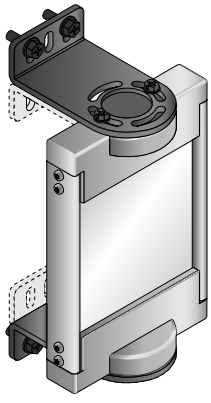
# Datasheet

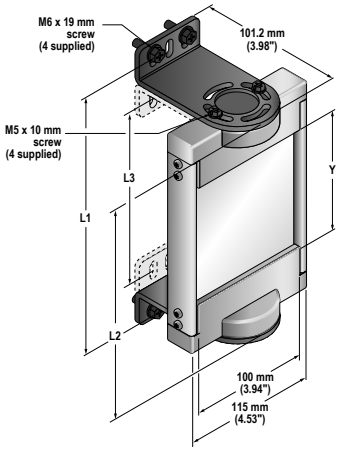
*For use with Banner Safety Light Screen and Safety Light Grid Systems*



- Allows guarding of multi-sided applications with one emitter and receiver pair
- Sturdy, robust construction
- Extra width for use with long-range optical safety systems
- Safety glass reflective surface provides 85 percent reflectivity (equal to MSM Series corner mirrors)
- Black anodized aluminum extrusion and molded PBT end caps
- Mounts easily to MSA Series stands or other surfaces
- Available in 18 lengths

## Models

| Mirror Model | Reflective Area Length (Y) | Mounting Height (L1)[1] | Overall Height (L2) | Max. Light Screen Defined Area Height |
|---|---|---|---|---|
| **SSM-100** | 100 mm (3.9 in) | 211 mm (8.3 in) | 178 mm (7.0 in) | 50 mm (1.9 in) |
| **SSM-200** | 200 mm (7.9 in) | 311 mm (12.2 in) | 278 mm (10.9 in) | 150 mm (5.9 in) |
| **SSM-375** | 375 mm (14.8 in) | 486 mm (19.1 in) | 453 mm (17.8 in) | 325 mm (12.8 in) |
| **SSM-475** | 475 mm (18.7 in) | 586 mm (23.1 in) | 553 mm (21.8 in) | 425 mm (16.7 in) |
| **SSM-550** | 550 mm (21.7 in) | 661 mm (26.0 in) | 628 mm (24.7 in) | 500 mm (19.7 in) |
| **SSM-675** | 675 mm (26.6 in) | 786 mm (31.0 in) | 753 mm (29.6 in) | 625 mm (24.6 in) |
| **SSM-825** | 825 mm (32.5 in) | 936 mm (36.9 in) | 903 mm (35.6 in) | 775 mm (30.5 in) |
| **SSM-875** | 875 mm (34.4 in) | 986 mm (38.8 in) | 953 mm (37.5 in) | 825 mm (32.5 in) |
| **SSM-975** | 975 mm (38.4 in) | 1086 mm (42.8 in) | 1053 mm (41.5 in) | 925 mm (36.4 in) |
| **SSM-1100** | 1100 mm (43.3 in) | 1211 mm (47.7 in) | 1178 mm (46.4 in) | 1050 mm (41.3 in) |
| **SSM-1175** | 1175 mm (46.3 in) | 1286 mm (50.6 in) | 1253 mm (49.3 in) | 1125 mm (44.3 in) |
| **SSM-1275** | 1275 mm (50.2 in) | 1386 mm (54.6 in) | 1353 mm (53.3 in) | 1225 mm (48.2 in) |
| **SSM-1400** | 1400 mm (55.1 in) | 1511 mm (59.5 in) | 1478 mm (58.2 in) | 1350 mm (53.1 in) |
| **SSM-1475** | 1475 mm (58.1 in) | 1586 mm (62.5 in) | 1553 mm (61.1 in) | 1425 mm (56.1 in) |
| **SSM-1550** | 1550 mm (61.0 in) | 1661 mm (65.4 in) | 1628 mm (64.1 in) | 1500 mm (59.1 in) |
| **SSM-1675** | 1675 mm (65.9 in) | 1786 mm (70.3 in) | 1753 mm (69.0 in) | 1625 mm (63.9 in) |
| **SSM-1750** | 1750 mm (68.9 in) | 1861 mm (73.3 in) | 1828 mm (72.0 in) | 1700 mm (66.9 in) |
| **SSM-1900** | 1900 mm (74.8 in) | 2011 mm (79.2 in) | 1978 mm (77.9 in) | 1850 mm (72.8 in) |




[1] The mounting brackets may be inverted from the positions shown at left (flanges pointing “inward” instead of “outward,” as shown). When this is done, dimension L1 decreases by 58 mm (2.3 inches).

Original Instructions
04-Apr-25

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61934
p/n: 61934 Rev. D

ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

# Overview

Banner SSM Series corner mirrors are designed for use with Banner Safety Light Screen systems and other optical safety systems, including the SGS Safety Grid System. They enable guarding along more than one side of an area using only one emitter/receiver pair.

SSM Series mirrors are compact and extremely robust to withstand industrial environments. Brackets are included for quick and easy mounting. Once mounted, a unique mirror end cap design allows rotation of the mirror to any angle. Each mirror is supplied with two mounting brackets and associated hardware.

The rear-surface glass mirrors are rated at 85 percent efficiency.

SSM Series mirrors are available in 18 lengths. SSM Series mirrors may be used with light screen sensors up to 1900 mm long. The mirror height (Y) should be a minimum of 50 mm longer than the distance between the top and bottom beams.

| SSM Models | Light Curtain Series | | | | | |
|---|---|---|---|---|---|---|
| | SLS | S4B | LP | LS | Type 2 | SGS |
| **SSM-100** | | | | | | |
| **SSM-200** | 150 | | | | 150 | |
| **SSM-375** | 300 | 300 | 270 | 280 | 300 | |
| **SSM-475** | | | 410 | 350/420 | | |
| **SSM-550** | 450 | 450 | | 490 | 450 | 2–500 |
| **SSM-675** | 600 | 600 | 550 | 560/630 | 600 | |
| **SSM-825** | 750 | 750 | 690 | 700/770 | 750 | |
| **SSM-875** | | | 830 | 840 | | 3–400 |
| **SSM-975** | 900 | 900 | | 910 | 900 | 4–300 |
| **SSM-1100** | 1050 | 1050 | 970 | 980/1050 | 1050 | |
| **SSM-1175** | | | 1110 | 1120 | | |
| **SSM-1275** | 1200 | 1200 | | 1190 | 1200 | 4–400 |
| **SSM-1400** | 1350 | 1350 | 1250 | 1260/1330 | 1350 | |
| **SSM-1475** | | | 1390 | 1400 | | |
| **SSM-1550** | 1500 | 1500 | | 1470 | 1500 | |
| **SSM-1675** | | | 1530 | 1540/1610 | | |
| **SSM-1750** | 1650 | 1650 | 1670 | 1680 | | |
| **SSM-1900** | 1800 | 1800 | 1810 | 1750/1820 | | |

Mirrors should be securely mounted to a solid surface that is free from vibration. Mirrors must be mounted parallel to their sensors, with the midpoint of the mirror(s) directly in line with the midpoint of the sensor’s defined area.

MSA Series stands may be used to mount SSM Series mirrors (requires adapter kit EZA-MBK-2, p/n 38722, sold separately). These stands offer an extruded channel design for convenient mirror (or sensor) height adjustment. See datasheet p/n 43687 for complete information. Several stand heights are available.

| Stand Model | Stand Height (inches) | Mirror Length | |
|---|---|---|---|
| | | Brackets Outward | Brackets Inward |
| **MSA-S24-1** | 24 | 100 mm to 250 mm | 100 mm to 375 mm |
| **MSA-S42-1** | 42 | 100 mm to 675 mm | 100 mm to 825 mm |
| **MSA-S66-1** | 66 | 100 mm to 1275 mm | 100 mm to 1275 mm |
| **MSA-S84-1** | 84 | 100 mm to 1675 mm | 100 mm to 1900 mm |

# Specifications

### Construction

Mirror: Safety glass; rear-surface mirror

Mirror Frame: Molded PBT end caps; rigid aluminum extrusion

Bracket: Cold-rolled steel; black zinc chromate finish

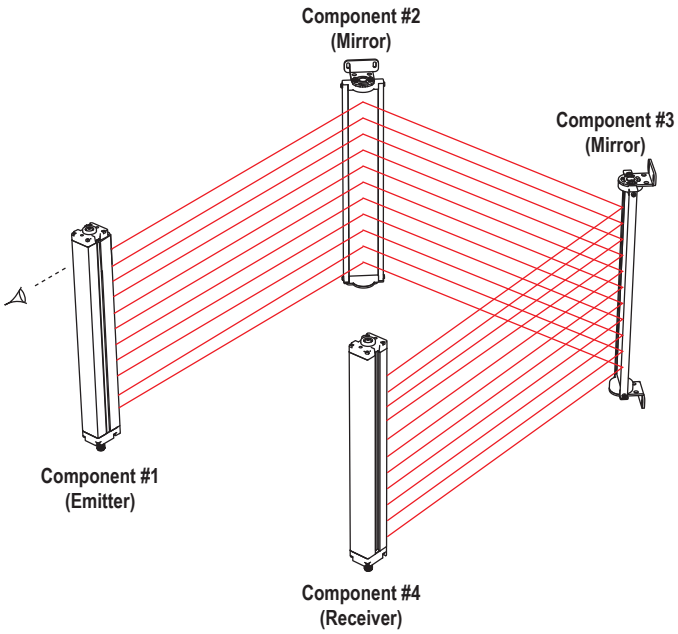
### Maintenance

Clean with a mild glass cleaning solution and a soft cloth


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# Aligning Sensors and Corner Mirrors

*Corner Mirror Alignment*




Mount the mirror(s) and the sensors so that they are all parallel. Use a level, if possible. Adjust the position of the sensors and the mirror(s) so that the midpoints of the mirror(s) and the sensors' defined areas are even. (A line connecting the midpoint of all components is illustrated by the dashed line in the drawing.) The midpoint of the defined area of a light curtain system can be determined by referring to the dimensions of the light curtain in its instruction manual.

Adjust the corner mirror(s) so that the angle of incidence to the mirrors equals the angle of reflection from the mirror. Sight from behind one of the sensors directly towards the mirror (or the first mirror in line). When alignment is correct, you will see the straight and centered reflection of the lens of the other sensor in the mirror.

Use the alignment indicator(s) of the safety light screen system (and the appropriate instruction manual) for final alignment.

# Range Reduction Using Corner Mirrors

Use of corner mirrors reduces light curtain range (the maximum separation between the emitter and receiver). The following table lists the resultant range when using from one to four corner mirrors in the sensing path.

*Light Curtain Maximum Range*

| Light Curtain Series | 0 Mirrors | 1 Mirror | 2 Mirrors | 3 Mirrors | 4 Mirrors |
|---|---|---|---|---|---|
| EZ-SCREEN® LP Basic (SLPVA) | 4 m (13 ft) | 3.7 m (12.1 ft) | 3.4 m (11.2 ft) | 3.1 ft m (10.3 ft) | 2.8 m (9.2 ft) |
| 14 mm EZ-SCREEN® (SLS) | 6 m (20 ft) | 5.6 m (18.4 ft) | 5.2 m (17.0 ft) | 4.8 m (15.7 ft) | 4.4 m (14.5 ft) |
| EZ-SCREEN® LP (SLP) | 7 m (23 ft) | 6.5 m (21.2 ft) | 6.0 m (19.5 ft) | 5.5 m (18.0 ft) | 5.1 m (16.6 ft) |
| EZ-SCREEN® LS Basic (SLLV) | 8 m (26.2 ft) | 7.4 m (24.3 ft) | 6.8 m (22.3 ft) | 6.2 m (20.3 ft) | 5.7 m (18.7 ft) |
| EZ-SCREEN® LS (SLL) | 12 m (39 ft) | 11 m (36 ft) | 10.1 m (33 ft) | 9.3 m (30.5 ft) | 8.6 m (28 ft) |
| S4B Safety Light Curtain | 12 m (39 ft) | 11 m (36 ft) | 10.1 m (33 ft) | 9.3 m (30.5 ft) | 8.6 m (28 ft) |
| EZ-SCREEN® Type 2 (LS2) | 15 m (50 ft) | 13.8 m (45 ft) | 12.7 m (42 ft) | 11.7 m (38 ft) | 10.8 m (35 ft) |
| 30 mm EZ-SCREEN® (SLS) | 18 m (60 ft) | 16.8 m (55 ft) | 15.5 m (51 ft) | 14.3 m (47 ft) | 13.1 m (43 ft) |
| SGS Safety Grid System - Standard Range | 30 m (98 ft) | 27.6 m (90.6 ft) | 25.4 m (83.3 ft) | 23.4 m (76.8 ft) | 21.5 m (70.5 ft) |
| SGS Safety Grid System - Long Range | 60 m (197 ft) | 55.2 m (181 ft) | 50.8 m (166.7 ft) | 46.7 m (153.2 ft) | 42.9 m (140.9 ft) |
| SGS Safety Grid System - Active/Passive | 8 m (26.2 ft) | 7.4 m (24.3 ft) | 6.8 m (22.3 ft) | 6.2 m (20.3 ft) | 5.7 m (18.7 ft) |
| SGS Safety Grid System - Active/Passive | 6.5 m (21.2 ft) | 6 m (19.5 ft) | 5.5 m (18.0 ft) | 5.1 m (16.6 ft) | 4.7 m (15.4 ft) |

Maximized excess gain is always important when installing a safety light curtain. Use hard guarding whenever possible to reduce the overall sensing range and the number of mirrors required. Also, keep sensor lenses and mirrors clean and properly aligned.

# Excess Gain

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Excess Gain = Maximum Range² ÷ Separation Distance²
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Given the range, excess gain can be calculated for any distance by using the inverse square law. For example, the excess gain for a 12 m range EZ-SCREEN LS system at 3 m separation, using two corner mirrors, is calculated as follows:


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`E.G. ÷ 1x = 10.1² ÷ 3² = 11.3`

`E.G. = (1x)(11.3) = 11.3x`

| Excess Gain Value Guidelines | |
|---|---|
| **Maximum Excess Gain Required** | **Operation Environment** |
| 1.5x | Clean air: no dirt buildup on lenses or mirrors |
| 5x | Slightly dirty: slight buildup of dust, dirt, oil, moisture, etc. on lenses or mirrors. Lenses and mirrors cleaned on a regular schedule. |
| 10x | Moderately dirty: obvious contamination on lenses or mirrors (but not obscured). Lenses and mirrors cleaned occasionally or when necessary. |
| 50x | Very dirty: heavy contamination on lenses and mirrors. Heavy fog, mist, dust, smoke, or oil film. Minimal cleaning of lenses and mirrors. |

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