EZ-SCREEN LS
BANNER

Simple, Rugged Safety Light Screen with Enhanced Features

Superior Performance: Intuitive, easy-to-use safety light screens for machine safeguarding, built to withstand challenging environments common to both manufacturing and packaging.

Easy-to-Use
- **Alignment indicators** are highly visible and intuitive diagnostics simplify setup, facilitate troubleshooting and streamline installation
- **No blind zone** design provides end-to-end sensing to eliminate gaps in detection

Heavy Duty
- **Metal end caps, thick aluminum housing and a recessed window** to avoid damage from impact

Configurations
- **Standard pairs, cascade systems** and extensive accessories to suit a wide variety of safeguarding configurations

BANNER ®
more sensors, more solutions

Introducing the EZ-SCREEN® LS
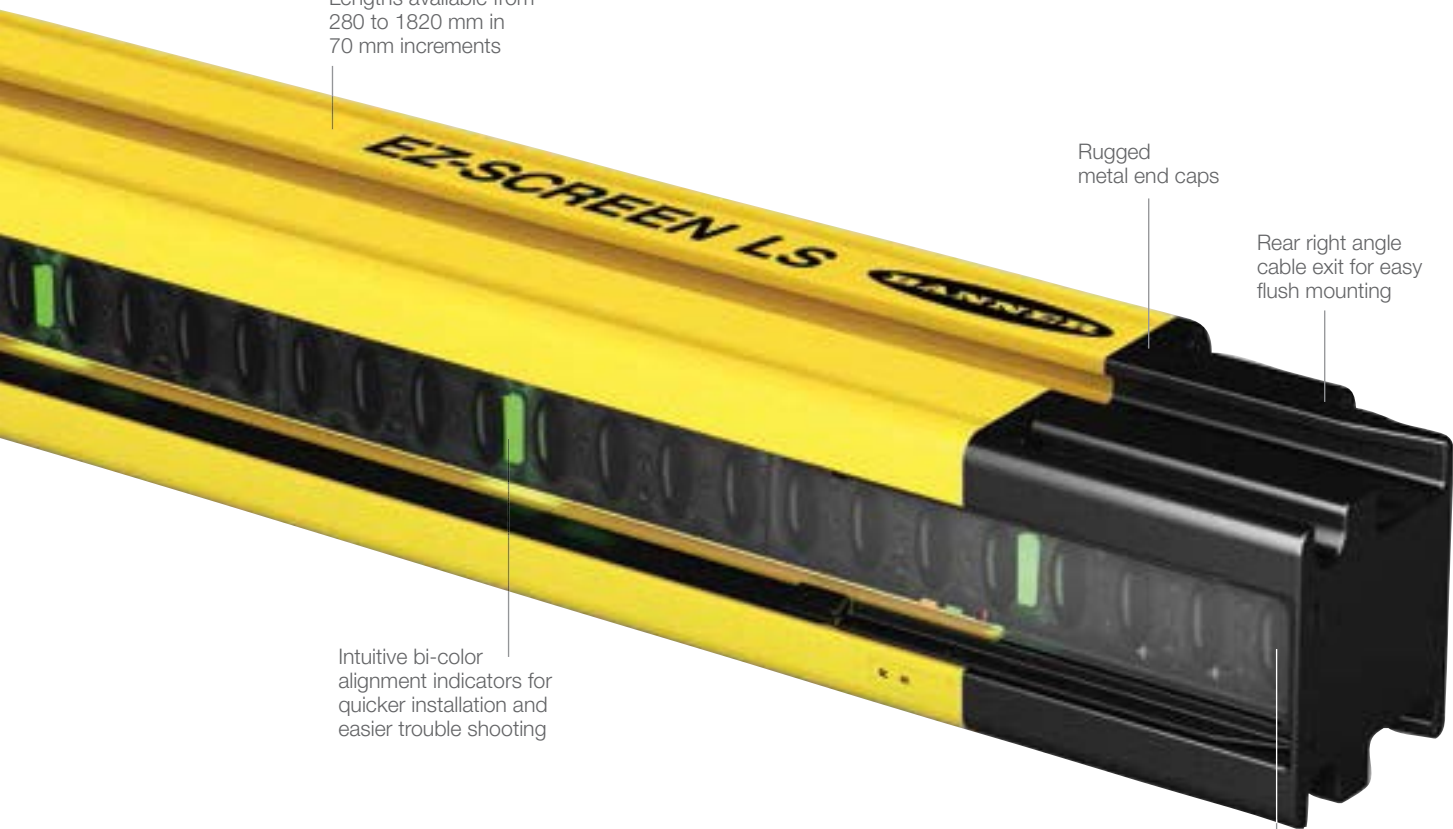
Lengths available from 280 to 1820 mm in 70 mm increments

Rugged metal end caps

Rear right angle cable exit for easy flush mounting

Intuitive bi-color alignment indicators for quicker installation and easier trouble shooting

End-to-end sensing design (no blind zone)

12 m range

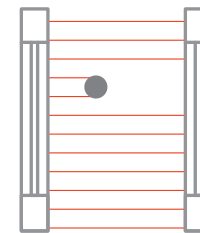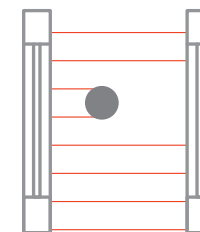## Available in Three Resolutions

14 mm
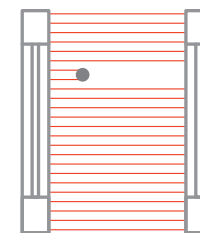
Finger detection
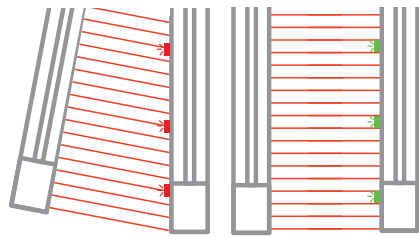
23 mm

Hand detection

40 mm

Hand/Arm/Ankle detection
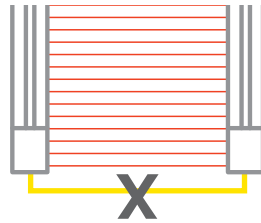
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Save Time on Installation

Alignment Indicators
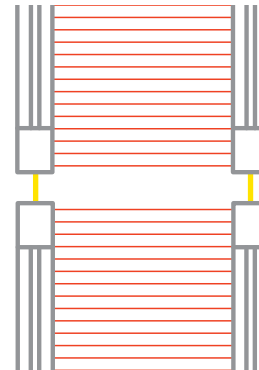

Misaligned   Aligned

Bi-color indicators along the length of the receiver simplify alignment and shorten system setup time
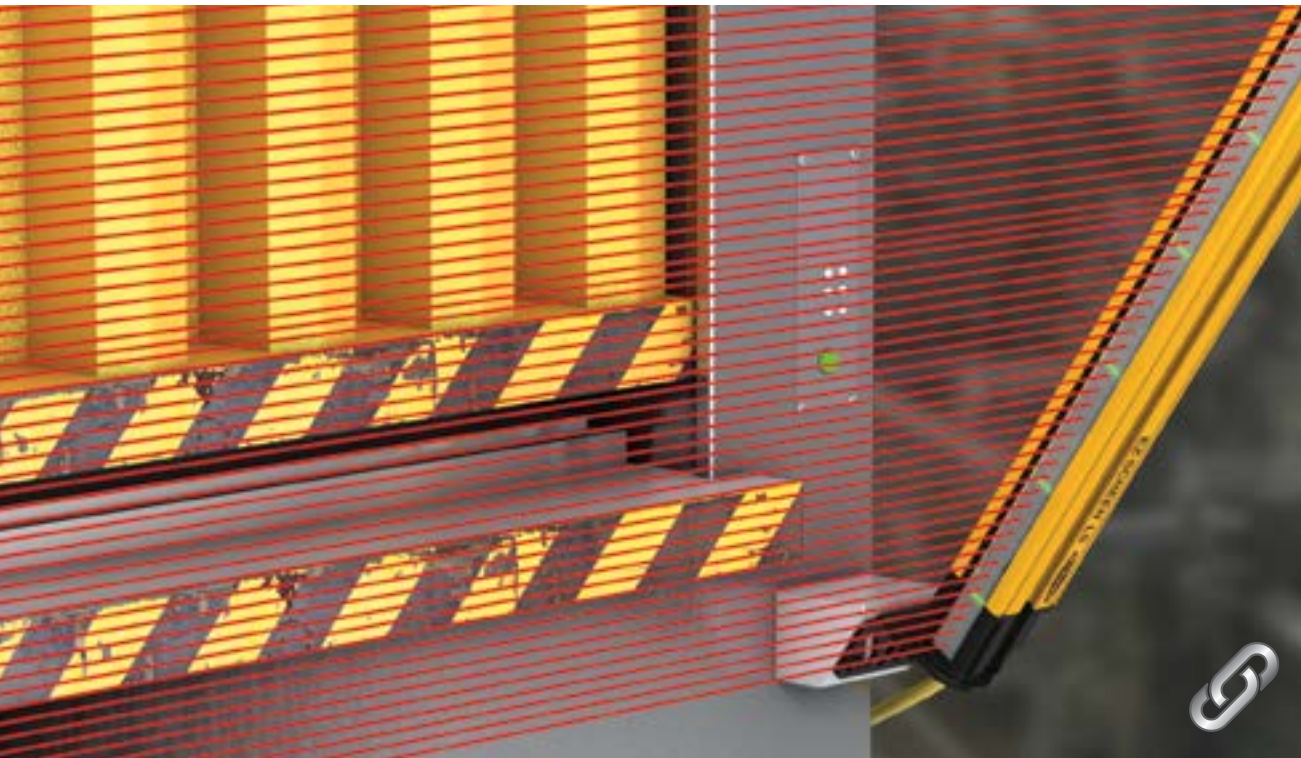
Simplifed Wiring

Optical synchronization eliminates the need for wired connection between emitter and receiver

Automatic Cascade Configuration

System requires no PC software, DIP switches or additional devices for quick, easy setup

Angled safeguarding of a power press

Bi-color red/green status indicator shows if power is applied, and if the safety outputs are ON or OFF

Diagnostic display indicates the total number of blocked beams or specific error conditions

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Product Highlights

Intuitive, easy-to-use safety light screen (light curtain) for safeguarding machines and automated equipment in challenging environments.

- Trip output (automatic reset) allows easy interfacing to safety modules, safety controllers, and safety PES/PLCs

- External Device Monitoring (EDM), fault output, and scan code select available on some models

- Dual scan technology makes the sensor highly immune to EMI, RFI, ambient light, weld flash, and strobe light

- Remote fixed blanking available on cascade models allows for greater flexibility in dynamic applications

- Addition of remote or integrated indication lights on cascade models provides clear communication of system status

- Interconnection of E-Stop or Guard Interlocking Switches available on cascadable models
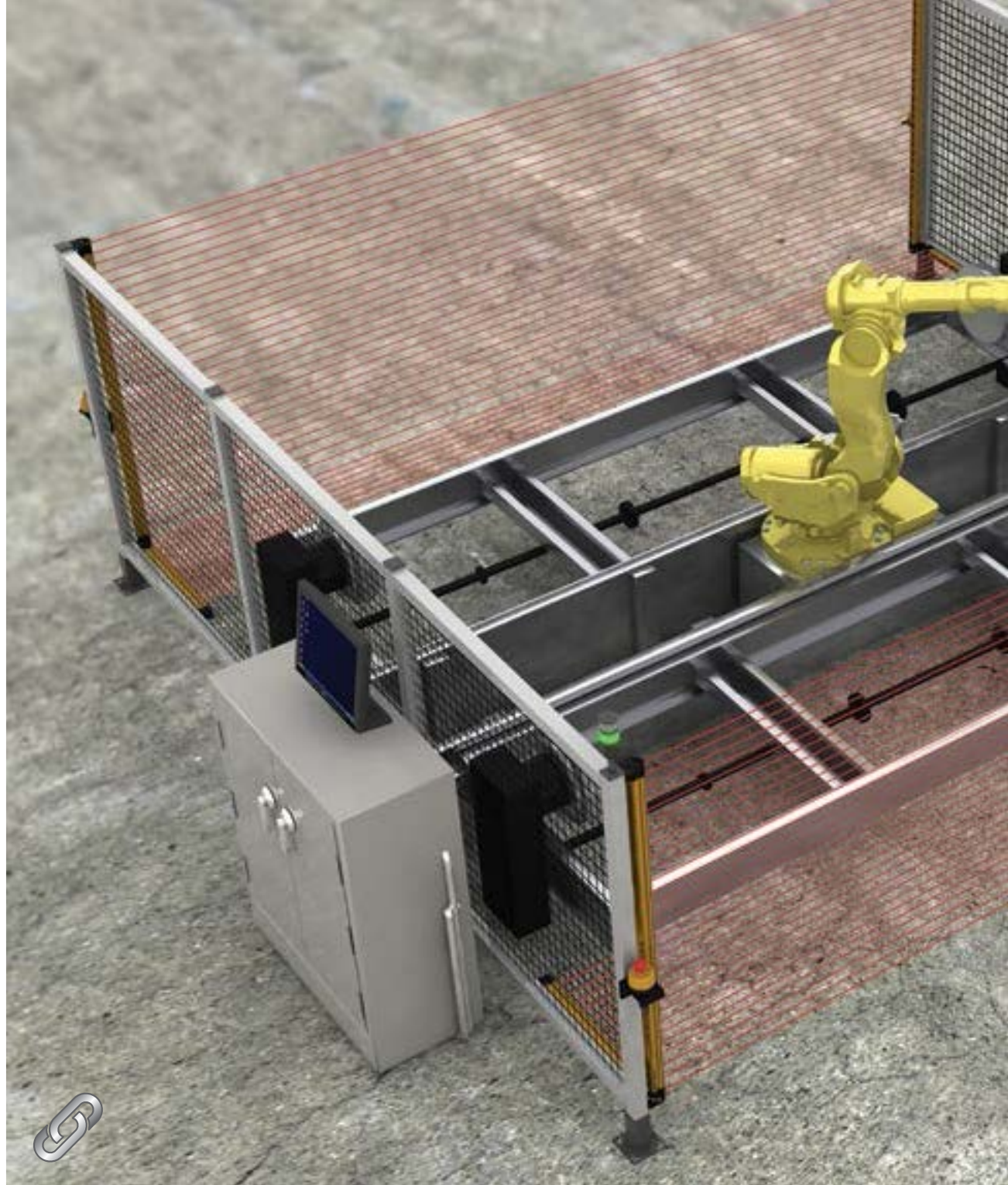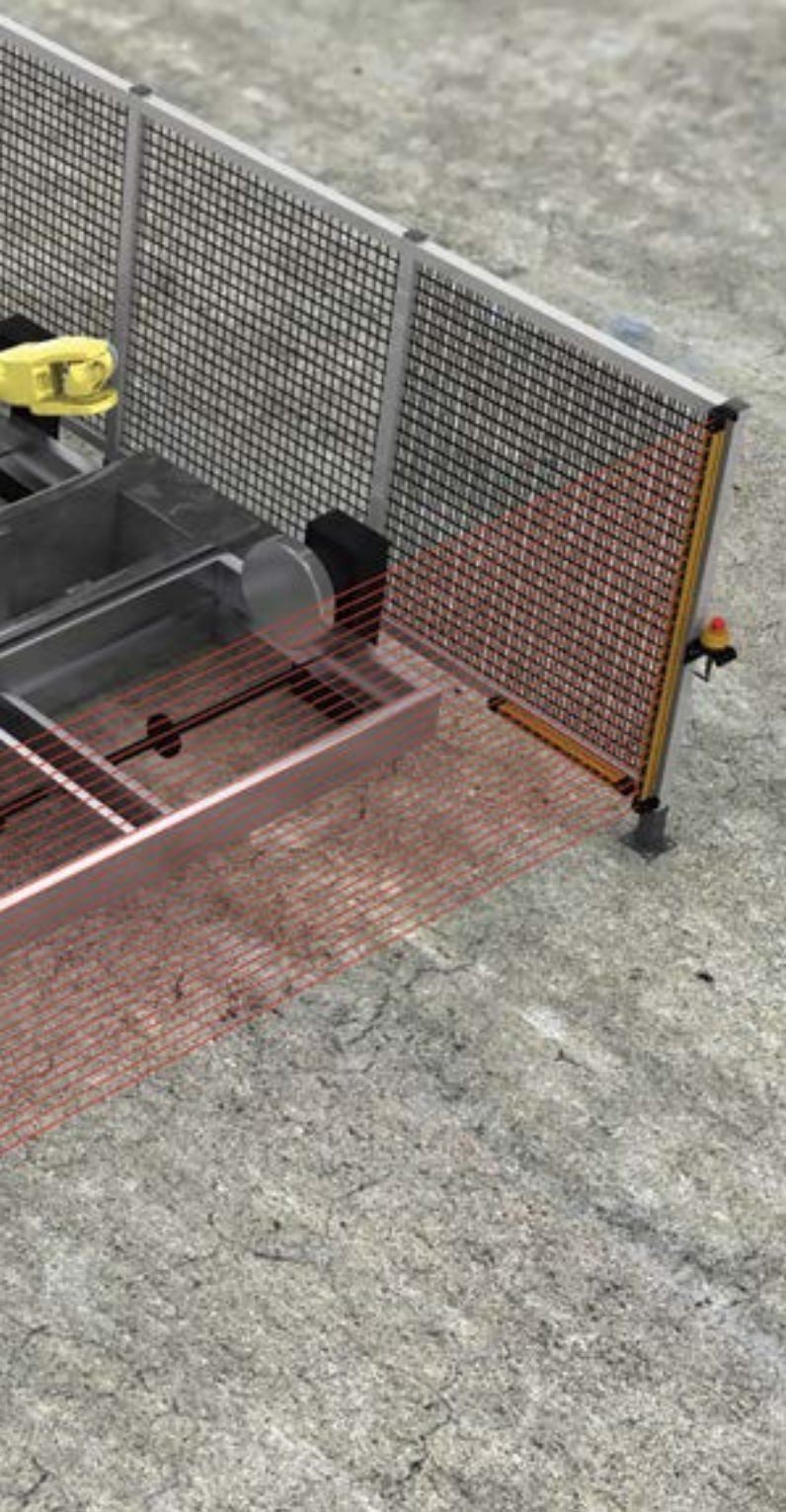
Flexible Installation

R　　　　E
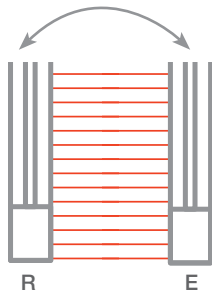
Flexible wiring scheme allows emitter and receiver position to be interchanged without rewiring either unit

Alignment Indicators

R　　　　E
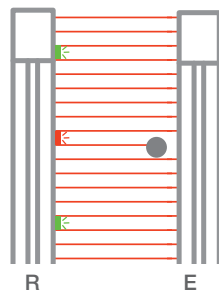
Alignment indicators give clear feedback of which beam is blocked to simplify system installation and minimize downtime
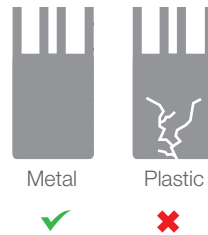
Heavy Duty

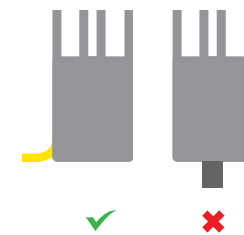Durable design and construction minimizes damage from drops or accidental impact that would require a replacement light screen.

Metal End Cap

Metal ✔

Plastic ✖

No Connector to Break Off

✔   ✖

Optional Indicator

✔   ✖
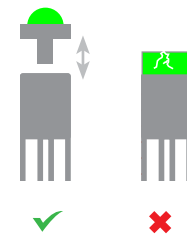
Recessed Window

✔   ✖
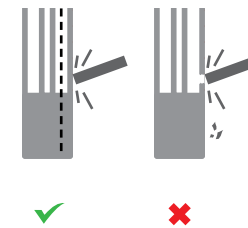
No Dip Switches

✔   ✖

Environmental Rating

IEC IP65
IEC IP67
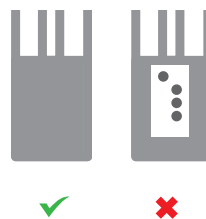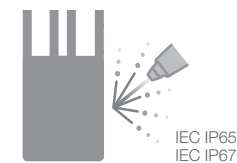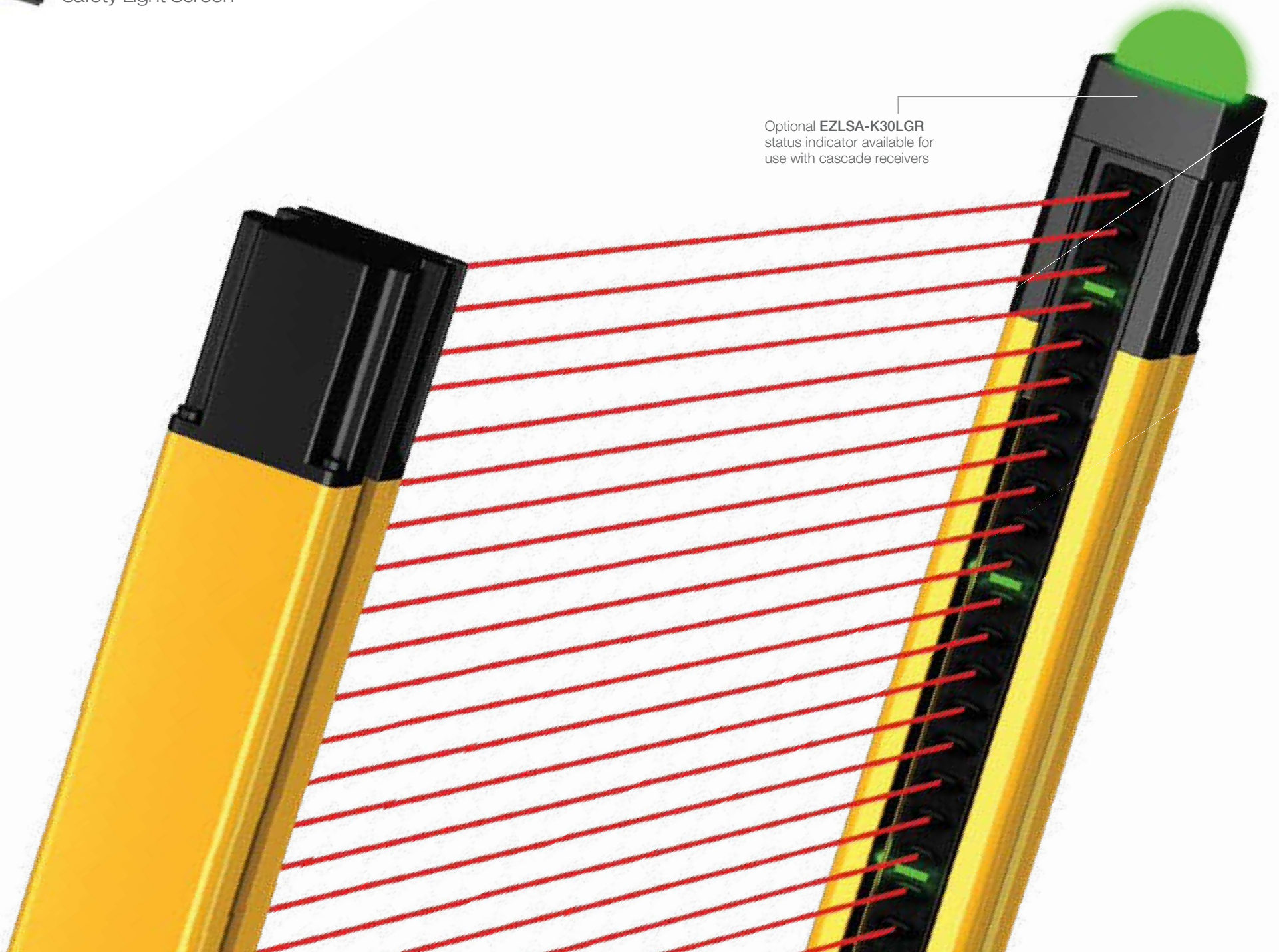
Dual-operator station robotic work cell using four pairs of cascade EZ-SCREEN® LS.
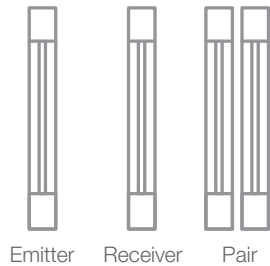
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Optional **EZLSA-K30LGR**
status indicator available for
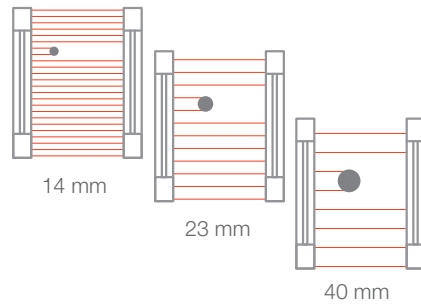use with cascade receivers

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Build a Standard (Non-Cascade) Pair

- Use standard models for a lower cost safety solution
- Cascade models allow for future flexibility and use of optional indicators (see "Build a Cascade System")
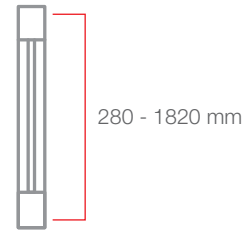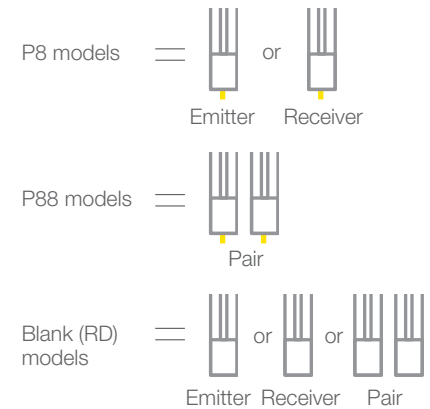
1. Choose one

Emitter   Receiver   Pair

2. Choose your resolution

14 mm

23 mm

40 mm

3. Choose your defined area

280 - 1820 mm

4. Choose your machine interface connection

P8 models = [ ] or [ ]

Emitter   Receiver

P88 models =

Pair

Blank (RD) models = [ ] or [ ] or [ ]

Emitter Receiver Pair

Family	System Type	Resolution		Defined Area	Connection*
SLL	**P**	**14**	—	**770**	**P88**

E = Emitter only	**14** = 14 mm	
R = Receiver only	**23** = 23 mm	
P = Pair	**40** = 40 mm	
(Emitter and Receiver)		

Defined Area

280 = 280 mm	**1120** = 1120 mm
350 = 350 mm	**1190** = 1190 mm
420 = 420 mm	**1260** = 1260 mm
490 = 490 mm	**1330** = 1330 mm
560 = 560 mm	**1400** = 1400 mm
630 = 630 mm	**1470** = 1470 mm
700 = 700 mm	**1540** = 1540 mm
770 = 770 mm	**1610** = 1610 mm
840 = 840 mm	**1680** = 1680 mm
910 = 910 mm	**1750** = 1750 mm
980 = 980 mm	**1820** = 1820 mm
1050 = 1050 mm	

Connection*

P8 = 300 mm pigtail, 8-Pin M12 QD (individual Emitter or Receiver models)

P88 = 300 mm pigtail, 8-Pin M12 QD (on BOTH Emitter and Receiver models)

Blank = no pigtail, RD connection (for RDLS-8..D cordset)

** 5-pin M12 QD options available (**P5** or **P55**)*

Example Model Numbers

SLLE14 – 420P8
Emitter

SLLR14 – 420
Receiver

SLLP14 – 420P88
Pair

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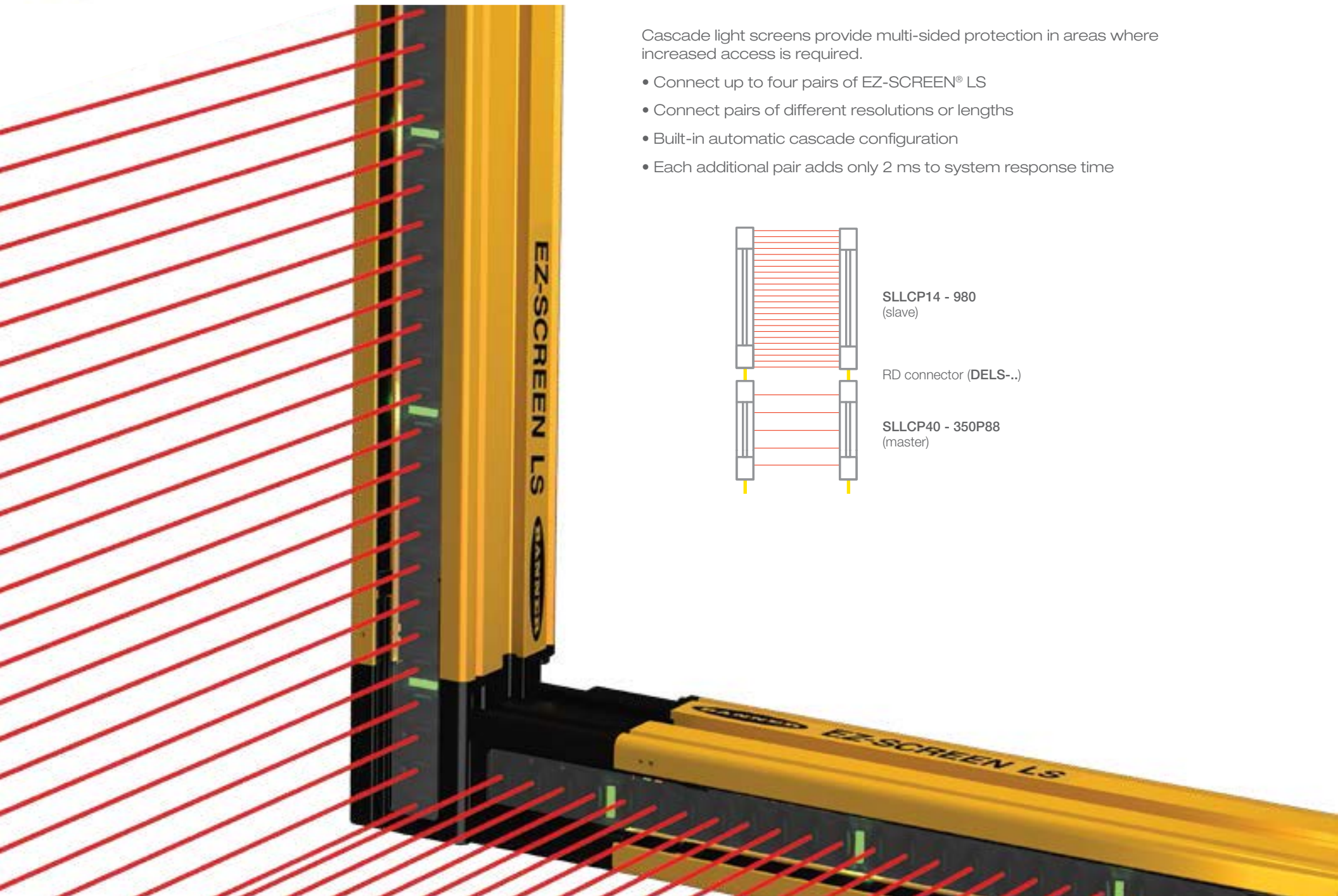
Cascade light screens provide multi-sided protection in areas where increased access is required.

• Connect up to four pairs of EZ-SCREEN® LS

• Connect pairs of different resolutions or lengths

• Built-in automatic cascade configuration

• Each additional pair adds only 2 ms to system response time
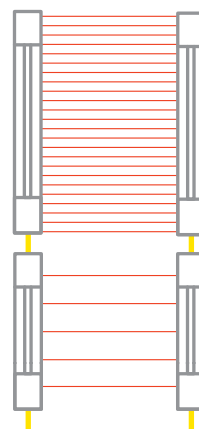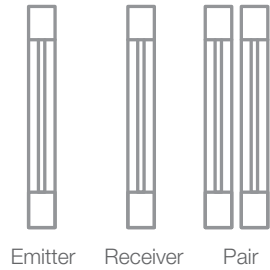
SLLCP14 - 980
(slave)

RD connector (**DELS-..**)
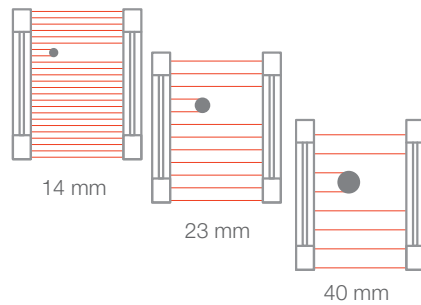
SLLCP40 - 350P88
(master)

Build a Cascade System

- Determine the configuration of the first EZ-SCREEN® LS pair ("master" connected to the machine control)
- Determine the remaining (second, third or fourth) pairs ("slaves" connected to the master using a DELS-.. cordset)
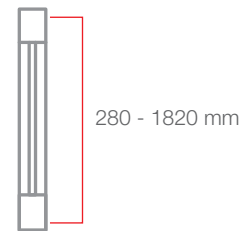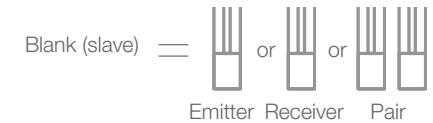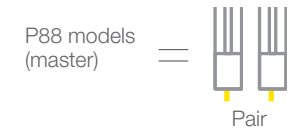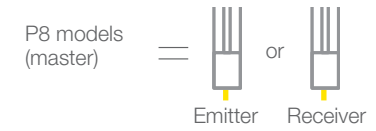
1. Choose one

Emitter   Receiver   Pair

2. Choose your resolution

14 mm

23 mm

40 mm

3. Choose your defined area

280 - 1820 mm

4. Choose your machine interface connection

P8 models (master) = Emitter or Receiver

P88 models (master) = Pair

Blank (slave) = Emitter or Receiver or Pair

Use DELS-.. cordset for connection between cascade pairs

Family	Cascade	System Type	Resolution		Defined Area		Connection
SLL	**C**	**P**	**14**	—	**770**		**P88**

	Cascade	System Type	Resolution	Defined Area		Connection
	C = Cascade	**E** = Emitter only **R** = Receiver only **P** = Pair (Emitter and Receiver)	**14** = 14 mm **23** = 23 mm **40** = 40 mm	**350** = 350 mm **420** = 420 mm **490** = 490 mm **560** = 560 mm **630** = 630 mm **700** = 700 mm **770** = 770 mm **840** = 840 mm **910** = 910 mm **980** = 980 mm **1050** = 1050 mm	**1120** = 1120 mm **1190** = 1190 mm **1260** = 1260 mm **1330** = 1330 mm **1400** = 1400 mm **1470** = 1470 mm **1540** = 1540 mm **1610** = 1610 mm **1680** = 1680 mm **1750** = 1750 mm **1820** = 1820 mm	**P8** = 300 mm pigtail, 8-Pin M12 QD (first individual Emitter or Receiver models) **P88** = 300 mm pigtail, 8-Pin M12 QD (first paired models) **Blank** = no pigtail, RD connection (for middle/end units in cascade)

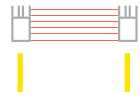** 5-pin M12 QD options available (**P5** or **P55**)*

Example Model Numbers

SLLCP14 - 350
Slave

SLLCP14 - 350P88
Master

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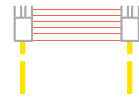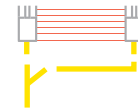
Machine Interface Connections (Stand-Alone and Master Examples)

SLLP.. - ...
with RDLS-8..D

SLLP.. - ...P88
with QDE-8..D

SLLP.. - ...P88 with
CSB-M128..M128.. & DEE2R-8..D

RD Cordsets

RDLS-815D
4.6 m (15.1')
RDLS-850D
15.3 m (50.2')
RDLS-825D
8 m (26.2')

8-Pin M12/ Euro-Style Cordsets

QDE-815D
4.5 m (15')
QDE-850D
15.2 m (50')
QDE-8100D
30.4 m (100')
QDE-825D
7.6 m (25')
QDE-875D
22.8 m (75')

*5-pin M12 QD options available
(QDE-5..D example QDE-515D)*

8-Pin Male M12 to Dual 8-Pin Female M12 Euro-Style Splitter Cordsets

CSB-M1280M1280
No trunk/ no branches
CSB-M1281M1281
0.3 m (1') trunk/ 2 x 0.3 m (1') branches
CSB-M1288M1281
2.44 m (8') trunk/ 2 x 0.3 m (1') branches
CSB-M12815M1281
4.57 m (15') trunk/ 2 x 0.3 m (1') branches
CSB-M12825M1281
7.62 m (25') trunk/ 2 x 0.3 m (1') branches

*Standard cordsets are yellow PVC with black overmold. For black PVC and overmold, add suffix B to the model number
(example CSB-M1280M1280B)*
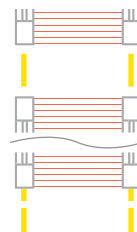
8-Pin M12/ Euro-Style Double-Ended Cordsets

DEE2R-81D
0.3 m (1')
DEE2R-825D
7.6 m (25')
DEE2R-83D
0.9 m (3')
DEE2R-830D
9.1 m (30')
DEE2R-88D
2.5 m (8')
DEE2R-850D
15.2 m (50')
DEE2R-812D
3.6 m (12')
DEE2R-875D
22.9 m (75')
DEE2R-815D
4.6 m (15')
DEE2R-8100D
30.5 m (100')

*RD 5-pin options available
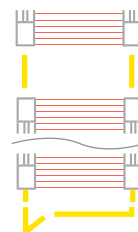(DEE2R-5..D example: DEE2R-51D)*

Cascade System Connections (Master and Slave Examples)
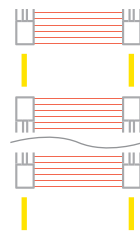
SLLCP.. - ....
with DELS-....E
plus
SLLCP.. - ...
with RDLS-8..D

SLLCP.. -....
with DELS-....E
plus
SLLCP.. - ...P88
with QDE-8..D

SLLCP.. - ....
with DELS-....E
plus
SLLCP.. - ...P88 with
CSB-M128..M128.. & DEE2R-8..D

RD to 8-Pin M12 Euro-Style Cordsets for Remote Fixed Blanking

DELSEF-81D
0.3 m (1')

8-Pin M12 Euro-Style for Panel Connection

PMEF-810D
3 m (10')
(Euro-style connector to 3 m wires, cut to length)

Double-Ended RD to RD Cordsets

DELS-110E
0.05 m (0.2')
DELS-118E
2.5 m (8.2')
DELS-1125E
8 m (26.2')
DELS-111E
0.3 m (1')
DELS-1115E
4.6 m (15.1')
DELS-1150E
15.3 m (50.2')
DELS-113E
1 m (3.3')

Interfacing Options

		Model	Features	Outputs	EZ-SCREEN® LS Connection	Inputs	Power Supply
Safety Controllers		XS26-2	—				
		XS26-2d	display	depends on modules used	RD, P8 (P88), or P5 (P55)	depends on modules used	24 V dc
		XS26-2e	ethernet				
		XS26-2de	display, ethernet				
		SC26-2	—				
		SC26-2d	display	2 pair (4 PNP)	RD, P8 (P88), or P5 (P55)	26 terminals	24 V dc
		SC26-2e	ethernet				
		SC26-2de	display, ethernet				
		SC22-3-S	display				
		SC22-3-SU1	display (programming tool, USB cable)	3 pair (6 PNP)	RD, P8 (P88), or P5 (P55)	22 terminals	24 V dc
		SC22-3E-S	display, ethernet				
		SC22-3E-SU1	display, ethernet (programming tool, USB cable)				
Safety Modules	Monitors solid-state PNP OSSD safety outputs and provides latching (manual reset) function for applications requiring a reset	UM-FA-9A	6 amp redundant contacts	3 NO	RD, P8 (P88), or P5 (P55)	1 redundant	24 V ac/dc
		UM-FA-11A	6 amp redundant contacts	2 NO, 1 NC			
	Muting modules suspend safeguarding during non-hazardous portion of the machine cycle	MMD-TA-11B	terminal connections	2 NO	RD, P8 (P88), or P5 (P55)	2 redundant	24 V dc
		MMD-TA-12B	terminal connections	2 OSSD			
	Interface module monitors solid-state PNP OSSD safety outputs and requires monitoring by External Device Monitoring (EDM)	IM-T-9A	6 amp redundant contacts	3 NO	RD or P8 (P88)	1 redundant	24 V dc
		IM-T-11A	6 amp redundant contacts	2 NO, 1 NC			
Contactors	Two contactors are required for higher levels of safety performance and requires monitoring by External Device Monitoring (EDM).	11-BG00-31-D-024	10 amp positive-guided contactor	3 NO, 1 NC	RD or P8 (P88)	1 per contactor	24 V dc
		BF1801L024	18 amp positive-guided contactor (NC contact rated at 10 amps)	3 NO, 1 NC			

Descriptions for Safety Controllers:
- Expandable safety controller supports up to eight I/O modules and programs easily using icon-based software
- Flexible, efficient safety controller has small footprint and features intuitive, icon-based programming environment
- Completely configurable and flexible safety controller that can easily replace multiple dedicated safety modules

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Operating Conditions	–20 °C to +55 °C (–4 °F to +131 °F) 95% maximum relative humidity (non-condensing)	**Effective Aperture Angle (EAA)**	Meets Type 4 requirements per IEC 61496-2
Environmental Rating	IEC IP65/IEC IP67	**Enclosure**	Extruded aluminum housing with yellow polyester powder finish standard and well-sealed, rugged die-cast zinc end caps, acrylic lens cover
Supply Voltage at the Device	24 V dc ±15% (use a SELV-rated power supply according to EN IEC 60950).The external voltage supply must be capable of buffering brief mains interruptions of 20 ms, as specified in IEC/EN 60204-1.	**Mounting Hardware**	Emitter and receiver each are supplied with a pair of swivel end-mounting brackets (**EZLSA-MBK-11**). Models 980 mm and longer are supplied with an additional center-mount bracket (**EZLSA-MBK-12**) for center support in applications with significant vibration. Mounting brackets are 8-gauge cold-rolled steel, black zinc finish.
Residual Ripple	±10% maximum		
Short Circuit Protection	All inputs and outputs are protected from short circuits to +24 V dc or dc common		
Electrical Safety Class	III (per IEC 61140: 1997)	**Safety Rating**	Type 4 per IEC 61496-1, -2 Category 4 PL e per EN ISO13849-1 SIL3 per IEC 61508; SIL CL3 per IEC 62061
Operating Range	0.1 m to 12 m (4 in to 39 ft) — Range decreases with use of mirrors and/or lens shields: • Lens shields — approx 10% less range per shield • Glass-surface mirrors — approx 8% less range per mirror See the specific mirror datasheet for more information	**Shock and Vibration**	Components have passed vibration and shock tests according to IEC 61496-1. This includes vibration (10 cycles) of 10-55 Hz at 0.35 mm (0.014 in) single amplitude (0.70 mm peak-to-peak) and shock of 10 g for 16 milliseconds (6,000 cycles).
Resolution	14 mm, 23 mm, or 40 mm, depending on model	**Certifications**	CE UL

Accessories

K30LGRXPQ
requires 4-pin QD

K50LGRXPQ
requires 4-pin QD

TL50GRQ
requires 4-pin QD

RD to 4-Pin M12/ Euro-Style Cordsets
Connects indicators to a cascade receiver

DELSEF-40D
0.5 m (0.02')
DELSEF-41D
0.3 m (1')
DELSEF-43D
1 m (3.3')
DELSEF-48D
2.5 m (8.2')
DELSEF-415D
4.6 m (15.1')

EZLSA-K30LGR
Connects directly to SLLCR... cascade receiver

EZLSA-MBK-11
8-ga. black cold-rolled steel (end-mount bracket—two supplied with each sensor)

EZLSA-MBK-16
8-ga. black cold-rolled steel (optional side mount bracket)

EZLSA-MBK-12
8-ga. black cold-rolled steel (center-mount bracket—one supplied with each sensor ≥ 980 mm)

EZLSA-MBK-20
8-ga. black cold-rolled steel (optional end-mount bracket for slotted aluminum framing)

Link to data sheets

Link to catalog

Link to the Banner website
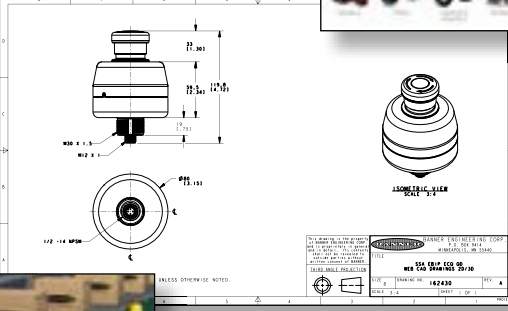
Link to CAD files

Link to videos

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more sensors, more solutions