WLS27 LED Strip Light - PWM Dimmable

Instruction Manual

Banner's WLS27 LED Strip Light has a sturdy aluminum housing and is encased in a shatterproof, UV-stabilized, copolyester shell, making it ideal for harsh indoor and outdoor applications.

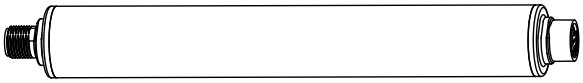
- Intensity can be controlled from 0 to 100% using Pulse Width Modulation (PWM) on an input control wire
- Rugged, water-resistant IP69K rating
- Available in eight lengths from 145 mm to 1130 mm
- Daisy chain power to multiple lights to control intensity simultaneously
- Automatic temperature protection built into the unit. Above 50 °C, th 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 or End Light in a Cascade—QD



First or Middle of a Cascade—QD

These 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 a male quick disconnect at one end for power connection and no connections at opposite end. A stand-alone model may be used as the last in the cascade series.

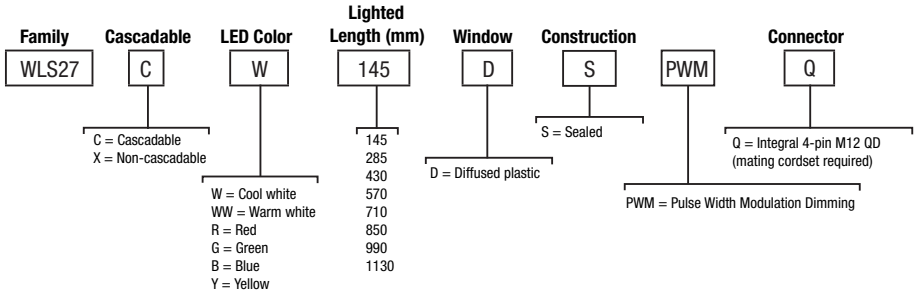
Cascade models have a male quick disconnect at one end for power connection, and a female quick disconnect at the opposite end for connecting to other lights in the cascade. A double-ended accessory cordset must be used between each pair of lights in a cascade.

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.

Important: Lea el siguiente instructivo antes de operar el luminario. Por favor descargue desde www.bannerengineering.com toda la documentación técnica de los WLS27 LED Strip Light, 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 WLS27 LED Strip Light sur notre site www.bannerengineering.com pour les détails sur leur utilisation correcte, les applications, les notes de sécurité et les instructions de montage.

Models



Stand-Alone	Cascade	Lighted Length	Power Connector
WLS27XW145DSPWMQ	WLS27CW145DSPWMQ	145 mm	Integral 4-pin M12/Euro-style quick disconnect
WLS27XW285DSPWMQ	WLS27CW285DSPWMQ	285 mm	
WLS27XW430DSPWMQ	WLS27CW430DSPWMQ	430 mm	
WLS27XW570DSPWMQ	WLS27CW570DSPWMQ	570 mm	
WLS27XW710DSPWMQ	WLS27CW710DSPWMQ	710 mm	
WLS27XW850DSPWMQ	WLS27CW850DSPWMQ	850 mm	
WLS27XW990DSPWMQ	WLS27CW990DSPWMQ	990 mm	
WLS27XW1130DSPWMQ	WLS27CW1130DSPWMQ	1130 mm	

Specifications

Operating Voltage
12 V dc to 30 V dc
Use only with a suitable Class 2 power supply (UL) or SELV power supply (CE)
See electrical characteristics on product label.

Pulse Width Modulation (PWM)
Frequency: Up to 1000 Hz
Voltage: 8 to 30 V dc
Current: 4 mA max. per foot

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: 90 lumens/Watt typical at 24 V dc at 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; FDA -grade copolyester outer housing

Mounting
Bracket LMBWLS27EC included (2 for lights up to 570 mm or 3 for lights 710 mm and longer)

Connections
Integral 4-pin M12/Euro-style quick disconnect (4-pin connecting cordset required)

Storage Temperature
–40 °C to +70 °C (–40 °F to +158 °F)

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)

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)
At 50% intensity, double the lengths

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

Environmental Rating
Rated IEC IP66, IEC IP67, and IP69K per DIN 40050-9

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

Certifications

Light Length	Typical Current			Max. Current	Lumens (Typical @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	0.30 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	0.60 A	2.0	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

Dimensions

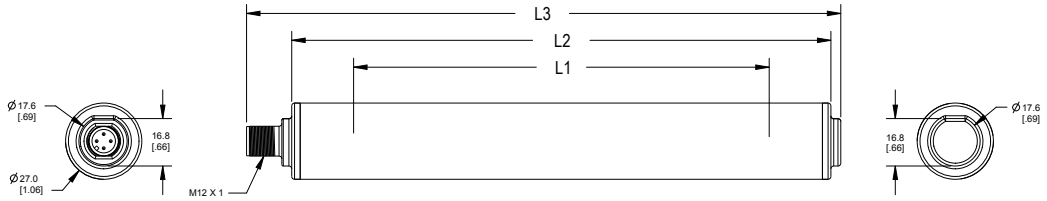


Figure 1. Quick Disconnect Models

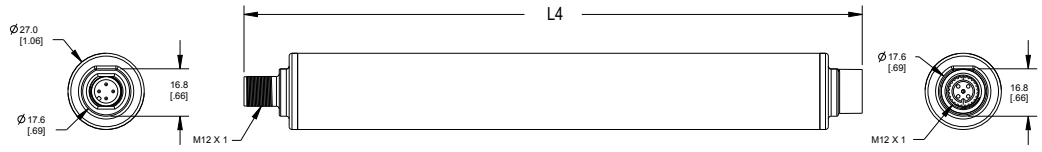


Figure 2. Cascade Models

Models	L1	L2	L3	L4
WLS27..145..	145 mm (5.7 in)	189 mm (7.4 in)	208.5 mm (8.2 in)	217 mm (8.5 in)
WLS27..285..	286 mm (11.3 in)	330 (13 in)	349.5 mm (13.8 in)	358 mm (14.1 in)
WLS27..430..	427 mm (16.8 in)	471 mm (18.5 in)	490.5 mm (13.3 in)	499 mm (19.6 in)
WLS27..570..	569 mm (22.4 in)	612 mm (24.1 in)	631.5 mm (24.9 in)	640 mm (25.2 in)
WLS27..710..	708 mm (27.9 in)	752 mm (29.6 in)	771.5 mm (30.4 in)	780 mm (30.7 in)
WLS27..850..	849 mm (33.4 in)	893 mm (35.2 in)	912.5 mm (35.9 in)	921 mm (36.2 in)

Models	L1	L2	L3	L4
WLS27..990..	991 mm (39 in)	1035 mm (40.8 in)	1054.5 mm (41.5 in)	1063 mm (41.8 in)
WLS27..1130..	1120 mm (44.1 in)	1164 mm (45.8 in)	1183.5 mm (46.4 in)	1192 mm (46.9 in)

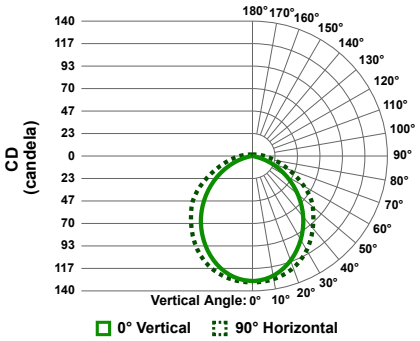
Performance

Optical data shown below is for cool white only. To get lux and candela values for other colors, multiply the values shown on the charts by the following factors:

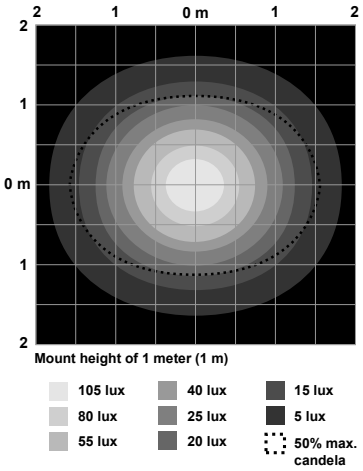
Warm White:	1.000
Green:	0.450
Red:	0.138
Yellow:	0.125
Blue:	0.100

145 mm Models

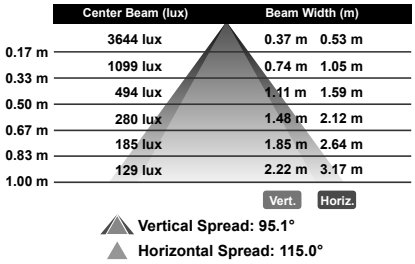
Polar Candela Distribution



Isolux Pattern

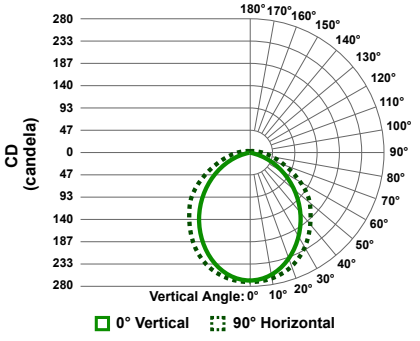


Illuminance at a Distance

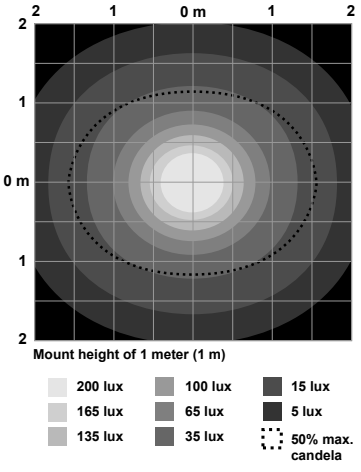


285 mm Models

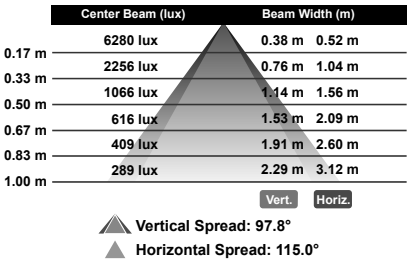
Polar Candela Distribution



Isolux Pattern

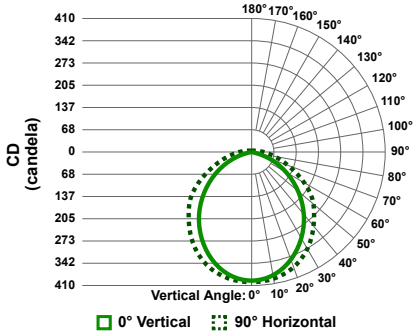


Illuminance at a Distance

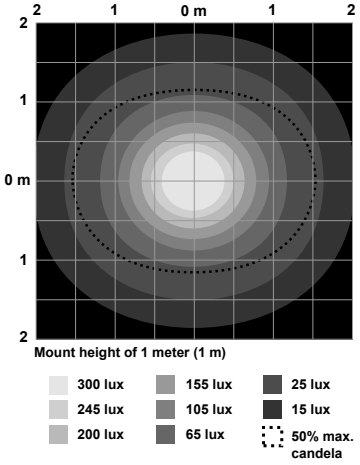


430 mm Models

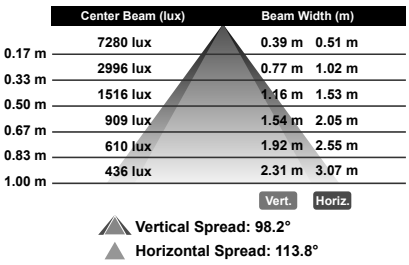
Polar Candela Distribution



Isolux Pattern

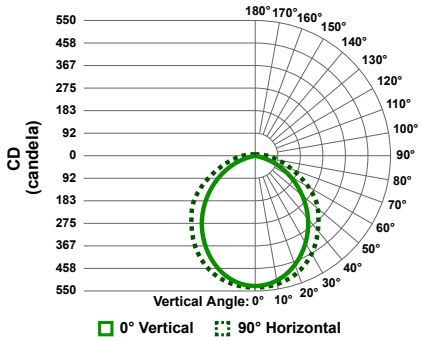


Illuminance at a Distance

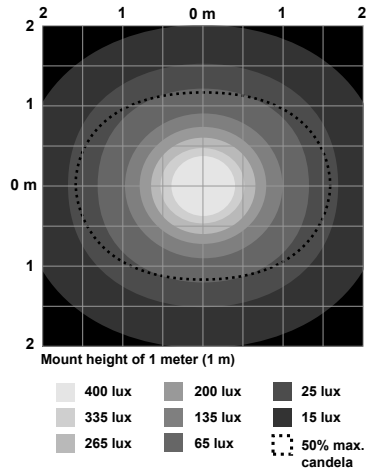


570 mm Models

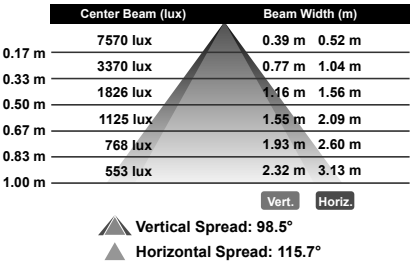
Polar Candela Distribution



Isolux Pattern

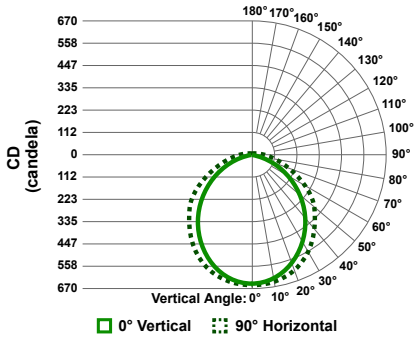


Illuminance at a Distance

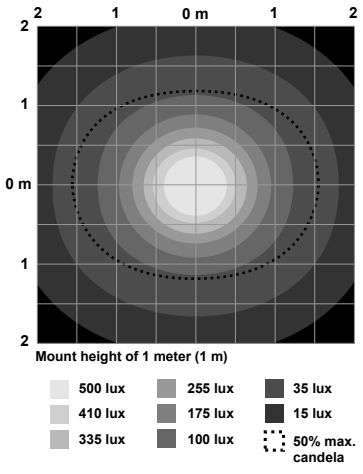


710 mm Models

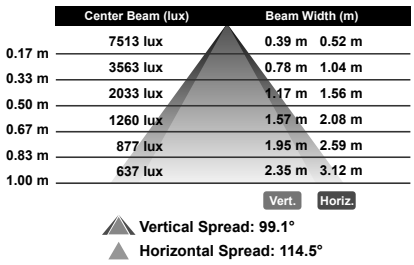
Polar Candela Distribution



Isolux Pattern

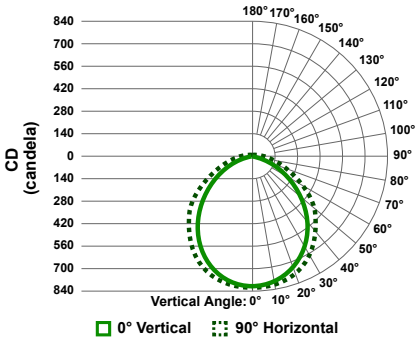


Illuminance at a Distance

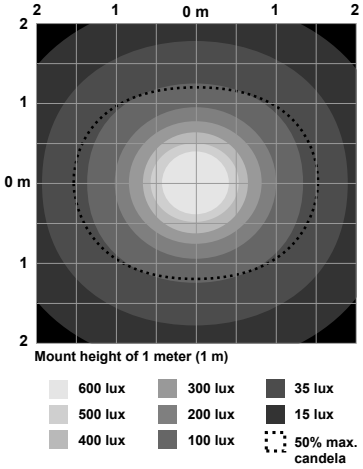


850 mm Models

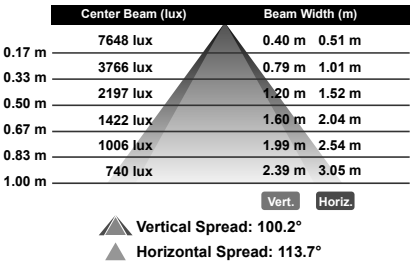
Polar Candela Distribution



Isolux Pattern

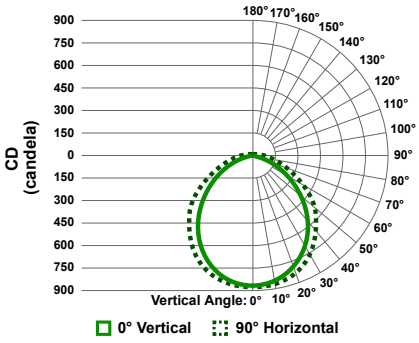


Illuminance at a Distance

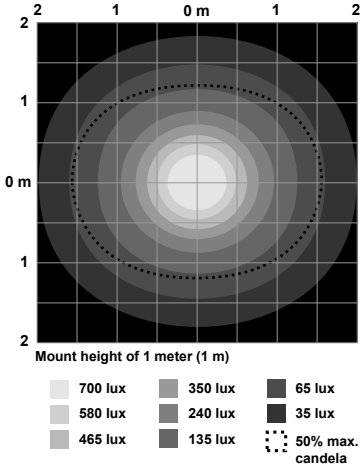


990 mm Models

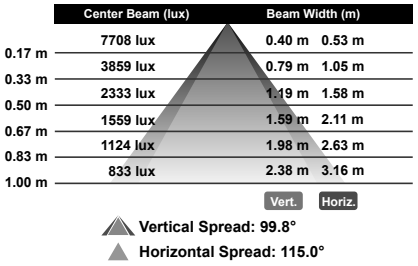
Polar Candela Distribution



Isolux Pattern

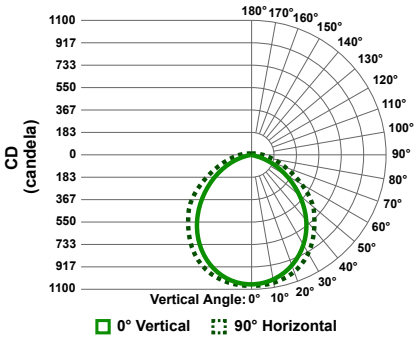


Illuminance at a Distance

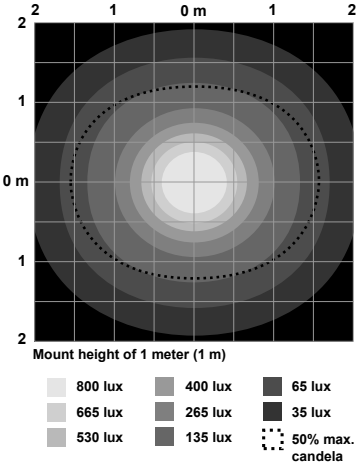


1130 mm Models

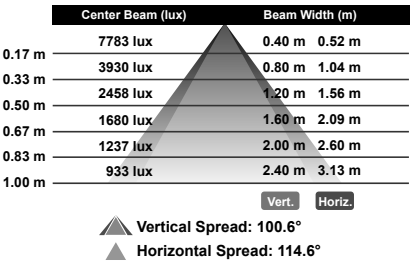
Polar Candela Distribution



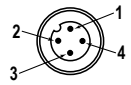
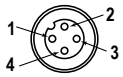
Isolux Pattern



Illuminance at a Distance



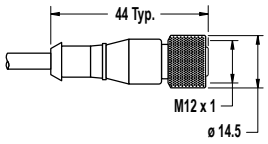
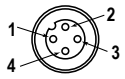
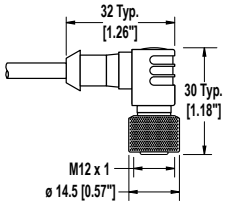
Wiring Diagram

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

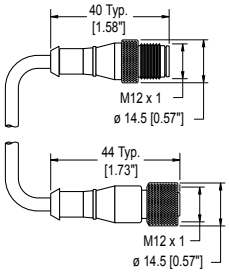
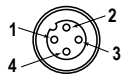
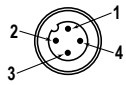
Accessories

Cordsets

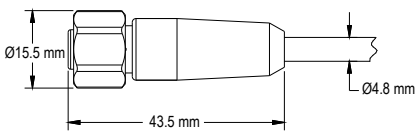
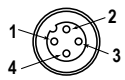
4-Pin Threaded M12/Euro-Style Cordsets—Single Ended

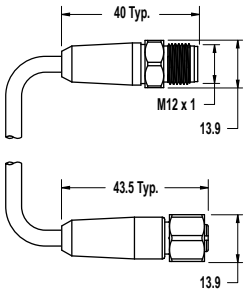
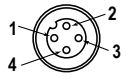
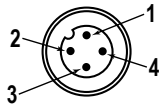
Model	Length	Style	Dimensions	Pinout (Female)
MQDC-406	1.83 m (6 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black
MQDC-415	4.57 m (15 ft)			
MQDC-430	9.14 m (30 ft)			
MQDC-450	15.2 m (50 ft)			
MQDC-406RA	1.83 m (6 ft)	Right-Angle		
MQDC-415RA	4.57 m (15 ft)			
MQDC-430RA	9.14 m (30 ft)			
MQDC-450RA	15.2 m (50 ft)			

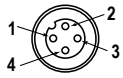
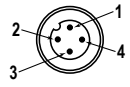
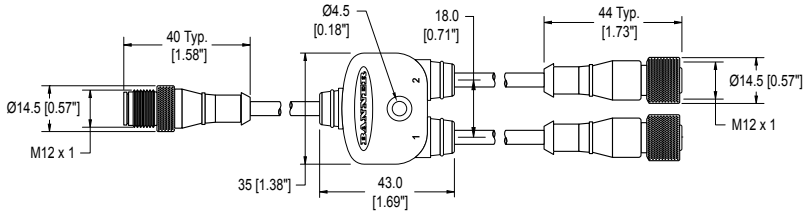
4-Pin Threaded M12/Euro-Style Cordsets—Double Ended

Model	Length	Style	Dimensions	Pinout
MQDEC-401SS	0.31 m (1 ft)	Male Straight/Female Straight		Female  Male  1 = Brown 2 = White 3 = Blue 4 = Black
MQDEC-403SS	0.91 m (3 ft)			
MQDEC-406SS	1.83 m (6 ft)			
MQDEC-412SS	3.66 m (12 ft)			
MQDEC-420SS	6.10 m (20 ft)			
MQDEC-430SS	9.14 m (30 ft)			
MQDEC-450SS	15.2 m (50 ft)			

4-Pin Threaded M12/Euro-Style Cordsets—Washdown, Stainless Steel, Single Ended

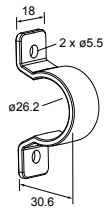
Model	Length	Style	Dimensions	Pinout (Female)
MQDC-WDSS-0406	1.83 m (6 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black
MQDC-WDSS-0415	4.57 m (15 ft)			
MQDC-WDSS-0430	9.14 m (30 ft)			

4-Pin Threaded M12/Euro-Style Cordsets—Double Ended, Washdown, Stainless Steel				
Model	**Length**	**Style**	**Dimensions**	**Pinout**
MQDEC-WDSS-401SS	0.3 m (1 ft)	Male Straight/Female Straight		Female  Male  1 = Brown 2 = White 3 = Blue 4 = Black
MQDEC-WDSS-403SS	0.91 m (3 ft)			
MQDEC-WDSS-406SS	1.83 m (6 ft)			
MQDEC-WDSS-412SS	3.66 m (12 ft)			

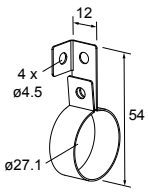
4-Pin Threaded M12/Euro-Style Splitter Cordsets—Flat Junction			
Model	**Branches (Female)**	**Trunk (Male)**	**Pinout**
CSB-M1240M1240	No branch	No trunk	Female  Male  1 = Brown 2 = White 3 = Blue 4 = Black
CSB-M1240M1241	2 x 0.30 m (1 ft)	No trunk	
CSB-M1241M1241		0.30 m (1 ft)	
CSB-M1248M1241		2.50 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	
			

Brackets

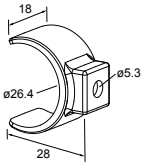
LMBWLS27EC
- Clear copolyester
- Clearance for M5 or #10 hardware



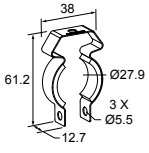
LMBWLS27H
- 300 series stainless steel mounting brackets
- M4 stainless steel hardware included



LMBWLS27SP
- Clear copolyester
- Clearance for M5 or #10 hardware
- Snap bracket for light duty applications

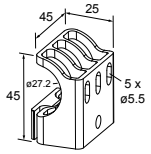


LMBWLS27T
- Stainless steel mounting brackets with rubber grips
- M5 stainless steel hardware included
- Clearance for M5 or #10 hardware



LMBWLS27U

- Clear copolyester
- Clearance for M5 or #10 hardware
- Clamps securely around the light body



Banner Engineering Corp. Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

THIS LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED (INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), AND WHETHER ARISING UNDER COURSE OF PERFORMANCE, COURSE OF DEALING OR TRADE USAGE.

This Warranty is exclusive and limited to repair or, at the discretion of Banner Engineering Corp., replacement. **IN NO EVENT SHALL BANNER ENGINEERING CORP. BE LIABLE TO BUYER OR ANY OTHER PERSON OR ENTITY FOR ANY EXTRA COSTS, EXPENSES, LOSSES, LOSS OF PROFITS, OR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM ANY PRODUCT DEFECT OR FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER ARISING IN CONTRACT OR WARRANTY, STATUTE, TORT, STRICT LIABILITY, NEGLIGENCE, OR OTHERWISE.**

Banner Engineering Corp. reserves the right to change, modify or improve the design of the product without assuming any obligations or liabilities relating to any product previously manufactured by Banner Engineering Corp. Any misuse, abuse, or improper application or installation of this product or use of the product for personal protection applications when the product is identified as not intended for such purposes will void the product warranty. Any modifications to this product without prior express approval by Banner Engineering Corp will void the product warranties. All specifications published in this document are subject to change; Banner reserves the right to modify product specifications or update documentation at any time. Specifications and product information in English supersede that which is provided in any other language. For the most recent version of any documentation, refer to: *www.bannerengineering.com*.

For patent information, see *www.bannerengineering.com/patents*.

FCC Part 15 and CAN ICES-3 (B)/NMB-3(B)

This device complies with part 15 of the FCC Rules and 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.

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 and CAN ICES-3 (B)/NMB-3(B). 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:

- 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 manufacturer.

Mexican Importer

Banner Engineering de Mèxico, S. de R.L. de C.V.
David Alfaro Siqueiros 103 Piso 2 Valle oriente
San Pedro Garza Garcia Nuevo Leòn, C. P. 66269

81 8363.2714

© Banner Engineering Corp. All rights reserved