# Features



Banner's LED Strip Lights have sturdy aluminum housings, shatterproof windows, and impressive environmental ratings, making them an ideal general-purpose LED light for machine, enclosure, or other industrial lighting applications.

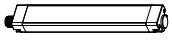
- Intensity can be controlled from 0 to 100% using Pulse Width Modulation (PWM) on an input control wire
- Low-profile, space-saving design
- Rugged, water-resistant IP69K option
- Available in eight lengths from 145 mm to 1130 mm
- Lensed models or choice of clear or diffuse window
- Daisy chain power to multiple lights to control intensity simultaneously
- Optional snap clips for easy installation and repositioning
- Automatic temperature protection built into the unit. Above 50 °C, the light dims to manage heat and protect product lifetime



For PWM dimming, use with the LC65 Dimmer Module. For more information, refer to the LC65 LED Dimmer Module datasheet, p/n 177086.



**Stand-Alone Light—cable**



**Stand-Alone Light or End Light in a Cascade—QD**



**First Light in a Cascade—cable**



**First or Middle of a Cascade—QD**

WLS28-2 Work Light Strips are available as either stand-alone models, or as cascade models that can be "daisy-chained" together for a continuous length of lighting, with a minimum of wiring.

Stand-alone models have cable or male QD fitting at one end for power connection, no connections at opposite end. A stand-alone model may be used as the last in the cascade series.

Cascade models have cable or male QD fitting at one end for power connection, female QD fitting at opposite end for connection to other lights in the cascade. Cascade models with cable end can only be used as the first light in the cascade series. A double-ended accessory cordset must be used between each pair of lights in a cascade.

**IMPORTANT:** Read the following instructions before operating the light. Please download the complete WLS28-2 LED Strip Light - PWM Dimmable technical documentation, available in multiple languages, from www.bannerengineering.com for details on the proper use, applications, Warnings, and installation instructions of this device.

**IMPORTANT:** Lea el siguiente instructivo antes de operar el luminario. Por favor descargue desde www.bannerengineering.com toda la documentación técnica de los WLS28-2 LED Strip Light - PWM Dimmable, disponibles en múltiples idiomas, para detalles del uso adecuado, aplicaciones, advertencias, y las instrucciones de instalación de estos dispositivos.

**IMPORTANT:** Lisez les instructions suivantes avant d'utiliser le luminaire. Veuillez télécharger la documentation technique complète des WLS28-2 LED Strip Light - PWM Dimmable sur notre site www.bannerengineering.com pour les détails sur leur utilisation correcte, les applications, les notes de sécurité et les instructions de montage.

Original Instructions
15-Sep-25

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www.bannerengineering.com

179493
p/n: 179493 Rev. H

ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

# Models

| Family | Cascadable | LED Color | Lighted Length (mm) | Window | Construction | Control | Connector[1] |
|---|---|---|---|---|---|---|---|
| **WLS28-2** | **C** | **W** | **145** | **D** | **X** | **PWM** | **Q** |
| | C = Cascadable<br>X = Non-cascadeble | W = Cool white<br>WW = Warm white<br>R = Red<br>G = Green<br>B = Blue<br>Y = Yellow | 145<br>285<br>430<br>570<br>710<br>850<br>990<br>1130 | Blank = Clear plastic<br>D = Diffused plastic<br>L25 = 25° lensed window | X = Not sealed<br>S = Sealed[2] | PWM = Pulse Width Modulation dimming | Blank = 2 m (6.5 ft) integral PVC-jacketed cable<br>Q = Integral 4-pin M12 male quick-disconnect connector |

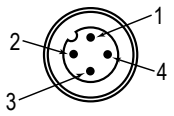
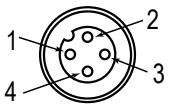
*IP50 Models*

| Stand-Alone[3] | Cascade[3] | Lighted Length | Power Connector |
|---|---|---|---|
| WLS28-2XW145XPWM | WLS28-2CW145XPWM | 145 mm | 2 m cable |
| WLS28-2XW285XPWM | WLS28-2CW285XPWM | 285 mm | |
| WLS28-2XW430XPWM | WLS28-2CW430XPWM | 430 mm | |
| WLS28-2XW570XPWM | WLS28-2CW570XPWM | 570 mm | |
| WLS28-2XW710XPWM | WLS28-2CW710XPWM | 710 mm | |
| WLS28-2XW850XPWM | WLS28-2CW850XPWM | 850 mm | |
| WLS28-2XW990XPWM | WLS28-2CW990XPWM | 990 mm | |
| WLS28-2XW1130XPWM | WLS28-2CW1130XPWM | 1130 mm | |

*IP67/IP69K Models*

| Stand-Alone[3] | Cascade[3] | Lighted Length | Power Connector |
|---|---|---|---|
| WLS28-2XW145SPWM | WLS28-2CW145SPWM | 145 mm | 2 m cable |
| WLS28-2XW285SPWM | WLS28-2CW285SPWM | 285 mm | |
| WLS28-2XW430SPWM | WLS28-2CW430SPWM | 430 mm | |
| WLS28-2XW570SPWM | WLS28-2CW570SPWM | 570 mm | |
| WLS28-2XW710SPWM | WLS28-2CW710SPWM | 710 mm | |
| WLS28-2XW850SPWM | WLS28-2CW850SPWM | 850 mm | |
| WLS28-2XW990SPWM | WLS28-2CW990SPWM | 990 mm | |
| WLS28-2XW1130SPWM | WLS28-2CW1130SPWM | 1130 mm | |

# Wiring

| Male | Female | Pin | Wire Color | Connection |
|---|---|---|---|---|
|  |  | 1 | brown | 12 V DC to 30 V DC |
| | | 3 | blue | DC common |
| | | 4 | black | Pulse width modulation (PWM) input. For maximum intensity, leave the black wire floating or connected to common. Connecting to 12 V DC to 30 V DC causes LEDs to shut off. |
| | | 2 | white | Not used |

(1) Models with a quick-disconnect connector require a mating cordset.
(2) Sealed models are not available with the On/Off switch.
(3) Integral 2 m (6.5 ft) unterminated cable models are listed. To order the 4-pin M12 integral quick disconnect model, add the suffix "Q" to the model number. For example, WLS28-2XW285XPWMQ.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# Specifications

**Supply Voltage and Current**

12 V DC to 30 V DC

Use only with a suitable Class 2 power supply (UL) or SELV power supply (CE)

**Supply Protection Circuitry**

Protected against reverse polarity and transient voltages

**Light Characteristics**

Cool White

Color Temperature (CCT): 6500K (+500K, -400K)
Lumen output: 800 (± 5%) per foot, typical at 25 °C (77 °F)
Luminous efficacy: 110 lumens/Watt typical at 24 V dc at 25 °C (77 °F)
CRI: 85, typical

Warm white: 3000K (+200K, -100K)

Green: 525 nm

Red: 618 nm

Yellow: 590 nm

Blue: 460 nm

**LED Lifetime**

Lumen Maintenance - $L_{70}$

When operating within specifications, output will decrease less than 30% after 75,000 hours.

**Construction**

Clear anodized aluminum housing; painted zinc end caps; polycarbonate window on clear and diffuse plastic models; acrylic window on L25 models; zinc plated steel brackets

**Mounting**

(2) swivel brackets SMBWLS28RA included and (4) screws

**Connections**

Integral 4-pin M12 male quick-disconnect connector (4-pin connecting cordset required), or 2 m (6.5 ft) integral PVC-jacketed cable

Do not spray cable with high-pressure sprayer, or cable damage will result.

**Pulse Width Modulation (PWM)**

Frequency: Up to 1000 Hz

Voltage: 8 V dc to 30 V dc

Current: 4 mA max. per foot

**Environmental Rating**

IP50 (non-sealed models) or IP65, IP67, IP69K per ISO 20653 (sealed models)

**Vibration and Mechanical Shock**

Vibration 10-55 Hz 1.0 mm p-p amplitude per IEC 60068-2-6

Shock 15G 11 ms duration, half sine wave per IEC 60068-2-27

**Operating Temperature**

–40 °C to +70 °C (–40 °F to +158 °F)

Light output begins to decrease above 50 °C (122 °F) and will be approximately 65% of max intensity at 60 °C (140 °F) and 30% of max intensity at 70 °C (158 °F)

**Storage Temperature**

–40 °C to +70 °C (–40 °F to +158 °F)

**Certifications**

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Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM

Sealed models only

**Application Note**

When connecting cascadable lights in series it is important not to exceed maximum current limitations:

Maximum length of light at 12 V dc: 1.4 m (4.6 ft)

Maximum length of light at 24 V dc: 3.0 m (9.8 ft)

Maximum length of light at 30 V dc: 3.1 m (10.2 ft)

**Typical Current**

| Light Length | Typical Current | | | Max. Current | Lumens [4] (Typical at 25 °C) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 12 V DC | 24 V DC | 30 V DC | A | Cool White | Warm White | Green | Red | Yellow | Blue |
| 145 mm | 0.33 A | 0.15 A | 0.12 A | 0.4 | 400 | 400 | 180 | 55 | 50 | 40 |
| 285 mm | 0.66 A | 0.3 A | 0.24 A | 0.8 | 800 | 800 | 360 | 110 | 100 | 80 |
| 430 mm | 1.01 A | 0.46 A | 0.36 A | 1.2 | 1200 | 1200 | 540 | 165 | 150 | 120 |
| 570 mm | 1.36 A | 0.61 A | 0.48 A | 1.6 | 1600 | 1600 | 720 | 220 | 200 | 160 |
| 710 mm | 1.75 A | 0.77 A | 0.6 A | 2 | 2000 | 2000 | 900 | 275 | 250 | 200 |
| 850 mm | 2.13 A | 0.92 A | 0.73 A | 2.4 | 2400 | 2400 | 1080 | 330 | 300 | 240 |
| 990 mm | 2.59 A | 1.08 A | 0.85 A | 2.8 | 2800 | 2800 | 1260 | 385 | 350 | 280 |
| 1130 mm | 3.04 A | 1.24 A | 0.97 A | 3.2 | 3200 | 3200 | 1440 | 440 | 400 | 320 |

# FCC Part 15 Class B for Unintentional Radiators

(Part 15.105(b)) This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

[4] Lumen values lowered by 25% on diffused window and 25° lensed models.


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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

(Part 15.21) Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

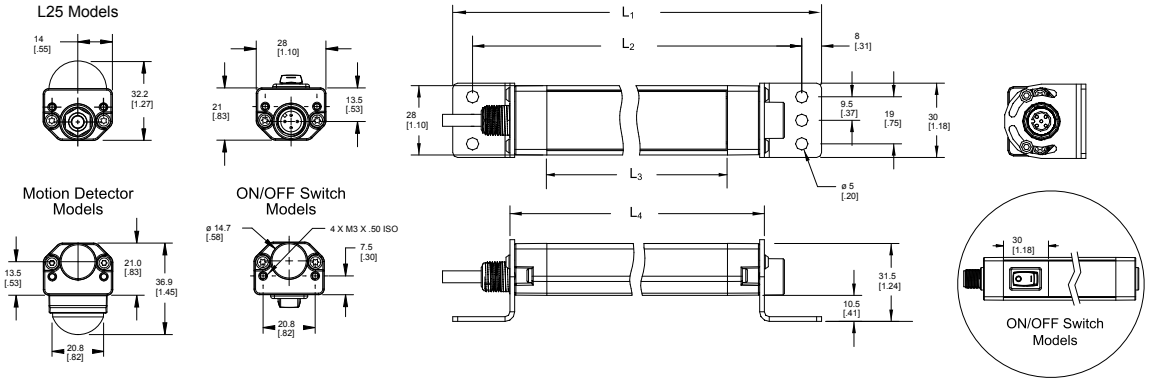
# Industry Canada ICES-003(B)

This device complies with CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme à la norme NMB-3(B). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas occasionner d'interférences, et (2) il doit tolérer toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité du dispositif.

# Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise. The measurements provided are subject to change.




Dimensions are shown with the included SMBWLS28RA bracket.

| IP50 Models | IP67/IP69K Models | $L_1$ | $L_2$ | $L_3$ | $L_4$ |
|---|---|---|---|---|---|
| WLS28-2..145XPWM | WLS28-2..145SPWM | 221 mm (8.7 in) | 205 mm (8.1 in) | 145 mm (5.71 in) | 175 mm (6.9 in) |
| WLS28-2..285XPWM | WLS28-2..285SPWM | 362 mm (14.3 in) | 346 mm (13.6 in) | 286 mm (11.26 in) | 316 mm (12.4 in) |
| WLS28-2..430XPWM | WLS28-2..430SPWM | 503 mm (19.8 in) | 487 mm (19.2 in) | 427 mm (16.81 in) | 457 mm (18.0 in) |
| WLS28-2..570XPWM | WLS28-2..570SPWM | 644 mm (25.4 in) | 628 mm (24.7 in) | 568 mm (22.36 in) | 598 mm (23.5 in) |
| WLS28-2..710XPWM | WLS28-2..710SPWM | 785 mm (30.9 in) | 769 mm (30.3 in) | 709 mm (27.91 in) | 739 mm (29.1 in) |
| WLS28-2..850XPWM | WLS28-2..850SPWM | 926 mm (36.5 in) | 910 mm (35.8 in) | 850 mm (33.46 in) | 880 mm (34.6 in) |
| WLS28-2..990XPWM | WLS28-2..990SPWM | 1067 mm (42 in) | 1051 mm (41.4 in) | 991 mm (39.02 in) | 1021 mm (40.2 in) |
| WLS28-2..1130XPWM | WLS28-2..1130SPWM | 1208 mm (47.6 in) | 1192 mm (46.9 in) | 1132 mm (44.57 in) | 1162 mm (45.7 in) |

# Light Characteristics

Optical data shown below are for cool white models with a clear window only. To get lux and cendela values for models with a diffuse window and/or other colors, multiply the values shown on the charts by the following factors:

| Diffuse Window | Warm White | Green | Red | Yellow | Blue |
|---|---|---|---|---|---|
| 0.75 | 1 | 0.45 | 0.138 | 0.125 | 0.1 |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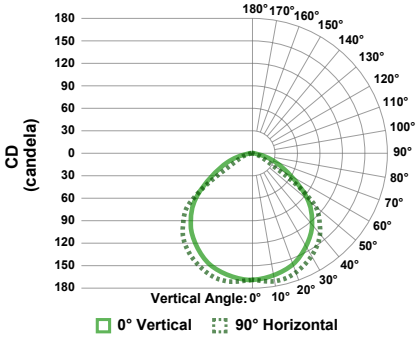
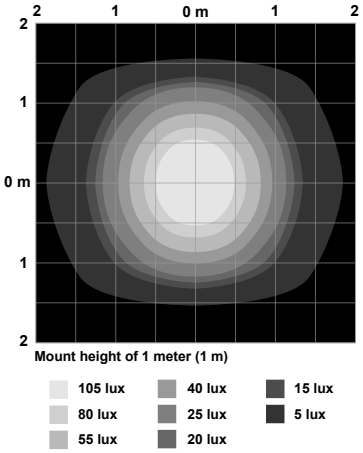
## 145 mm Models

*Clear Window*

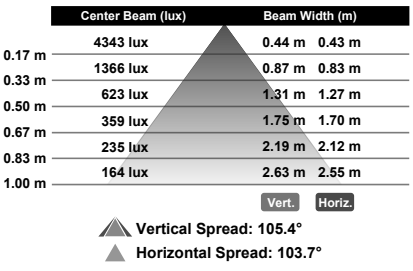
### Polar Candela Distribution




### Isolux Pattern

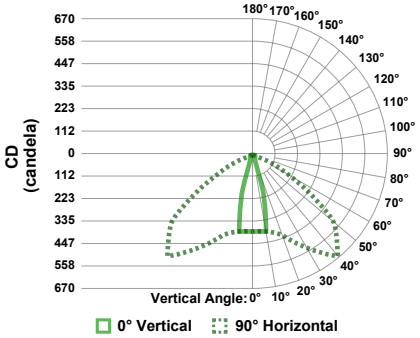



### Illuminance at a Distance




*L25 Window*

### Polar Candela Distribution

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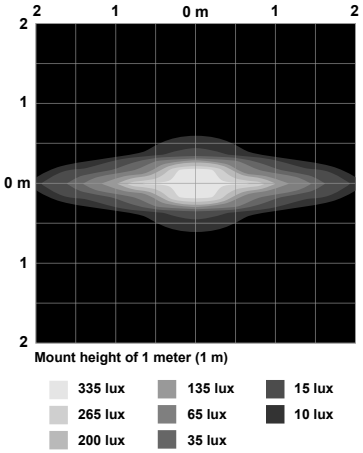


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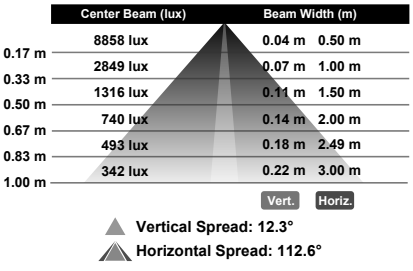
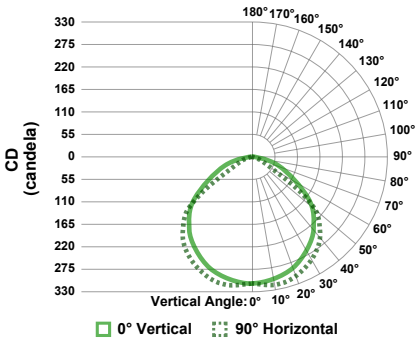



## 285 mm Models

*Clear Window*

### Polar Candela Distribution

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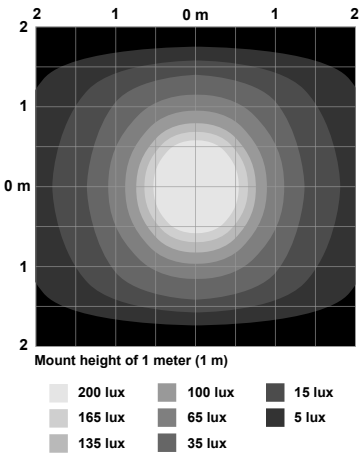


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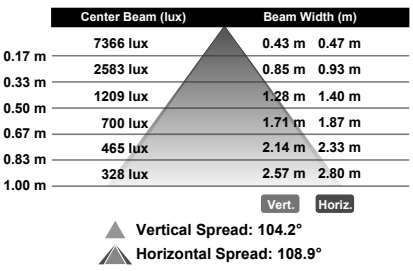



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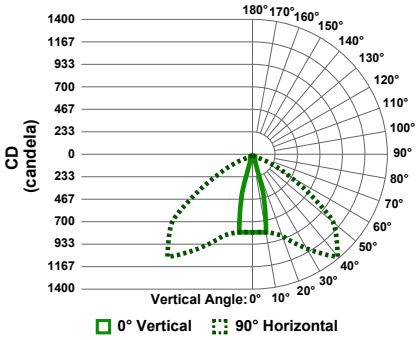
*L25 Window*

**Polar Candela Distribution**

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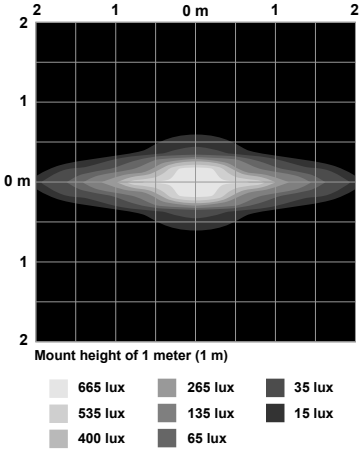
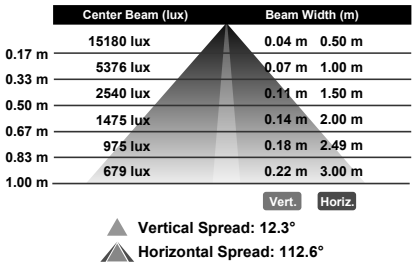


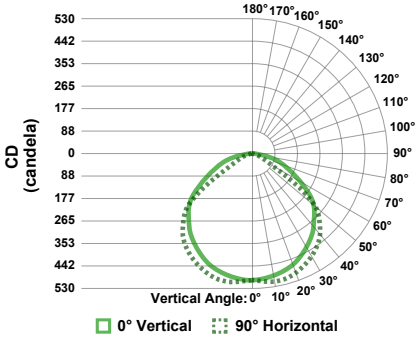

**Illuminance at a Distance**




## 430 mm Models

*Clear Window*

**Polar Candela Distribution**

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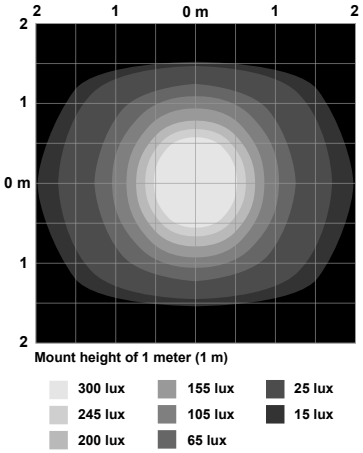


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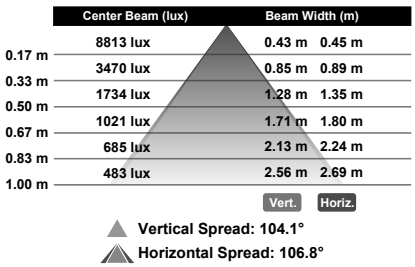
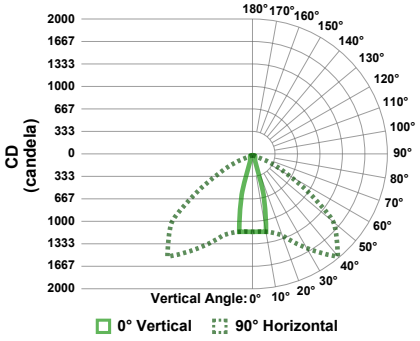



*L25 Window*

**Polar Candela Distribution**

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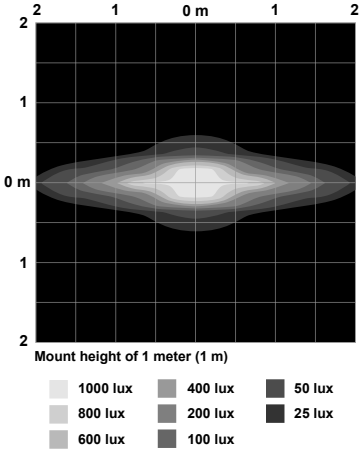
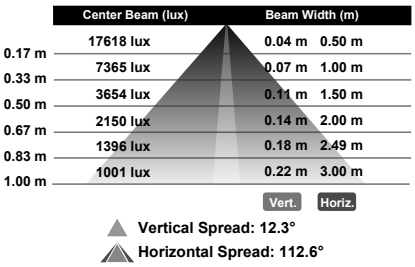



**Illuminance at a Distance**





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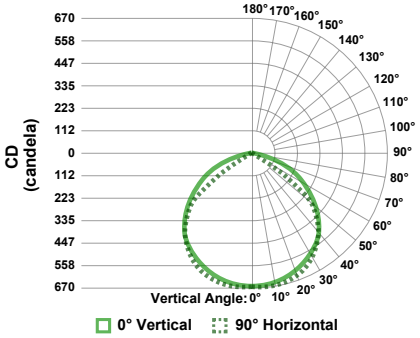
## 570 mm Models

*Clear Window*

**Polar Candela Distribution**

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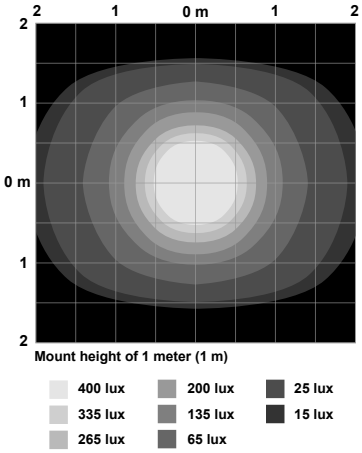
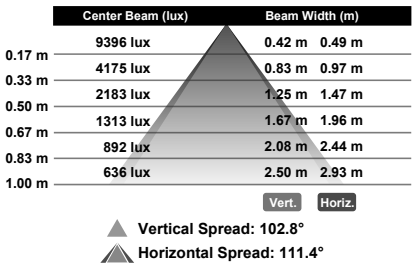
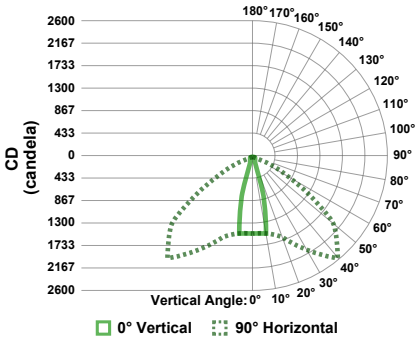



**Illuminance at a Distance**

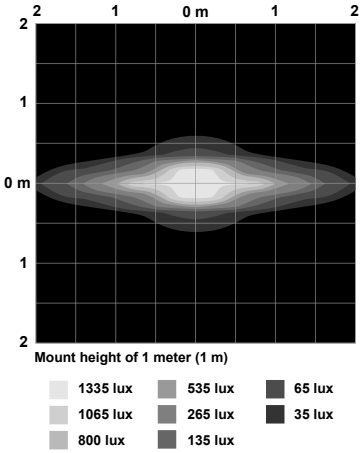



*L25 Window*

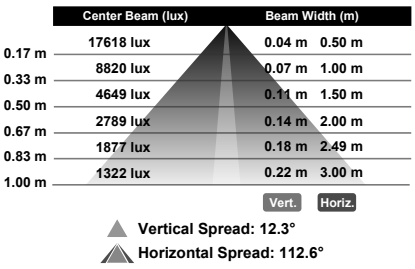
**Polar Candela Distribution**




**Isolux Pattern**



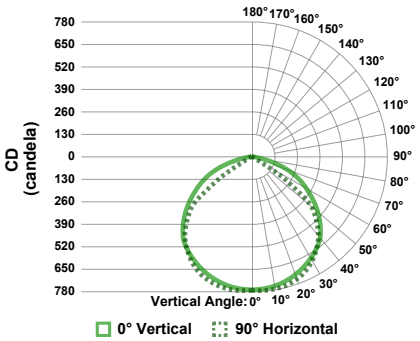

**Illuminance at a Distance**



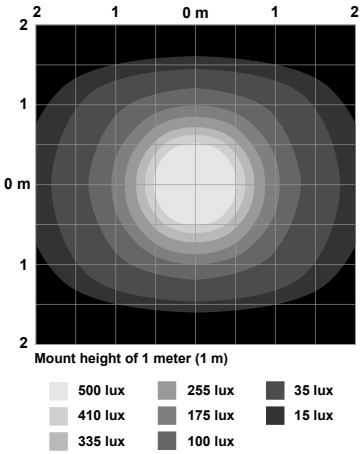

## 710 mm Models

*Clear Window*

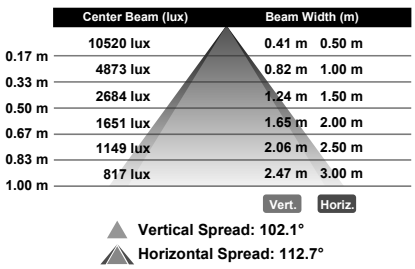
**Polar Candela Distribution**




**Isolux Pattern**




**Illuminance at a Distance**





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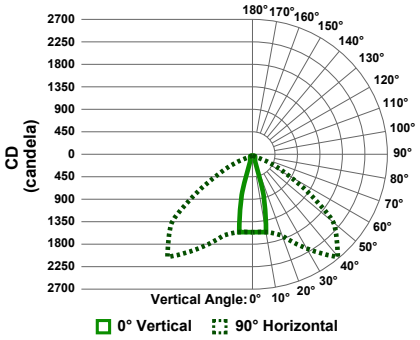
*L25 Window*

**Polar Candela Distribution**

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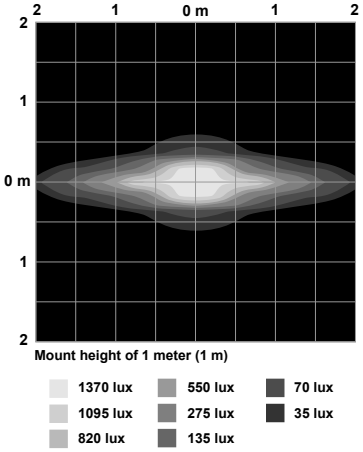


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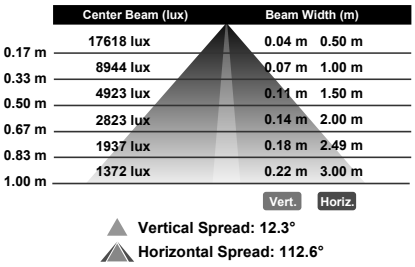
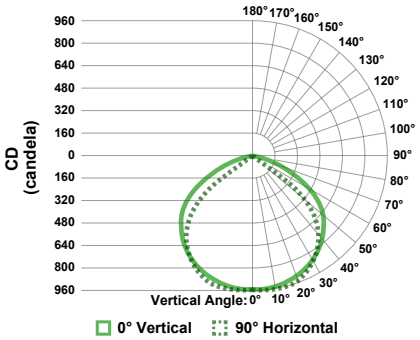


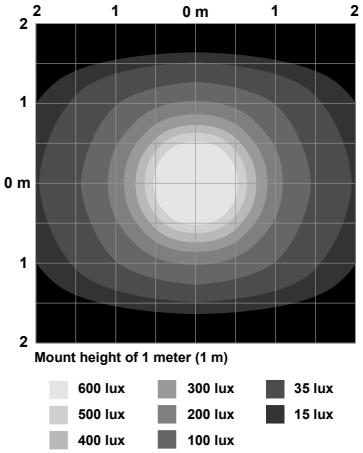

## 850 mm Models

*Clear Window*

**Polar Candela Distribution**




**Isolux Pattern**

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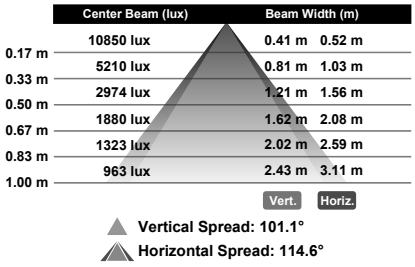
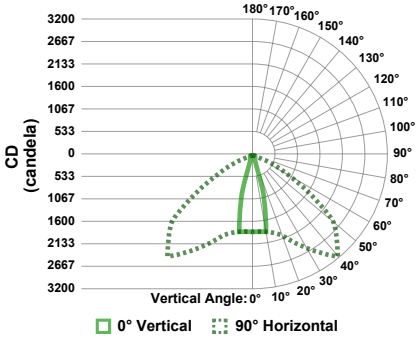



*L25 Window*

**Polar Candela Distribution**

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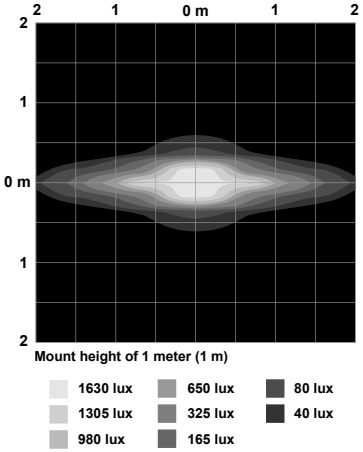


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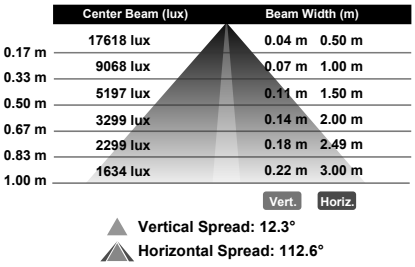



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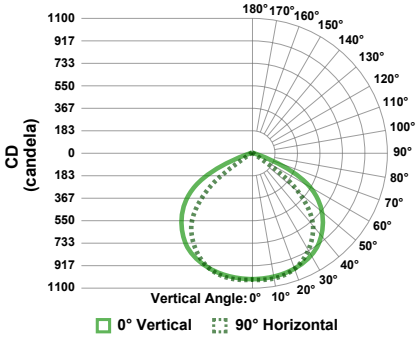
## 990 mm Models

*Clear Window*

### Polar Candela Distribution

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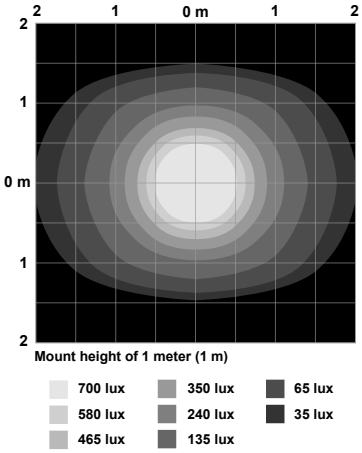
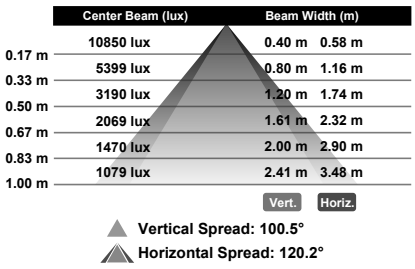
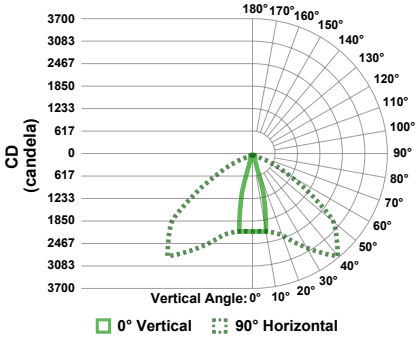



### Illuminance at a Distance




*L25 Window*

### Polar Candela Distribution

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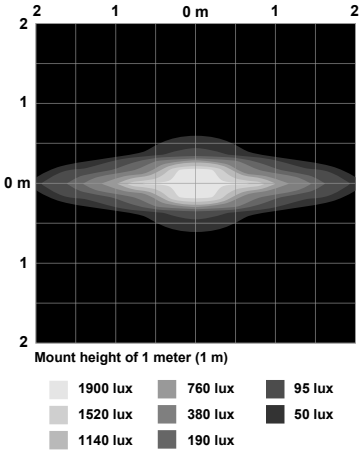


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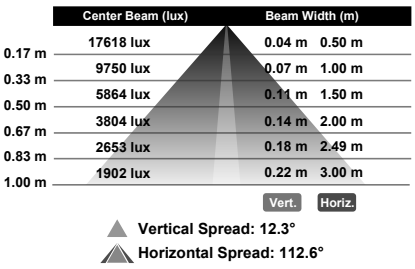
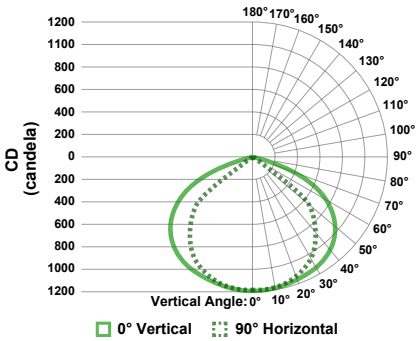



## 1130 mm Models

*Clear Window*

### Polar Candela Distribution

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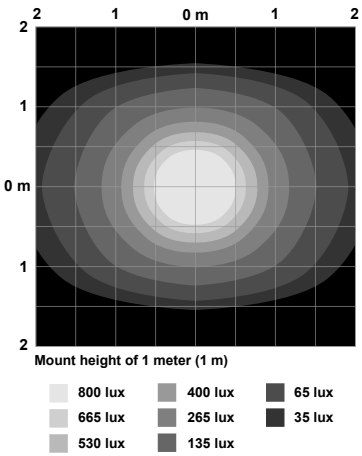


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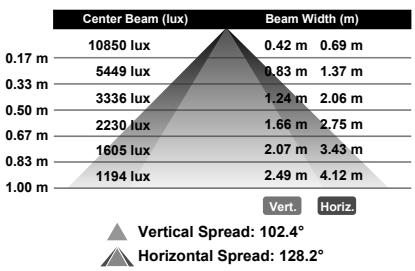



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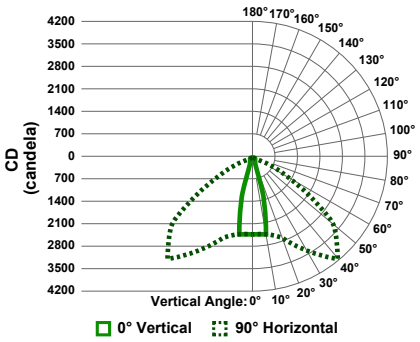
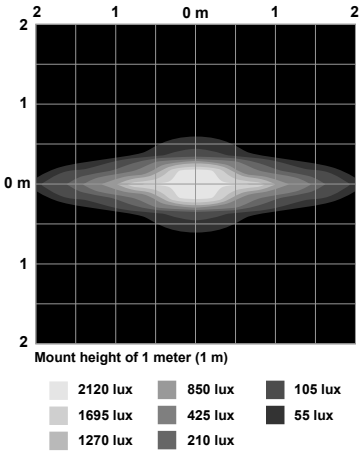
*L25 Window*

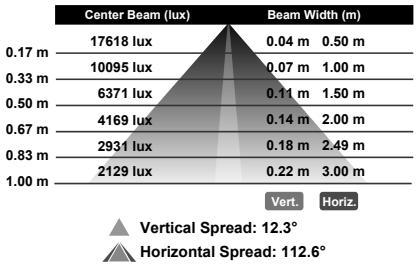
**Polar Candela Distribution**




**Isolux Pattern**




**Illuminance at a Distance**

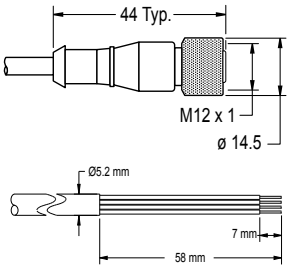
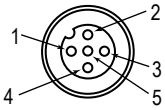
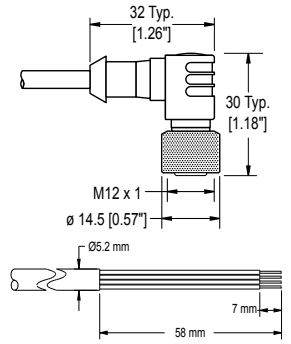
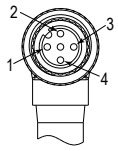



# Accessories

## Cordsets

Use single-ended cordsets between the power source and the QD connection of a stand-alone light or the first light in a cascade. Use double-ended cordsets between lights in a cascade.

**4-Pin Single-Ended M12 Female Cordsets**

| Model | Length | Style | Dimensions | Pinout (Female) | |
|---|---|---|---|---|---|
| MQDC-406 | 2 m (6.56 ft) | Straight |   |   | 1 = Brown<br>2 = White<br>3 = Blue<br>4 = Black<br>5 = Not used |
| MQDC-415 | 5 m (16.4 ft) | | | | |
| MQDC-430 | 9 m (29.5 ft) | | | | |
| MQDC-450 | 15 m (49.2 ft) | | | | |
| MQDC-406RA | 2 m (6.56 ft) | Right-Angle |   |   | |
| MQDC-415RA | 5 m (16.4 ft) | | | | |
| MQDC-430RA | 9 m (29.5 ft) | | | | |
| MQDC-450RA | 15 m (49.2 ft) | | | | |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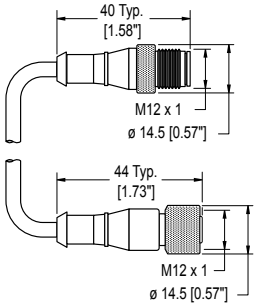
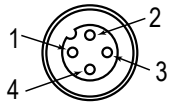
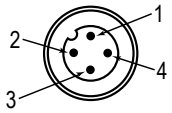
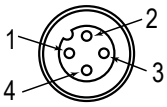
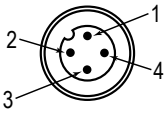
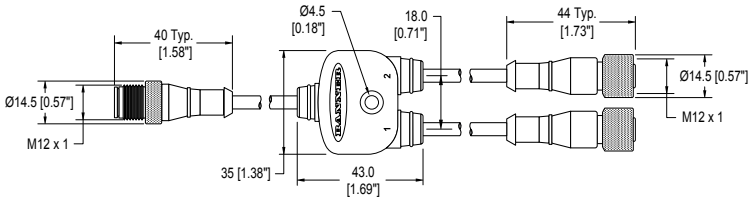
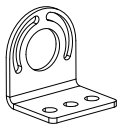
| 4-Pin Double-Ended M12 Female to M12 Male Cordsets | | | | |
|---|---|---|---|---|
| **Model** | **Length** | **Style** | **Dimensions** | **Pinout** |
| MQDEC-401SS | 0.31 m (1 ft) | Male Straight/Female Straight |  | Female<br><br>Male<br><br>1 = Brown<br>2 = White<br>3 = Blue<br>4 = Black |
| MQDEC-402SS | 0.91 m (2.99 ft) | | | |
| MQDEC-406SS | 1.83 m (6 ft) | | | |
| MQDEC-412SS | 3.66 m (12 ft) | | | |
| MQDEC-415SS | 4.58 m (15 ft) | | | |
| MQDEC-420SS | 6.10 m (20 ft) | | | |
| MQDEC-430SS | 9.14 m (30.2 ft) | | | |
| MQDEC-450SS | 15.2 m (49.9 ft) | | | |

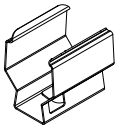
| 4-Pin Flat Junction M12 Female Branch to M12 MaleTrunk Splitter Cordsets | | | |
|---|---|---|---|
| **Model** | **Branches (Female)** | **Trunk (Male)** | **Pinout** |
| CSB-M1240M1240 | No branch | No trunk | Female<br><br>Male<br><br>1 = Brown<br>2 = White<br>3 = Blue<br>4 = Black |
| CSB-M1240M1241 | 2 × 0.3 m (1 ft) | No trunk | |
| CSB-M1241M1241 | | 0.31 m (1 ft) | |
| CSB-M1248M1241 | | 2.44 m (8 ft) | |
| CSB-M12415M1241 | | 4.57 m (15 ft) | |
| CSB-M12425M1241 | | 7.60 m (25 ft) | |
| CSB-UNT425M1241 | | 7.60 m (25 ft) Unterminated | |
| CSB-M1243M1243 | 2 × 1 m (3.28 ft) | 1 m (3.28 ft) | |
|  | | | |

## Brackets

**SMBWLS28RA**
- Replacement end bracket kit
- 1.8 mm (14 gage) cold rolled steel with zinc plate, clear chromate finish
- Kit contains two end brackets and four screws



**SMBWLS28SP**
- Stainless steel snap bracket kit
- Includes two brackets

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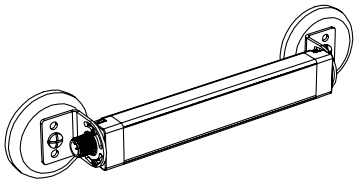
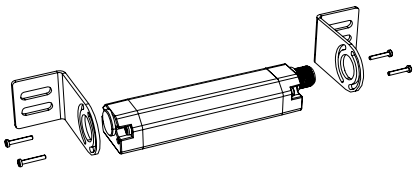
**SMBWLSMAG**
- Magnetic mounting bracket for easy attachment to steel surfaces

**SMBWLSMAGR**
- Protective cover also available to prevent scratches to painted surfaces

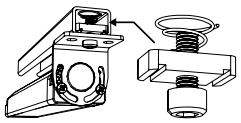


**SMBWLS28SM**
- End bracket kit
- Cold Rolled Steel with a clear zinc finish
- Allows the light or switch to be mounted at a right angle to the mounting surface
- Kit contains two end brackets and four screws



**SMH1316**
This kit allows the light or switch to be mounted to a 13/16-inch Unistrut channel. Light is shown. The kit includes:

- #10-32 spring nuts (qty 2)
- #10-32 socket head cap screws (qty 2)
- #10 lock washers (qty 2)



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