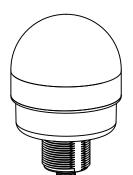
# EZ-LIGHT® K70 Wireless Indicator Light



## Datasheet

The Sure Cross® K70 Wireless Indicator Light combines the best of Banner's popular Indicator Light family with its reliable, field-proven, Sure Cross wireless architecture.



- Available in 900 MHz and 2.4 GHz ISM radio frequencies
- Up to five colors in one device
- Rugged, water-resistant IP65 housing with UV-stabilized material
- Bright, uniform indicator segments appear gray when off to eliminate false indication from ambient light
- Two-way communication lights can be controlled with the input wires or the master radio
- Input wires can be configured as auxiliary sourcing inputs from external devices or as a 20 Hz, 32-bit event counter



**Important:** Please download the complete K70 Wireless Indicator 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:** Por favor descargue desde www.bannerengineering.com toda la documentación técnica de los K70 Wireless Indicator Light, disponibles en múltiples idiomas, para detalles del uso adecuado, aplicaciones, advertencias, y las instrucciones de instalación de estos dispositivos.



**Important:** Veuillez télécharger la documentation technique complète des K70 Wireless Indicator 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

900 MHz Models				
Model No. of Colors Colors Connection		Connection		
K70DXN9RQ	1	Red	Integral 5-pin M12 male quick-disconnect connector	
K70DXN9GRQ	2	Green, Red		
K70DXN9GYRQ	3	Green, Yellow, Red		
K70DXN9BGYRQ	4	Blue, Green, Yellow, Red		
K70DXN9WBGYRQ	5	White, Blue, Green, Yellow, Red	Integral 8-pin M12 male quick-disconnect connector	

2.4 GHz Models				
Model	No. of Colors	Colors	Connection	
K70DXN2RQ	1	Red		
K70DXN2GRQ	2	Green, Red	Integral 5-pin M12 male quick-disconnect connect	
K70DXN2GYRQ	3	Green, Yellow, Red		
K70DXN2BGYRQ	4	Blue, Green, Yellow, Red	Integral 8-pin M12 male guick-disconnect connector	
K70DXN2WBGYRQ	5	White, Blue, Green, Yellow, Red	Threegral o-pitt witz male quick-disconnect connector	

Integral quick disconnect models are listed; a mating corset is required (see Accessories on page 8).

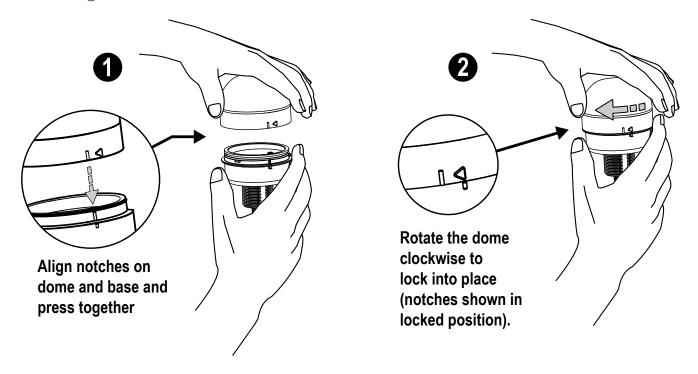
- To order the 150mm (5.9 in) PVC pigtail with quick disconnect model, replace the Q with QP in the model number, for example K70DXN9RQP.
- To order the 2 m (6.5 ft) cable models, omit the suffix Q in the model number, for example K70DXN9R.



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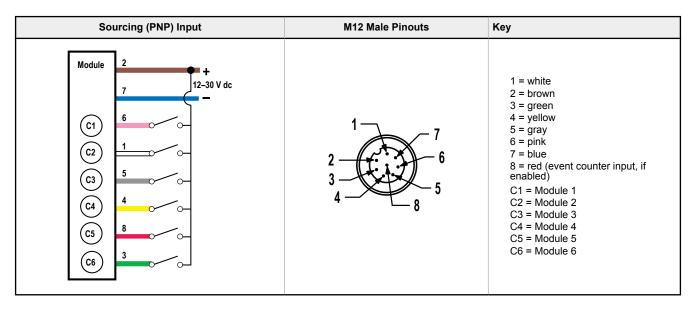
# Installation Instructions

# Assembling the K70



# Wiring

Sourcing (PNP) Input	M12 Male Pinouts	Key
Module 1 + 12-30 V dc	2 4 5	1 = brown 2 = white 3 = blue 4 = black 5 = gray C1 = Module 1 C2 = Module 2 C3 = Module 3

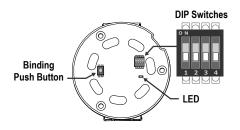


Input wires C1 through C6 can be used to either control the light segments or can be configured as external PNP Inputs. Refer to the DIP switch settings for configuration instructions.

# Configuration Instructions

#### Set the Radio Module DIP Switches

Before applying power to the device, set the radio module's DIP switches. Default configurations are noted with (\*).



DIP Switch 1: Radio Transmit Power	900 MHz Models	2.4 GHz Models	
OFF *	1 Watt (30 dBm) operation	Disabled	
ON	250 mW (24 dBm) operation	Disabled	

The 900 MHz radios transmit at 1 Watt (30 dBm) or 250 mW (24 dBm). The 250 mW mode reduces the radio's range but improves the battery life in short range applications. For 2.4 GHz models, this DIP switch is disabled. The transmit power for 2.4 GHz is fixed at about 65 mW EIRP (18 dBm).

DIP Switch 2: Input Wires 900 MHz Models and 2.4 GHz Models	
OFF *	Input wires control lights
ON	Disables wired input control of lights and converts wires to auxiliary Inputs

If there are no lights at the end of the input wires to turn on, the inputs still function as a sourcing input.

DIP Switch 3: Event Counter 900 MHz Models and 2.4 GHz Models	
OFF *	Default I/O operation
ION	Configure input 5 as a 32-bit synchronous counter at a maximum frequency of 20 Hz; disable input 6 (the counter requires two registers)

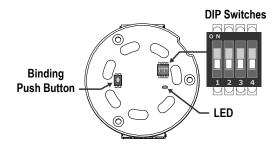
The event counter is active for RF firmware revision 5.3 or higher. In the default position (OFF), the input 1 through 6 control the tower lights. When DIP switch 3 is ON, input 5 wire is the counter input and input 6 wire is disabled. Registers 5 and 6 store the 32-bit synchronous counter count. Inputs 5 and 6 are independent from the lights and will not drive any lights they are wired to. Input wires 1 through 4 function normally.

DIP Switch 4: Bit Packing I/O 900 MHz Models and 2.4 GHz Models	
OFF *	Default I/O operation
ION	Bit-packed I/O with all inputs in Modbus register 1 and all outputs in Modbus register 9. All other Modbus registers are disabled.

Bit packing is active for RF firmware revision 5.8 or higher. Bit packing uses a single register, or range of contiguous registers, to represent I/O values. This allows you to read or write multiple I/O values with a single Modbus message. Input 1 is stored in the least significant bit of register 1. Output 1 is stored in the least significant bit of register 9.

# Bind the K70 to the Gateway and Assign the Node Address

Before beginning the binding procedure, apply power to all the devices.



- 1. Enter binding mode.
  - · For housed Gateways, triple-click button 2.
  - For board-level Gateway modules, triple-click the button.
  - For DXMs, under the ISM Radio menu, use the down arrow button to highlight the Binding menu. Click ENTER.

On the board modules, the green/red LED flashes. On the housed models, both LEDs flash red.

- 2. Assign the K70 a Node address using the Gateway's rotary dials or the DXM's arrow keys.
  - On a Gateway: Use the left rotary dial for the left digit and the right rotary dial for the right digit. For example, to assign your K70 to Node 01, set the left dial to 0 and the right dial to 1.
  - On the DXM: Use the arrow keys to select the Node ID, then press ENTER. The display shows Binding.

Valid Node addresses are 01 through 47.

- 3. Access the circuit board in the radio module of the K70.
- 4. Enter binding mode on the K70 by triple-clicking the binding button.

The bicolor LED flashes alternately while it searches for a Gateway in binding mode. After the K70 is bound, the LED is red and green for four seconds (looks amber), then it flashes four times (looks amber). The K70 automatically exits binding mode, cycles power, and enters Run mode.

- 5. For DXMs, click **BACK** to exit binding for that specific Node address.
- 6. Label the Node with the assigned address for future references.

This makes it easier to identify the physical Node location within a multi-Node network.

- 7. Reassemble the components back onto the base.
- 8. Repeat steps 2 through 5 for as many K70 Wireless Indicator Lights as are needed for your network.
- 9. After binding all K70s, exit binding mode on the Gateway.
  - For housed Gateways, double-click button 2.
  - · For board-level Gateway modules, double-click the button.
  - For DXM models, click **BACK** until you return to the main menu.

#### LED Behavior for the Nodes

Nodes do not sample inputs until they are communicating with the Gateway. The radios and antennas must be a minimum distance apart to function properly. Recommended minimum distances are:

900 MHz 150 mW and 250 mW radios: 6 feet

900 MHz 1 Watt radios: 15 feet 2.4 GHz 65 mW radios: 1 foot

LED (Bi-color)	Node Status
Flashing green	Radio link okay
Green and red flashing alternately	In Binding mode
Both colors are solid for 4 seconds, then flash 4 times; looks amber	Binding mode is complete
Flashing red, once every 3 seconds	Radio link error

LED (Bi-color)	Node Status
Flashing red, once every second	Device error

# Modes of Operation

**Node Controlled**. The wireless K70 Node can be operated similar to a wired model where the individual segments are activated by a PLC or manual switch. In this scenario, the Gateway only monitors the status of the light segments. An example application would be remotely monitoring the status of one or multiple machines from a single Gateway.

**Gateway Controlled**. In the Gateway-controlled mode, the K70 Node only requires 10 V DC to 30 V DC power. Input signals sent from the Gateway have full control over the status of all the segments. An example application would be a call-for-parts application with a K70 Node mounted to a fork truck and the Gateway mounted in a work cell or stock room. When part pick-up or delivery is needed, the operator sends a signal to the fork truck driver. A multicolor K70 could be used when there are multiple pick-up or delivery locations.

# Sure Cross® DX80 Performance Configuration Software

The configuration software offers an easy way to link I/O points in your wireless network, view I/O register values, and set system communication parameters when a host system is not part of the wireless network. The software runs on any computer with the Windows Vista, Windows 7, Windows 8, or Windows 10 operating system.

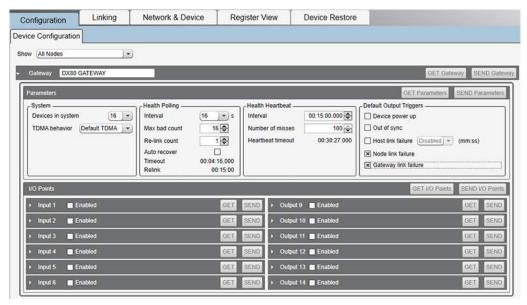


Figure 1. Device Configuration screen

Use a USB to RS-485 adapter cable to connect a standalone DX80 Gateway to the computer. For DXM Controllers with an internal DX80 radio, connect a computer to the DXM Controller using the supplied USB or Ethernet connection. Download the most recent revisions of the configuration software from Banner Engineering's website: <a href="https://www.bannerengineering.com/us/en/products/wireless-sensor-networks/reference-library/software.html">https://www.bannerengineering.com/us/en/products/wireless-sensor-networks/reference-library/software.html</a>.

The USB to RS-485 adapter cable is not required for the DXM Controller. For standalone DX80 Gateway devices use:

- USB to RS-485 adapter cable model BWA-UCT-900 for 1 Watt radios
- USB to RS-485 adapter cable model BWA-HW-006 for all other radios

## Creating Flash Patterns

Use the DX80 Performance Configuration Software to create the flash pattern.

To create a flash pattern:

- 1. Enable the appropriate output if it is not yet enabled.
- 2. Click **GET** to download the input/output current configuration from the device to the configuration software. This automatically populates the Output configuration settings specific to the Node type.
- 3. For this example, configure output 9 is enabled and configured as discrete output 1 (color 1 for this K70 light). Different models may use distinct output types and I/O configuration values.
- 4. Define the flash pattern by selecting the appropriate checkboxes in the **Flash Pattern** section. In this example, the light will flash twice a second.
- 5. Click **SEND** to upload the configuration to the device.

Output 9 

Enabled Discrete Output 1 GET -I/O configuration -Analog output mapping Units Discrete Threshold 0 💠 Invert I/O Hysteresis 0 💠 Hold last state Extended parameters 0.00 🗢 on/off Default output 0 💠 Counter 0 💠 Switched power options Miscellaneous Power supply [External] ▼ 0 💠 Serial address Output voltage Battery Digital signal conditioning Warmup 00:00:00.000 Pulse width 00:00:00.000 🝣 -Flash Pattern 250ms 500ms 750ms 

Figure 2. Defining a flash pattern for discrete output 1

# Modbus Registers

I/O	Modbus Holding Register		Modbus Holding Register I/O Type		I/O Range		Holding Register Representation (Dec.)	
	Gateway	Any Node	1	Min.	Max.	Min.	Max.	
1	1	1 + (Node# × 16)	Discrete IN 1 / Bit-packed inputs	0	1	0	1	C1
2	2	2 + (Node# × 16)	Discrete IN 2	0	1	0	1	C2
3	3	3 + (Node# × 16)	Discrete IN 3	0	1	0	1	C3
4	4	4 + (Node# × 16)	Discrete IN 4	0	1	0	1	C4
5	5	5 + (Node# × 16)	Discrete IN 5 / 32-bit event counter high word	0	1	0	1	C5
6	6	6 + (Node# × 16)	Discrete IN 6 / 32-bit event counter low word	0	1	0	1	-
7	7	7 + (Node# × 16)	Reserved					
8	8	8 + (Node# × 16)	Device Message					
9	9	9 + (Node# × 16)	Discrete OUT 9 / Bit-picked outputs	0	1	0	1	C1
10	10	10 + (Node# × 16)	Discrete OUT 10	0	1	0	1	C2
11	11	11 + (Node# × 16)	Discrete OUT 11	0	1	0	1	C3
12	12	12 + (Node# × 16)	Discrete OUT 12	0	1	0	1	C4
13	13	13 + (Node# × 16)	Discrete OUT 13	0	1	0	1	C5
14	14	14 + (Node# × 16)	Discrete OUT 14 / Zero out (clear) the counter	0	1	0	1	-
15	15	15 + (Node# × 16)	Control Message					
16	16	16 + (Node# × 16)	Reserved					

Use the User Configuration Tool (UCT) software to define unique synchronous flash patterns for the lights.

# Specifications

## **EZ-LIGHT K70**

#### **Supply Voltage and Current**

12 V DC to 30 V DC (Outside the USA: 12 V DC to 24 V DC,  $\pm$  10%) <sup>1</sup> Indicators - Maximum current per LED color:

Blue, Green, White: 200 mA at 12 V DC; 90 mA at 30 V DC Red, Yellow: 150 mA at 12 V DC; 75 mA at 30 V DC

900 MHz Consumption: Maximum current draw is < 40 mA and typical current draw is < 30 mA at 24 V DC. (2.4 GHz consumption is less.)

#### **Supply Protection Circuitry**

Protected against transient voltages

#### **Indicator Response Time**

Off Response: 150  $\mu s$  (maximum) at 12 V DC to 30 V DC

On Response: 180 ms (maximum) at 12 V DC; 50 ms (maximum) at 30 V DC

#### Construction

Base and cover: polycarbonate

#### **Operating Conditions**

-40 °C to +50 °C (-40 °F to +122 °F) 95% at +50 °C maximum relative humidity (non-condensing)

#### **Environmental Rating**

IP65

#### Vibration and Mechanical Shock

Vibration: 10 Hz to 55 Hz, 0.5 mm peak-to-peak amplitude per IEC 60068-2-6

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

#### Certifications







Banner Engineering Europe Park Lane, Culliganiaan 2F bus 3 18

(CE approval only applies to 2.4 GHz

models)

Culliganlaan 2F bus 3, 1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House, Blenheim Court, Wickford, Essex SS11 8YT, Great Britain

#### Segment Lumens

-	9					
	Color	Typical Wavelength or Color Temp	Typical Intensity (lm)			
	Green	525 nm	65			
	Red	625 nm	34			
	Yellow	590 nm	22			
	Blue	470 nm	22			
	White	5000 K	87			

#### Indicators

1 to 5 colors depending on model: Green, Red, Yellow, Blue, and White

#### Connections

5-pin M12 quick disconnect, 8-pin M12 quick disconnect, 150 mm (5.9 in) PVC cable with an M12 quick disconnect, or 2 m (6.5 ft) unterminated cable, depending on model

#### **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

Overcurrent protection may be provided with external fusing or via Curren 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 (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

### Radio

#### Radio Range

900 MHz, 1 Watt: Up to 3.2 km (2 miles) with line of sight (internal antenna) 2.4 GHz, 65 mW: Up to 1000 m (3280 ft) with line of sight (internal antenna)

## **Minimum Separation Distance**

900 MHz, 1 Watt: 4.57 m (15 ft) 2.4 GHz, 65 mW: 0.3 m (1 ft)

#### **Spread Spectrum Technology**

FHSS (Frequency Hopping Spread Spectrum)

## 900 MHz Compliance (1 Watt)

Contains FCC ID: UE3RM1809: FCC Part 15, Subpart C, 15.247 Contains IC: 7044A-RM1809 IFT: RCPBARM13-2283





(NOM approval only applies to 900 MHz models)

#### 2.4 GHz Compliance (DX80-2400 Radio Module)

Radio module is indicated by the product label marking Contains FCC ID: UE300DX80-2400: FCC Part 15, Subpart C, 15.247 Radio Equipment Directive (RED) 2014/53/EU Contains IC: 7044A-DX8024

ANATEL: 15966-21-04042 Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados. Para maiores informações, consulte o site da ANATEL www.gov.br/anatel/pt-br/

#### 2.4 GHz Compliance (SX243 Radio Module)

Radio module is indicated by the product label marking Contains FCC ID: UE3SX243: FCC Part 15, Subpart C, 15.247 Radio Equipment Directive (RED) 2014/53/EU Contains IC: 7044A-SX243

#### Radiated Immunity HF

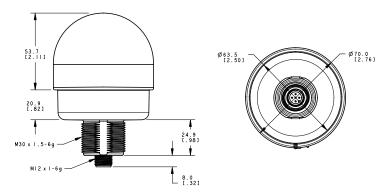
10 V/m (EN 61000-4-3)

#### Link Timeout (Performance)

Gateway: Configurable via User Configuration Software Node: Defined by Gateway

For European applications, power this device from a Limited Power Source as defined in EN 60950-1.

# Dimensions



All measurements are listed in millimeters [inches], unless noted otherwise. Dimensions for the quick disconnect model are shown.

# Accessories

# Cordsets

5-Pin Threaded M12 Cordsets—Single Ended					
Model	Length	Style	Dimensions	Pinout (Female)	
MQDC1-501.5	0.5 m (1.5 ft)				
MQDC1-503	0.9 m (2.9 ft)		44 Typ. ———		
MQDC1-506	2 m (6.5 ft)		Straight M12 x1 g14.5		
MQDC1-515	5 m (16.4 ft)	Straight			
MQDC1-530	9 m (29.5 ft)			<b>∞</b> -2	
MQDC1-560	18 m (59 ft)			1 (600)	
MQDC1-506RA	2 m (6.5 ft)			4 5 5	
MQDC1-515RA	5 m (16.4 ft)	Right-Angle	32 Typ. 1.26"] 30 Typ. 11.18"] M12 x 1	1 = Brown	
MQDC1-530RA	9 m (29.5 ft)				
MQDC1-560RA	19 m (62.3 ft)			2 = White 3 = Blue 4 = Black 5 = Gray	

8-Pin Threaded M12 Cordsets with Open-Shield—Single Ended					
Model	Length	Style	Dimensions	Pinout (Female)	
MQDC2S-806	2.04 m (6.7 ft)				
MQDC2S-815	5.04 m (16.54 ft)			3	
MQDC2S-830	10.04 m (32.95 ft)				
MQDC2S-850	16 m (52.49 ft)	Straight	44 Typ. M12 x 1 9 14.5	7 6 8  1 = White 2 = Brown 3 = Green 4 = Yellow 5 = Gray 6 = Pink 7 = Blue 8 = Red	

Model	Length	Style	Dimensions	Pinout (Female)
MQDC2S-806RA	2 m (6.56 ft)			
MQDC2S-815RA	5 m (16.4 ft)		32 Typ. [1.26"]	
MQDC2S-830RA	10 m (32.81 ft)			
MQDC2S-850RA	16 m (52.49 ft)	Right-Angle	30 Typ. [1.18"]  M12 x 1  ø 14.5 [0.57"]	

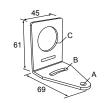
All measurements are listed in millimeters, unless noted otherwise.

## **Mounting Brackets**

### SMB30A

- Right-angle bracket with curved slot for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor
- 12-ga. stainless steel

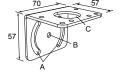
Hole center spacing: A to B=40 Hole size:  $A=\emptyset$  6.3,  $B=27.1 \times 6.3$ ,  $C=\emptyset$  30.5



### SMB30MM

- 12-ga. stainless steel bracket with curved mounting slots for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor

**Hole center spacing:** A = 51, A to B = 25.4 **Hole size:** A =  $42.6 \times 7$ , B =  $\emptyset 6.4$ , C =  $\emptyset 30.1$ 



## SMBAMS30P

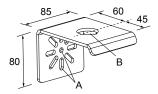
- Flat SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-ga. 300 series stainless steel

**Hole center spacing:** A=26.0, A to B=13.0 **Hole size:** A=26.8 x 7.0, B= $\emptyset$  6.5, C= $\emptyset$  31.0



## SSA-MBK-EEC1

- Single 30 mm hole
- 8 gauge steel, black finish (powder coat)
- Front surface for customer applied labels

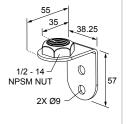


Hole size:  $A = \emptyset 7$ ,  $B = \emptyset 30$ 

## LMBE12RA35

- Direct mounting of stand-off pipe, with common bracket type
- Zinc-plated steel
- 1/2-14 NPSM nut
- Mounting distance from the wall to the center of the 1/2-14 NPSM nut is 35 mm

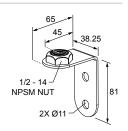
Hole center spacing: 20.0



## LMBE12RA45

- Direct mounting of stand-off pipe, with common bracket type
- Zinc-plated steel
- 1/2-14 NPSM nut
- Mounting distance from the wall to the center of the 1/2-14 NPSM nut is 45 mm

Hole center spacing: 35.0



All measurements are listed in millimeters, unless noted otherwise.

# **Elevated Mount System**

Model	Features	Components			
SA-M30 - Black Polycarbonate	Streamlined black PC or Gray PC thread cover				
SA-M30C - Gray Polycarbonate	<ul><li>Covers M30 thread on the light base</li><li>Mounting hardware included</li></ul>				

Model			Features	Components
Polished 304 Stainless Steel	Black Anodized Aluminum	Clear Anodized Aluminum		
<b>SOP-E12-150SS</b> 150 mm (6 in) long	<b>SOP-E12-150A</b> 150 mm (6 in) long	<b>SOP-E12-150AC</b> 150 mm (6 in) long	<ul> <li>Elevated-use stand-off pipe (½ in. NPSM/DN15)</li> <li>Polished 304 stainless steel, black anodized</li> </ul>	
<b>SOP-E12-300SS</b> 300 mm (12 in) long	<b>SOP-E12-300A</b> 300 mm (12 in) long	<b>SOP-E12-300AC</b> 300 mm (12 in) long	<ul> <li>aluminum, or clear anodized aluminum surface</li> <li>½ in. NPT thread at both ends</li> <li>Compatible with most industrial environments</li> </ul>	
<b>SOP-E12-900SS</b> 900 mm (36 in) long	<b>SOP-E12-900A</b> 900 mm (36 in) long	<b>SOP-E12-900AC</b> 900 mm (36 in) long		
SA-E12M30 - Black Acet	al	'	Streamlined black acetal or white UHMW mounting	Q
SA-E12M30C - White UHMW			<ul> <li>base adapter/cover</li> <li>Connects between ½ in. NPSM/DN15 pipe and 30 mm (1-3/16 in) drilled hole</li> <li>Mounting hardware included</li> </ul>	

Pipe Mounting Flange					
Model	Features	Construction			
SA-F12	Elevated-use stand-off pipes (½ in, NPSM/DN15)     M5 mounting hardware and nitrile gasket included	Die-cast zinc base with black paint	1/2-14 NPSM 4x ø5.5 00 00		

Foldable Mounting Brackets					
Model	Features	Construction			
SA-FFB12		Black polycarbonate	1/2-14 NPSM		
SA-FFB12C	<ul> <li>For use with 1/2 inch stand-off pipes</li> <li>Stainless steel hardware</li> </ul>	Gray polycarbonate	070 4 x Ø5		

## LMB Sealed Right-Angle Brackets

Model	Description	Construction			
LMB30RA		Black polycarbonate			
LMB30RAC	<b>Direct-Mount Models:</b> Bracket kit with base, 30 mm adapter, set screw, fasteners, O-rings, and gaskets.	Gray polycarbonate			
LMBE12RA	Pipe-Mount Models: Bracket kit with base, ½-14 pipe	Black polycarbonate			
LMBE12RAC	adapter, set screw, fasteners, O-rings, and gaskets. For use with stand-off pipe (listed and sold separately).	Gray polycarbonate			

# 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.

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## FCC Part 15 Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## Industry Canada

IC: 7044A-DX8024 or 7044A-SX243—This device contains licence-exempt transmitters(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- 1. This device may not cause interference.
- 2. This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil contient des émetteurs/récepteurs exemptés de licence conformes à la norme Innovation, Sciences, et Développement économique Canada. L'exploitation est autorisée aux deux conditions suivantes:

- 1. L'appareil ne doit pas produire de brouillage.
- L'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

### Notas Adicionales

Información México: La operación de este equipo está sujeta a las siguientes dos condiciones: 1) es posible que este equipo o dispositivo no cause interferencia perjudicial y 2) este equipo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.

Banner es una marca registrada de Banner Engineering Corp. y podrán ser utilizadas de manera indistinta para referirse al fabricante. "Este equipo ha sido diseñado para operar con las antenas tipo Omnidireccional para una ganancia máxima de antena de 6 dBd y Yagi para una ganancia máxima de antena 10 dBd que en seguida se enlistan. También se incluyen aquellas con aprobación ATEX tipo Omnidireccional siempre que no excedan una ganancia máxima de antena de 6dBd. El uso con este equipo de antenas no incluidas en esta lista o que tengan una ganancia mayor que 6 dBd en tipo omnidireccional y 10 dBd en tipo Yagi, quedan prohibidas. La impedancia requerida de la antena es de 50 ohms."

Antenas SMA	Modelo	Antenas Tipo-N	Modelo
Antena, Omni 902-928 MHz, 2 dBd, junta de caucho, RP-SMA Macho		Antena, Omni 902-928 MHz, 6 dBd, fibra de vidrio, 1800mm, N Hembra	BWA-906-A
Antena, Omni 902-928 MHz, 5 dBd, junta de caucho, RP-SMA Macho	BWA-905-C	Antena, Yagi, 900 MHz, 10 dBd, N Hembra	BWA-9Y10-A

## 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

### ANATEL

Modelo (Model): DX80-2400—Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados. Para maiores informações, consulte o site da ANATEL www.gov.br/anatel/pt-br/



