REER

EOS4 X
WITH BUILT-IN CONTROL FUNCTIONS

MAIN FEATURES

Built-in, selectable manual/automatic Start/Restart
Feedback input for controlling external relays (EDM).
Two safety PNP static outputs, auto-controlled.
All connections and setting adjustments through M12 5-pole and 8-pole connectors.
Unshielded cables up to 100 meter long.
Master and Slave models for series connection of up to 3 light curtains.
Max. length of connections toward Slaves: 50 meters, through standard unshielded cable.

TECHNICAL FEATURES

Safety level	Type 4 according to IEC/TS 61496-2 SIL 3 – SILCL 3 according to IEC 61508 - IEC 62061 PL e – Cat. 4 according to ISO 13849-1
Protected heights (mm)	160 ÷ 1510
Resolutions (mm)	30 – 40 – 50 – 90
Numbers of beams for body detection in access control	2 – 3 – 4
Max. range (m)	4 – 12 selectable
Response time (ms)	2,5 ÷ 18.5
Safety outputs	2 PNP – 400 mA at 24 Vdc
Singnaling	LEDs for light curtain's status and diagnostic
Start/Restart	selectable automatic or manual
External Device Monitoring	external device monitoring feedback input with selectable enabling
Power supply (Vdc)	24 ± 20%
Electrical connections for EOS4 X and EOS4 X Master	M12 - 5 poles for emitter M12 - 8 poles for receiver
Electrical connections between Master and Slave	M12 - 5 poles for emitter and receiver
Max. cable lenght (m)	100 (50 between Master and Slave)
Operating temperature (°C)	-10 ÷ 55
Protection rating	IP 65 and IP 67
Fastening modes	back slot
Cross section (mm)	28 x 30

CE   TÜV   UL LISTED ESPE

Safety level:

Type 4

SIL 3 – SILCL 3
PL e – Cat. 4

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Resolution 30 mm	EOS4 153 X	EOS4 303 X	EOS4 453 X	EOS4 603 X	EOS4 753 X	EOS4 903 X	EOS4 1053 X	EOS4 1203 X	EOS4 1353 X	EOS4 1503 X
Protected heights (mm)	160	310	460	610	760	910	1060	1210	1360	1510
Number of beams	8	16	23	31	38	46	53	61	68	76
Overall height (mm)	213	363	513	663	813	963	1113	1263	1413	1563

Resolution 40 mm	EOS4 154 X	EOS4 304 X	EOS4 454 X	EOS4 604 X	EOS4 754 X	EOS4 904 X	EOS4 1054 X	EOS4 1204 X	EOS4 1354 X	EOS4 1504 X
Protected heights (mm)	160	310	460	610	760	910	1060	1210	1360	1510
Number of beams	6	11	16	21	26	31	36	41	46	51
Overall height (mm)	213	363	513	663	813	963	1113	1263	1413	1563

Resolution 50 mm	EOS4 155 X	EOS4 305 X	EOS4 455 X	EOS4 605 X	EOS4 755 X	EOS4 905 X	EOS4 1055 X	EOS4 1205 X	EOS4 1355 X	EOS4 1505 X
Protected heights (mm)	160	310	460	610	760	910	1060	1210	1360	1510
Number of beams	4	8	12	16	20	24	28	32	36	40
Overall height (mm)	213	363	513	663	813	963	1113	1263	1413	1563

Resolution 90 mm	EOS4 309 X	EOS4 459 X	EOS4 609 X	EOS4 759 X	EOS4 909 X	EOS4 1059 X	EOS4 1209 X	EOS4 1359 X	EOS4 1509 X
Protected heights (mm)	310	460	610	760	910	1060	1210	1360	1510
Number of beams	4	6	8	10	12	14	16	18	20
Overall height (mm)	363	513	663	813	963	1113	1263	1413	1563

2-3-4-beams	EOS4 2B X	EOS4 3B X	EOS4 4B X
Number of beams	2	3	4
Beam spacing (mm)	500	400	300
Protected heights (mm)	510	810	910
Overall height (mm)	653	953	1053

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MASTER/SLAVE MODELS

		EOS4 303 XM	EOS4 453 XM	EOS4 603 XM	EOS4 753 XM	EOS4 903 XM	EOS4 1053 XM	EOS4 1203 XM	EOS4 1353 XM	EOS4 1503 XM
MASTER Resolution 30 mm		EOS4 303 XM	EOS4 453 XM	EOS4 603 XM	EOS4 753 XM	EOS4 903 XM	EOS4 1053 XM	EOS4 1203 XM	EOS4 1353 XM	EOS4 1503 XM
SLAVE Resolution 30 mm	EOS4 153 XS	EOS4 303 XS	EOS4 453 XS	EOS4 603 XS	EOS4 753 XS	EOS4 903 XS	EOS4 1053 XS	EOS4 1203 XS	EOS4 1353 XS	EOS4 1503 XS
SLAVE 2 Resolution 30 mm		EOS4 303 XS2	EOS4 453 XS2	EOS4 603 XS2	EOS4 753 XS2	EOS4 903 XS2	EOS4 1053 XS2	EOS4 1203 XS2	EOS4 1353 XS2	EOS4 1503 XS2
Protected heights (mm)	160	310	460	610	760	910	1060	1210	1360	1510
Number of beams	8	16	23	31	38	46	53	61	68	76
Overall height (mm)*	213	363	513	663	813	963	1113	1263	1413	1563

		EOS4 304 XM	EOS4 454 XM	EOS4 604 XM	EOS4 754 XM	EOS4 904 XM	EOS4 104 XM	EOS4 1204 XM	EOS4 1354 XM	EOS4 1504 XM
MASTER Resolution 40 mm		EOS4 304 XM	EOS4 454 XM	EOS4 604 XM	EOS4 754 XM	EOS4 904 XM	EOS4 104 XM	EOS4 1204 XM	EOS4 1354 XM	EOS4 1504 XM
SLAVE Resolution 40 mm	EOS4 154 XS	EOS4 304 XS	EOS4 454 XS	EOS4 604 XS	EOS4 754 XS	EOS4 904 XS	EOS4 1054 XS	EOS4 1204 XS	EOS4 1354 XS	EOS4 1504 XS
SLAVE 2 Resolution 40 mm		EOS4 304 XS2	EOS4 454 XS2	EOS4 604 XS2	EOS4 754 XS2	EOS4 904 XS2	EOS4 1054 XS2	EOS4 1204 XS2	EOS4 1354 XS2	EOS4 1504 XS2
Protected heights (mm)	160	310	460	610	760	910	1060	1210	1360	1510
Number of beams	6	11	16	21	26	31	36	41	46	51
Overall height (mm)*	213	363	513	663	813	963	1113	1263	1413	1563

		EOS4 305 XM	EOS4 455 XM	EOS4 605 XM	EOS4 755 XM	EOS4 905 XM	EOS4 105 XM	EOS4 1205 XM	EOS4 1355 XM	EOS4 1505 XM
MASTER Resolution 50 mm		EOS4 305 XM	EOS4 455 XM	EOS4 605 XM	EOS4 755 XM	EOS4 905 XM	EOS4 105 XM	EOS4 1205 XM	EOS4 1355 XM	EOS4 1505 XM
SLAVE Resolution 50 mm	EOS4 155 XS	EOS4 305 XS	EOS4 455 XS	EOS4 605 XS	EOS4 755 XS	EOS4 905 XS	EOS4 1055 XS	EOS4 1205 XS	EOS4 1355 XS	EOS4 1505 XS
SLAVE 2 Resolution 50 mm		EOS4 305 XS2	EOS4 455 XS2	EOS4 605 XS2	EOS4 755 XS2	EOS4 905 XS2	EOS4 1055 XS2	EOS4 1205 XS2	EOS4 1355 XS2	EOS4 1505 XS2
Protected heights (mm)	160	310	460	610	760	910	1060	1210	1360	1510
Number of beams	4	8	12	16	20	24	28	32	36	40
Overall height (mm)*	213	363	513	663	813	963	1113	1263	1413	1563

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	EOS4 309 XM	EOS4 459 XM	EOS4 609 XM	EOS4 759 XM	EOS4 909 XM	EOS4 1059 XM	EOS4 1209 XM	EOS4 1359 XM
MASTER Resolution 90 mm	EOS4 309 XM	EOS4 459 XM	EOS4 609 XM	EOS4 759 XM	EOS4 909 XM	EOS4 1059 XM	EOS4 1209 XM	EOS4 1359 XM
SLAVE Resolution 90 mm	EOS4 309 XS	EOS4 459 XS	EOS4 609 XS	EOS4 759 XS	EOS4 909 XS	EOS4 1059 XS	EOS4 1209 XS	EOS4 1359 XS
SLAVE 2 Resolution 90 mm	EOS4 309 XS2	EOS4 459 XS2	EOS4 609 XS2	EOS4 759 XS2	EOS4 909 XS2	EOS4 1059 XS2	EOS4 1209 XS2	EOS4 1359 XS2
Protected heights (mm)	310	460	610	760	910	1060	1210	1360
Number of beams	4	6	8	10	12	14	16	18
Overall height (mm) *	363	513	663	813	963	1113	1263	1413

	EOS4 2B XM	EOS4 3B XM	EOS4 4B XM
MASTER 2-3-4 beams	EOS4 2B XM	EOS4 3B XM	EOS4 4B XM
SLAVE 2-3-4 beams	EOS4 2B XS	EOS4 3B XS	EOS4 4B XS
SLAVE 2 2-3-4 beams	EOS4 2B XS2	EOS4 3B XS2	EOS4 4B XS2
Number of beams	2	3	4
Beam spacing (mm)	500	400	300
Protected heights (mm)	510	810	910
Overall height (mm)*	653	953	1053

* On master and slave 2 the total height of light curtain is 24 mm greater owing to the addition of a secondary connector

EOS4

Master/Slave models permit series connection of up to three light curtains and combined detection of hand and presence of a person or of more sides of the machine, with the following major benefits:
- A single pair of safety outputs
- No interference between light curtains installed adjacent to one another.
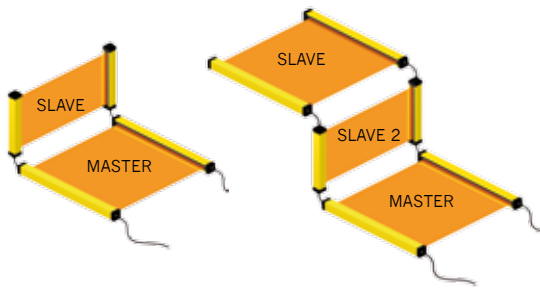
EXAMPLES OF SERIES CONNECTION OF MASTER AND SLAVE LIGHT CURTAINS

Any Master model can be used together with any Slave model.

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

Accessory pre-wired cable with twin connectors are available for connection of Master to Slave.
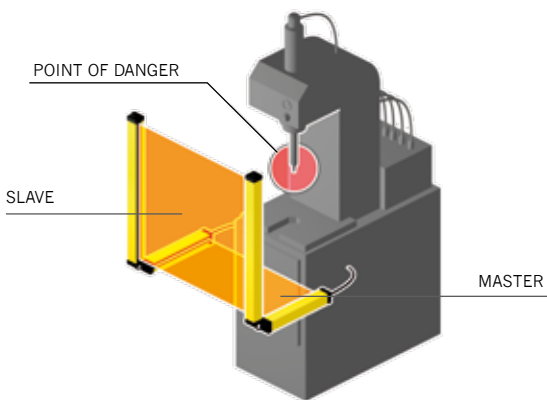
EXAMPLES OF SERIES CONNECTION OF MASTER AND SLAVE LIGHT CURTAINS

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.

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.
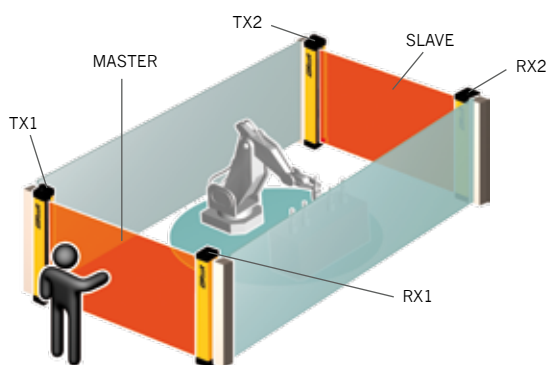
EXAMPLE OF SERIES CONNECTION OF MASTER AND SLAVE LIGHT CURTAINS FOR PROTECTION OF TWO SIDES OF MACHINE

On EOS4 X the connecting cable across Master and Slave is a standard (unshielded) cable up to 50 meter long.

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.
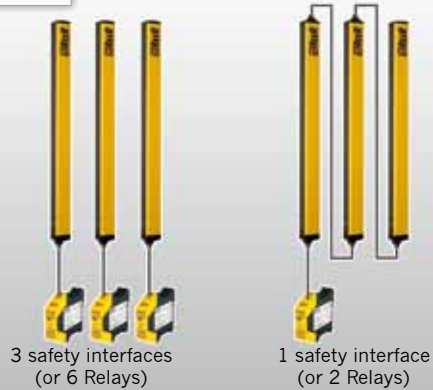

EXAMPLE OF SERIES CONNECTION OF ONE MASTER AND TWO SLAVE LIGHT CURTAINS FOR THE PROTECTION OF THREE SIDES OF THE MACHINE

Benefit: unimpeded operator access to work area from front and sides.

Continues

EOS4
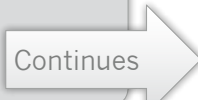
Follows

Series connections diagram

3 safety interfaces
(or 6 Relays)

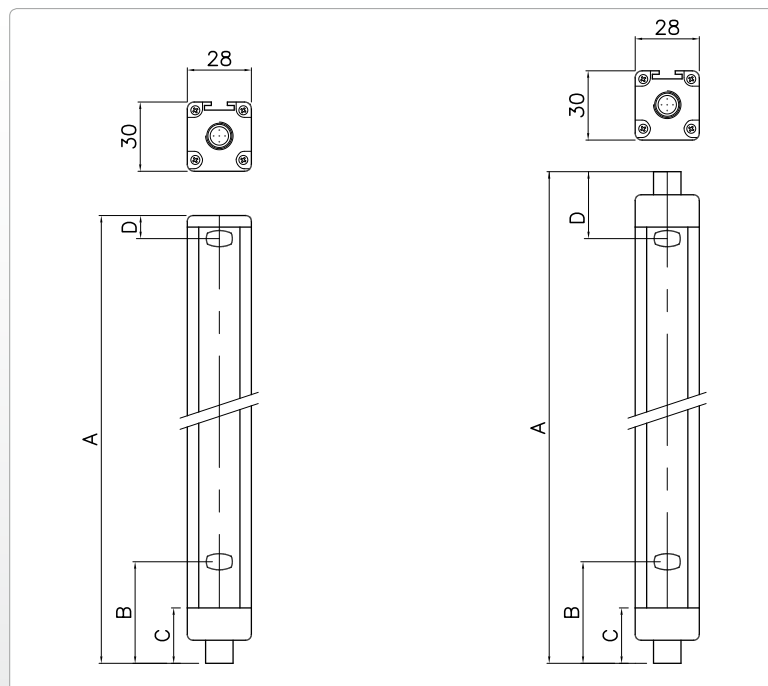1 safety interface
(or 2 Relays)

Benefit: with three standard curtains it will be necessary to use and wire up 3 safety interfaces or 6 contactors.

With the master/slave solution having 3 series light curtains it will be enough to use and wire up only 1 safety interface or 2 contactors.

DIMENSIONS (mm)

EOS4 SLAVE   **EOS4 MASTER / SLAVE 2**

Model	2B	3B	4B
A	653	953	1053
A (Master/Slave2)	677	977	1077
B		102	
C		29.5	
D		51	
D (Master/Slave2) (with 2 connectors)		75	

Model	150	300	450	600	750	900	1050	1200	1350	1500
A	213	363	513	663	813	963	1113	1263	1413	1563
A (Master/Slave)	236.5	386.5	536.5	686.5	836.5	986.5	1136.5	1286.5	1436.5	1586.5
B					61.5					
C					29.5					
D					11					
D (Master/Slave 2) (with 2 connectors)					34.5					
Mounting	2 LE type brackets with 2 inserts							3 LE type brackets with 3 inserts		

ReeR

EOS4

Each EOS4 light curtain comprises:

• Emitter and Receiver pair

• Brackets and inserts

• CD-ROM containing the multi-language instruction manual complete with CE declaration of conformity

• Quick installation guide

ACCESSORIES

EOS4 light curtains can be supplied with the following accessories, to be ordered separately:

• AD SR Safety Relays	see page 158
• LAD laser alignment device	see page 182
• FMC floor mounting columns	see page 178
• SP deflection mirrors	see page 181
• SAV E vibrations dampers	see page 183
• SFB swivel fixing brackets	see page 183
• Connectors	see list hereunder:

CONNECTORS EOS4 (EOS4 A emitter and receiver EOS4 X emitter)

Model	Description
CD 5	M12 straight connector, 5 poles, pre-wired cable 5 m
CD 10	M12 straight connector, 5 poles, pre-wired cable 10 m
CD 15	M12 straight connector, 5 poles, pre-wired cable 15 m
CD 20	M12 straight connector, 5 poles, pre-wired cable 20 m
CD 25	M12 straight connector, 5 poles, pre-wired cable 25 m
CD 95	M12 90° angle connector, 5 poles, pre-wired cable 5 m
CD 910	M12 90° angle connector, 5 poles, pre-wired cable 10 m
CD 915	M12 90° angle connector, 5 poles, pre-wired cable 15 m
CDM 9	M12 straight connector, 5 poles with screw terminal, PG9 cable gland
CDM 99	M12 angle connector, 5 poles with screw terminal, PG9 cable gland

CONNECTORS EOS4 X receivers

Model	Description
C8D 5	M12 straight connector, 8 poles, pre-wired cable 5 m
C8D 10	M12 straight connector, 8 poles, pre-wired cable 10 m
C8D 15	M12 straight connector, 8 poles, pre-wired cable 15 m
C8D 95	M12 90° angle connector, 8 poles, pre-wired cable 5 m
C8D 910	M12 90° angle connector, 8 poles, pre-wired cable 10 m
C8D 915	M12 90° angle connector, 8 poles, pre-wired cable 15 m
C8DM 11	M12 straight connector, 8 poles with screw terminal, PG9/11 cable gland
C8DM 911	M12 90° angle connector, 8 poles with screw terminal, PG9/11 cable gland

CONNECTION BETWEEN MASTER AND SLAVE

Model	Description
CDS 03	0,3 m pre-wired cable with 2 straight connectors, M12 5 poles
CJBE 3	3 m pre-wired cable with 2 straight connectors, M12 5 poles
CJBE 5	5 m pre-wired cable with 2 straight connectors, M12 5 poles
CJBE 10	10 m pre-wired cable with 2 straight connectors, M12 5 poles

! WARNING !

• Where the light curtain is subjected to strong vibrations (presses, textile looms, etc.) always use vibrations dampers SAV E (available as accessories) in order to prevent damaging the light curtain

• Where protections are to be placed over long distances or on several sides using deflection mirrors, it is advisable to use laser alignment aid LAD 4 to ensure simple, quick and perfect alignment of light curtains.