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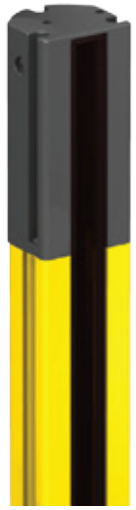

EZ-SCREEN Low-Profile (LP) with Muting

Type 4 Safety Light Screens

The EZ-SCREEN® with Muting has a built-in muting function with no third box required.

- Eight pre-defined muting configuration options including Bypass, Mute-Dependent Override, Mute Enable, and Mute-cycle time extensions (four seconds) for "L"-style cell exit applications
- Mute Lamp and Status Outputs to EZ-LIGHT (or other indicating devices)
- Lower power consumption allows for energy savings and fewer/smaller power supplies
- Exceeds OSHA/ANSI Control Reliability requirements, certified to cTUVus, and CE certiffed to Type 4, Cat 4 PLe, and SIL 3
- Cordsets and brackets see page 696

EZ-SCREEN® Low-Profile with Muting Systems, 14 and 25 mm Resolution Model Key, 24 V DC

Example Model Number **SLPMP14-410P128**

Model Style [SLPMP] — **Resolution** [14] — **Defined Area** [410] — **Finish** [ ] — **Emitter/Receiver** [ ] or **Connection Pair*** [P128]

Model Style

- **SLPE** = Emitter
- **SLPMR** = Muting Receiver
- **SLPMP** = Muting LP Pair

Resolution

- **14** = 14 mm
- **25** = 25 mm

Defined Area

	Housing Length	Response Time(14 mm)	Response Time(25 mm)
410 =	410 mm	13.5 ms	9.5 ms
550 =	549 mm	16.5 ms	111 ms
690 =	689 mm	19.5 ms	12.5 ms
830 =	829 mm	22.5 ms	14 ms
970 =	969 mm	25.5 ms	15.5 ms
1110 =	1108 mm	28.5 ms	17 ms
1250 =	1248 mm	31.5 ms	18.5 ms
1390 =	1388 mm	34.5 ms	20 ms
1530 =	1528 mm	37.5 ms	21 ms
1670 =	1667 mm	40.5 ms	22.5 ms
1810 =	1807 mm	43.5. ms	24 ms

Finish

- **Blank** = Yellow powder coat
- **N** = Nickel-plated ESD
- **A** = Clear Anodized Aluminum

Emitter/Receiver

- **Blank** = Integral RD
- **P8** = 8-pin Pigtail QD (SLP Emitter)
- **P12** = 12-pin Pigtail QD (SLPM Receiver)

Connection Pair*

- **Blank** = Receiver with Integral RD Emitter with Integral RD
- **P128** = Emitter with 8-pin pigtail QD Receiver with 12-pin pigtail QD (SLPM Receiver)

RD = Removable disconnect

For more specifications see page 698.

QD models: A model with a QD requires a mating cordset (see page 696).

QD models: Pigtail QD models require mating cordsets with an 8 or 12-pin M12/Euro-style connector (such as **QDE-8..D**, **QDE-12..E**, **DEE2R-8..D**; see page 696).
Integral RD models require mating cordsets with a removable disconnect connector (such as **RDLP-8..D** or **RDLP-11..E**; see page 696).

* A pair includes an emitter and receiver (example, **SLPMP14-410P128**)

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

EZ-SCREEN® Low-Profile 14 & 25 mm Resolution Specifications

Supply Voltage at the Device	24 V dc ±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 milliseconds, as specified in EN IEC 60204-1.)
Residual Ripple	± 10% maximum
Supply Current	**Emitter:** 60 mA max., exclusive of fault load **Receiver:** 150 mA max., exclusive of OSSD1 and OSSD2 loads (up to an additional 0.5A each) and Aux Output load (up to an additional 0.25A)
Response Time	8 to 43.5 milliseconds (see model number tables) **Cascade safety stop interface (CSSI):** 40 milliseconds max. (contacts must be open for 60 milliseconds min.)
Remote Test Input	Test mode is activated either by applying a low signal (less than 3 V dc) to emitter Test/Reset terminal for a minimum of 50 milliseconds, or by opening a switch connected between Test/Reset and 24 V dc for a minimum of 50 milliseconds. Beam scanning stops to simulate a blocked condition. A high signal at Test/Reset 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, 850 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)	

	Beam 1 (Sync Beam)	All Other Beams
14 mm Models	109 to 800 ms	33 to 220 ms
25 mm Models	81 to 495 ms	25 to 152 ms

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 seconds
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:** ≥ Vin-1.5 V dc **OFF-State voltage:** 1.2 V dc max. (0-1.2 V dc) **Max. load capacitance:** 1.0 µF **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 22 milliseconds (varies with number of beams) **Switching Current:** 0-0.5 A
Auxiliary (Aux.)/Fault Output Switching Capacity	Current-sourcing (PNP) Solid-state output, 24 V dc at 250 mA max. that follow safety outputs or lock out status (configurable)
External Remote Indicator Outputs (SLPMR models only)	Current sourcing (PNP), solid-state, 24 V dc outputs for the connection of remote indicator lamps such as EZ-LIGHTs. See EZ-LIGHT™ for EZ-SCREEN® Low Profile with Muting in manual 150216 for compatible EZ-LIGHTs and associated cordsets. **Rated Current**: 100 mA maximum at 24 V dc
Controls and Adjustments	**Emitter:** **Scan Code selection:** 2-position switch (code 1 or 2). Factory default position is code 1. **Test/Reset:** 2-position switch. Factory default position is Reset. **Invert Display:** 2-position switch. Factory default position is OFF (Standard display). **Fault:** 2-position switch. Factory default position is OFF. **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-channel monitoring. (SLPMR models: 1-channel monitoring only) **Mute Lamp Monitoring**: ON/OFF switch. Factory default position is ON (SLPMR models only) **Reduced Resolution:** Redundant switches. Factory default position is OFF. **Aux/Fault:** 2-position switch. Factory default position is Aux. **Invert Display:** 2-position switch. Factory default position is OFF.
Short Circuit Protection	All inputs and outputs are protected from short circuits to +24 V dc or dc common

EZ-SCREEN® Low-Profile 14 & 25 mm Resolution Specifications (cont'd)

Electrical Safety Class (IEC 61140)	III
Operating Range	0.1 to 7 m 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 the Accessory section for more information on a specific mirror page 956, for further information.
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	**Materials:** Extruded aluminum housing with yellow polyester powder finish standard (optional clear anodized aluminum or nickel-plated silver finish) and well-sealed, rugged die-cast zinc end caps, acrylic lens cover, copolyester access cover. End caps on silver models are also nickel-plated. ESD-safe models have static-dissipative acrylic lens cover. **Rating:** IP65
Operating Conditions	**Temperature:** 0° to +55° C **Max. Relative Humidity:** 95% maximum relative humidity (non-condensing)
Status Indicators	**Emitter:** **One Bicolor (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 **Receiver:** **Yellow Reset indicator** – indicates whether system is ready for operation or requires a reset **Bicolor (Red/Green) Status indicator** – indicates general system and output status **Bicolor (Red/Green) Zone Status indicators** – indicate condition (clear or blocked beam) of a defined group of beams **7-Segment Diagnostic indicator (1 digit)** – indicates proper operation, scan code, or error code, total number of blocked beams **Yellow Mute Device Input Indicators** – indicates status of mute device inputs (SLPMR models only)
Mounting Hardware	Emitter and receiver each are supplied with a pair of swivel end-mounting brackets and two swivel side-mounting brackets. Models longer than 690 mm also include one or more additional side-mount brackets for center support.
Shock and Vibration	EZ-SCREEN LP 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 61496-1/-2; Category 4 PLe per EN ISO 13849-1; SIL 3 per IEC 61508, SIL CL3 per IEC 62061
Certifications	CE TUV Rheinland of North America, a Nationally Recognized Test Laboratory (NRTL) in the United States according to OSHA 29 CFR 1910.7, and accredited by the Standards Council of Canada to test and certify products to Canadian National Standards, has certified the EZ-SCREEN Low Profile to all applicable U.S. and Canadian National Standards. The cTUVus mark is recognized throughout the United States and Canada by OSHA and the SCC. C US Actual certification mark on EZ-SCREEN Low Profile product labels. This simplified certification mark is used on the product labels due to limited space.
Wiring Diagrams	WD002, WD003, WD004, WD005, WD006, WD007, WD013, WD014, WD015, WD016, WD017, WD018, WD019 (p. 1008)