

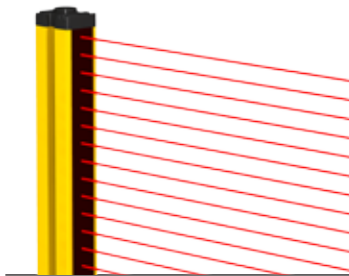


EZ-SCREEN

Safety Light Screens

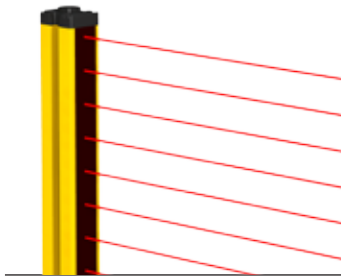
EZ-SCREEN point-of-operation systems provide finger, hand and ankle detection in a robust housing and metal endcaps.

- Operating range up to 18 m
- Displays operating status, configuration error codes, and blocked beams
- Exceeds OSHA/ANSI Control Reliability requirements, certified to cULus NIPF, and CE certified to Type 4, Cat 4 PLe, and SIL3
- Resists impact, twisting, and abusive environments with durable aluminum housing or nickel-plated ESD-safe housing for protection against electrostatic discharges
- Available in 14 or 30 mm resolution
- Cordsets and brackets see page 689



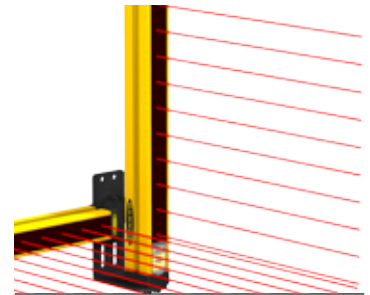
14 mm Resolution

14 mm resolution safety light screens can be used for finger, hand and ankle protection.



30 mm Resolution

30 mm resolution safety light screens can be used for hand and ankle protection.



Cascade

Cascading models allow four systems of any length and resolution to be connected in a series, forming a single safety device.

Some of the Available Finishes



Yellow Painted
Aluminum

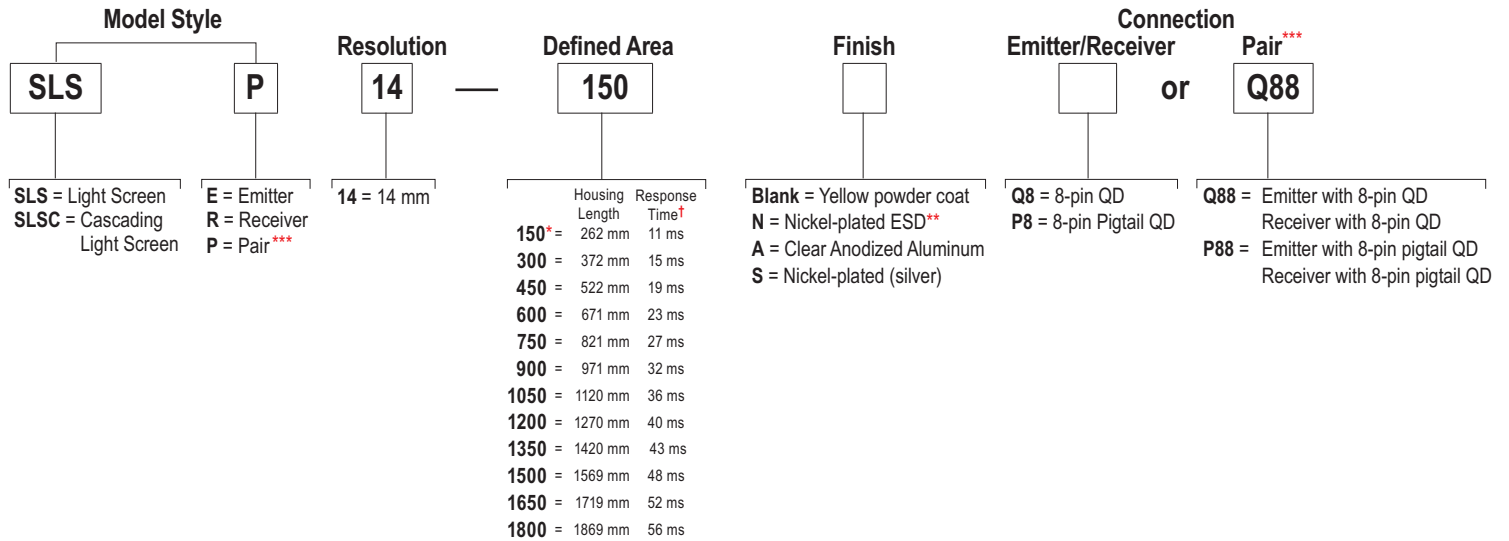


Clear Anodized
Aluminum

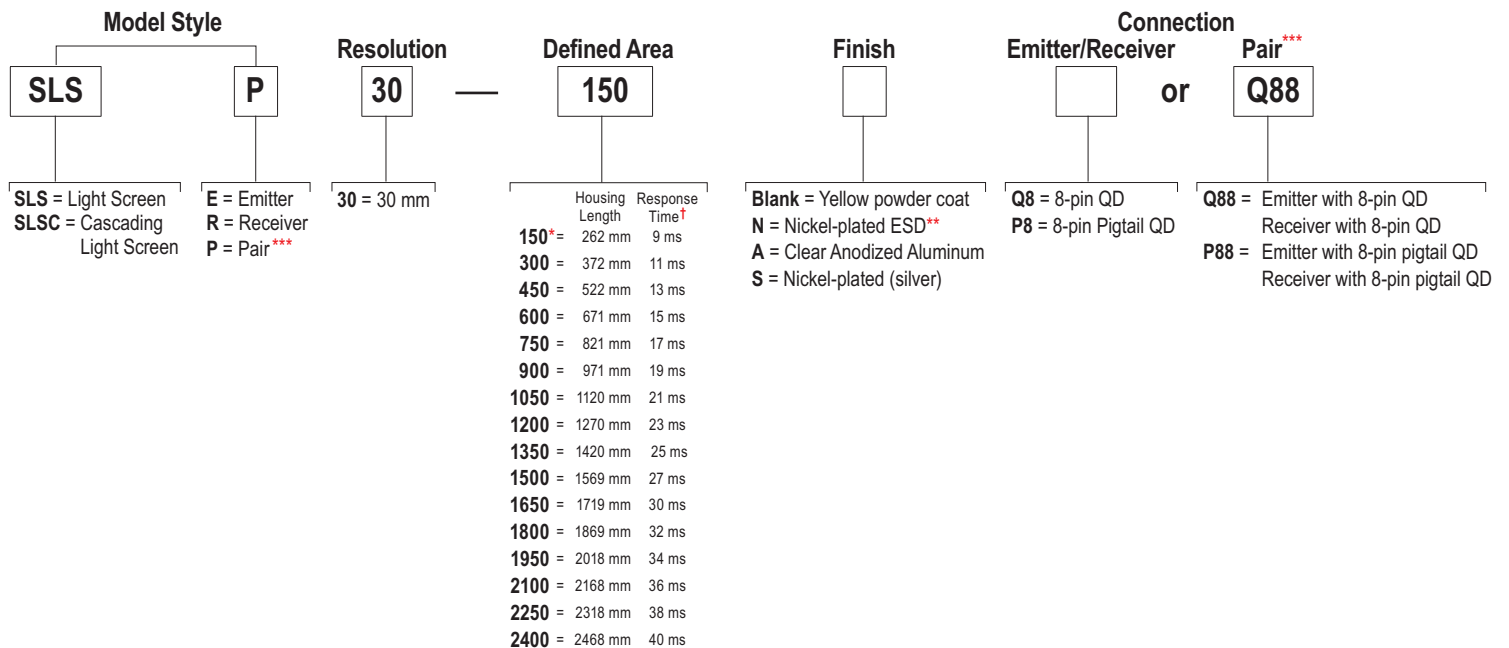


Nickel-Plated
ESD

EZ-SCREEN® Systems, 14 mm Resolution Model Key, 24 V DC Example Model Number **SLSP14-150Q88**



EZ-SCREEN® Systems, 30 mm Resolution Model Key, 24 V DC Example Model Number **SLSP30-150Q88**



For more specifications see page 690.

QD models: A model with a QD requires a mating cordset (see page 689).

For an emitter with TEST function, replace **Q8** with **Q5** on emitter model numbers (example, **SLSE14-150Q5**) and **Q88** with **Q85** on pair model numbers (example, **SLSP14-150Q85**).

For a 5-pin 300 mm M12/Euro pigtail QD with No EDM or TEST functions, replace **Q8** with **P5NT** on emitter or receiver (example, **SLSE14-150P5NT**) and **Q88** with **P55NT** on pair model numbers (example, **SLSP14-150P55NT**).

For a 4-pin 300 mm M12/Euro pigtail QD with no EDM or TEST functions (GND/PE via mounting), replace **Q8** with **P4NT** or **Q88** with **P44NT** (example, **SLSP14-150P4NT** or **SLSP14-150P44NT**).

* 150 mm not available in cascade models

** ESD-safe models are not available with the pigtail QD option

*** A pair includes an emitter and receiver (example, **SLSP30-150Q88**)

† **Cascading system response time:** To the response time of the slowest pair, add 2 ms for each additional pair.
Example: slowest pair's response time is 15 ms, and the system has three additional pairs (four pairs total), so the system maximum response time is 15 ms + 6 ms (3 pairs x 2 ms) = 21 ms.

Contact Banner Engineering Corp. for additional information and/or verification of valid kit model numbers.

Cordsets

Euro QD	
See page 916	
Length	8-Pin QD Straight
4.57 m	QDE-815D
7.62 m	QDE-825D
15.3 m	QDE-850D
22.9 m	QDE-875D
30.5 m	QDE-8100D

Euro QD—Double-Ended	
See page 921	
Length	8-Pin QD Straight
0.31 m	DEE2R-81D
0.91 m	DEE2R-83D
2.44 m	DEE2R-88D
4.57 m	DEE2R-815D
7.62 m	DEE2R-825D
15.3 m	DEE2R-850D
22.9 m	DEE2R-875D
30.5 m	DEE2R-8100D

Euro QD Adaptor*		
See page 917		
Length	8-Pin/4-Pin Straight	8-Pin/5-Pin Straight
0.31 m	DEE8-41D	DEE8-51D
2.44 m	DEE8-48D	DEE8-58D
4.57 m	DEE8-415D	DEE8-515D
7.62 m	DEE8-425D	DEE8-525D

Euro QD Splitter	
See page 919	
Length	5-Pin QD Straight
0 m	CSB-M1280M1280
0.30 m	CSB-M1281M1281
2.50 m	CSB-M1288M1281
4.60 m	CSB-M12815M1281
7.60 m	CSB-M12825M1281
7.60 m	CSB-UNT825M1281

Additional cordset information available. See page 904.

* For SLS/SLP sensors with Q8 or P8 connection to safety BUS gateway/node, "smart" self-monitored safety module, safety controller or safety PLC see page 917.

NOTE: See page 705 for interfacing solutions. Additional accessories are listed on page 844.

Brackets

14 & 30 mm		Cascade	
See page 894	See page 894	See page 895	See page 895
EZA-MBK-12*	EZA-MBK-11*	EZA-MBK-20	EZA-MBK-21

Additional brackets and information available. See page 846.

* Standard brackets included with emitter/receiver.

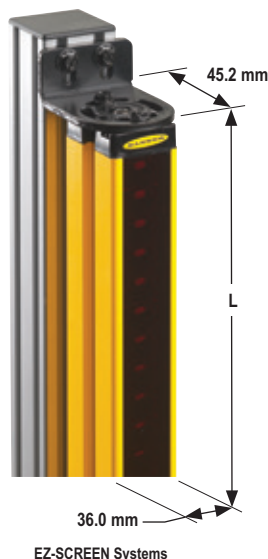
Other Accessories

Stands	Mirrors	Interface
See page 952	See page 956	See page 705

Replacement Parts

Model	Description
EZA-ADE-1	Copolyester access cover with label for 14 or 30 mm resolution emitters
EZA-ADE-2	Copolyester access cover with inverted label for 14 or 30 mm resolution emitters
EZA-ADR-1	Copolyester access cover with label for 14 or 30 mm resolution receiver
EZA-ADR-2	Copolyester access cover with inverted label for 14 or 30 mm resolution receiver
EZA-MBK-12	Center bracket kit (includes 1 bracket and hardware to mount to MSA Series stands) for 14 or 30 mm resolution EZ-SCREEN
EZA-MBK-11	Standard bracket kit with hardware (includes 2 end brackets and hardware to mount to MSA Series stands) for 14 or 30 mm resolution EZ-SCREEN
EZA-TP-1	Access cover security plate (includes 2 screws, wrench) for 14 or 30 mm resolution EZ-SCREEN
EZA-RR-1	External normally open reset switch with 8-pin/M12 Euro-style QD
MGA-K-1	Replacement key for switch MGA-KS0-1
MGA-KS0-1	Panel-mount keyed normally open reset switch
EZA-HK-1	Wrench, Security
EZA-RTP-1	Terminator plug for cascade receiver
STP-13	14 mm test piece (14 mm resolution systems)
STP-14	30 mm test piece (14 mm resolution systems with 2-beam Reduced Resolution and for 30 mm resolution systems)
STP-15	60 mm test piece (30 mm resolution systems with 2-beam Reduced Resolution)



NOTE: See Installation manual p/n 112852 for complete list of replacement parts and accessories.



EZ-SCREEN® 14 & 30 mm Resolution and V-Series Specifications

Supply Voltage at the Device	24 V dc \pm 15% (use a SELV-rated supply according to EN IEC 60950) (The external voltage supply must be capable of buffering brief mains interruptions of 20 ms, as specified in EN/IEC 60204-1.)										
Residual Ripple	\pm 10% maximum										
Supply Current	Emitter: 100 mA max., 40 mA at 24 V dc typical Receiver: 275 mA max., 160 mA at 24 V dc typical, exclusive of OSSD1 and OSSD2 loads (up to an additional 0.5A each) and AUX output load (up to 75 mA)										
Response Time	9 to 56 milliseconds (see model number tables) Cascade Safety Stop Interface (CSSI): 40 milliseconds max.										
Remote Test Input (Optional – available only on model SLSE...Q5 emitters)	Test Mode is activated either by applying a low signal (less than 3 V dc) to emitter TEST #1 terminal for a minimum of 50 milliseconds, or by opening a switch connected between TEST #1 and TEST #2 for a minimum of 50 milliseconds. Beam scanning stops to simulate a blocked condition. A high signal at TEST #1 deactivates Test Mode. High signal: 10 to 30 V dc Low signal: 0 to 3 V dc Input current: 35 mA inrush, 10 mA max.										
Wavelength of Emitter Elements	Infrared LEDs, 950 nm at peak emission										
Recovery Time–Blocked to clear (OSSDs turn ON; varies with total number of sensing beams and whether Sync beam is blocked)	<table border="1"> <thead> <tr> <th></th> <th>Beam 1 (Sync Beam)</th> <th>All Other Beams</th> </tr> </thead> <tbody> <tr> <td>14 mm Models</td> <td>109 to 800 ms</td> <td>33 to 220 ms</td> </tr> <tr> <td>30 mm Models</td> <td>81 to 495 ms</td> <td>25 to 152 ms</td> </tr> </tbody> </table>			Beam 1 (Sync Beam)	All Other Beams	14 mm Models	109 to 800 ms	33 to 220 ms	30 mm Models	81 to 495 ms	25 to 152 ms
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14 mm Models	109 to 800 ms	33 to 220 ms									
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EDM Input	+24 V dc signals from external device contacts can be monitored (one-channel, two-channel or no monitoring) via EDM1 and EDM2 terminals in the receiver High signal: 10 to 30 V dc at 30 mA typical Low signal: 0 to 3 V dc										
Reset Input	The Reset input must be high for 0.25 to 2 seconds and then low to reset the receiver High signal: 10 to 30 V dc at 30 mA typical Low signal: 0 to 3 V dc Closed switch time: 0.25 to 2 sec										
Safety Outputs (OSSDs)	Two redundant solid-state 24 V dc, 0.5 A max. sourcing OSSD (Output Signal Switching Device) safety outputs. (Use optional interface modules for ac or larger dc loads.) Capable of the Banner "Safety Handshake" ON-State voltage: \geq V_{in} -1.5 V dc OFF-State voltage: 1.2 V dc max. (0-1.2 V dc) Max. load capacitance: 1.0 μ F Max. load inductance: 10 H Leakage current: 0.50 mA maximum Cable resistance: 10 Ω maximum OSSD test pulse width: 100 to 300 microseconds OSSD test pulse period: 10 to 27 milliseconds (varies with number of beams) Switching current: 0-0.5 A										
Auxiliary (Aux.) Output Switching Capacity	Current-sourcing (PNP) solid-state output, 24 V dc at 75mA max that follow the safety outputs (lockout function optional)										

EZ-SCREEN® 14 & 30 mm Resolution and V-Series Specifications (cont'd)

Controls and Adjustments	<p>Emitter: Scan Code selection: 2-position switch (code 1 or 2). Factory default position is code 1</p> <p>Receiver: Scan Code selection: 2-position switch (code 1 or 2). Factory default position is code 1 Trip/Latch Output selection: Redundant switches. Factory default position is T (Trip). EDM/MPCE monitor selection: 2-position switch selects between 1- or 2-channel monitoring Factory default position is 2 Reduced Resolution (2-beam Floating Blanking): Redundant switches. Factory default is OFF</p>
Short Circuit Protection	All inputs and outputs are protected from short circuits to +24 V dc or dc common
Electrical Safety Class (IEC 61140)	III
Operating Range	<p>14 mm models: 0.1 m to 6 m 30 mm models: 0.1 m to 18 m</p> <p>Range decreases with use of mirrors and/or lens shields: Lens shields – approximately 10% less range per shield Glass-surface mirrors – approximately 8% less range per mirror See Accessory section for more information on a specific mirror, page 690.</p>
Ambient Light Immunity	> 10,000 lux at 5° angle of incidence
Strobe Light Immunity	Totally immune to one Federal Signal Corp. "Fireball" model FB2PST strobe
Effective Aperture Angle (EAA)	Meets Type 4 requirements per IEC 61496-2, ± 2.5° @ 3 m
Enclosure	<p>Materials: Extruded aluminum housing with yellow polyester powder (optional black or white or nickel-plated silver finish) and well-sealed, rugged die-cast zinc end caps, acrylic lens cover, copolyester access cover. Endcaps on silver models are also nickel-plated.</p> <p>Rating: IP65</p>
Operating Conditions	<p>Temperature: 0° to +55° C Relative humidity: 95% (non-condensing)</p>
Status Indicators	<p>Emitter: One Bi-color (Red/Green) Status Indicator – indicates operating mode, Lockout or power OFF condition 7-segment Diagnostic Indicator (1 digit) – indicates proper operation, scan code or error code</p> <p>Receiver: Yellow Reset Indicator – indicates whether system is ready for operation or requires a reset Bi-Color (Red/Green) Status Indicator – indicates general system and output status Bi-Color (Red/Green) Zone Status Indicators – indicates condition (clear or blocked beam) of a defined group of beams 7-Segment Diagnostic Indicator (3-digit) – indicates proper operation, scan code or error code, total number of blocked beams</p>
Mounting Hardware	Emitter and receiver each are supplied with a pair of swivel end-mounting brackets. Models longer than 900 mm also include a swivel center-mount bracket. Mounting brackets are 8-gauge cold-rolled steel, black zinc finish.
Shock and Vibration	EZ-SCREEN 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 single amplitude (0.70 mm peak-to-peak) and shock of 10 g for 16 milliseconds (6,000 cycles).
Design Standards	Designed to comply with Type 4 per IEC 61496; Category 4 PLe per EN ISO 13849-1; SIL 3 per IEC 61508, SIL CL 3 per IEC 62061; Type 4 per UL 61496-1/-2
Certifications	 
Wiring Diagrams	WD001, WD003, WD004, WD005, WD006, WD007, WD013, WD014, WD015, WD016, WD017, WD018, WD019 (p. 1008)