WLS15 Pro LED Strip Light Product Manual

Original Instructions
p/n: 219134 Rev. E
03-Nov-25
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ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

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Models 3

Chapter 1 Features

Banner's WLS15 LED Strip Lights have sturdy aluminum inner frames, encased in shatter resistant, UV-stabilized, polycarbonate shells, making them ideal for indoor and outdoor applications.



- Bright, programmable strip light with RGB LEDs
- 19 color options for varied indication and inspection uses
- Programmable using Banner's Pro Editor software and Pro Converter Cable
- Pro Editor software configuration and three discrete inputs gives access to color, flashing, intensity, and animation settings, as well as advanced operating modes for displaying distance, count, time and position
- Available in six lengths from 220 mm to 1200 mm
- Low-profile, space-saving design
- Rugged, water-resistant design

IMPORTANT: Read the following instructions before operating the light. Please download the complete WLS15 Pro LED Strip Light 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 WLS15 Pro 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 WLS15 Pro 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

Family	Style	Cascadable	Color	Lighted Length (mm)	Window	Construction	Connection
WLS15	**P**	**X**	**RGB**	**0360**	**D**	**S**	**QP**
	P = Pro	X = Non-cascadable	RGB = RGB Multicolor	0220 0360 0500 0650 0920 1200	D = Diffused	S = Sealed	C2 = 2 m (6.5 ft) integral PVC-jacketed cable QP = 150 mm (6 in) PVC-jacketed cable with a 4-pin M12 male quick-disconnect connector

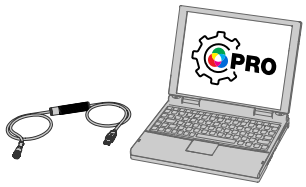
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Chapter 2 Configuration Instructions

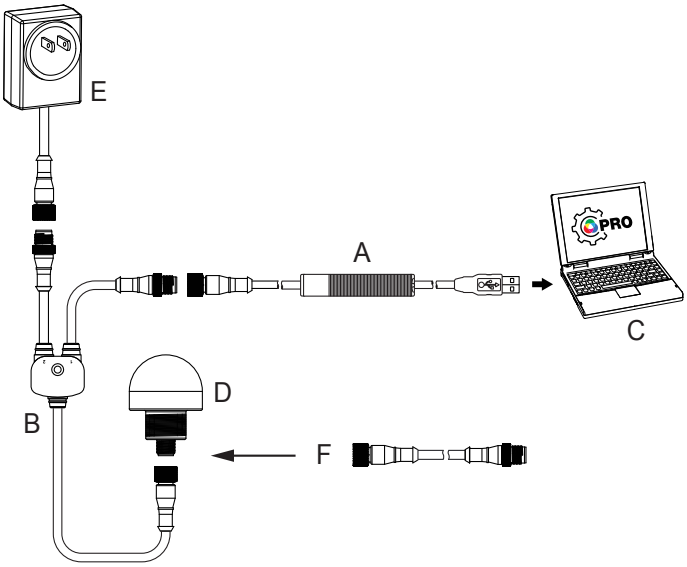
Pro Editor



Use Banner's Pro Editor software and Pro Converter Cable to create custom configurations by selecting different colors, flash patterns, and animations. For more information visit www.bannerengineering.com/proeditor.

Full Preview Connection (Required)

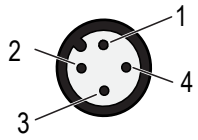
The full preview connection must be used for the WLS15 Pro LED Strip Light.



A = Pro Converter Cable (MQDC-506-USB)
B = Splitter (CSB-M1251FM1251M)
C = PC running Pro Editor software
D = Any Banner Pro Series-enabled device (K50 shown)
E = Power Supply (PSW-24-1, PSW-24-2, or PSD-24-4)
F = 8-Pin to 5-Pin Double-Ended Cordset (MQDC-801-5M-PRO), required for 8-Pin models

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Wiring

4-pin M12 Male Pinout	Pin	Wire Color	Description[1]
	1	Brown	Input 1
	2	White	Input 3
	3	Blue	DC common
	4	Black	Input 2

7 Color Binary Control (Binary input state controls color, default configuration)

Input 1: Pin 1 Brown Wire	Input 2: Pin 4 Black Wire	Input 3: Pin 2 White Wire	LED Color
—	—	—	Light OFF
12 V DC to 30 V DC	—	—	Red
—	12 V DC to 30 V DC	—	Green
—	—	12 V DC to 30 V DC	Yellow
12 V DC to 30 V DC	12 V DC to 30 V DC	—	Blue
12 V DC to 30 V DC	—	12 V DC to 30 V DC	Daylight White
—	12 V DC to 30 V DC	12 V DC to 30 V DC	Daylight White with Red Ends Flash
12 V DC to 30 V DC	12 V DC to 30 V DC	12 V DC to 30 V DC	Blue Bounce with Daylight White Background

Pro Editor Configuration

Banner's Pro Editor software offers an easy way to configure Pro Series-enabled touch and indicator devices, allowing users full control of device states. The easy-to-use configuration software provides a variety of tools and capabilities to solve a wide range of applications. Configure any Pro Series-enabled device using the free Pro Editor software, available for download at www.bannerengineering.com/proeditor.

Machine and Work Cell—Choose colors and animations to create up to seven discretely controlled illumination and status states. Spans functionality from single-segment to two-colored animations.

Single Segment—The single segment option shows the work light in one solid color. The input wires are used to change colors. Flashing and intensity options are available. Presets are available for common configurations, which can be adjusted as desired.
End Status—The end status option shows the inside (LED) section of the work light in one color and the ends of the light in another. The size of the two sections are customizable. The input wires are used to change color states. Flashing and intensity options are available.
Process Visualization—The process visualization option enables a choice of colors, animations, speeds, and intensities to provide visual information that corresponds to equipment or process status. Single-color illumination states are also available.

Tower Light—Choose colors, intensities, and animations to create a discretely controlled two or three-segment indicator. The segments are controlled independently with input wires.

Mobile—Choose colors and animations to create states that can be used for advanced and intuitive indication on mobile equipment.

Basic Warning—Choose colors, intensities, and animation to create a discretely controlled three-segment indicator for communication of equipment status. The segments are controlled independently with input wires.
Advanced Warning—Create up to seven discretely controlled status indicators, and use presets for Loading and Emergency Stop conditions. Colors, animations, speeds, and intensities provide equipment status.

Timer—The timer option uses the work light as a timer, counting up or counting down. Set the total time and choose up to four thresholds to change the visual appearance of the light as time advances. The timer starts when 12 V DC to 30 V DC is applied to the timer run input wire (pin 2 or white wire), and paused when left floating or tied to ground. The timer resets when

[1] Input functionality can change depending on configuration created with Pro Editor. Refer to wiring diagrams in selected mode in Pro Editor.

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12 V DC to 30 V DC is applied to the reset wire (pin 4 or black wire). The timer automatically resets when it reaches the final count. A steady global background or threshold markers can be applied, from which color and intensity can be defined.

Counter—The counter option counts up or down by converting input pulses into movement of LEDs along the length of the light based on up to four thresholds that define colors, intensity, and flashing. When the rising edge of a 12 V DC to 30 V DC pulse is applied to the counter input wire (pin 2 or white wire), the count increases by one. The user can choose whether the counter resets or the count decreases by one when 12 V DC to 30 V DC is applied to the control input wire (pin 4 or black wire). The counter automatically resets when it reaches the final count. A steady global background or threshold markers can be applied, from which color and intensity can also be defined.

Pick Put Build—Choose colors and animations to create states that can be used to guide operators, signal material status, enable light-guided assembly, create pick-to-light operations, and enable kitting operations.

Basic Segment—Choose colors, intensities, and animation to create a discretely controlled two or three-segment indicator for communication of processes.
Advanced Segment—Enable up to seven discretely controlled segments to be used as individual indication states. Only one segment can be enabled at once.

Distance—The distance mode uses the light to display colored LEDs proportional to a PFM (pulse frequency modulation) or PWM (pulse width modulation) input and set range or with discretely controlled levels.

Distance—The light adjusts position and color continuously based on the PFM or PWM input value (pin 2 or white wire) and defined color, flash, and intensity in up to four thresholds while maintaining an optional steady background for LEDs outside the active threshold range. Threshold markers can be applied, from which color and intensity can also be defined. The PFM signal frequency range can be from 100 to 10,000 Hz. The PWM duty cycle range can be from 0 to 100%.
Coarse Distance—Choose colors, intensities, and flash patterns to create up to seven discretely controlled levels based upon input wiring logic states for simple distance and level indication.

Gauge—The gauge option controls the color and position of a band of LEDs based on a defined PFM or PWM input value (pin 2 or white wire) and range. The width of the band is defined as a percentage of the total lighted length. The light adjusts the position and color of the band and background continuously based on the input signal and defined color, flash, intensities, and animations in upper, lower, and center thresholds. Threshold markers can be applied, from which color and intensity can also be defined. The PFM signal frequency range can be from 100 to 10,000 Hz. The PWM duty cycle range can be from 0 to 100%.

Animation Settings

Animation	Description
Off	Device OFF, no animation displays
Steady	Color 1 is solid ON at the defined intensity
Flash	Color 1 flashes at the defined speed, color intensity, and pattern (normal, strobe, three pulse, SOS, or random)
Two Color Flash	Color 1 and Color 2 flash alternately at the defined speed, color intensities, and pattern (normal, strobe, three pulse, SOS, or random)
Two Color Shift	Color 1 and Color 2 flash alternately on adjacent LEDs at defined speed and color intensities
Ends Steady	Color 1 defines the center 75% of the light. Color 2 defines the 12.5% of the light on each end. Center and ends are on steady. Center proportion can be defined in **End Status** mode
Ends Flash	Color 1 defines the center 75% of the light. Color 2 defines the 12.5% of the light on each end. The ends will flash at defined speed and pattern. Center proportion can be defined in **End Status** mode
Scroll	Color 1 defines a band 20% of the length of the light that moves in one direction up or down against the background of Color 2 at the defined speed and color intensities
Center Scroll	Color 1 defines a band 10% the length of the light that moves from the center of the light to the ends against the background of Color 2 at the defined speed and color intensity
Bounce	Color 1 defines a band 20% of the length of the light that moves up and down between the top and bottom of the light against the background of Color 2 at the defined speed and color intensities
Center Bounce	Color 1 defines a band 10% the length of the light that moves from the center of the light to the ends and back against the background of Color 2 at the defined speed and color intensity
Intensity Sweep	Color 1 continuously increases and decreases intensity between 0% to 100% at defined speed and color intensity
Two Color Sweep	Color 1 and Color 2 define the end values of a line across the color gamut. The light continuously displays a color by moving along the line at the defined speed and color intensity
Color Spectrum	The light scrolls through the 13 predefined colors with a different color on each LED at the defined speed, Color 1 intensity, and direction
Single End Steady	Color 1 is solid ON at the defined intensity on one end of the device

Continued on page 7

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Continued from page 6

Animation	Description
Single End Flash	Color 1 flashes at the defined speed, color intensity, and pattern (normal, strobe, three pulse, SOS, or random) on one end of the device

By default, when the sub-applications for Machine and Work Cell are selected, Pro Editor opens **I/O State** configuration in **Advanced**. Three **I/O states** are available:

I/O State Configuration Settings	Description
Basic	Configurations made in this state assign one wire to one state, with the following override control: • Pin 4 (Black) overrides Pin 1 (Brown) • Pin 2 (White) overrides Pins 1 and 4 (Brown and Black)
Advanced	I/O state with full seven state options for maximum configuration. Configurations made in Advanced assign binary wiring combinations of all valid inputs to each state.
I/O Block	Three state control for use with I/O block. Configurations made in I/O Block assign states to the black, white, and combination of black and white wires for use with I/O blocks for which power (brown) and common (blue) are always on for five pin connections.

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Chapter 3 Specifications

Supply Voltage

12 V DC to 30 V DC

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

See electrical characteristics on product label

Light Length	Typical Current			Maximum Current
	12 V DC	24 V DC	30 V DC	A
0220 mm	0.12	0.06	0.05	0.125
0360 mm	0.24	0.12	0.1	0.25
0500 mm	0.36	0.18	0.15	0.375
0640 mm	0.48	0.24	0.2	0.5
0920 mm	0.72	0.36	0.3	0.75
1200 mm	0.96	0.48	0.4	1

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

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

Connections

2 m (6.5 ft) integral PVC-jacketed cable

150 mm (6 in) PVC-jacketed cable with a 4-pin M12 male quick-disconnect connector

Models with a quick-disconnect connector require a mating cordset

Environmental Rating

Rated IP66 and IP67

Suitable for wet locations per UL 2108

Input Rating

Leakage Current Immunity: 400 µA

Indicator On/Off Response Time: 300 ms (maximum)

PWM Input Characteristics

Duty Cycle Range: 0 to 100%
Constant Frequency Range: 100 to 10000 Hz

PFM Input Characteristics

Frequency Range: 100 to 10000 Hz
Constant Duty Cycle Range: 10 to 90%

Construction

Clear anodized aluminum housing

Polycarbonate outer housing

Polyamide end caps

Vibration and Mechanical Shock

Vibration: 10 Hz to 55 Hz, 1.0 mm peak-to-peak amplitude per IEC 60068-2-6

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

Operating Temperature

–40 °C to +50 °C (–40 °F to +122 °F)

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

Mounting

Integral mounting slots for M4 (#8) screws, tighten to 5 in·lbf max torque

Multiple bracket options available

Secure cables within 150 mm (5.9 in) of the light

NOTE: It is recommended to use the provided mounting bushings when mounting using the endcaps. Center the mounting bushings in each slot to allow for expansion and contraction. Install using a M4 (#8) screw in each bushing torqued to a maximum of 0.45 N-m (4 in-lbf). For 920 mm and 1200 mm models in environments that vary more than 10 °C (18 °F), it is recommended to use one of the mounting bracket options instead of the end cap slots. If using the LMBWLS15 clip bracket and additional attachment is desired, only one end may be fastened using one of the spacers provided in the LMBWLS15 hardware packet to allow the opposite end to expand and contract. See mounting options in the instruction manual for bracket and tape options that allow expansion and contraction over temperature variations.

Certifications

Banner Engineering BV
Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM

E476617

Advanced Capabilities

PULSE® PRO I/O

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Required Overcurrent Protection

WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.

Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.

Supply wiring leads < 24 AWG shall not be spliced.

For additional product support, go to www.bannerengineering.com.

Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
20	5.0	26	1.0
22	3.0	28	0.8
24	2.0	30	0.5

Light Characteristics

RGB LED PWM Frequency: 1kHz

Color	Dominant Wavelength (nm) or Color Temperature (CCT)	Color Coordinates[2]		Lumens at Specified Length (Typical at 25 °C)					
		X	Y	220 mm	360 mm	500 mm	640 mm	920 mm	1200 mm
Daylight White	5000K	0.345	0.352	30	60	90	120	180	240
Incandescent White	2700K	0.46	0.411	30	60	90	120	180	240
Warm White	3000K	0.44	0.404	30	60	90	120	180	240
Fluorescent White	4100K	0.376	0.374	30	60	90	120	180	240
Neutral White	5700K	0.328	0.337	30	60	90	120	180	240
Cool White	6500K	0.314	0.324	30	60	90	120	180	240
Green	532	0.181	0.735	45	90	135	180	270	360
Red	621	0.691	0.308	25	50	75	100	150	200
Yellow	578	0.473	0.474	35	70	105	140	210	280
Blue	467	0.137	0.056	10	20	30	40	60	80
Magenta	-	0.379	0.177	20	40	60	80	120	160
Cyan	492	0.15	0.334	30	60	90	120	180	240
Amber	590	0.552	0.414	30	60	90	120	180	240
Rose	-	0.508	0.23	25	50	75	100	150	200
Lime Green	565	0.393	0.535	40	80	120	160	240	320
Orange	600	0.611	0.37	30	60	90	120	180	240
Sky Blue	485	0.146	0.241	25	50	75	100	150	200
Violet	-	0.212	0.091	15	30	45	60	90	120
Spring Green	509	0.157	0.553	40	80	120	160	240	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:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

[2] Refer to the CIE 1931 (x,y) Chromaticity Diagram to show equivalent color with indicated color coordinates. Actual coordinates may differ ± 5%.

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- 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.

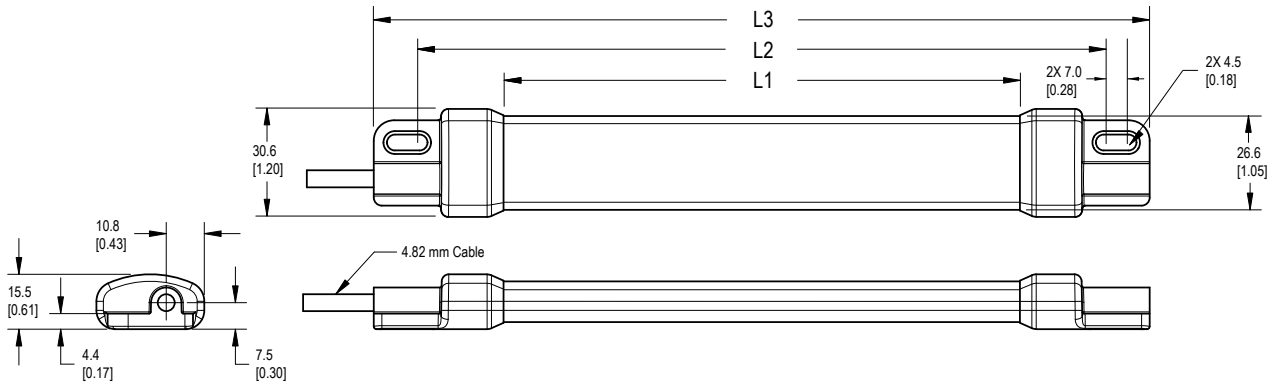
Industry Canada ICES-003(B)

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.



Models	L1	L2	L3
WLS15..0220..	146.4 mm (5.76 inches)	194 mm (7.64 inches)	220 mm (8.66 inches)
WLS15..0360..	286.4 mm (11.28 inches)	334 mm (13.15 inches)	360 mm (14.17 inches)
WLS15..0500..	426.4 mm (16.79 inches)	474 mm (18.66 inches)	500 mm (19.69 inches)
WLS15..0640..	566.4 mm (22.3 inches)	614 mm (24.17 inches)	640 mm (25.2 inches)
WLS15..0920..	846.4 mm (33.32 inches)	894 mm (35.2 inches)	920 mm (36.22 inches)
WLS15..1200..	1126.4 mm (44.35 inches)	1174 mm (46.22 inches)	1200 mm (47.24 inches)

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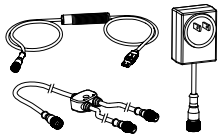
Chapter 4 Accessories

Cordsets

PRO-KIT

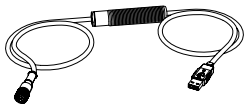
Includes:

- Pro Converter Cable (MQDC-506-USB)
- Splitter (CSB-M1251FM1251M)
- Power Supply (PSW-24-1)



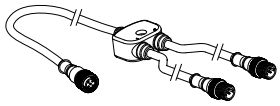
MQDC-506-USB

- Pro Converter Cable
- 1.83 m (6 ft) length 5-pin M12 quick disconnect to Device and USB to PC
- Required for connection to the configuration software



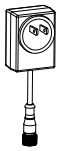
CSB-M1251FM1251M

- 5-pin parallel Y splitter (Male-Male-Female)
- For full Pro Editor preview capability
- Requires external power supply, sold separately



PSW-24-1

- 24 V DC, 1 A power supply
- 2 m (6.5 ft) PVC cable with M12 quick disconnect
- Provides external power with splitter cable, sold separately



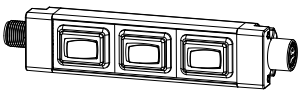
PSD-24-4

- 90 to 264 V AC 50/60 Hz input
- Includes a 1.8 m (6 ft) US-style 5-15P input plug
- 24 V DC UL Listed Class 2 M12 connector output
- 4 A total current

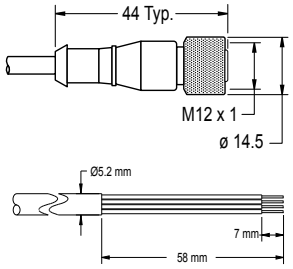
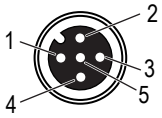
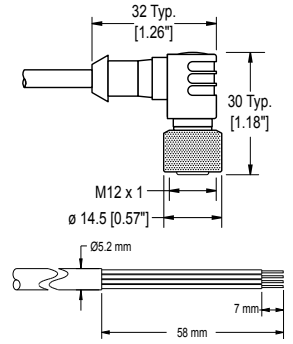
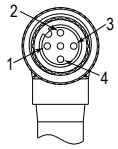


LC28PB2-3Q

- In-line switch with M12 connectors
- Rugged metal housing
- Perfect for DC-powered task lights, indicators, and tower lights
- Rated for up to 30 V DC



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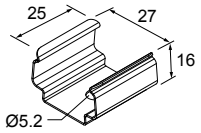
4-Pin Single-Ended M12 Female Cordsets					
Model	**Length**	**Style**	**Dimensions**	**Pinout (Female)**	
MQDC-406	2 m (6.56 ft)	Straight			1 = Brown 2 = White 3 = Blue 4 = Black 5 = Not used
MQDC-415	5 m (16.4 ft)				
MQDC-430	9 m (29.5 ft)				
MQDC-450	15 m (49.2 ft)				
MQDC-406RA	2 m (6.56 ft)	Right-Angle			
MQDC-415RA	5 m (16.4 ft)				
MQDC-430RA	9 m (29.5 ft)				
MQDC-450RA	15 m (49.2 ft)				

Mounting Accessories

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

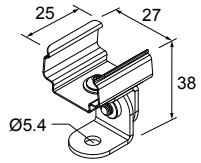
LMBWLS15

- Stainless steel clip bracket
- Includes 3 clip brackets and 2 plastic spacers
- Clearance hole for M5 hardware



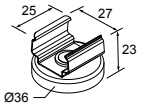
LMBWLS15-150S

- Set of 2 stainless steel swivel brackets, allows for 150° of movement
- Clearance hole for M5 button head screw



LMBWLS15MAG

- Set of 2 brackets
- Magnetic mounting bracket for attachment to steel and iron surfaces



LMBWLS15TD

- Includes 4 100 mm (4 in) strips of 3M™ Dual Lock™ reclosable fasteners
- Recommended for mounting to metal and plastic surfaces
- Strong, pressure-sensitive adhesive bonds on contact



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LMBWLS15TF • Includes 2 100 mm (4 in) strips of double-sided foam urethane strips • Acrylic adhesive provides high bond strength to most surfaces • Bonds to low surface energy plastics such as polypropylene and powder-coated paints	

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Chapter 5 Product Support and Maintenance

Clean with Mild Detergent and Warm Water

Wipe down the device with a soft cloth dampened with a mild detergent and warm water solution. Do not use any other chemicals for cleaning.

Repairs

Contact Banner Engineering for troubleshooting of this device. **Do not attempt any repairs to this Banner device; it contains no field-replaceable parts or components.** If the device, device part, or device component is determined to be defective by a Banner Applications Engineer, they will advise you of Banner's RMA (Return Merchandise Authorization) procedure.

> **IMPORTANT:** If instructed to return the device, pack it with care. Damage that occurs in return shipping is not covered by warranty.

Contact Us

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For worldwide locations and local representatives, visit www.bannerengineering.com.

Banner Engineering Corp Limited Warranty

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