
- 3 - OSSD2
- 4 - SEL C
- 5 - SEL A
- 6 - SEL B
- 7 - 0 VDC
- 8 - PE


PART NUMBERS

Finger detection - AX BK models - Max. range: selectable 2 or 5 m


| | | | | | | | | | | | | |
|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|  | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX |
| Resolution 14 mm | 151 | 301 | 451 | 601 | 751 | 901 | 1051 | 1201 | 1351 | 1501 | 1651 | 1801 |
| | BK | BK | BK | BK | BK | BK | BK | BK | BK | BK | BK | BK |
| Ordering codes | 1334060 | 1334061 | 1334062 | 1334063 | 1334064 | 1334065 | 1334066 | 1334067 | 1334068 | 1334069 | 1334070 | 1334071 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| Overall height (mm) | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 |

Hand detection - AX BK models - Max. range: selectable 6 or 18 m

| | | | | | | | | | | | | |
|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|  | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX |
| Resolution 20 mm | 152 | 302 | 452 | 602 | 752 | 902 | 1052 | 1202 | 1352 | 1502 | 1652 | 1802 |
| | BK | BK | BK | BK | BK | BK | BK | BK | BK | BK | BK | BK |
| Ordering codes | 1334160 | 1334161 | 1334162 | 1334163 | 1334164 | 1334165 | 1334166 | 1334167 | 1334168 | 1334169 | 1334170 | 1334171 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| Overall height (mm) | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 |

| | | | | | | | | | | | | | | | |
|---|----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|  | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX |
| Resolution 40 mm | - | 304 | 454 | 604 | 754 | 904 | 1054 | 1204 | 1354 | 1504 | 1654 | 1804 | 1954 | 2104 | 2254 |
| | - | BK | BK | BK | BK | BK | BK | BK | BK | BK | BK | BK | BK | BK | BK |
| Ordering codes | - | 1334361 | 1334362 | 1334363 | 1334364 | 1334365 | 1334366 | 1334367 | 1334368 | 1334369 | 1334370 | 1334371 | 1334461 | 1334465 | 1334468 |
| Protected height (mm) | - | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 | 1960 | 2110 | 2260 |
| Nr. beams | - | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 |
| Overall height (mm) | - | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 | 2061 | 2211 | 2361 |


Body detection - AX BK models - Max. range: selectable 6 or 18 m

| | | | | | | | | | | | | | | | |
|---|----|----|----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|  | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX | AX |
| Resolution 90 mm | - | - | - | 609 | 759 | 909 | 1059 | 1209 | 1359 | 1509 | 1659 | 1809 | 1959 | 2109 | 2259 |
| | - | - | - | BK | BK | BK | BK | BK | BK | BK | BK | BK | BK | BK | BK |
| Ordering codes | - | - | - | 1334563 | 1334564 | 1334565 | 1334566 | 1334567 | 1334568 | 1334569 | 1334570 | 1334571 | 1334463 | 1334572 | 1334470 |
| Protected height (mm) | - | - | - | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 | 1960 | 2110 | 2260 |
| Nr. beams | - | - | - | 9 | 11 | 13 | 15 | 17 | 19 | 21 | 23 | 25 | 27 | 29 | 31 |
| Overall height (mm) | - | - | - | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 | 2061 | 2211 | 2361 |


Cascating versions with blanking

The Master with Blanking models are combined with the Slave models of the Admiral series AX.
Maximum length of the connections between Master and Slave: 50 meters, with standard unshielded cable.

Finger detection - Master models with blanking - Max. range: selectable 2 or 5 m

| | | | | | | | | | |
|---|----|---------|---------|---------|---------|---------|---------|---------|---------|
|  | AX | AX | AX | AX | AX | AX | AX | AX | AX |
| Resolution 14 mm | - | 301 | 451 | 601 | 751 | 901 | 1051 | 1201 | 1501 |
| | - | BKM | BKM | BKM | BKM | BKM | BKM | BKM | BKM |
| Ordering codes | - | 1334081 | 1334082 | 1334083 | 1334084 | 1334085 | 1334086 | 1334088 | 1334089 |
| Protected height (mm) | - | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1510 |
| Nr. beams | - | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 150 |
| Overall height (mm) | - | 421 | 571 | 721 | 871 | 1021 | 1171 | 1321 | 1671 |

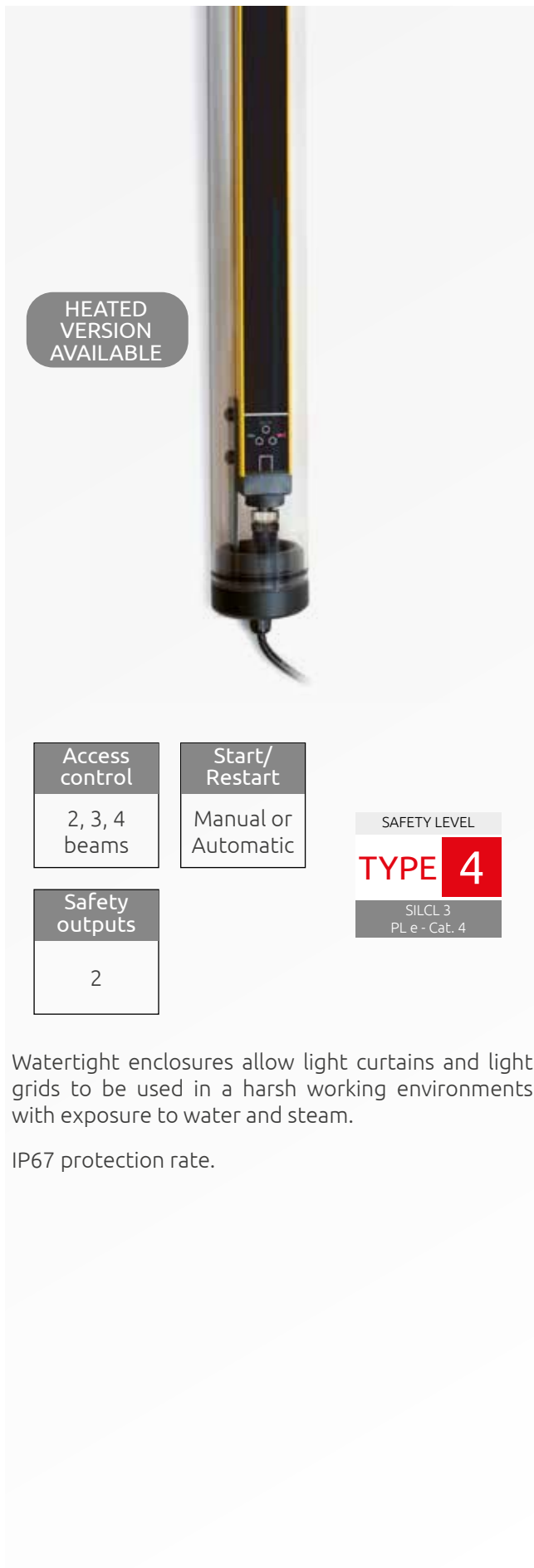
Hand detection - Master models with blanking - Max. range: selectable 6 or 18 m

| | | | | | | | | | |
|---|----|---------|---------|---------|---------|---------|---------|---------|---------|
|  | AX | AX | AX | AX | AX | AX | AX | AX | AX |
| Resolution 20 mm | - | 302 | 452 | 602 | 752 | 902 | 1052 | 1202 | 1502 |
| | - | BKM | BKM | BKM | BKM | BKM | BKM | BKM | BKM |
| Ordering codes | - | 1334181 | 1334182 | 1334183 | 1334184 | 1334185 | 1334186 | 1334187 | 1334189 |
| Protected height (mm) | - | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1510 |
| Nr. beams | - | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 150 |
| Overall height (mm) | - | 421 | 571 | 721 | 871 | 1021 | 1171 | 1321 | 1671 |

The blanking function is only present on the Master models with resolution 14 and 20 mm.

ADMIRAL WT / WTH

IP67 WATERTIGHT ENCLOSURE



HEATED
VERSION
AVAILABLE

Access control
2, 3, 4
beams

Start/
Restart
Manual or
Automatic

Safety outputs
2

SAFETY LEVEL
TYPE 4
SILCL 3
PL e - Cat. 4

Watertight enclosures allow light curtains and light grids to be used in a harsh working environments with exposure to water and steam.

IP67 protection rate.

TECHNICAL FEATURES

| | |
|--|--|
| Technical features for the light curtain | Admiral AX LR |
| Operating temperature (°C) | WT: 0 ... +55 WTH: -25 ... +50 (With heating system) |
| Max. water pressure jets | 40 bar (between 10° and 40° C) |
| Max. range (m) | AX LR - 18 or 50 selectable AX LR DB - 20 or 60 selectable WTH only |
| Electrical connections | 10-metre cable pre-wired with cable gland |
| WTHF heated power consumption | 24 VDC - 20 W x Protected Height (m) |
| Fastening | Set of 4 WFB ring brackets (included) |

WATERTIGHT ENCLOSURE

The watertight enclosure is made of:

- Polycarbonate transparent housing
- Valve to drain humidity and avoid condensation
- PVC sealing caps

APPLICATIONS

- Washing systems
- Industry applications with higher exposure to water sprays and jets
- Outdoor applications

PART NUMBERS

Access control - AX LR WT / WTH models - Max. range: selectable 18 or 50 m

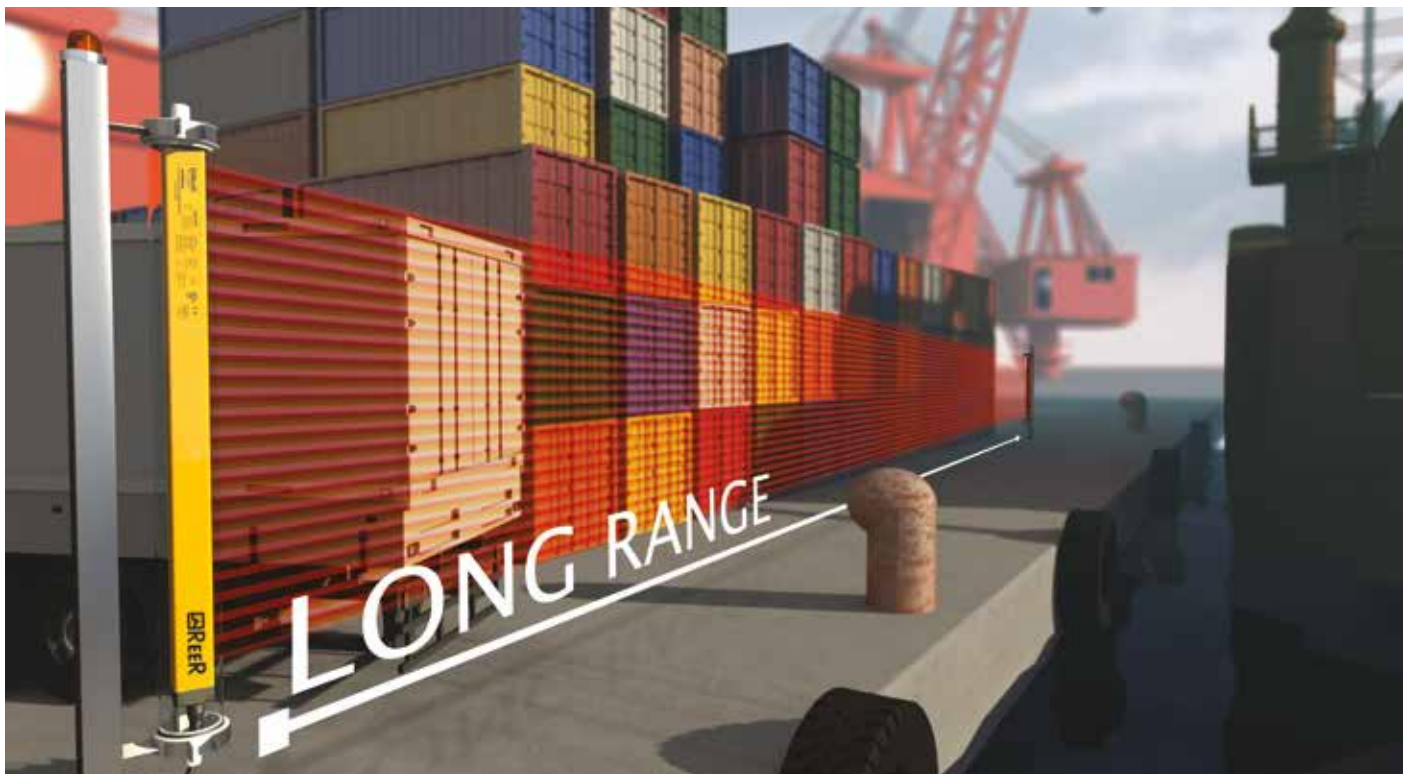


| 2, 3, 4 beams | AX 2B LR WT | AX 3B LR WT | AX 4B LR WT | AX 2B LR WTH | AX 3B LR WTH | AX 4B LR WTH |
|---------------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|
| Ordering codes | 1134603 | 1134604 | 1134605 | 1139603 | 1139604 | 1139605 |
| Nr. beams | 2 | 3 | 4 | 2 | 3 | 4 |
| Overall height (mm) | 841 | 1141 | 1241 | 841 | 1141 | 1241 |

Access control - AX LR DB WTH models - Max. range: selectable 20 or 60 m



| 2, 3, 4 beams | AX 2B LR DB WTH | AX 3B LR DB WTH |
|---------------------|--------------------|--------------------|
| Ordering codes | 1139606 | 1139607 |
| Nr. beams | 2 | 3 |
| Overall height (mm) | 900 | 1200 |

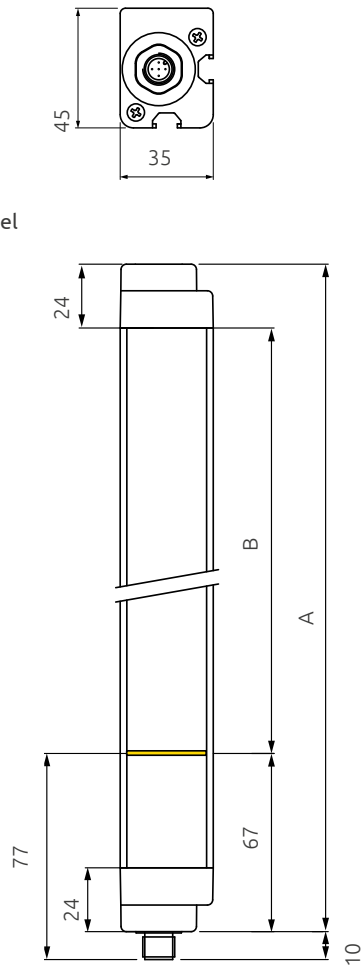


Port applications

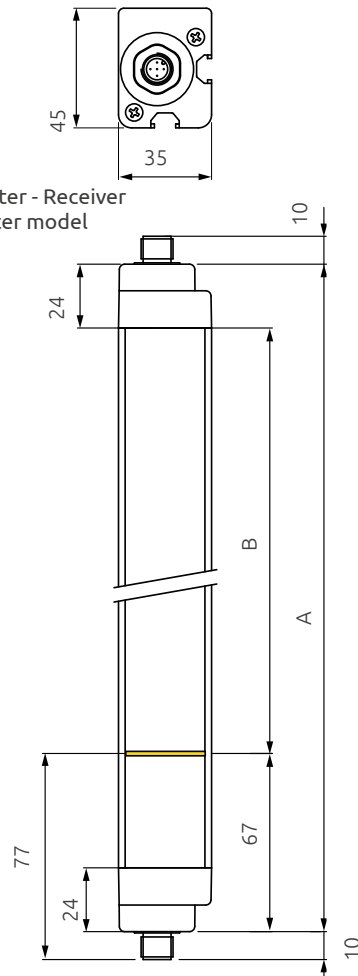
MECHANICAL DATA

DIMENSIONS

Emitter - Receiver
Standard model and Slave model



Emitter - Receiver
Master model



| Models | 2B | 3B | 4B |
|--------|-----|------|------|
| A (mm) | 701 | 1001 | 1101 |
| B (mm) | 500 | 800 | 900 |

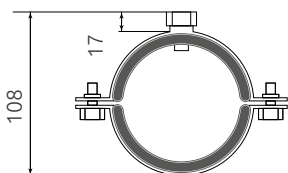
Mounting Set of 4 LS type brackets included

| Models | 150 | 300 | 450 | 600 | 750 | 900 | 1050 | 1200 | 1350 | 1500 | 1650 | 1800 | 1950 | 2100 | 2250 |
|--------|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|
| A (mm) | 251 | 401 | 551 | 701 | 851 | 1001 | 1151 | 1301 | 1451 | 1601 | 1751 | 1901 | 2061 | 2211 | 2361 |
| B (mm) | 150 | 300 | 450 | 600 | 750 | 900 | 1050 | 1200 | 1350 | 1500 | 1650 | 1800 | 1950 | 2100 | 2250 |

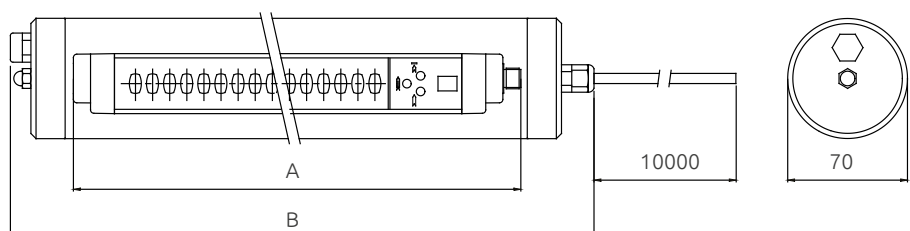
Mounting Set of 4 LS type brackets included

Set of 6 LS type brackets included

Watertight enclosure



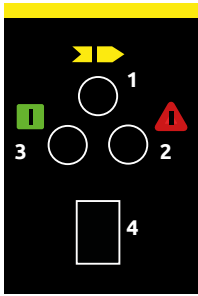
WFB ring brackets (included)



$$B = A (\text{Overall height}) + 130 \text{ mm}$$

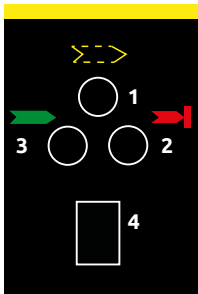
Dimension: mm

STATUS DISPLAY



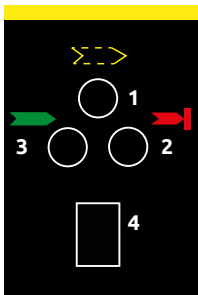
Emitter - All ADMIRAL models

| 1 - Yellow led | 2 - Red led | 3 - Green led | 4 - Display | Meaning |
|----------------|-------------|---------------|-------------|--|
| ● | ● | ○ | 8 | System power-on - Initial TEST |
| ● | ○ | ● | L / H | TEST condition |
| ○ | ○ | ● | L | GUARD condition. Low range |
| ○ | ○ | ● | H | GUARD condition. High range |
| ○ | ● | ○ | CODE | FAIL condition - The type of fault is identified by the code number on display. See technical manual |



Receiver - ADMIRAL AD

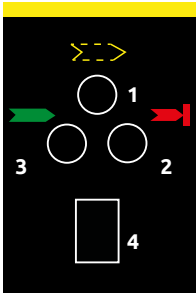
| 1 - Yellow led | 2 - Red led | 3 - Green led | 4 - Display | Meaning |
|----------------|-------------|---------------|-------------|--|
| ● | ● | ○ | 8 | System power-on - Initial TEST |
| ○ | ● | ○ | - | BREAK condition |
| ● | ○ | ○ | - | Received beam signal intensity is weak |
| ○ | ○ | ● | - | GUARD condition |
| ○ | ● | ○ | CODE | FAIL condition - The type of fault is identified by the code number on display. See technical manual |



Receiver ADMIRAL AX, ADMIRAL AX MASTER

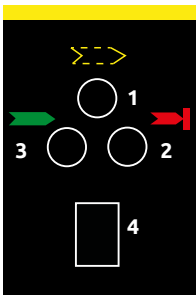
| 1 - Yellow led | 2 - Red led | 3 - Green led | 4 - Display | Meaning |
|----------------|-------------|---------------|-------------|--|
| ● | ● | ○ | 8 | System power-on - Initial TEST |
| ○ | ● | ○ | C | C displayed for 10 sec. - Manual restart with feedback disabled |
| ● | ● | ○ | C | C displayed for 10 sec. - Manual restart with feedback enabled |
| ○ | ○ | ● | C | C displayed for 10 sec. - Automatic restart with feedback disabled |
| ● | ○ | ● | C | C displayed for 10 sec. - Automatic restart with feedback enabled |
| ○ | ● | ○ | - | BREAK condition |
| ○ | ● | ○ | d | BREAK condition with weak signal |
| ○ | ○ | ○ | - | CLEAR condition. Waiting for restart |
| ○ | ○ | ○ | d | CLEAR condition with weak signal |
| ○ | ○ | ○ | - | Master in CLEAR, Slave in BREAK conditions (Master Models only) |
| ● blinking | ● | ○ | d | Master in CLEAR, Slave in BREAK conditions with weak signal. (Master Models only) |
| ○ | ○ | ● | - | GUARD condition |
| ○ | ○ | ● | d | GUARD condition with weak signal |
| ○ | ● | ○ | | Receiver initialization |
| ○ | ● | ○ | CODE | FAIL condition - The type of fault is identified by the code number on display. See technical manual |

Receiver ADMIRAL AX SLAVE and ADMIRAL AX BK SLAVE



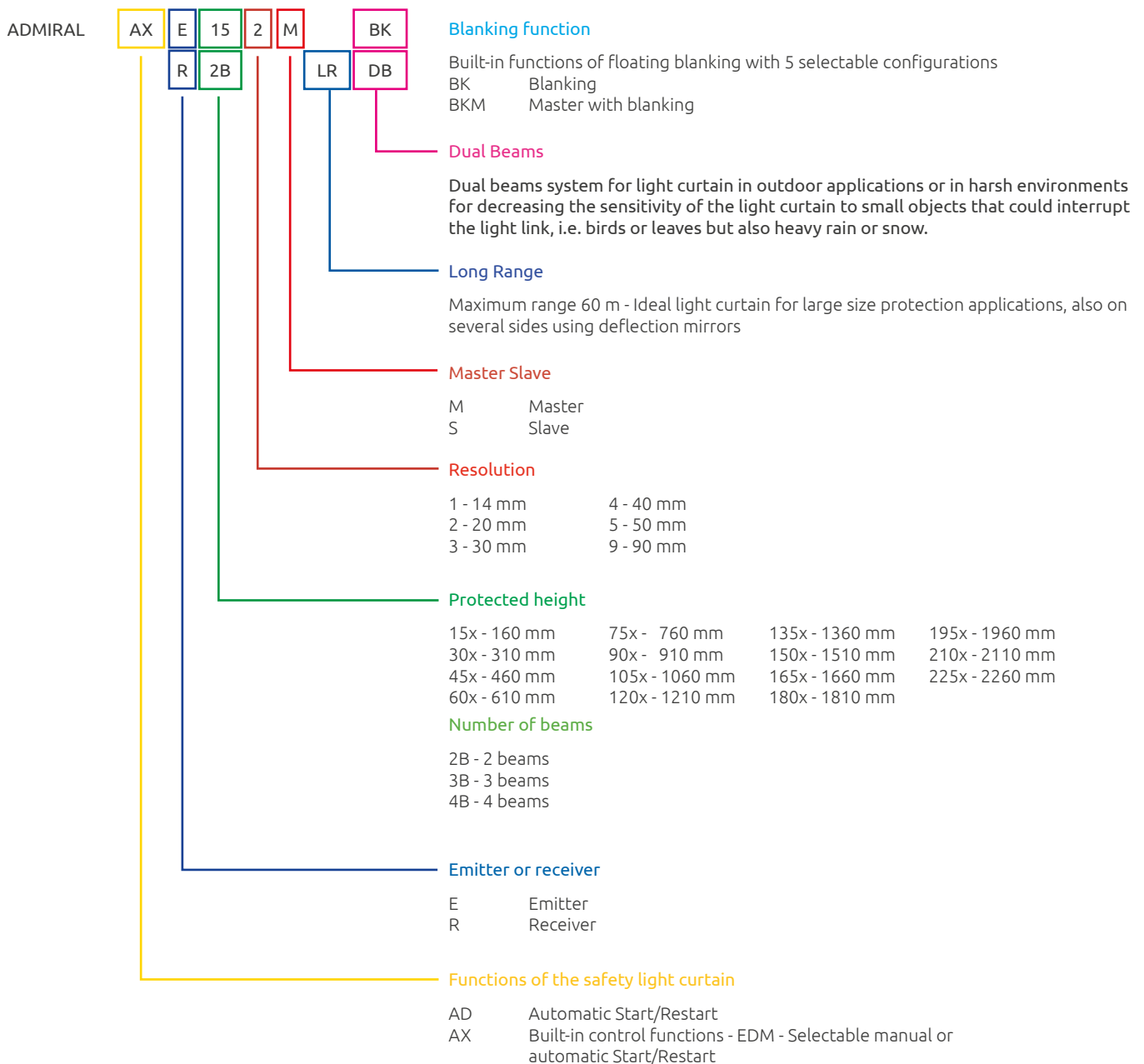
| 1 - Yellow led | 2 - Red led | 3 - Green led | 4 - Display | Meaning |
|----------------|-------------|---------------|-------------|--|
| ● | ● | ○ | 8 | System power-on - Initial TEST |
| ○ | ● | ○ | - | BREAK condition |
| ○ | ○ | ○ | d | BREAK condition with weak signal |
| ○ | ○ | ● | - | GUARD condition |
| ○ | ○ | ● | d | GUARD condition with weak signal |
| ○ | ● | ○ | - | Receiver initialization |
| ○ | ● | ○ | CODE | FAIL condition - The type of fault is identified by the code number on display. See technical manual |

Receiver ADMIRAL AX BK only



| 1 - Yellow led | 2 - Red led | 3 - Green led | 4 - Display | Meaning |
|----------------|-------------|---------------|-------------|--|
| ● | ● | ○ | 8 | System power-on - Initial TEST |
| ○ | ● | ○ | C | C displayed for 10 sec. - Blanking Mode A1 See table on page 3 |
| ● | ● | ○ | C | C displayed for 10 sec. - Blanking Mode A2 See table on page 3 |
| ● blinking | ● | ○ | C | C displayed for 10 sec. - Blanking Mode A3 See table on page 3 |
| ○ | ○ | ● | C | C displayed for 10 sec. - Blanking Mode B1 See table on page 3 |
| ● | ○ | ● | C | C displayed for 10 sec. - Blanking Mode B2 See table on page 3 |
| ○ | ● | ○ | - | BREAK condition |
| ● | ● | ○ | - | BREAK condition with weak signal |
| ○ | ● | ○ | b | BREAK condition in case of Mode B1/B2 blaking |
| ● | ● | ○ | b | BREAK condition in case of Mode B1/B2 blaking with weak signal |
| ○ | ● | ○ | J | Master in CLEAR, Slave in BREAK conditions (Master Models only) |
| ● | ● | ○ | J | Master in CLEAR, Slave in BREAK conditions with weak signal. (Master Models only) |
| ○ | ○ | ● | - | GUARD condition without blanking |
| ● | ○ | ● | - | GUARD condition without blanking with weak signal |
| ○ | ○ | ● | r | Active blanking conditions |
| ● | ○ | ● | r | Active blanking conditions with weak signal |
| ○ | ● | ○ | - | Receiver initialization |
| ○ | ● | ○ | CODE | FAIL condition - The type of fault is identified by the code number on display. See technical manual |

CODE LEGEND



Example:

- ADMIRAL AXE 759 BK =
- Type 4 safety light curtain ADMIRAL family
 - Built-in control functions - EDM - Selectable manual or automatic Start/Restart
 - Emitter
 - Protected height: 760 mm
 - Resolution: 90 mm
 - Blanking

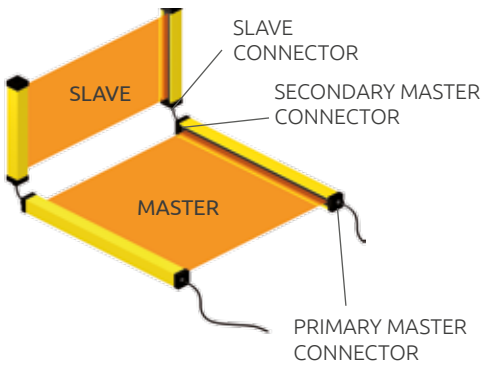
MAIN FEATURES

The Vision Type 2 range of safety light curtains is the ideal solution for the protection of the majority of high-risk industrial applications in Category 2. Its features includes:

- Extremely easy connection and installation, thanks to the M12 connectors and the use of standard cables
- Integration of the main safety functions, including self monitoring of the safety circuits and, for the X models, external device monitoring (EDM) and the Start / Restart interlock function

CASCADING FUNCTION

Master/Slave models with built-in control functions

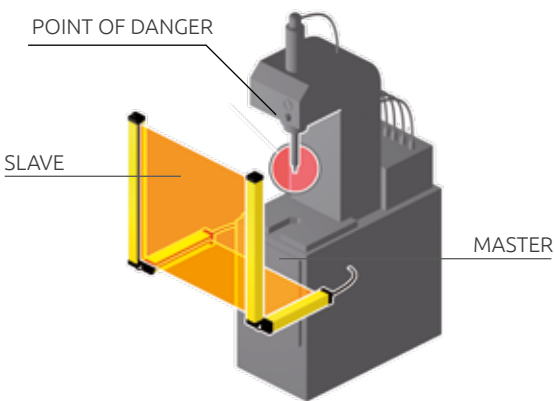


Master/Slave models allow series connection of two light curtains with the following major benefits:

- Combined detection (hand + presence of a person or protection of more sides of the machine)
- Single pair of safety outputs is used
- No interference between light curtains installed adjacent to one another

All electrical connections made using M12 5-pole connectors, except for Master receivers which necessitate the adoption of M12 8-pole connectors.

Pre-wired cables with twin connectors are available for the connection between Master and Slave.

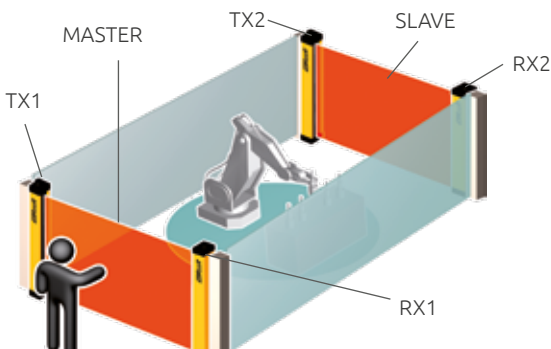


Applications examples

The application shown is one of the most common: horizontal curtains are used to prevent the operator from being undetected in the space between vertical light curtain and dangerous machine, upon system start-up or restarting.

Master light curtain is placed horizontally for detection of the person and Slave light curtain is placed vertically to detect fingers or hands.

The arrangement can be reversed to have the Master light curtain vertical for finger and hand detection and the Slave light curtain horizontally for detecting the presence of a person.



Example of series connection of master and slave light curtains for protection of two sides of the machine.

Thus, two series connected curtains may be located one at the front of the machine and the other at the rear, with a single connection to the machine power and control circuitry.



MUTING FUNCTION

Additional arms with built-in Muting crossed beams photoelectric sensors, combined with the Vision light curtains series form a one way access control system with L logic (exit only) or a bi-directional access control system with T logic (entry and exit).

Can be mounted on Vision light curtains of any height and resolution.

IMPORTANT NOTE

The Muting function is created by using an external intercase module (Mosaic or AD SRM), where both the light curtains and the sensors of the Muting arms are connected.

Installation note: the arm transmitter must be mounted on the light curtain receiver and vice versa.



One-way Muting with 2 sensors – Exit only
2 integrated photoelectric sensors with crossed beams

The light curtain only allows pallet outfeed.

The Muting function can only be activated from inside the protected zone. No possibility to activate a Muting sequence from the outside.

Elimination of bulk outside the protected area, as the Muting sensors are only present inside the area.

Correct Muting sequence even in the presence of a pallet with reduced width and/or length or not centred with respect to the conveyor.

Muting enable input allows to start a Muting sequence only when needed by the machine cycle. i.e. Muting enabled only when the conveyor is moving.



Two-way Muting with 2 sensors – Entry/Exit
2 integrated photoelectric sensors with crossed beams

Standard solution for the most common entry/exit pallet applications.

Muting enable input allows to start a Muting sequence only when needed by the machine cycle. i.e. Muting enabled only when the conveyor is moving.

VISION MXL SERIES with integrated Muting functions

Vision MXL is a range of safety light curtains with integrated Muting function. Set-up of each function can be done through main connector. No need external module. Models MXL L and MXL T are available with integrated Muting sensors.



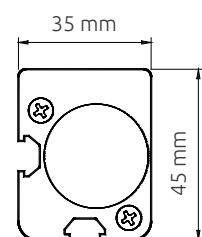
Operating temperature : 0 ... +55 °C



With watertight housing

IP65 protection rate
Special versions in WT/WTH IP67 protection rate watertight housing with or without heating system. See "VISION VX WT/WTH" on page 34

Cross section






1:2 scale

THE VISION RANGE

| VISION V L | VISION V H | VISION VX | VISION VX LR (Long Range) | VISION VX M - S | VISION VXL | VISION MXL (see next table) |
|---|--|---|---|--|---|---|
| Operating range: 0 ... 6 m | Operating range: 1 ... 16 m | Selectable operating range: 0 ... 6 m - low range 1 ... 18 m - high range | Selectable operating range: 10 ... 22 m - low range 18 ... 60 m - high range | Selectable operating range: 0 ... 6 m - low range 3 ... 18 m - high range | Operating range: 0,3 ... 8 m | Operating range: 0,3 ... 8 m MXL and MXL U 1 ... 2,5 m MXL L 1 ... 2,5 m MXL T |
| Types of detection: Resolution 20, 30, 40 mm for hand detection Resolution 50, 90 mm for detection of the body in a hazardous area 2, 3, 4 beams for detection of the body in access control | | | Types of detection: 2, 3, 4 beams for detection of the body in access monitoring | Types of detection: Resolution 30, 40, 50 mm for hand detection 2, 3 beams for detection of the body in access control | Types of detection: Resolution 30, 40 mm for hand detection 2, 3, 4 beams for detection of the body in access control | |
| Electrical connections: M12 5-pole connectors | Electrical connections: M12 5-pole connectors for emitter M12 8-pole connectors for receiver | | | | Electrical connections: M12 5-pole connectors for emitter M16 12-pole connectors for receiver | |
| Automatic Start/Restart | Built-in manual or automatic Start/Restart selectable | | | | | |
| External relay monitoring (EDM) through external AD SR1 interface | Feedback input for control of external relays (EDM) | | | | | |
| 2 self-testing solid state PNP safety outputs protected against short circuits and overloads | | | | | | |

VISION MXL RANGE WITH MUTING FUNCTION

| | | |
|---|--|--|
|  <p>MXL-SERIES</p> | <p>MXL and MXL U SERIES</p> <p>Both have two dedicated inputs on the M16 connector for connection of external Muting sensors of any type such as photocells, proximity switches, limit switches, etc.</p> | <p>MXL</p> <p>The MXL series is recommended for Muting applications: Where personnel is supposed to access the area under control during the non-dangerous part of the machine cycle (e. g. manual load/unload of product).</p> <p>For two-way transit of material through the gate to be controlled by the light curtain (e.g. palletizers).</p> |
| | <p>MXL U</p> <p>Only for Muting applications where one-way transit (exit only) of material through the gate is controlled by the light curtain (e.g. palletizers).</p> | |
|  <p>MXL L SERIES</p> | <p>MXL L SERIES</p> <p>The MXL L series, with 2 or 3 beams for access control, uses an original system of 2 horizontal arms (one for the emitter and one for the receiver) with built-in, pre-wired and pre-aligned photoelectric Muting sensors.</p> <p>The arms can be adjusted in height and angle in order to create a detection plane that is more or less angled, with the purpose to achieve correct and constant detection of the material in transit and therefore reliable operation of the protection system.</p> <p>This ensures the maximum speed and simplicity of installation. The MXL L series manages the Muting function in one-way mode and is particularly suitable for protecting the outfeed gates of palletizing systems.</p> | |
|  <p>MXL T SERIES</p> | <p>MXL T SERIES</p> <p>The MXL T series, with 2 or 3 beams for access control, features four horizontal arms (two for the emitter and two for the receiver) with built-in, pre-wired and pre-aligned photoelectric Muting sensors.</p> <p>The arms can be adjusted in height and angle in order to create a detection plane that is more or less angled, with the purpose to achieve correct and constant detection of the material in transit and therefore reliable operation of the protection system.</p> <p>This ensures the maximum speed and simplicity of installation. The MXL T series manages the Muting function in two-way mode for the protection of the infeed/outfeed gates in palletizing systems.</p> | |

APPROVALS

- 2006/42/EC: "Machine Directive"
- 2014/30/EU: "Electromagnetic Compatibility Directive"
- 2014/35/EU: "Low Voltage Directive"
- IEC 61496-1 (ed.3) "Safety of machinery - Electro sensitive protective equipment - General requirements and tests"
- IEC 61496-2 (ed.3) "Safety of machinery - Electro-sensitive protective equipment - Particular requirements for equipment using active opto-electronic protective devices (AOPDs)"
- IEC 62061 (ed.1) "Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems"
- EN ISO 13849-1:2008 "Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design"
- EN 50178:1997 "Electronic equipment for use in power installations"
- EN 55022:2010 "Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement"
- UL (C+US) mark for USA and Canada
- ANSI / UL 1998: "Safety Software in Programmable Components"

New safety parameters for Type 2 light curtains

With the publication of Edition 3 of the harmonized EN 61496-1 standard it is no longer possible to use a Type 2 safety light curtains for safety functions assessed as SIL 2 / PL d.

If a safety level of SIL 2 / PL d (or higher) is required and it is nevertheless intended to use a safety light curtain, then it will be necessary to use a Type 4 safety light curtain.

This regulatory requirement derives from the fact that the reduction of risk that can be obtained via a photoelectric safety light curtain is not only a function of the safety level of its electronic parts, but is also determined by its systematic capabilities (for example: environmental influences, EMC, optical performance and detection principle).

The systematic capability of a Type 2 photoelectric light curtain may in fact not be sufficient to ensure adequate risk reduction for SIL 2 / PL d applications. The standard also establishes that the labelling of Type 2 safety light curtains must indicate such limitation to SIL 1 / PL c.

The PFH_d values declared for the electronic control part of the device, on the other hand, are not limited and therefore it is possible to use the PFH_d value provided by the manufacturer of the device in the global assessment of the safety function, even if it exceeds the SIL 1 / PL c range.

SAFETY LEVEL

TYPE 2

SIL CL 1
PL c - Cat. 2

VISION V

WITH AUTOMATIC START/RESTART



| | |
|----------------------|----------------|
| Resolution (mm) | Start/Restart |
| 20, 30 40, 50, 90 | Automatic |
| Access control | Safety outputs |
| 2, 3, 4 beams | 2 |

SAFETY LEVEL

TYPE 2

SILCL 1
PL c - Cat. 2

Start/Restart interlock and EDM via external AD SR1 interface.

All connections and configuration by means of M12 connectors. Unshielded cables up to 100 meter long can be used to connect the light curtain.

Protected heights: 160 mm ... 1810 mm.



TECHNICAL FEATURES

| | |
|--------------------|---|
| Max. range (m) | 6 for Vision V L models 16 for Vision V H models |
| Response time (ms) | 5,5 ... 28 |
| Safety outputs | 2 PNP auto-controlled - 500 mA at 24 VDC with short-circuit, overload, polarity reversal protection |
| Status display | LEDs for light curtain's status and diagnostic |
| Power supply (VDC) | 24 ± 20% |
| Fastening | Back slot, side slot or to the top and lower end with swivel brackets |

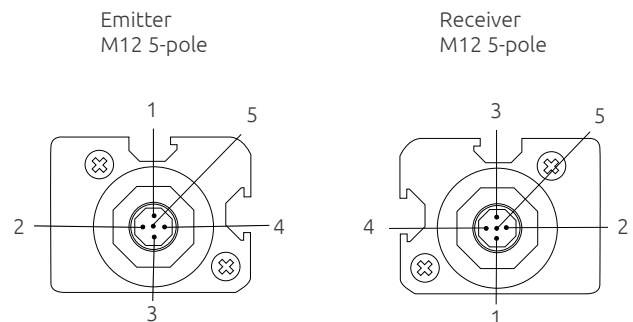
CABLES NEEDED

- Emitter: M12 5-pole.
See [page 50](#) (CDx, CDx SB, CD9x, CDM9)
- Receiver: M12 5-pole.
See [page 50](#) (CDx, CDx SB, CD9x, CDM9)

ACCESSORIES

- Start/Restart interlock and EDM through external interface. See [AD SR1 on page 46](#)
- Muting function through external interface. See [AD SRM on page 47](#)
- Additional Muting arms. See [SLA, STA on page 56](#)
- Support columns. See [page 57](#)
- Deflecting mirrors. See [page 60](#)
- Laser alignment device. See [page 62](#)
- Vibration dumpers. See [page 61](#)
- Brackets. See [page 61](#)

CONNECTORS



1 - 24 VDC
2 - TEST1
3 - 0 VDC
4 - NC
5 - PE

1 - 24 VDC
2 - OSSD1
3 - 0 VDC
4 - OSSD2
5 - PE

PART NUMBERS

Hand detection - VL models - Max. range: 6 m VH models - Max. range: 16 m



| | | | | | | | | | | | | |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Resolution 20 mm | V 152L | V 302L | V 452L | V 602L | V 752L | V 902L | V 1052L | V 1202L | V 1352L | V 1502L | V 1652L | V 1802L |
| Ordering codes | 1340100 | 1340101 | 1340102 | 1340103 | 1340104 | 1340105 | 1340106 | 1340107 | 1340108 | 1340109 | 1340110 | 1340111 |
| Resolution 20 mm | V 152H | V 302H | V 452H | V 602H | V 752H | V 902H | V 1052H | V 1202H | V 1352H | V 1502H | V 1652H | V 1802H |
| Ordering codes | 1340120 | 1340121 | 1340122 | 1340123 | 1340124 | 1340125 | 1340126 | 1340127 | 1340128 | 1340129 | 1340130 | 1340131 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| Overall height (mm) | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 |



| | | | | | | | | | | | | |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Resolution 30 mm | V 153L | V 303L | V 453L | V 603L | V 753L | V 903L | V 1053L | V 1203L | V 1353L | V 1503L | V 1653L | V 1803L |
| Ordering codes | 1340200 | 1340201 | 1340202 | 1340203 | 1340204 | 1340205 | 1340206 | 1340207 | 1340208 | 1340209 | 1340210 | 1340211 |
| Resolution 30 mm | V 153H | V 303H | V 453H | V 603H | V 753H | V 903H | V 1053H | V 1203H | V 1353H | V 1503H | V 1653H | V 1803H |
| Ordering codes | 1340220 | 1340221 | 1340222 | 1340223 | 1340224 | 1340225 | 1340226 | 1340227 | 1340228 | 1340229 | 1340230 | 1340231 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 | 80 | 88 | 96 |
| Overall height (mm) | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 |



| | | | | | | | | | | | |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Resolution 40 mm | V 304L | V 454L | V 604L | V 754L | V 904L | V 1054L | V 1204L | V 1354L | V 1504L | V 1654L | V 1804L |
| Ordering codes | 1340301 | 1340302 | 1340303 | 1340304 | 1340305 | 1340306 | 1340307 | 1340308 | 1340309 | 1340310 | 1340311 |
| Resolution 40 mm | V 304H | V 454H | V 604H | V 754H | V 904H | V 1054H | V 1204H | V 1354H | V 1504H | V 1654H | V 1804H |
| Ordering codes | 1340321 | 1340322 | 1340323 | 1340324 | 1340325 | 1340326 | 1340327 | 1340328 | 1340329 | 1340330 | 1340331 |
| Protected height (mm) | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| Overall height (mm) | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 |

Body detection - VL models - Max. range: 6 m VH models - Max. range: 16 m



| | | | | | | | | | | | |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Resolution 50 mm | V 305L | V 455L | V 605L | V 755L | V 905L | V 1055L | V 1205L | V 1355L | V 1505L | V 1655L | V 1805L |
| Ordering codes | 1340401 | 1340402 | 1340403 | 1340404 | 1340405 | 1340406 | 1340407 | 1340408 | 1340409 | 1340410 | 1340411 |
| Resolution 50 mm | V 305H | V 455H | V 605H | V 755H | V 905H | V 1055H | V 1205H | V 1355H | V 1505H | V 1655H | V 1805H |
| Ordering codes | 1340421 | 1340422 | 1340423 | 1340424 | 1340425 | 1340426 | 1340427 | 1340428 | 1340429 | 1340430 | 1340431 |
| Protected height (mm) | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 |
| Overall height (mm) | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 |



| | | | | | | | | | | | |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Resolution 90 mm | V 309L | V 459L | V 609L | V 759L | V 909L | V 1059L | V 1209L | V 1359L | V 1509L | V 1659L | V 1809L |
| Ordering codes | 1340501 | 1340502 | 1340503 | 1340504 | 1340505 | 1340506 | 1340507 | 1340508 | 1340509 | 1340510 | 1340511 |
| Resolution 90 mm | V 309H | V 459H | V 609H | V 759H | V 909H | V 1059H | V 1209H | V 1359H | V 1509H | V 1659H | V 1809H |
| Ordering codes | 1340521 | 1340522 | 1340523 | 1340524 | 1340525 | 1340526 | 1340527 | 1340528 | 1340529 | 1340530 | 1340531 |
| Protected height (mm) | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 5 | 7 | 9 | 11 | 13 | 15 | 17 | 19 | 21 | 23 | 25 |
| Overall height (mm) | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 |

Access control - VL models - Max. range: 6 m VH models - Max. range: 16 m



| | | | | | | |
|-----------------------|---------|---------|---------|---------|---------|---------|
| 2, 3, 4 beams | V 2B L | V 3B L | V 4B L | V 2B H | V 3B H | V 4B H |
| Ordering codes | 1340600 | 1340601 | 1340602 | 1340610 | 1340611 | 1340612 |
| Nr. beams | 2 | 3 | 4 | 2 | 3 | 4 |
| Beam spacing (mm) | 500 | 400 | 300 | 500 | 400 | 300 |
| Protected height (mm) | 510 | 810 | 910 | 510 | 810 | 910 |
| Overall height (mm) | 711 | 1011 | 1111 | 711 | 1011 | 1111 |

VISION VX

WITH BUILT-IN CONTROL FUNCTIONS



| Resolution (mm) |
|----------------------|
| 20, 30 40, 50, 90 |

| Start/Restart |
|---------------------|
| Manual or Automatic |

| Access control |
|----------------|
| 2, 3, 4 beams |

| Safety outputs |
|----------------|
| 2 |

SAFETY LEVEL

TYPE 2

SILCL 1
PL c - Cat. 2

Built-in Start/Restart interlock, selectable.

Feedback input for control of external relays (EDM).

All connections and configuration by means of M12 connectors. Unshielded cables up to 100 meter long can be used to connect the light curtain.

Protected heights: 160 mm ... 1810 mm.



TECHNICAL FEATURES

| | |
|--------------------|---|
| Max. range (m) | Selectable 6 or 18 Selectable 22 or 60 (2, 3, 4 beams Long Range) |
| Response time (ms) | 5,5 ... 28 |
| Safety outputs | 2 PNP auto-controlled - 500 mA at 24 VDC with short-circuit, overload, polarity reversal protection |
| Status display | Seven-segment display and LEDs for light curtain's status and diagnostic |
| Power supply (VDC) | 24 ± 20% |
| Fastening | Back slot, side slot or to the top and lower end with swivel brackets |

CABLES NEEDED

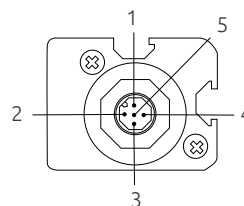
- Emitter: M12 5-pole.
See [page 50](#) (CDx, CDx SB, CD9x, CDM9)
- Receiver: M12 8-pole.
See: [page 52](#) (C8Dx, C8Sx SB, C8D9x, C8DM9, C8DM11)

ACCESSORIES

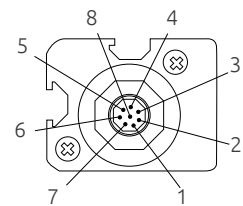
- Muting function through external interface.
See [AD SRM on page 47](#)
- Safety relay. See [AD SR0, AD SR0A on page 46](#)
- Additional Muting arms. See [SLA, STA on page 56](#)
- Support columns. See [page 57](#)
- Deflecting mirrors. See [page 60](#)
- Laser alignment device. See [page 62](#)
- Vibration dumpers. See [page 61](#)
- Brackets. See [page 61](#)

CONNECTORS

Emitter
M12 5-pole



Receiver
M12 8-pole



- 1 - 24 VDC
- 2 - RANGE - TEST1
- 3 - 0 VDC
- 4 - RANGE - TEST2
- 5 - PE

- 1 - OSSD1
- 2 - 24 VDC
- 3 - OSSD2
- 4 - K1 K2 FEEDBACK
- 5 - SEL A
- 6 - SEL B
- 7 - 0 Vcc
- 8 - PE

PART NUMBERS

Hand detection - VX models - Max. range: selectable 6 m or 18 m



| Resolution 20 mm | VX 152 | VX 302 | VX 452 | VX 602 | VX 752 | VX 902 | VX 1052 | VX 1202 | VX 1352 | VX 1502 | VX 1652 | VX 1802 |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Ordering codes | 1344100 | 1344101 | 1344102 | 1344103 | 1344104 | 1344105 | 1344106 | 1344107 | 1344108 | 1344109 | 1344110 | 1344111 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 |
| Overall height (mm) | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 |



| Resolution 30 mm | VX 153 | VX 303 | VX 453 | VX 603 | VX 753 | VX 903 | VX 1053 | VX 1203 | VX 1353 | VX 1503 | VX 1653 | VX 1803 |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Ordering codes | 1344200 | 1344201 | 1344202 | 1344203 | 1344204 | 1344205 | 1344206 | 1344207 | 1344208 | 1344209 | 1344210 | 1344211 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 | 80 | 88 | 96 |
| Overall height (mm) | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 |



| Resolution 40 mm | VX 304 | VX 454 | VX 604 | VX 754 | VX 904 | VX 1054 | VX 1204 | VX 1354 | VX 1504 | VX 1654 | VX 1804 |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Ordering codes | 1344301 | 1344302 | 1344303 | 1344304 | 1344305 | 1344306 | 1344307 | 1344308 | 1344309 | 1344310 | 1344311 |
| Protected height (mm) | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| Overall height (mm) | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 |

Body detection - VX models - Max. range: selectable 6 m or 18 m



| Resolution 50 mm | VX 305 | VX 455 | VX 605 | VX 755 | VX 905 | VX 1055 | VX 1205 | VX 1355 | VX 1505 | VX 1655 | VX 1805 |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Ordering codes | 1344401 | 1344402 | 1344403 | 1344404 | 1344405 | 1344406 | 1344407 | 1344408 | 1344408 | 1344410 | 1344411 |
| Protected height (mm) | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 |
| Overall height (mm) | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 |



| Resolution 90 mm | VX 309 | VX 459 | VX 609 | VX 759 | VX 909 | VX 1059 | VX 1209 | VX 1359 | VX 1509 | VX 1659 | VX 1809 |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Ordering codes | 1344501 | 1344502 | 1344503 | 1344504 | 1344505 | 1344506 | 1344507 | 1344508 | 1344509 | 1344510 | 1344511 |
| Protected height (mm) | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 5 | 7 | 9 | 11 | 13 | 15 | 17 | 19 | 21 | 23 | 25 |
| Overall height (mm) | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 |

Access control - VX models - Max. range: selectable 6 m or 18 m

VX LR models - Max range: selectable 22 m or 60 m



| 2, 3, 4 beams | VX 2B | VX 3B | VX 4B |
|-----------------------|---------|---------|---------|
| Ordering codes | 1344600 | 1344601 | 1344602 |
| Nr. beams | 2 | 3 | 4 |
| Beam spacing (mm) | 500 | 400 | 300 |
| Protected height (mm) | 510 | 810 | 910 |
| Overall height (mm) | 711 | 1011 | 1111 |

| VX 2B LR | VX 3B LR | VX 4B LR |
|----------|----------|----------|
| 1344603 | 1344604 | 1344605 |
| 2 | 3 | 4 |
| 500 | 400 | 300 |
| 510 | 810 | 910 |
| 711 | 1011 | 1111 |

VISION VXM / VXS

MASTER/SLAVE MODELS WITH BUILT-IN CONTROL FUNCTIONS



| Resolution (mm) |
|-----------------|
| 20, 40, 50 |

| Start/Restart |
|---------------------|
| Manual or Automatic |

SAFETY LEVEL

TYPE 2

SILCL 1
PL c - Cat. 2

| Access control |
|----------------|
| 2, 3 beams |

| Safety outputs |
|----------------|
| 2 |

Feedback input for external device monitoring (EDM).

All connections and configurations by means of M12 connectors. Unshielded cables up to 100 meter long can be used to connect the light curtain. (50 m between Master and Slave with M12 5-pole for emitter and receiver).

Protected heights: 160 mm ... 1810 mm.

TECHNICAL FEATURES

| | |
|--------------------------------------|---|
| Max. range (m) | Selectable 6 or 18 |
| Response time (ms) Master + Slave | $t_{tot} = t_{slave} + t_{master} + 1,8$ |
| Safety outputs | 2 PNP auto-controlled - 500 mA at 24 VDC with short-circuit, overload, polarity reversal protection |
| Status display | Seven-segment display and LEDs for light curtain's status and diagnostic |
| Power supply (VDC) | 24 ± 20% |
| Fastening | Back slot, side slot or to the top and lower end with swivel brackets |

CABLES NEEDED

- Emitter: M12 5-pole.
See [page 50](#) (CDx, CDx SB, CD9x, CDM9)
- Receiver: M12 8-pole.
See [page 52](#) (C8Dx, C8Sx SB, C8D9x, C8DM9, C8DM11)
- Between Master and Slave: M12 5-pole.
See [page 54](#) (CDS03, CJBEx)

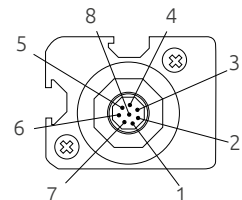
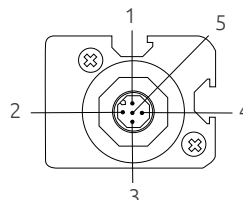
ACCESSORIES

- Laser alignment device. See [page 62](#)
- Vibration dumpers. See [page 61](#)
- Brackets. See [page 61](#)

CONNECTORS

Master Emitter,
Master secondary
connector and Slave
M12 5-pole

Master Receiver
M12 8-pole



- 1 - 24 VDC
- 2 - RANGE - TEST1
- 3 - 0 VDC
- 4 - RANGE - TEST2
- 5 - PE

- 1 - OSSD1
- 2 - 24 VDC
- 3 - OSSD2
- 4 - K1 K2 FEEDBACK
- 5 - SEL A
- 6 - SEL B
- 7 - 0 Vcc
- 8 - PE



MASTER/SLAVE MODELS WITH BUILT-IN CONTROL FUNCTIONS

PART NUMBERS

Hand detection - VX M, VX S models - Max. range: selectable 6 m or 18 m



MASTER

| | | | | | | | | | |
|------------------|---------|---------|---------|---------|---------|---------|----------|----------|----------|
| Resolution 30 mm | VX 153M | VX 303M | VX 453M | VX 603M | VX 753M | VX 903M | VX 1053M | VX 1203M | VX 1503M |
| Ordering codes | 1344220 | 1344221 | 1344222 | 1344223 | 1344224 | 1344225 | 1344226 | 1344227 | 1344229 |

SLAVE

| | | | | | | | | | |
|-----------------------|---------|---------|---------|---------|---------|---------|----------|----------|----------|
| Resolution 30 mm | VX 153S | VX 303S | VX 453S | VX 603S | VX 753S | VX 903S | VX 1053S | VX 1203S | VX 1503S |
| Ordering codes | 1344240 | 1344241 | 1344242 | 1344243 | 1344244 | 1344245 | 1344246 | 1344247 | 1344249 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1510 |
| Nr. beams | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 80 |
| Overall height (mm) * | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1611 |



MASTER

| | | | | | | | | | |
|------------------|--|---------|---------|---------|---------|---------|----------|----------|----------|
| Resolution 40 mm | | VX 304M | VX 454M | VX 604M | VX 754M | VX 904M | VX 1054M | VX 1204M | VX 1504M |
| Ordering codes | | 1344321 | 1344322 | 1344323 | 1344324 | 1344325 | 1344326 | 1344327 | 1344329 |

SLAVE

| | | | | | | | | | |
|-----------------------|--|---------|---------|---------|---------|---------|----------|----------|----------|
| Resolution 40 mm | | VX 304S | VX 454S | VX 604S | VX 754S | VX 904S | VX 1054S | VX 1204S | VX 1504S |
| Ordering codes | | 1344341 | 1344342 | 1344343 | 1344344 | 1344345 | 1344346 | 1344347 | 1344349 |
| Protected height (mm) | | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1510 |
| Nr. beams | | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 50 |
| Overall height (mm) * | | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1611 |

Body detection - VX M, VX S models - Max. range: selectable 6 m or 18 m



MASTER

| | | | | | | | | | |
|------------------|--|---------|---------|---------|---------|---------|----------|----------|----------|
| Resolution 50 mm | | VX 305M | VX 455M | VX 605M | VX 755M | VX 905M | VX 1055M | VX 1205M | VX 1505M |
| Ordering codes | | 1344421 | 1344422 | 1344423 | 1344424 | 1344425 | 1344426 | 1344427 | 1344429 |

SLAVE

| | | | | | | | | | |
|-----------------------|--|---------|---------|---------|---------|---------|----------|----------|----------|
| Resolution 50 mm | | VX 305S | VX 455S | VX 605S | VX 755S | VX 905S | VX 1055S | VX 1205S | VX 1505S |
| Ordering codes | | 1344441 | 1344442 | 1344443 | 1344444 | 1344445 | 1344446 | 1344447 | 1344449 |
| Protected height (mm) | | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1510 |
| Nr. beams | | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 40 |
| Overall height (mm) * | | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1611 |

Access control - VX M, VX S models - Max. range: selectable 6 m or 18 m



MASTER

| | | |
|----------------|---------|---------|
| 2, 3 beams | VX 2BM | VX 3BM |
| Ordering codes | 1344620 | 1344621 |

SLAVE

| | | |
|-----------------------|---------|---------|
| 2, 3 beams | VX 2BS | VX 3BS |
| Ordering codes | 1344640 | 1344641 |
| Nr. beams | 2 | 3 |
| Beam spacing (mm) | 500 | 400 |
| Protected height (mm) | 510 | 810 |
| Overall height (mm) * | 711 | 1011 |

* Overall height is referred to the slave model.

In the Master models, the total light curtain height is increased by 10 mm due to the presence of the secondary connector.

Maximum length of the connections between Master and Slave: 50 meters, with standard unshielded cable.



| | |
|-----------------|---------------------|
| Resolution (mm) | Start/Restart |
| 20, 40 | Manual or Automatic |
| Access control | Safety outputs |
| 2, 3, 4 beams | 2 |

SAFETY LEVEL
TYPE 2
SILCL 1
PL c - Cat. 2

Built-in Start/Restart interlock, selectable.

Feedback input for control of external relays (EDM).

All connections and configuration by means of M12 connectors. Unshielded cables up to 100 meter long can be used to connect the light curtain.

Protected heights: 160 mm ... 1810 mm.

TECHNICAL FEATURES

| | |
|--------------------|---|
| Max. range (m) | 8 |
| Response time (ms) | 2 ... 25 |
| Safety outputs | 2 PNP - 500 mA at 24 VDC with short-circuit, overload, polarity reversal protection |
| Status display | LEDs for light curtain's status and diagnostic |
| Power supply (VDC) | 24 ± 20% |
| Fastening | Back slot, side slot or to the top and lower end with swivel brackets |

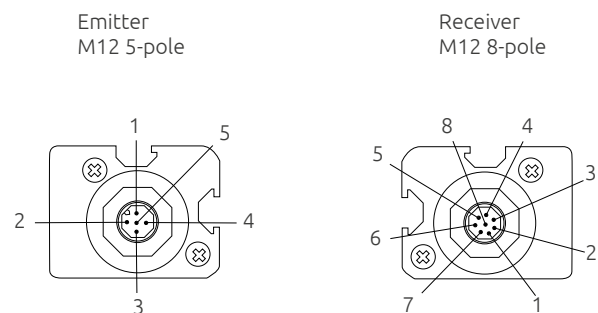
CABLES NEEDED

- Emitter: M12 5-pole.
See [page 50](#) (CDx, CDx SB, CD9x, CDM9)
- Receiver: M12 8-pole.
See [page 52](#) (C8Dx, C8Sx SB, C8D9x, C8DM9, C8DM11)

ACCESSORIES

- Muting function through external interface.
See [AD SRM on page 47](#)
- Safety relay. See [AD SR0, AD SR0A on page 46](#)
- Support columns. See [page 57](#)
- Deflecting mirrors. See [page 60](#)
- Laser alignment device. See [page 62](#)
- Vibration dumpers. See [page 61](#)
- Brackets. See [page 61](#)

CONNECTORS



1 - 24 VDC
2 - RANGE - TEST1
3 - 0 VDC
4 - RANGE - TEST2
5 - PE

1 - OSSD1
2 - 24 VDC
3 - OSSD2
4 - K1 K2 FEEDBACK
5 - SEL A
6 - SEL B
7 - 0 Vcc
8 - PE



WITH BUILT-IN CONTROL FUNCTIONS (ENTRY-LEVEL)

PART NUMBERS

Hand detection - VXL models - Max. range: 8 m



| Resolution 30 mm | VXL 153 | VXL 303 | VXL 453 | VXL 603 | VXL 753 | VXL 903 | VXL 1053 | VXL 1203 |
|-----------------------|---------|---------|---------|---------|---------|---------|----------|----------|
| Ordering codes | 1344700 | 1344701 | 1344702 | 1344703 | 1344704 | 1344705 | 1344706 | 1344707 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 |
| Nr. beams | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 |
| Overall height (mm) | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 |



| Resolution 40 mm | VXL 304 | VXL 454 | VXL 604 | VXL 754 | VXL 904 | VXL 1054 | VXL 1204 | VXL 1354 | VXL 1504 | VXL 1654 | VXL 1804 |
|-----------------------|---------|---------|---------|---------|---------|----------|----------|----------|----------|----------|----------|
| Ordering codes | 1344711 | 1344712 | 1344713 | 1344714 | 1344715 | 1344716 | 1344717 | 1344723 | 1344719 | 1344724 | 1344725 |
| Protected height (mm) | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| Overall height (mm) | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1761 | 1911 |

Access control - VXL models - Max. range: 8 m



| 2, 3, 4 beams | VXL 2B | VXL 3B | VXL 4B |
|-----------------------|---------|---------|---------|
| Ordering codes | 1344720 | 1344721 | 1344722 |
| Nr. beams | 2 | 3 | 4 |
| Beam spacing (mm) | 500 | 400 | 300 |
| Protected height (mm) | 510 | 810 | 910 |
| Overall height (mm) | 711 | 1011 | 1111 |

VISION VX WT / WTH

IP67 WATERTIGHT ENCLOSURE

TECHNICAL FEATURES

| | |
|--|---|
| Technical features for the light curtain | VISION VX LR |
| Operating temperature (°C) | WT: 0 ... +55 WTH: -25 ... +50 - With heating system |
| Max. water pressure jets | 40 bar (between 10° and 40° C) |
| Max. range (m) | 18 or 50 selectable |
| Electrical connections | 10-metre cable pre-wired with cable gland |
| WTHF heated power consumption | 24 VDC - 20 W x Protected Height (m) |
| Fastening | Set of 4 WFB ring brackets (included) |

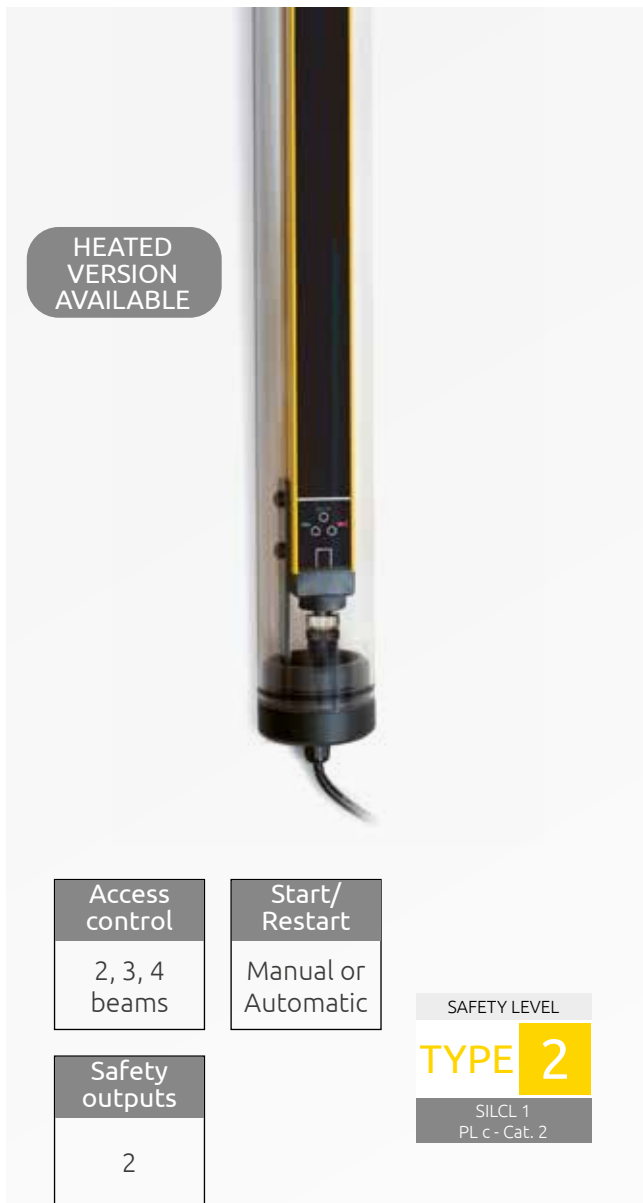
WATERTIGHT ENCLOSURE

The watertight enclosure is made of:

- Polycarbonate transparent housing
- Valve to drain humidity and avoid condensation
- PVC sealing caps

APPLICATIONS

- Washing systems
- Industry applications with higher exposure to water sprays and jets
- Outdoor applications




Watertight enclosures allow light curtains and light grids to be used in a harsh working environments with exposure to water and steam.

IP67 protection rate.

PART NUMBERS

Access control - VX LR WT / WTH models - Max. range selectable 18 or 50 m

| | VX 2B LR WT | VX 3B LR WT | VX 4B LR WT | VX 2B LR WTH | VX 3B LR WTH | VX 4B LR WTH |
|---|----------------|----------------|----------------|-----------------|-----------------|-----------------|
|  2, 3, 4 beams | | | | | | |
| Ordering codes | 1244603 | 1244604 | 1244605 | 1249603 | 1249604 | 1249605 |
| Nr. beams | 2 | 3 | 4 | 2 | 3 | 4 |
| Overall height (mm) | 841 | 1141 | 1241 | 841 | 1141 | 1241 |

Vision MXL is a range of safety light curtains for the protection of dangerous systems with integrated Muting function. Models MXL L and MXL T are available with integrated Muting sensors, pre-aligned, adjustable for height and angle.

- Integrated Muting function with two-sensors (bi-directional or mono-directional logic). Integrated Muting sensors on models MXL L and MXL T
- Set-up of each function can be done through main connector. No need of software configuration. High flexibility in terms of interface configurations, Muting logics and time-out. Selectable overrides (two types)
- Integration of the main safety functions including auto-control of static outputs, control of external contactors (EDM) and Start/Restart interlock
- Integrated auto-test, activated automatically and periodically, without discontinuity to the operation of the machine being controlled
- Interconnection box MXJB for quick connection of light curtains and availability of the main controls needed for operation close to the gate to be protected

Vision MXL offer a cost-effective solution for the most common palletizer applications.

With the MXL L and MXL T models, system installation is fast and simple; moreover, compliance with the standards requirements regarding the geometry of the Muting sensors and all the other safety parameters is guaranteed (IEC/TS 62046).

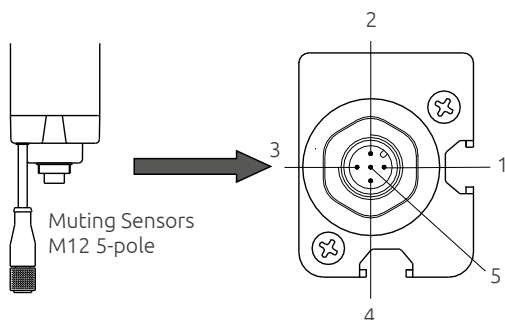


MUTING SENSOR ARMS ADJUSTMENT - MXL L - MXL T

The Muting sensor arms of Vision MXL L and MXL T are adjustable in height and angle.

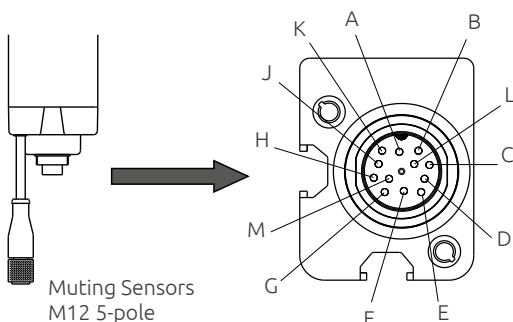
This important and unique feature enables the inclination of the detection plane of the sensors to obtain correct and constant detection of irregular materials in transit.

CONNECTORS



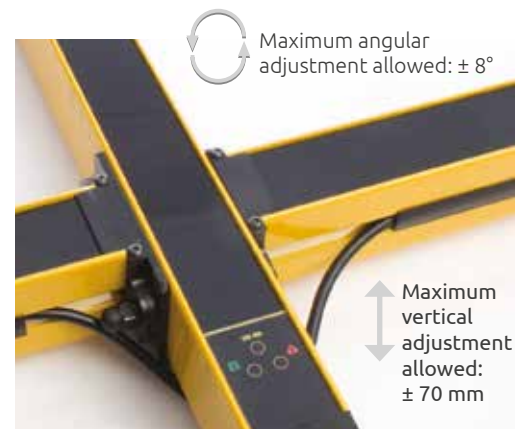
Emitter
M12 5-pole

- 1 - 24 VDC
- 2 - TEST
- 3 - 0 VDC
- 4 - NC
- 5 - PE



Receiver
M16 12-pole

- A - OSSD1
- B - SUPPLY B 24 VDC
- C - MUTING ENABLE
- D - SUPPLY A 24 VDC
- E - TIMEOUT
- F - OVERRIDE
- G - LAMPADA MUTING
- H - PE
- J - K1 K2 FEEDBACK / RESTART
- L - S1
- M - S2
- K - OSSD2



VISION MXL

WITH MUTING FUNCTIONS



| | |
|------------------------|-----------------------|
| Resolution (mm) | Start/Restart |
| 30, 40 | Manual or Automatic |
| Access control | Safety outputs |
| 2, 3, 4 beams | 2 |



Start/Restart interlock, selectable.

Integrated feedback input for control of external relays (EDM).

Possible use with any type of external Muting sensors such as photocells, proximity switches, limit switches, etc.

Protected heights:
160 ... 1210 for 30 mm resolution.
160 ... 1810 for 40 mm resolution.

APPLICATIONS

Suitable solution for the most common entry/exit palletiser applications.

Muting enable input allows to start a Muting sequence only when needed by the machine cycle. i.e. Muting enabled only when the conveyor is moving.

MXL series is recommended also in those applications where personnel is allowed to access the monitored area during the non-dangerous part of the machine cycle. (i.e. manual material loading/unloading).

MXL TWO-WAY MUTING WITH 2 SENSORS - ENTRY/EXIT

TECHNICAL FEATURES

| | |
|---|--|
| Max. range (m) | 8 |
| Response time (ms) | 4 ... 37 |
| Safety outputs | 2 PNP auto-controlled – 500 mA at 24 VDC with short-circuit, overload, polarity reversal protection |
| Muting lamp output | 24 VDC - 0,5 ... 5 W |
| Muting enable input | 0 or 24 VDC (active high) |
| Muting sensors | External Muting sensors with relay or PNP output (dark-on logic) |
| Status display | LEDs for light curtain's and Muting sensors status and diagnostic |
| Max. Muting time-out | 30 sec., 90 min. or infinite selectable |
| Max. time between the 2 Muting activation signal (sec). | 4 |
| Override function | Built-in override function with 2 operating modes, selectable: - manual action with hold to run - automatic with pulse command |
| Max. override time-out (min) | 15 |
| Power supply (VDC) | 24 ± 20% |
| Max. cable length (m) | 100 |

CABLES NEEDED

- Emitter: M12 5-pole. See [page 50](#) (CDx, CDx SB, CD9x, CDM9)
- Receiver: M16 12-pole. See [page 55](#) (C12Dx)
- Cables with 2 connectors for MXL emitter and MXJ connection box. See [page 54](#) (CJBEx)
- Cables with 2 connectors for MXL receiver and MXJ connection box. See [page 55](#) (CMBRx)

ACCESSORIES

- Safety relay. See [AD SR0, AD SR0A on page 46](#)
- MXJ connection box. See [page 49](#)
- Support columns. See [page 57](#)
- Brackets. See [page 61](#)



MXL U ONE-WAY MUTING WITH 2 SENSORS - EXIT ONLY

TECHNICAL FEATURES

| | |
|---|--|
| Max. range (m) | 8 |
| Response time (ms) | 4 ... 37 |
| Safety outputs | 2 PNP auto-controlled – 500 mA at 24 VDC with short-circuit, overload, polarity reversal protection |
| Muting lamp output | 24 VDC - 0,5 ... 5 W |
| Muting enable input | 0 or 24 VDC (active high) |
| Muting sensors | External Muting sensors with relay or PNP output (dark-on logic) |
| Status display | LEDs for light curtain's and Muting sensors status and diagnostic |
| Max. Muting time-out | 30 sec., 90 min. or infinite selectable |
| Max. time between the 2 Muting activation signal (sec.) | 4 |
| Override function | Built-in override function with 2 operating modes, selectable: - manual action with hold to run - automatic with pulse command |
| Max. override time-out (min) | 15 |
| Power supply (VDC) | 24 ± 20% |
| Max. cable length (m) | 100 |

CABLES NEEDED

- Emitter: M12 5-pole. See [page 50](#) (CD x, CD x SB, CD 9x, CDM 9)
- Receiver: M16 12-pole. See [page 55](#) (C12D x)
- Cables with 2 connectors for MXL emitter and MXJ connection box. See [page 54](#) (CJBE x)
- Cables with 2 connectors for MXL receiver and MXJ connection box. See [page 55](#) (CMBR x)

ACCESSORIES

- Safety relay. See [AD SR0, AD SR0A](#) on [page 46](#)
- MXJ connection box. See [page 49](#)
- Support columns. See [page 57](#)
- Brackets. See [page 61](#)



Resolution (mm)

30, 40

Start/Restart

Manual or Automatic

Access control

2, 3, 4 beams

Safety outputs

2

SAFETY LEVEL

TYPE 2

SILCL 1
PL c - Cat. 2

Start/Restart interlock, selectable.

Integrated feedback input for control of external relays (EDM).

Possible use with any type of external Muting sensors such as photocells, proximity switches, limit switches, etc.

Protected heights:

160 ... 1210 for 30 mm resolution.

160 ... 1810 for 40 mm Resolution.

APPLICATIONS

The light curtain only allows pallet outfeed.

The Muting function can only be activated from inside the protected zone.

Correct Muting sequence even in the presence of a pallet with reduced width and/or length or not centred with respect to the conveyor.

Muting enable input allows to start a Muting sequence only when needed by the machine cycle. i.e. Muting enabled only when the conveyor is moving.





| Access control |
|----------------|
| 2, 3 beams |

| Start/Restart |
|---------------------|
| Manual or Automatic |

| Safety outputs |
|----------------|
| 2 |

| Muting logic |
|--------------|
| L One-way |



Start/Restart interlock, selectable.

Integrated feedback input for control of external relays (EDM).

Muting sensor elements adjustable in height and angle.

APPLICATIONS

The light curtain only allows pallet outfeed. Reduced installation time and costs.

With MXL L models, sensors are positioned in compliance with the regulations regarding the geometry of Muting sensors (IEC TS 62046) and all the other safety parameters; this makes it possible to avoid dangers arising from positioning errors and from possible tampering. The Muting function can only be activated from inside the protected zone.

Correct Muting sequence even in the presence of a pallet with reduced width and/or length or not centred with respect to the conveyor.

Muting enable input allows to start a Muting sequence only when needed by the machine cycle. i.e. Muting enabled only when the conveyor is moving.



MXL L 2 INTEGRATED PHOTO-ELECTRIC SENSORS WITH CROSSED BEAMS - EXIT ONLY

TECHNICAL FEATURES

| | |
|---|--|
| Max. range (m) | 1 ... 2,5 |
| Response time (ms) | 4 ... 37 |
| Safety outputs | 2 PNP auto-controlled – 500 mA at 24 VDC with short-circuit, overload, polarity reversal protection |
| Muting lamp output | 24 VDC - 0,5 ... 5 W |
| Muting enable input | 0 or 24 VDC (active high) |
| Muting sensors | Optoelectronics with 2 crossed beams built-in – pre-aligned – pre-wired, with adjustable height and angle |
| Status display | LEDs for light curtain's and Muting sensors status and diagnostic |
| Max. Muting time-out | 30 sec., 90 min. or infinite selectable |
| Max. time between the 2 Muting activation signal (sec). | 4 |
| Override function | Built-in override function with 2 operating modes, selectable: - manual action with hold to run - automatic with pulse command |
| Max. override time-out (min) | 15 |
| Power supply (VDC) | 24 ± 20% |
| Max. cable length (m) | 100 |

CABLES NEEDED

- Emitter: M12 5-pole. See [page 50](#) (CDx, CDx SB, CD9x, CDM9)
- Receiver: M16 12-pole. See [page 55](#) (C12Dx)
- Cables with 2 connectors for MXL emitter and MXJ connection box. See [page 54](#) (CJBEx)
- Cables with 2 connectors for MXL receiver and MXJ connection box. See [page 55](#) (CMBRx)

ACCESSORIES

- Safety relay. See [AD SR0, AD SR0A on page 46](#)
- MXJ connection box. See [page 49](#)
- Support columns. See [page 57](#)
- Brackets. See [page 61](#)



| | | |
|-----------------------|----------------------|--|
| Access control | Start/Restart | SAFETY LEVEL TYPE 2 SILCL 1 PL c - Cat. 2 |
| 2, 3 beams | Manual or Automatic | |
| Safety outputs | Muting logic | |
| 2 | T Two-way | |

Start/Restart interlock, selectable.

Integrated feedback input for control of external relays (EDM).

Muting sensor elements adjustable in height and angle.

APPLICATIONS

Suitable solution for the most common entry/exit palletiser applications.

With MXL T models, sensors are positioned in compliance with the regulations regarding the geometry of Muting sensors (IEC TS 62046) and all the other safety parameters; this makes it possible to avoid dangers arising from positioning errors and from possible tampering.

Muting enable input allows to start a Muting sequence only when needed by the machine cycle. I.e. Muting enabled only when the conveyor is moving.

MXL T 2 INTEGRATED PHOTO-ELECTRIC SENSORS WITH CROSSED BEAMS - ENTRY/EXIT

TECHNICAL FEATURES

| | |
|---|--|
| Max. range (m) | 1 ... 2,5 |
| Response time (ms) | 4 ... 37 |
| Safety outputs | 2 PNP auto-controlled – 500 mA at 24 VDC with short-circuit, overload, polarity reversal protection |
| Muting lamp output | 24 VDC - 0,5 ... 5 W |
| Muting enable input | 0 or 24 VDC (active high) |
| Muting sensors | Optoelectronics with 2 crossed beams built-in – pre-aligned – pre-wired, with adjustable height and angle |
| Status display | LEDs for light curtain's and Muting sensors status and diagnostic |
| Max. Muting time-out | 30 sec., 90 min. or infinite selectable |
| Max. time between the 2 Muting activation signal (sec.) | 4 |
| Override function | Built-in override function with 2 operating modes, selectable: - manual action with hold to run - automatic with pulse command |
| Max. override time-out (min) | 15 |
| Power supply (VDC) | 24 ± 20% |
| Max. cable length (m) | 100 |

CABLES NEEDED

- Emitter: M12 5-pole. See [page 50](#) (CD x, CD x SB, CD 9x, CDM 9)
- Receiver: M16 12-pole. See [page 55](#) (C12D x)
- Cables with 2 connectors for MXL emitter and MXJ connection box. See [page 54](#) (CJBE x)
- Cables with 2 connectors for MXL receiver and MXJ connection box. See [page 55](#) (CMBR x)

ACCESSORIES

- Safety relay. See [AD SR0, AD SR0A](#) on [page 46](#)
- MXJ connection box. See [page 49](#)
- Support columns. See [page 57](#)
- Brackets. See [page 61](#)



PART NUMBERS

Hand detection - MXL, MXL U models - Max. range 8 m



| | | | | | | | | |
|----------------------|------------|------------|------------|------------|------------|------------|-------------|-------------|
| MXL Resolution 30 mm | MXL 153 | MXL 303 | MXL 453 | MXL 603 | MXL 753 | MXL 903 | MXL 1053 | MXL 1203 |
| Ordering codes | 1344800 | 1344801 | 1344802 | 1344803 | 1344804 | 1344805 | 1344806 | 1344807 |



| | | | | | | | | |
|------------------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|
| MXL U Resolution 30 mm | MXL U 153 | MXL U 303 | MXL U 453 | MXL U 603 | MXL U 753 | MXL U 903 | MXL U 1053 | MXL U 1203 |
| Ordering codes | 1344850 | 1344851 | 1344852 | 1344853 | 1344854 | 1344855 | 134486 | 1344857 |
| Protected height (mm) | 160 | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 |
| Nr. beams | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 |
| Overall height (mm) | 261 | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 |



| | | | | | | | | | | | |
|----------------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| MXL Resolution 40 mm | MXL 304 | MXL 454 | MXL 604 | MXL 754 | MXL 904 | MXL 1054 | MXL 1204 | MXL 1354 | MXL 1504 | MXL 1654 | MXL 1804 |
| Ordering codes | 1344811 | 1344812 | 1344813 | 1344814 | 1344815 | 1344816 | 1344817 | 1344823 | 1344819 | 1344824 | 1344825 |



| | | | | | | | | | | | |
|------------------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| MXL U Resolution 40 mm | MXL U 304 | MXL U 454 | MXL U 604 | MXL U 754 | MXL U 904 | MXL U 1054 | MXL U 1204 | MXL U 1354 | MXL U 1504 | MXL U 1654 | MXL U 1804 |
| Ordering codes | 1344861 | 1344862 | 1344863 | 1344864 | 1344865 | 1344866 | 1344867 | 1344868 | 1344869 | 1344870 | 1344871 |
| Protected height (mm) | 310 | 460 | 610 | 760 | 910 | 1060 | 1210 | 1360 | 1510 | 1660 | 1810 |
| Nr. beams | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| Overall height (mm) | 411 | 561 | 711 | 861 | 1011 | 1161 | 1311 | 1461 | 1611 | 1861 | 1911 |

Access control - MXL, MXL U models - Max. range 8 m



| | | | |
|-------------------|---------|---------|---------|
| MXL 2, 3, 4 beams | MXL 2B | MXL 3B | MXL 4B |
| Ordering codes | 1344820 | 1344821 | 1344822 |



| | | | |
|-----------------------|----------|----------|----------|
| MXL U 2, 3, 4 beams | MXL U 2B | MXL U 3B | MXL U 4B |
| Ordering codes | 1344880 | 1344881 | 1344882 |
| Nr. beams | 2 | 3 | 4 |
| Beam spacing (mm) | 500 | 400 | 300 |
| Protected height (mm) | 510 | 810 | 910 |
| Overall height (mm) | 711 | 1011 | 1111 |

Access control - MXL L, MXL T models - Max. range 2,5 m



| | | |
|-----------------------|-----------------|----------|
| MXL L 2, 3 beams | MXL L 2B | MXL L 3B |
| Ordering codes | 1344830 | 1344831 |
| Nr. beams | 2 | 3 |
| Beam spacing (mm) | 500 | 400 |
| Protected height (mm) | 510 | 810 |
| Overall height (mm) | 711 | 1011 |
| Muting sensors | 2 crossed beams | |

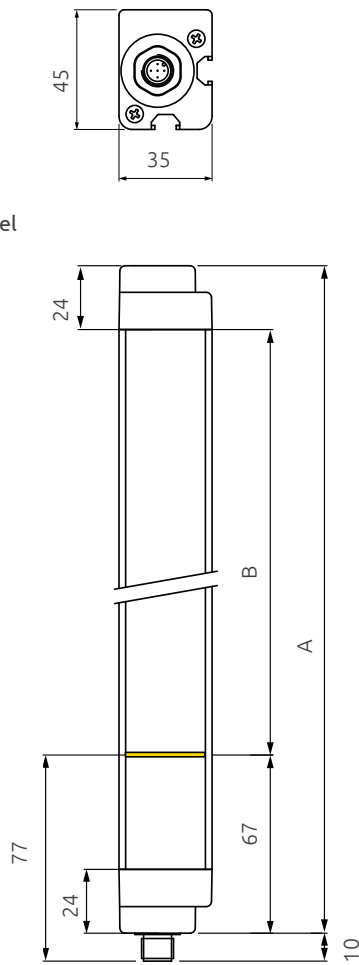


| | | |
|-----------------------|-----------------|----------|
| MXL T 2, 3 beams | MXL T 2B | MXL T 3B |
| Ordering codes | 1344840 | 1344841 |
| Nr. beams | 2 | 3 |
| Beam spacing (mm) | 500 | 400 |
| Protected height (mm) | 510 | 810 |
| Overall height (mm) | 711 | 1011 |
| Muting sensors | 2 crossed beams | |

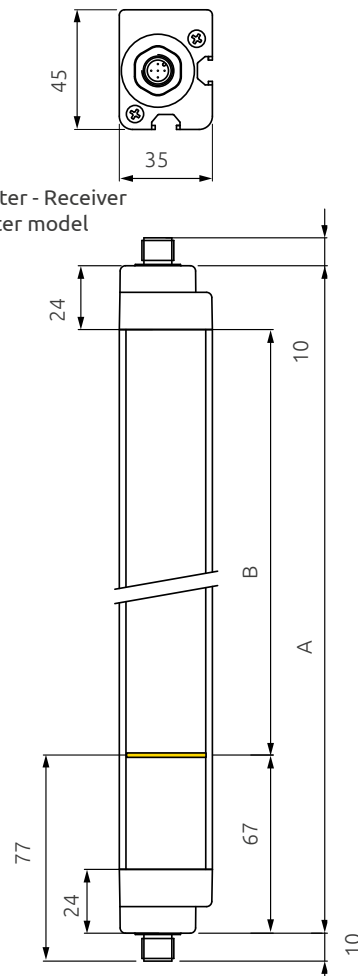
MECHANICAL DATA

DIMENSIONS

Emitter - Receiver
Standard model and Slave model



Emitter - Receiver
Master model



| Models | 2B | 3B | 4B |
|--------|-----|------|------|
| A (mm) | 701 | 1001 | 1101 |
| B (mm) | 500 | 800 | 900 |

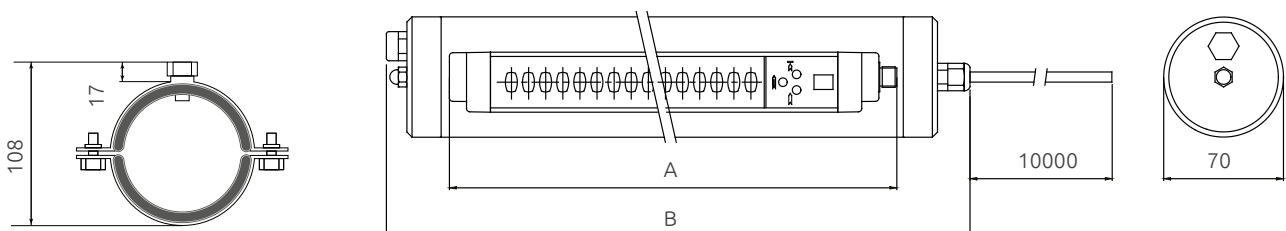
Mounting Set of 4 LS type brackets included

| Models | 150 | 300 | 450 | 600 | 750 | 900 | 1050 | 1200 | 1350 | 1500 | 1650 | 1800 | 1950 | 2100 | 2250 |
|--------|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|
| A (mm) | 251 | 401 | 551 | 701 | 851 | 1001 | 1151 | 1301 | 1451 | 1601 | 1751 | 1901 | 2061 | 2211 | 2361 |
| B (mm) | 150 | 300 | 450 | 600 | 750 | 900 | 1050 | 1200 | 1350 | 1500 | 1650 | 1800 | 1950 | 2100 | 2250 |

Mounting Set of 4 LS type brackets included

Set of 6 LS type brackets included

Watertight enclosure

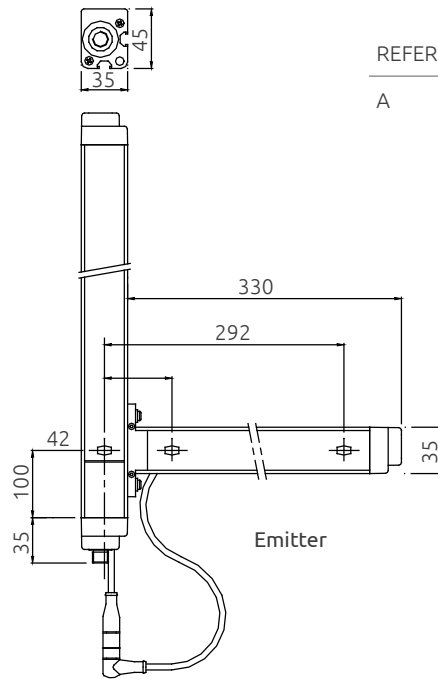
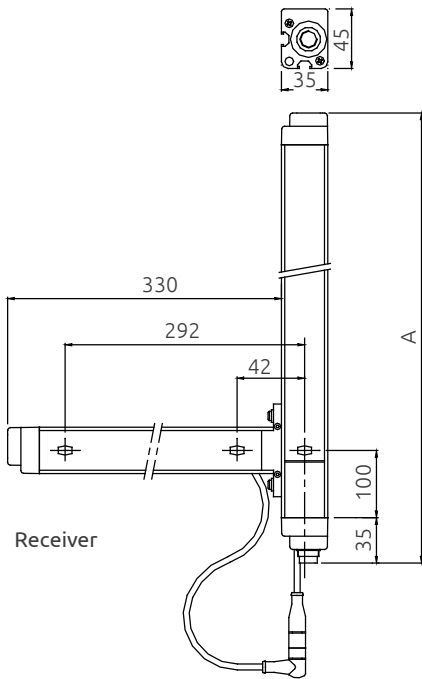


WFB ring brackets (included)

$B = A \text{ (Overall height)} + 130 \text{ mm}$

Dimension: mm

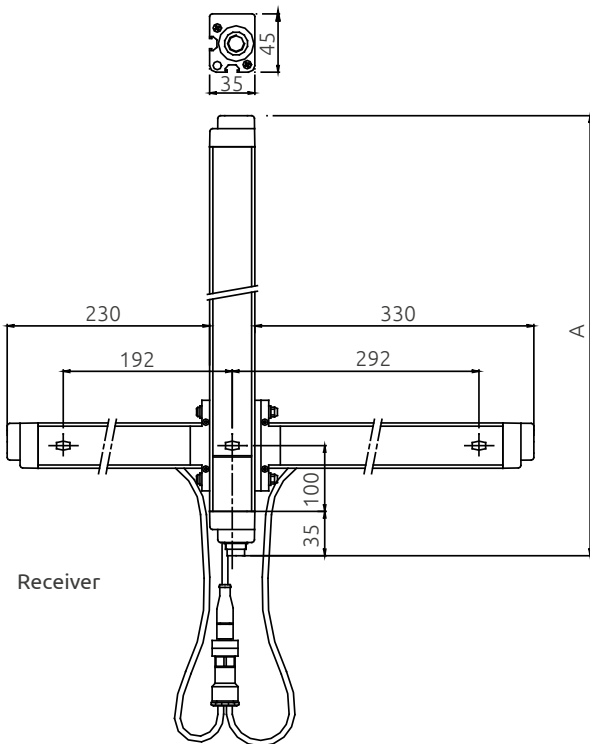
VISION MXL L



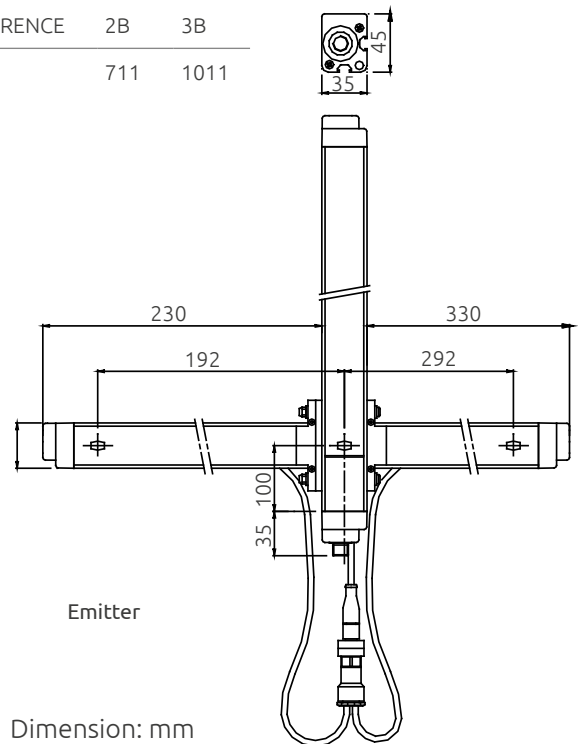
| REFERENCE | 2B | 3B |
|-----------|-----|------|
| A | 711 | 1011 |

Dimension: mm

VISION MXL T



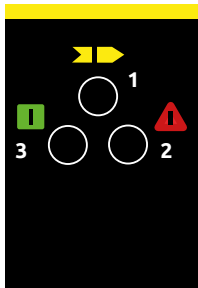
| REFERENCE | 2B | 3B |
|-----------|-----|------|
| A | 711 | 1011 |



Dimension: mm

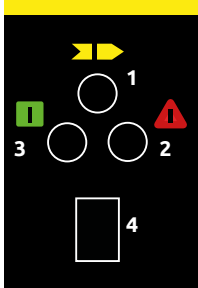
NOTE: the Muting arms can be ordered separately.

STATUS DISPLAY



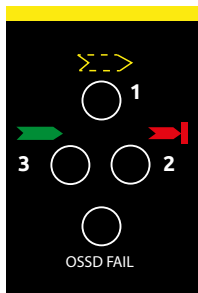
Emitter - VISION V, VISION VXL, VISION MXL

| 1 - Yellow led | 2 - Red led | 3 - Green led | Meaning |
|----------------|-------------|---------------|-------------------------------------|
| ● | ● | ○ | System power-on - Initial TEST |
| ● | ○ | ● | TEST condition |
| ○ | ○ | ● | GUARD condition. Normal functioning |



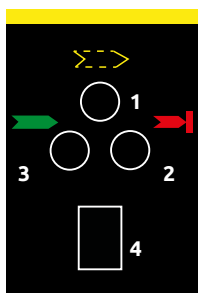
Emitter - VISION VX

| 1 - Yellow led | 2 - Red led | 3 - Green led | 4 - Display | Meaning |
|----------------|-------------|---------------|-------------|--|
| ● | ● | ○ | 8 | System power-on - Initial TEST |
| ○ | ○ | ● | L/H | TEST condition |
| ○ | ○ | ● | L | GUARD condition. Low range |
| ● | ○ | ● | H | GUARD condition. High range |
| ● | ○ | ● | CODE | FAIL condition - The type of fault is identified by the code number on display. See technical manual |



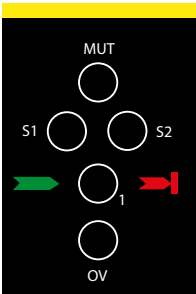
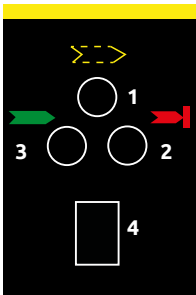
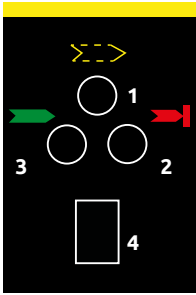
Receiver - VISION V, VISION VXL

| 1 - Yellow led | 2 - Red led | 3 - Green led | OSSD FAIL | Meaning |
|----------------|-------------|---------------|-----------|--|
| ● | ● | ○ | ● | System power-on |
| ● blinking | ○ | ● | ○ | Manual/automativ restart with feedback enabled/disabled. See technical manual (VISION VXL models only) |
| ○ | ● | ○ | ○ | BREAK condition |
| ● | ○ | ○ | ○ | Received beam signal intensity is weak |
| ○ | ○ | ● | ○ | GUARD condition |



Receiver - VISION VX, VISION VX MASTER

| 1 - Yellow led | 2 - Red led | 3 - Green led | 4 - Display | Meaning |
|----------------|-------------|---------------|-------------|--|
| ● | ● | ○ | 8 | System power-on - Initial TEST |
| ○ | ● | ○ | C | C displayed for 10 sec. - Manual restart with feedback disabled |
| ● | ● | ○ | C | C displayed for 10 sec. - Manual restart with feedback enabled |
| ○ | ○ | ● | C | C displayed for 10 sec. - Automatic restart with feedback disabled |
| ● | ○ | ○ | C | C displayed for 10 sec. - Automatic restart with feedback enabled |
| ○ | ○ | ○ | - | BREAK condition |
| ○ | ● | ○ | d | BREAK condition with weak signal |
| ○ | ○ | ○ | - | CLEAR condition. Waiting for restart |
| ● | ● | ○ | d | CLEAR condition with weak signal |



| | | | | |
|------------|---|---|------|--|
| ● blinking | ● | ○ | - | Master in CLEAR, Slave in BREAK conditions (Master Models only) |
| | ○ | ○ | d | Master in CLEAR, Slave in BREAK conditions with weak signal. (Master Models only) |
| ○ | ○ | ● | - | GUARD condition |
| ○ | ○ | ● | d | GUARD condition with weak signal |
| ○ | ● | ○ | | Receiver initialization |
| ○ | ● | ○ | CODE | FAIL condition - The type of fault is identified by the code number on display. See technical manual |

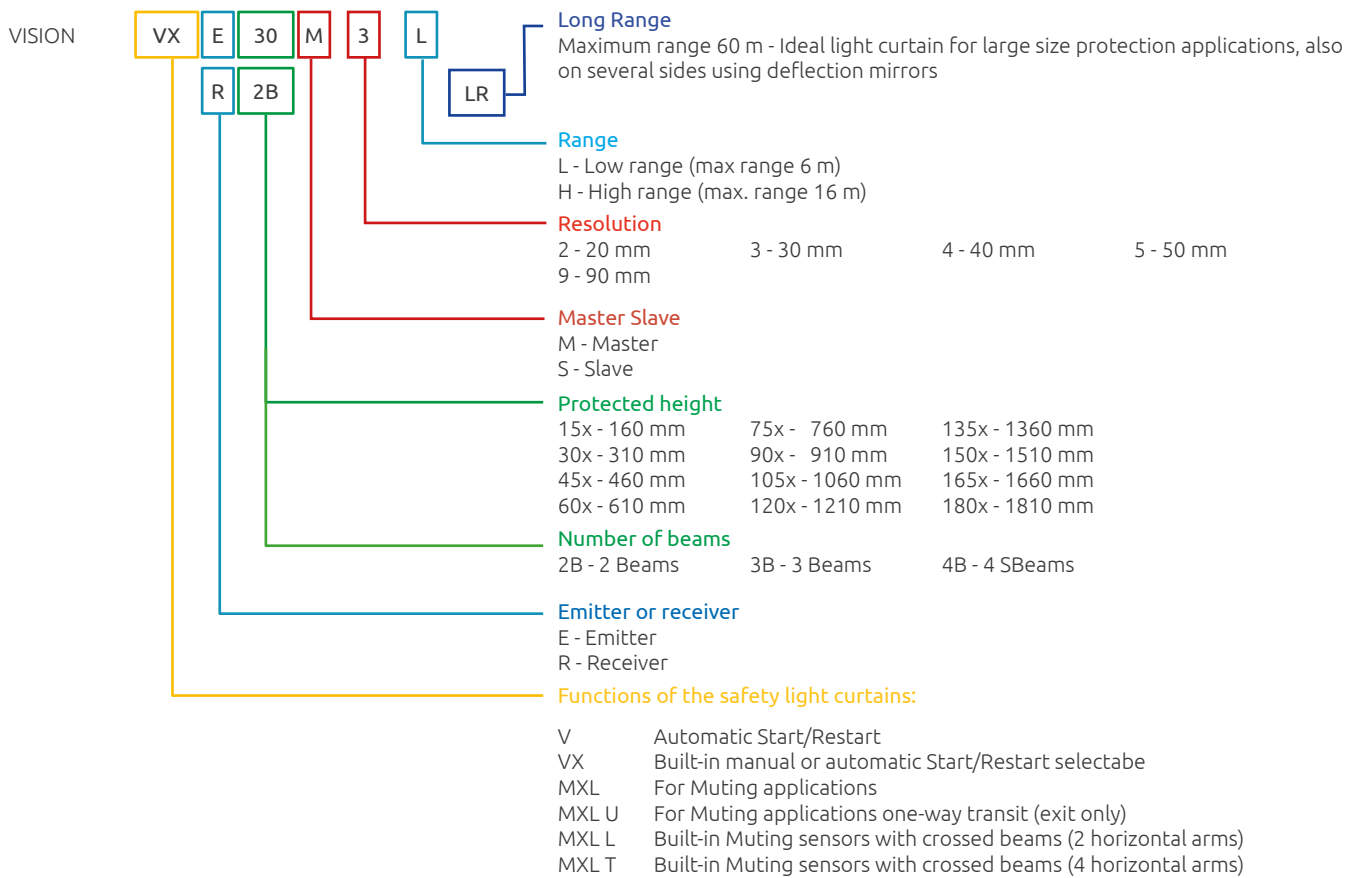
Receiver - VISION VX SLAVE

| 1 - Yellow led | 2 - Red led | 3 - Green led | 4 - Display | Meaning |
|----------------|-------------|---------------|-------------|--|
| ● | ● | ○ | 8 | System power-on - Initial TEST |
| ○ | ● | ○ | - | BREAK condition |
| ○ | ● | ○ | d | BREAK condition with weak signal |
| ○ | ○ | ● | - | GUARD condition |
| ○ | ○ | ● | d | GUARD condition with weak signal |
| ○ | ● | ○ | - | Receiver initialization |
| ○ | ● | ○ | CODE | FAIL condition - The type of fault is identified by the code number on display. See technical manual |

Receiver - VISION MXL

| 1 - Three color led | OV Override led | S1 - Sensor led | S2 - Sensor led | MUT - Muting led | Meaning |
|---------------------|-----------------|-----------------|-----------------|------------------|---|
| ● | ● | ● | ● | ● | System power-on - Initial TEST |
| ○ | ● | ● | ● | ○ | First 5 s. Manual restart with Muting timeout = 30 s. |
| ○ | ● | ● | ○ | ○ | First 5 s. Manual restart with Muting timeout = 90 min. |
| ○ | ● | ○ | ● | ○ | First 5 s. Manual restart with Muting timeout = infinite |
| ○ | ○ | ● | ● | ○ | First 5 s. Automatic restart with Muting timeout = 30 s. |
| ○ | ○ | ● | ○ | ○ | First 5 s. Automatic restart with Muting timeout = 90 min. |
| ○ | ○ | ○ | ● | ○ | First 5 s. Automatic restart with Muting timeout = infinite |
| ● | ○ | ●○ | ●○ | ○ | BREAK condition |
| ● | ○ | ○ | ○ | ○ | CLEAR condition |
| ● | ○ | ●○ | ●○ | ● | MUTING condition |
| ● | ○ | ●○ | ●○ | ○ | GUARD condition |
| ● | ● | ●○ | ●○ | ○ | OVERRIDE condition |
| ● | ● blinking | ●○ | ●○ | ○ | OVERRIDE request with BREAK |
| ○ | ● blinking | ●○ | ●○ | ○ | OVERRIDE request with S1 or S2 occupied |

CODE LEGEND



Example:

VISION MXL E T 2B =

- Type 2 safety light curtain VISION family
- Emitter
- 2 Beams
- Built-in control functions
- Built-in Muting sensors with crossed beams (2 horizontal arms)



Interface module with self-testing solid state safety outputs for safety light curtains Admiral and Vision.

- Guided-contact safety relays
- Start/Restart interlock
- EDM Feedback input for extra external contactors monitoring

APPROVALS

- 2006/42/EC: "Machine Directive"
- 2014/30/EU: "Electromagnetic Compatibility Directive"
- 2014/35/EU: "Low Voltage Directive"
- IEC 61496-1:2012 "Safety of machinery - Electro sensitive protective equipment - General requirements and tests"
- EN 61496-2:2013 "Safety of machinery - Electro-sensitive protective equipment - Particular requirements for equipment using active opto-electronic protective devices (AOPDs)"
- IEC 62061:2005 "Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems"
- ISO 13849-1:2006 "Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design"
- EN 50178:1997 "Electronic equipment for use in power installations"
- EN 55022:2010 "Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement"
- UL (C+US) mark for USA and Canada
- The S-Mark carries the same weight in Korea as the CE-Mark does in Europe

AD SR1 TYPE 4 INTERFACE

TECHNICAL FEATURES

| | |
|--|--|
| Safety relay outputs | 2 NO - 2 A 250 VAC |
| Status output | PNP – 100 mA at 24 VDC |
| Response time (ms) | ≤ 20 |
| Start/Restart command according to IEC 61496-1 | Manual or automatic Start/Restart selectable on terminal block |
| Status display | LED indication of input/output status and diagnosis |
| Power supply (VDC) | 24 ± 20% |
| Electrical connections | On terminal blocks |
| Operating temperature (°C) | 0 ... +55 |
| Protection rating | IP20 for housing IP2X for terminal blocks |
| Fastening | DIN rail fastening according to EN 50022-35 standard |
| Dimensions h x w x d (mm) | 99 x 22,5 x 114 |

PART NUMBERS

AD SR1 safety interface includes multi-language instruction manual and CE declaration of conformity.

Ordering code: 1330900





SAFETY LEVEL
TYPE 4
 SIL 3 - SILCL 3
 PL e - Cat. 4

Interface module with self-testing solid state safety outputs and 2-sensor logic integrated Muting for safety light curtains Admiral and Vision.

- Guided contact safety relays
- Start/Restart interlock
- EDM Feedback input for extra external contactors monitoring
- Muting Time-out selectable
- Integrated Override with 2 operating modes selectable
- Muting Enable input

APPROVALS

- 2006/42/EC: "Machine Directive"
- 2014/30/EU: "Electromagnetic Compatibility Directive"
- 2014/35/EU: "Low Voltage Directive"
- IEC 61496-1:2012 "Safety of machinery - Electro sensitive protective equipment - General requirements and tests"
- EN 61496-2:2013 "Safety of machinery - Electro-sensitive protective equipment - Particular requirements for equipment using active opto-electronic protective devices (AOPDs)"
- IEC 62061:2005 "Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems"
- ISO 13849-1:2006 "Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design"
- EN 50178:1997 "Electronic equipment for use in power installations"
- EN 55022:2010 "Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement"
- UL (C+US) mark for USA and Canada
- The S-Mark carries the same weight in Korea as the CE-Mark does in Europe

AD SRM

TYPE 4 INTERFACE WITH INTEGRATED MUTING

TECHNICAL FEATURES

| | |
|--|---|
| Inputs for Muting sensors | 2 inputs 0 or 24 VDC - PNP or Relay - Dark-on |
| Muting Enable input | 0 or 24 VDC - PNP or Relay |
| Safety relay outputs | 2 NO - 2A 250 VAC. |
| Status output | PNP - 100 mA at 24 VDC |
| Muting lamp output | 24 VDC; 0,5 ... 5 W |
| Response time (ms) | ≤ 20 |
| Start/Restart command according to IEC 61496-1 | Manual or Automatic Start/Restart selectable on terminal block |
| Status display | LED indications of input/output status, Muting sensor inputs, diagnosis |
| Muting time-out | 30 sec. or infinite, selectable |
| Override | 2 operating modes selectable: - manual action with hold to run - automatic with pulse command |
| Override time-out (min.) | 15. |
| Power supply (VDC) | 24 ± 20% |
| Electrical connections | On terminal block |
| Operating temperature (°C) | 0 ... +55 |
| Protection rating | IP20 for housing IP2X for terminal block |
| Fastening | DIN rail fastening according to EN 50022-35 standard |
| Dimensions h x w x d (mm) | 99 x 35 x 114 |

PART NUMBERS

AD SRM safety interface includes multi-language instruction manual and CE declaration of conformity

Ordering code: 1330904





Interface relay modules for safety light curtains Admiral and Vision with feedback input for EDM.

- Guided-contact safety relays
- Additional NC contact line for the monitoring by light curtain (EDM)

NOTE: AD SR0 and AD SR0A modules can only be connected to safety sensors equipped with feedback input for monitoring external relays (EDM).

AD SR0 - AD SR0A

SAFETY RELAY MODULES FOR DEVICES WITH INTEGRATED FEEDBACK INPUT FOR EDM

TECHNICAL FEATURES

| | |
|----------------------------|--|
| Safety relay outputs | AD SR0 2 NO + 1 NC - 2 A 250 VAC Each NO safety output line is interrupted twice by the two relays |
| | AD SR0A 2 NO - 2 A 250 VAC |
| Response time (ms) | ≤ 20 |
| Power supply (VDC) | 24 ± 20% |
| Electrical connections | On terminal block |
| Operating temperature (°C) | 0 ... +55 |
| Protection rating | IP20 for housing IP2X for terminal block |
| Fastening | DIN rail fastening according to EN 50022-35 standard |
| Dimensions h x w x d (mm) | 101 x 35 x 120 |

PART NUMBERS

AD SR0 and AD SR0A modules include multi-language instruction manual and CE declaration of conformity.

Ordering codes AD SR0: 1330902
AD SR0A: 1330903

Certified by
TÜV Rheinland
Product Safety GmbH

This product uses two guided contact safety relays manufactured by DOLD (type OA or OA 5643 5644) and certified by TUEV Rheinland.





- Start/Restart push button
- Key selector switch for Override control function
- Muting-on indicator lamp
- Light curtain connectors
- Dip-switch for light curtain functions configuration
- 2 guided-contacts safety relays operated and controlled by the light curtain
- Internal terminal blocks for cable connections
- Selector for connection of external Muting lamp
- Selector for internal or external relay control
- Connection for Muting enable input
- Connection with cable gland for cable passage in output towards the machine

APPROVALS

- 2004/108/EC "Electromagnetic Compatibility (EMC)"
- 2006/95/EC "Low Voltage Directive (LVD)"
- UL (C+US) mark for USA and Canada



MXJB

CONNECTION BOX FOR VISION MXL LIGHT CURTAINS

Connection boxes MXJB are accessory devices designed for quick, reliable connection of Vision MXL light curtains and to ensure that major operating controls needed for operation are available in the guarded area.

TECHNICAL FEATURES

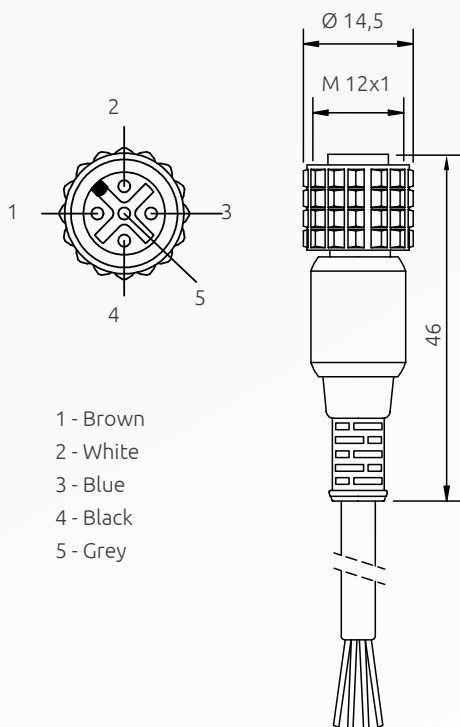
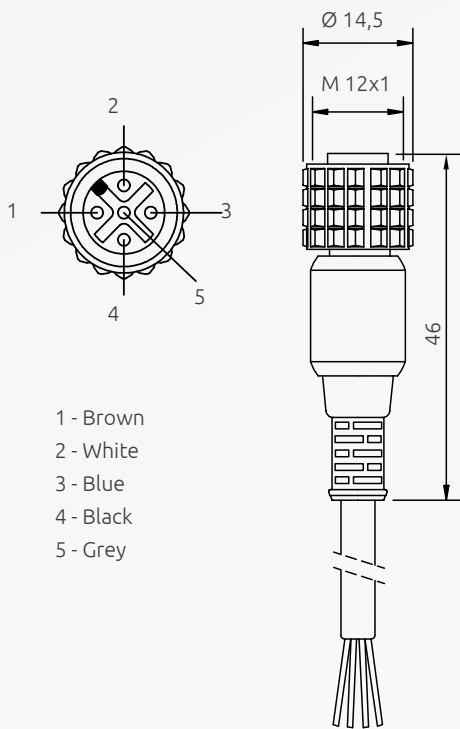
| | |
|---------------------------|-------------------------------------|
| Safety relay output | MXJB 1: 2 NO 2A 250 VAC |
| | MXJB 3: 2 NO + 1 NC 2A 250 VAC |
| Start/Restart button | Yes |
| Override command | Yes |
| Built-in Muting-lamp | Yes |
| Connectors | M23 19-pole for receiver connection |
| | M12 5-pole for emitter connection |
| Dimensions h x w x d (mm) | 110 x 180 x 110 |

* In MXJB 3 box each NO safety output line is interrupted twice by the two relays

MXJB is pre-set with manual Restart
Using the dedicated 5 meters cable CJBR5A, available as accessory, it is possible to configure it with automatic Restart

PART NUMBERS

Ordering codes MXJB 1: 1360934
MXJB 3 : 1360935

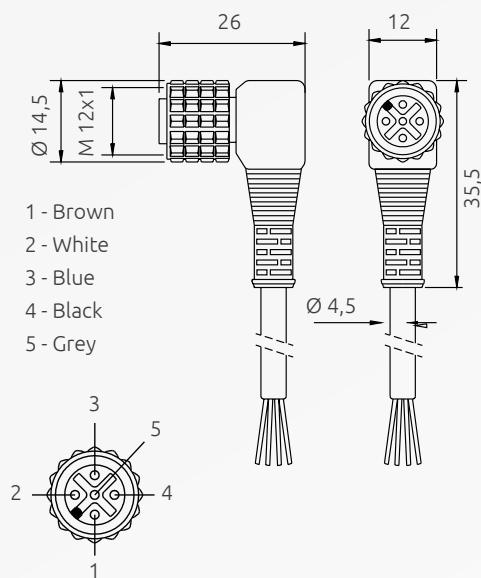


CDx M12 STRAIGHT CONNECTOR 5-POLE

| Models | Codes | Description |
|--------|---------|----------------------|
| CD5 | 1330950 | Pre-wired cable 5 m |
| CD10 | 1330956 | Pre-wired cable 10 m |
| CD15 | 1330952 | Pre-wired cable 15 m |
| CD20 | 1330957 | Pre-wired cable 20 m |
| CD25 | 1330949 | Pre-wired cable 25 m |
| CD40 | 1330907 | Pre-wired cable 40 m |
| CD50 | 1330965 | Pre-wired cable 50 m |
| CD80 | 1330936 | Pre-wired cable 80 m |

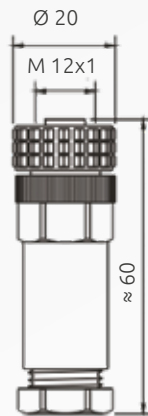
CDx SB M12 STRAIGHT CONNECTOR 5-POLE, SHIELDED

| Models | Codes | Description |
|---------|---------|-------------------------------|
| CD5 SB | 1330850 | Pre-wired shielded cable 5 m |
| CD10 SB | 1330856 | Pre-wired shielded cable 10 m |
| CD15 SB | 1330852 | Pre-wired shielded cable 15 m |



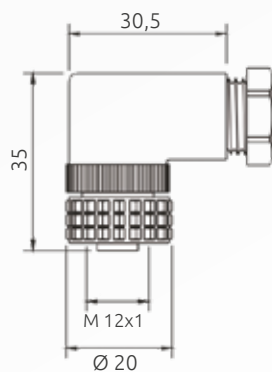
CD9x M12 90° ANGLE CONNECTOR 5-POLE

| Models | Codes | Description |
|--------|---------|----------------------|
| CD95 | 1330951 | Pre-wired cable 5 m |
| CD910 | 1330958 | Pre-wired cable 10 m |
| CD915 | 1330953 | Pre-wired cable 15 m |



CDM9 M12 STRAIGHT CONNECTOR 5-POLE SCREW TERMINAL, PG9 CABLE GLAND

| Model | Code |
|-------|---------|
| CDM9 | 1330954 |



C8DM9 M12 STRAIGHT CONNECTOR 8-POLE SCREW TERMINAL, PG9 CABLE GLAND

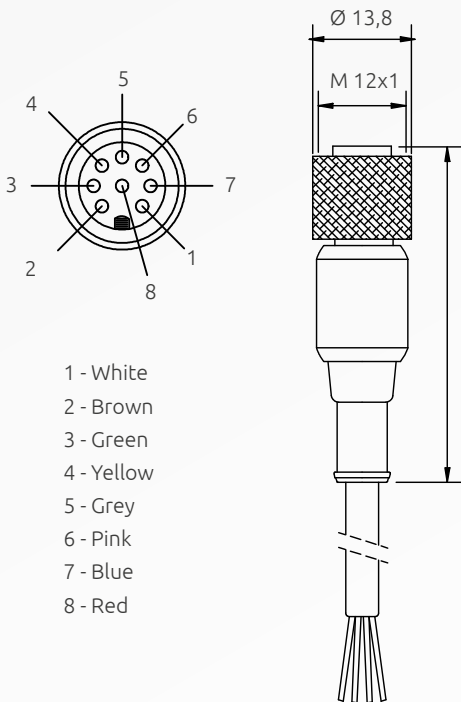
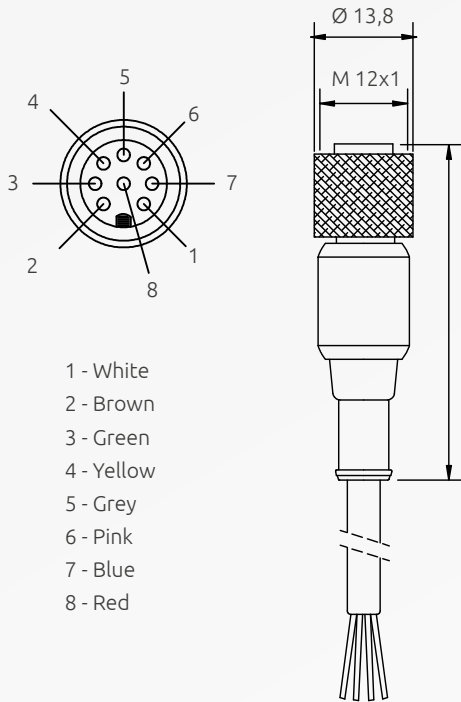
| Model | Code |
|-------|---------|
| C8DM9 | 1330986 |

CDM99 M12 90° ANGLE CONNECTOR 5-POLE SCREW TERMINAL, PG9 CABLE GLAND

| Model | Code |
|-------|---------|
| CDM99 | 1330955 |

C8DM99 M12 90° ANGLE CONNECTOR 8-POLE SCREW TERMINAL, PG9 CABLE GLAND

| Model | Code |
|--------|---------|
| C8DM99 | 1330955 |



C8Dx

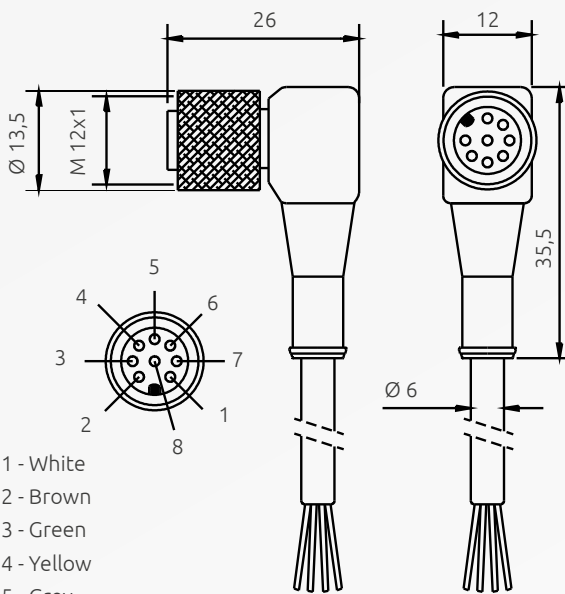
M12 STRAIGHT CONNECTOR 8-POLE

| Models | Codes | Description |
|--------|---------|----------------------|
| C8D5 | 1330980 | Pre-wired cable 5 m |
| C8D10 | 1330981 | Pre-wired cable 10 m |
| C8D15 | 1330982 | Pre-wired cable 15 m |
| C8D20 | 1330908 | Pre-wired cable 20 m |
| C8D25 | 1330967 | Pre-wired cable 25 m |
| C8D40 | 1330966 | Pre-wired cable 40 m |
| C8D50 | 1330909 | Pre-wired cable 50 m |
| C8D70 | 1330937 | Pre-wired cable 70 m |

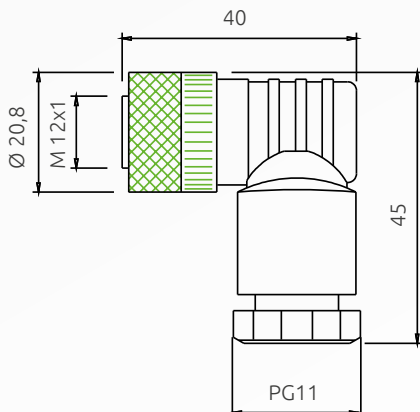
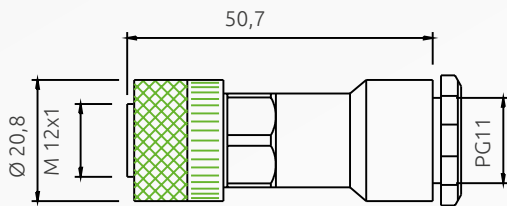
C8Dx SB

M12 STRAIGHT CONNECTOR 8-POLE, SHIELDED

| Model | Codes | Description |
|----------|---------|-------------------------------|
| C8D5 SB | 1330880 | Pre-wired shielded cable 5 m |
| C8D10 SB | 1330881 | Pre-wired shielded cable 10 m |
| C8D15 SB | 1330882 | Pre-wired shielded cable 15 m |



- 1 - White
- 2 - Brown
- 3 - Green
- 4 - Yellow
- 5 - Grey
- 6 - Pink
- 7 - Blue
- 8 - Red



C8D9x

M12 90° ANGLE CONNECTOR 8-POLE

| Models | Codes | Description |
|--------|---------|----------------------|
| C8D95 | 1330983 | Pre-wired cable 5 m |
| C8D910 | 1330984 | Pre-wired cable 10 m |
| C8D915 | 1330985 | Pre-wired cable 15 m |

C8DM11

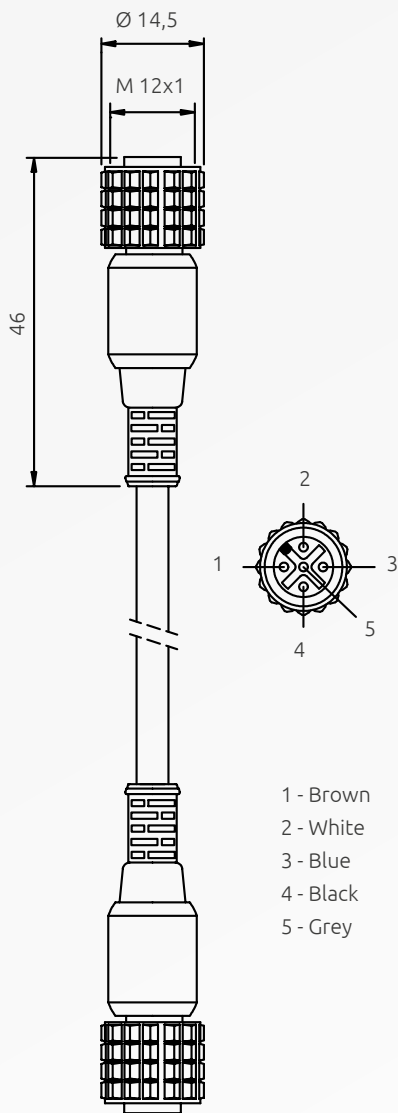
M12 STRAIGHT CONNECTOR 8-POLE SCREW TERMINAL, PG11 CABLE GLAND

| Model | Code |
|--------|---------|
| C8DM11 | 1330978 |

C8DM911

M12 90° ANGLE CONNECTOR 8-POLE SCREW TERMINAL, PG11 CABLE GLAND

| Model | Code |
|---------|---------|
| C8DM911 | 1330979 |



CDS03

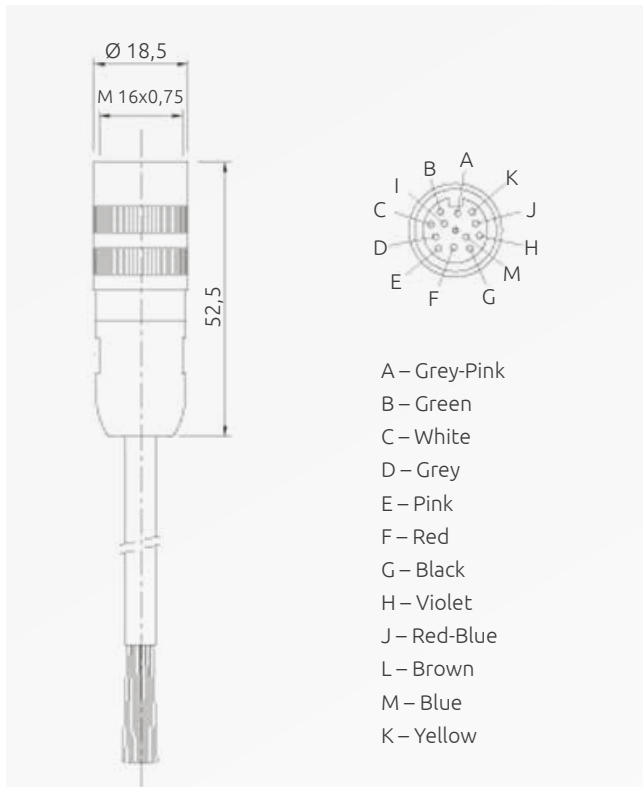
CABLE WITH 2 STRAIGHT CONNECTORS M12 5-POLE

| Model | Code | Description |
|-------|---------|-----------------------|
| CDS03 | 1330990 | Pre-wired cable 0,3 m |

CJBEx

CABLE WITH 2 STRAIGHT CONNECTORS M12 5-POLE

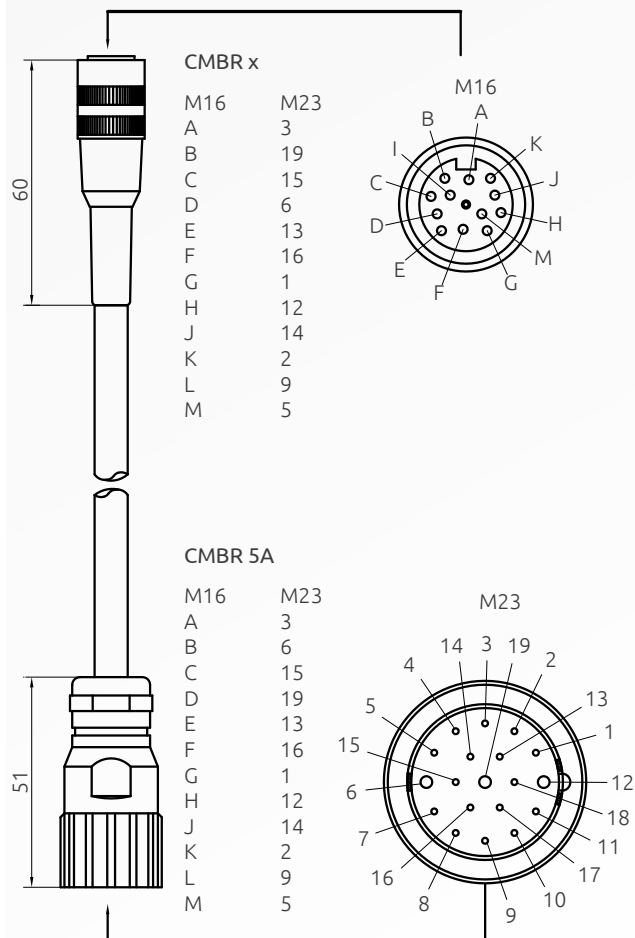
| Model | Codes | Description |
|--------|---------|----------------------|
| CJBE3 | 1360960 | Pre-wired cable 3 m |
| CJBE5 | 1360961 | Pre-wired cable 5 m |
| CJBE10 | 1360962 | Pre-wired cable 10 m |
| CJBE25 | 1360963 | Pre-wired cable 25 m |



C12Dx

M16 STRAIGHT CONNECTOR 12-POLE

| Model | Codes | Description |
|--------|---------|---------------------------|
| C12D3 | 1330917 | Pre-wired cable 3 m |
| C12D5 | 1330918 | Pre-wired cable 5 m |
| C12D10 | 1330919 | Pre-wired cable 10 m |
| C12D15 | 1330924 | Pre-wired cable 15 m |
| C12D25 | 1330925 | Pre-wired cable 25 m |
| CM16 | 1330916 | Solder terminal connector |



CMBRx

M16 STRAIGHT CONNECTORS 12-POLE AND M23 STRAIGHT CONNECTORS 19-POLE

| Model | Codes | Description |
|--------|---------|----------------------|
| CMBR3 | 1360985 | Pre-wired cable 3 m |
| CMBR5 | 1360986 | Pre-wired cable 5 m |
| CMBR10 | 1360987 | Pre-wired cable 10 m |

CMBR5A

M16 STRAIGHT CONNECTORS 12-POLE AND M23 STRAIGHT CONNECTORS 19-POLE FOR AUTOMATIC RESTART

| Model | Code | Description |
|--------|---------|---------------------|
| CMBR5A | 1360988 | pre-wired cable 5 m |



The 2 SLA additional arms with built-in Muting crossed beams photoelectric sensors, combined with Admiral or Vision light curtains, form a one way access control system with L logic (exit only). The Muting function is created by using an external interface module (Mosaic or AD SRM) where both the light curtains and the sensors of the arms are connected.

Installation note: the Muting arm transmitter must be mounted on the light curtain receiver and vice-versa.

PART NUMBERS

Ordering code: 1330920



The 4 STA additional arms with built-in Muting crossed beams photoelectric sensors, combined with Admiral or Vision light curtains, form a bi-directional access control system with T logic (entry and exit). The Muting function is created by using an external interface module (Mosaic or AD SRM) where both the light curtains and the sensors of the arms are connected.

Installation note: the Muting arm transmitter must be mounted on the light curtain receiver and vice-versa.

PART NUMBERS

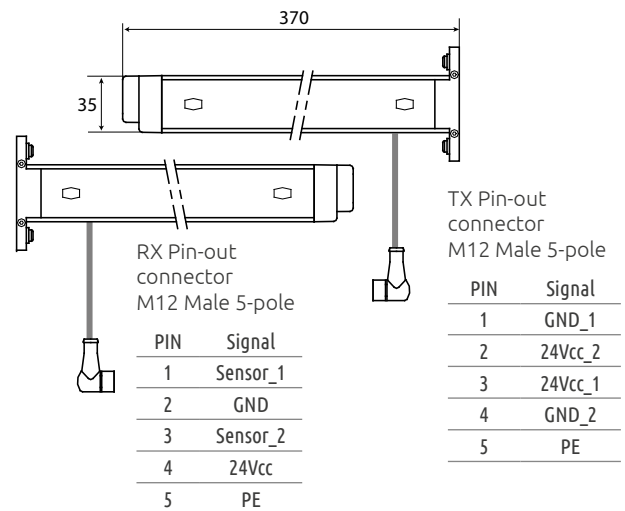
Ordering code: 1330921

SLA ARMS FOR L MUTING

Can be mounted on Admiral or Vision light curtains of any height and resolution.

TECHNICAL FEATURES

| | |
|------------------|-----------------|
| Built-in sensors | 2 crossed beams |
| Max. range (m) | 1 - 2,5 |

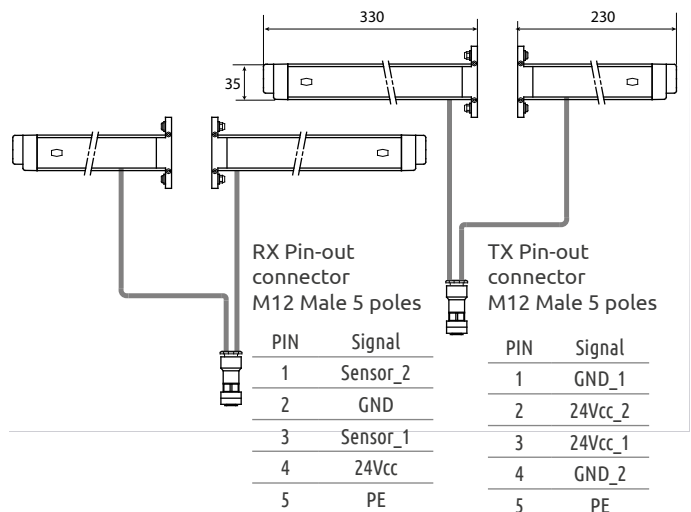


STA ARMS FOR T MUTING

Can be mounted on Admiral or Vision light curtains of any height and resolution.

TECHNICAL FEATURES

| | |
|------------------|-----------------|
| Built-in sensors | 2 crossed beams |
| Max. range (m) | 1 - 2,5 |





FMC B

FMC CB

Support columns for ReeR safety light curtains, designed to provide secure fastening to the floor, fast installation, and a simple and precise adjustment of the optical alignment of the system.



PG11 Cable gland
FMC BR Models

Steel base with springs for a perfect adjustment of the column vertical axis. FMC BR models for light curtains complete with PG11 rear union for light curtain cable sheath.

Columns made by aluminium extrusion poles, with adjustable angular orientation. Easy assembling and disassembling of the light curtain with easy adjustment of the first beam's height.

Steel foundation inserts included with the product.

Built-in spirit level for a correct positioning of the vertical axis.



FMC B / FMC BR

FLOOR SUPPORT COLUMNS FOR LIGHT CURTAINS

PART NUMBERS

Columns

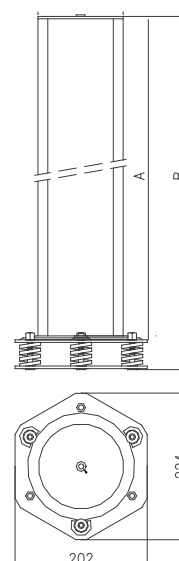
| Standard Models | FMC B 2 | FMC B 3 | FMC B 4 | FMC B 1700 | FMC B 2000 |
|--|-----------|-----------|-----------|---------------------------------|---------------------------------|
| Ordering codes | 1200610 | 1200611 | 1200612 | 1200618 | 1200616 |
| Models with PG11 rear union for cable sheath | FMC B 2 R | FMC B 3 R | FMC B 4 R | FMC B 1700 R | FMC B 2000 R |
| Ordering codes | 1200613 | 1200614 | 1200615 | 1200617 | 1200619 |
| A - Height (mm) | 1000 | 1200 | 1330 | 1670 | 1970 |
| B - Overall height with FMC CB base (mm) | 1055 | 1255 | 1385 | 1725 | 2025 |
| B - Overall height with FMC CBL base (mm) | 1037 | 1237 | 1367 | 1707 | 2007 |
| For light curtains with: | 2 beams | 3 beams | 4 beams | controlled height up to 1360 mm | controlled height up to 1660 mm |

Bases for columns

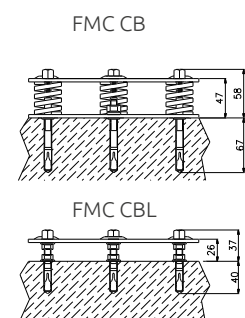
| Models | FMC CB | FMC CBL |
|----------------|-----------------|-------------------------------------|
| Ordering codes | 1200500 | 1200501 |
| Description | Base for column | Base for column with reduced height |
| Height (mm) | 55 | 37 |

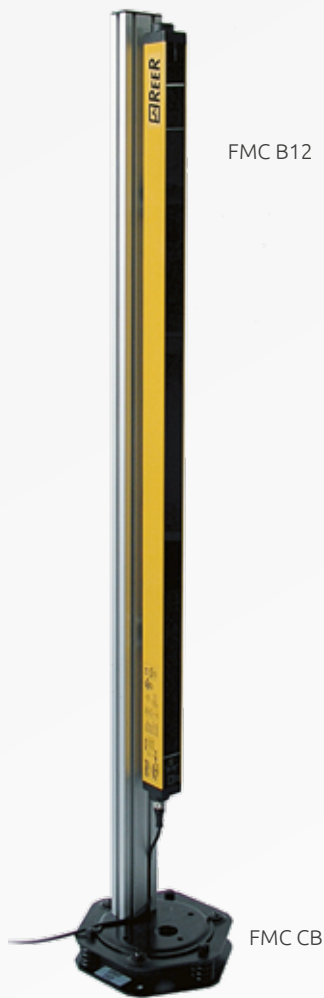
Note for ordering

The column ordering codes does not include the base which must be ordered separately (CB FMC and FMC CBL models)



A: column height
B: column height with base FMC CB or FMC CBL





FMC B12

FMC CB

Simplified version for 2, 3, 4 beams light grids. It permits the use with light grids with integrated Muting sensors.

Note for ordering

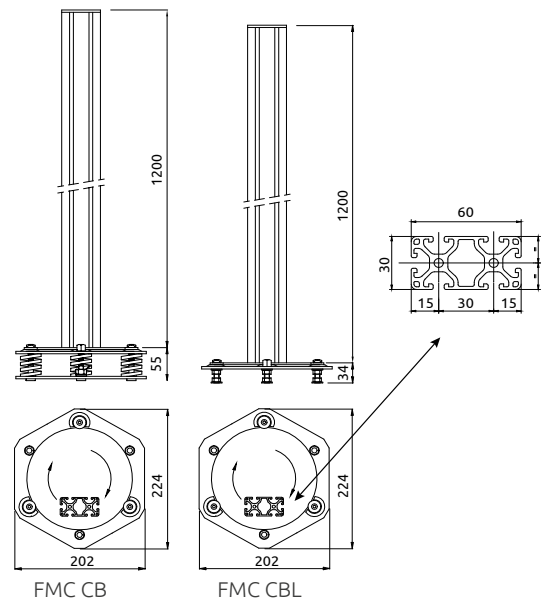
The column ordering codes does not include the base which must be ordered separately (CB FMC and FMC CBL models)

FMC-B12 / B18 SUPPORT COLUMNS

PART NUMBERS

| Model | FMC-B12 | FMC-B18 |
|---------------------------------------|---------|---------|
| Ordering codes | 1200502 | 1200505 |
| Dimensions (mm) | 60 x 30 | 80 x 80 |
| Height (mm) | 1200 | 1800 |
| Overall height with FMC CB base (mm) | 1255 | 1255 |
| Overall height with FMC CBL base (mm) | 1237 | 1237 |

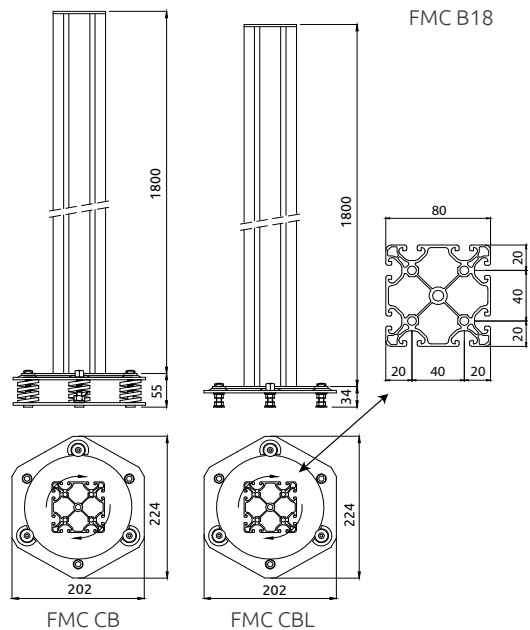
FMC B12



FMC CB

FMC CBL

FMC B18



FMC CB

FMC CBL



FMC S / FMC SB COLUMNS WITH DEFLECTING MIRROR

PART NUMBERS

| Models | FMC S2 | FMC S3 | FMC S4 | FMC S 1700 | FMC S 2000 |
|---|---|---|---|---|---|
| Ordering codes | 1200620 | 1200621 | 1200622 | 1200625 | 1200623 |
| Description | single mirror for 2 beams and controlled height up to 700 mm light curtains | single mirror for 3 beams and controlled height up to 900 mm light curtains | single mirror for 4 beams and controlled height up to 900 mm light curtains | single mirror for controlled height up to 1360 mm | single mirror for controlled height up to 1660 mm |
| A - Height (mm) | 1000 | 1200 | 1330 | 1670 | 1970 |
| B - Overall height with FMC CB base (mm) | 1055 | 1255 | 1385 | 1725 | 2025 |
| B - Overall height with FMC CBL base (mm) | 1037 | 1237 | 1367 | 1707 | 2007 |

| Models | FMC SB2 | FMC SB3 | FMC SB4 |
|---|--------------------------------------|--------------------------------------|--------------------------------------|
| Ordering codes | 1200645 | 1200646 | 1200647 |
| Description | 2 mirrors for 2 beams light curtains | 3 mirrors for 3 beams light curtains | 4 mirrors for 4 beams light curtains |
| A - Height (mm) | 1000 | 1200 | 1330 |
| B - Overall height with FMC CB base (mm) | 1055 | 1255 | 1385 |
| B - Overall height with FMC CBL base (mm) | 1037 | 1237 | 1367 |

Note for ordering

The column ordering codes does not include the base which must be ordered separately (CB FMC and FMC CBL models)

Support columns for deflecting mirrors, designed to provide secure fastening to the floor, fast installation, and a simple and precise adjustment of the optical alignment of the system.

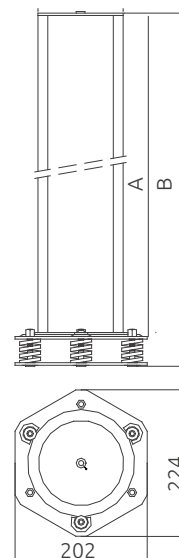
FMC S models with pre-assembled deflecting mirrors allows perimeter protections of up to 4 sides.

FMC SB models with pre-installed independent adjustable deflecting mirrors for safety light grids with 2, 3 and 4 beams. For applications with multiple sides and/or with a large protected perimeter is recommended the use of this models.

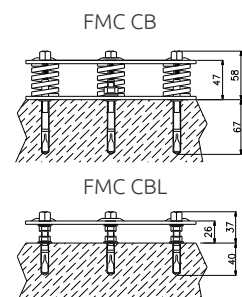
Optical power reduction factor: 15% for each mirror.

Special models equipped with mirror with protective anti-fragmentation film available on request.

NOTE: for more information on how to chose mirrors, please refers to Reer website, section "Light Curtains - Applications".



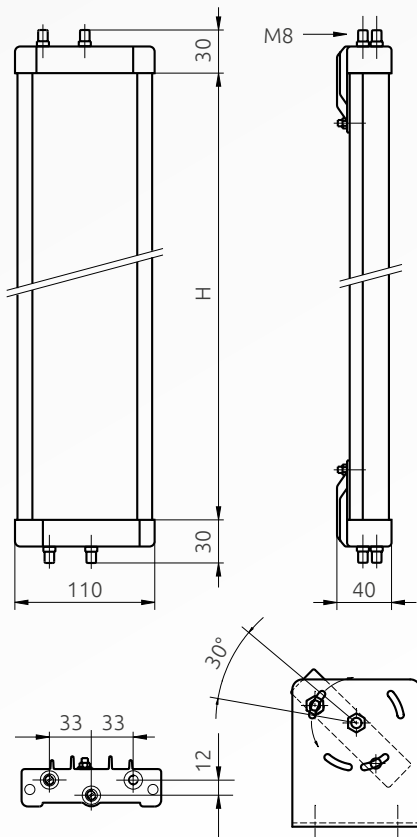
A: column height
B: column height with base FMC CB or FMC CBL





The SP deflecting mirrors allow to create perimeter protection of areas with access points on multiple sides, with a considerable reduction of costs.

This solution eliminates the need to use multiple safety light curtains allow perimeter protection of up to 4 sides.



SP DEFLECTING MIRRORS

TECHNICAL FEATURES

| | |
|-------------------------------------|------------------------------------|
| Section bar | Extruded aluminium |
| Mirror pre-fitted with heights (mm) | 250 ... 1900 |
| Angular orientation | Adjustable using supplied brackets |
| Optical power reduction factor | 15% (for each mirror) |
| Protective anti-fragmentation film | Available on request |

PARTS NUMBERS

| Mirror Model | Ordering codes | Height H in picture (mm) | For light curtains with protected height (mm) | For light grids with: |
|--------------|----------------|--------------------------|---|-----------------------|
| SP 100 S | 1201805 | 250 | 160 | |
| SP 200 S | 1201800 | 370 | 250 | |
| SP 300 S | 1201806 | 400 | 310 | |
| SP 400 S | 1201801 | 540 | 460 | |
| SP 600 S | 1201811 | 715 | 610 | 2 beams |
| SP 700 S | 1201802 | 885 | 760 | |
| SP 900 S | 1201812 | 1065 | 910 | 3 beams |
| SP 1100 S | 1201803 | 1230 | 1060 | 4 beams |
| SP 1200 S | 1201810 | 1400 | 1210 | |
| SP 1300 S | 1201807 | 1450 | 1360 | |
| SP 1500 S | 1201808 | 1600 | 1510 | |
| SP 1600 S | 1201813 | 1750 | 1660 | |
| SP 1800 S | 1201809 | 1900 | 1810 | |

The following rules should be taken into consideration when using deflecting mirrors:

- Total working distance (range) given by the sum of the lengths of all sides giving access to the protected area
- Mirror used will decrease the maximum working range between the Emitter and the Receiver by 15%
- In order to ensure compliance mirror must be placed at the minimum safety distance from the danger zone
- The use of the LAD laser alignment device is recommended for a quick and reliable alignment of the system especially when using longer range light curtains or grids

NOTE: for more information on how to choose mirrors, please refer to ReeR website, section "Light Curtains - Applications".



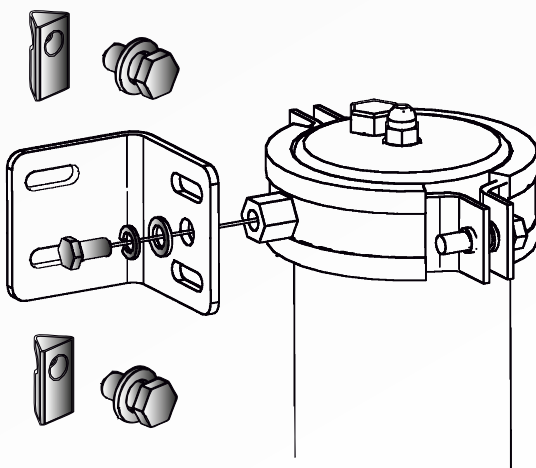
The SAV vibration dampers have been designed to avoid mechanical damage to the light curtains installed in those applications with a high level of vibrations.

The unprotected light curtains might resent the vibrations produced by e.g. presses, weaving machines, etc.



The SFB swivel brackets allow the rotation of the light curtain around its longitudinal axis, as well as the adjustment of its vertical and horizontal position.

The use of the SFB swivel brackets is recommended to align those light curtains which are employed in applications having a long range or using deflecting mirrors.



The SFB WT_LL fixing brackets allow the correct fixing of the WT and WTH light curtains to the FMC-B12 column

SAV 3, SAV 4 VIBRATION DAMPERS

PARTS NUMBERS

| Model | Ordering codes | Description | For light curtains with protected height mm / beams |
|-------|----------------|--------------------------|---|
| SAV 3 | 1200088 | set 2 vibrations dampers | 160... 1060 / 2,3,4 beams |
| SAV 4 | 11200089 | set 3 vibrations dampers | 1210 ... 1810 |

One set must be ordered for each pair of light curtain (emitter + receiver)

SFB SWIVEL BRACKETS

PARTS NUMBERS

| Model | Ordering code | Description |
|-------|---------------|--------------------------|
| SFB | 1330974 | set of 4 swivel brackets |

One set must be ordered for each pair of light curtain (emitter + receiver)

SFB WT-LL WT AND WTH LIGHT CURTAINS FASTENING BRACKET ON FMC-B12 COLUMN

PARTS NUMBERS

| Model | Ordering code | Description |
|-----------|---------------|--------------------------|
| SFB WT-LL | 1240900 | Set of 4 fixing brackets |

One set must be ordered for each pair of light curtain (emitter + receiver)



LAD 2 laser alignment device allows a fast and reliable optical alignment of ReeR safety light curtains; also compatible with the use of the FMC floor mounting columns.

LAD 2 devices emit a laser beam with visible red light with useful range up to 100 m.

The use is recommended for aligning light curtains that operate over long distances or multiple sides with the use of deflecting mirrors.

PARTS NUMBERS

Includes multi-language instruction manual.

Ordering code LAD 2: 1220301



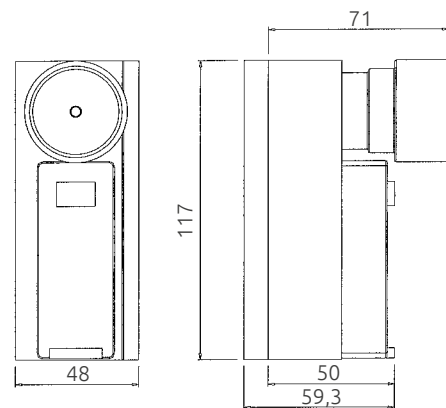
The test rod is an opaque cylinder used after the installation of a safety light curtain to verify that no beams are bypassed due to the presence of reflecting surfaces.

The test is carried out by slowly moving the test rod (\emptyset = Resolution) in the centre and then along each side of the protected area. During this procedure the Green led on the Receiver must always remain in the off state.

LAD 2 LASER ALIGNEMENT DEVICE

TECHNICAL FEATURES

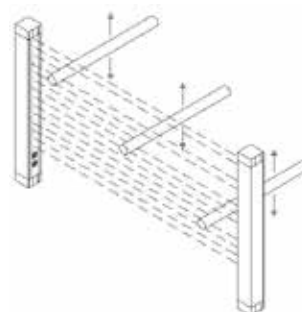
| | |
|---------------------------|---------------------------------------|
| Light source | Laser diode – wavelength 650 nm |
| Class light source | II – EN 60825-1 |
| Range m | 100 |
| Beam divergence (mrd) | < 0,5 |
| Max. power (mW) | 1 |
| Power supply (VDC) | 3 (2 AAA batteries) |
| Fastening | Quick fastening to the light curtains |
| Dimensions h x w x d (mm) | 117 x 48 x 80 |



TR TEST RODS

PART NUMBERS

| Model | Ordering codes | Diameter |
|-------|----------------|-------------------|
| TR 14 | 1330960 | \emptyset 14 mm |
| TR 20 | 1330961 | \emptyset 20 mm |
| TR 30 | 1330962 | \emptyset 30 mm |
| TR 40 | 1330963 | \emptyset 40 mm |
| TR 50 | 1330964 | \emptyset 50 mm |





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We put our Customers always first

ReeR after sales service is committed to support all customers that need technical guidance regarding functionality, handling and installation of our products.

Customer Service Hotline

+39 011 24 82 215

Monday to Friday 8.30 - 12.30 and 13.30-18.00 (CET)

or contact
aftersales@reer.it

For product returns please visit www.reersafety.com for further information.



Your future's safe!

More than 60 years of quality and innovation

Founded in Turin (Italy) in 1959, ReeR distinguished itself for its strong commitment to innovation and technology.

A steady growth throughout the years allowed ReeR to become a point of reference in the safety automation industry at a worldwide level.

The Safety Division is in fact today a world leader in the development and manufacturing of safety optoelectronic sensors and controllers.

ReeR is ISO 9001, ISO 14001 and ISO 45001 certified.



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Issue 2 - Rev 1.3
February 2021
8946224
ADMIRAL/VISION - English

Printed in Italy

