

K50 Pro Select Indicator Product Manual



Original Instructions

p/n: 240395 Rev. B

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Chapter 1

Features

50 mm Programmable Multicolor RGB Indicator



- Bright, uniform indicator light
- Seven default colors in one device (Green, Red, Yellow, Blue, White, Cyan, Magenta)
- Programmable using Banner's Pro Editor software and Pro Converter Cable
- 30 mm threaded polycarbonate base
- Translucent polycarbonate dome
- Rugged IP66, IP67, IP69K per ISO 20653 and UL Type 4X and UL Type 13 design
- Bimodal inputs (PNP/NPN), depending on source wiring

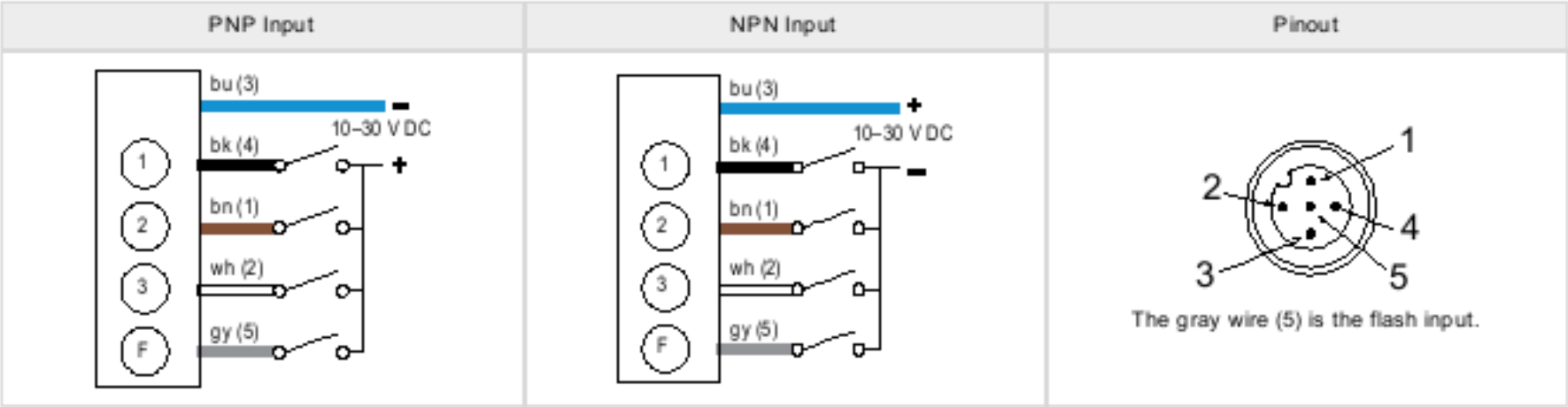
Models

Family	Style	Color and Input	Connector ⁽¹⁾
K50	PSL	RGB7	Q
	PSL = Pro Select Indicator	RGB7 = RGB Multicolor (7 colors)	Q = Integral 5-pin M12 male quick-disconnect connector

⁽¹⁾ Models with a quick-disconnect connector require a mating cordset.

Chapter 2 Wiring

5-pin/Wire Models



Default Color Definition

	Red	Yellow	Green	Cyan	Blue	Magenta	White
Input 1	X	X				X	X
Input 2		X	X	X			X
Input 3				X	X	X	X

An "X" denotes an active input. For example, when Input 1 and Input 3 are active, the indicator is magenta.

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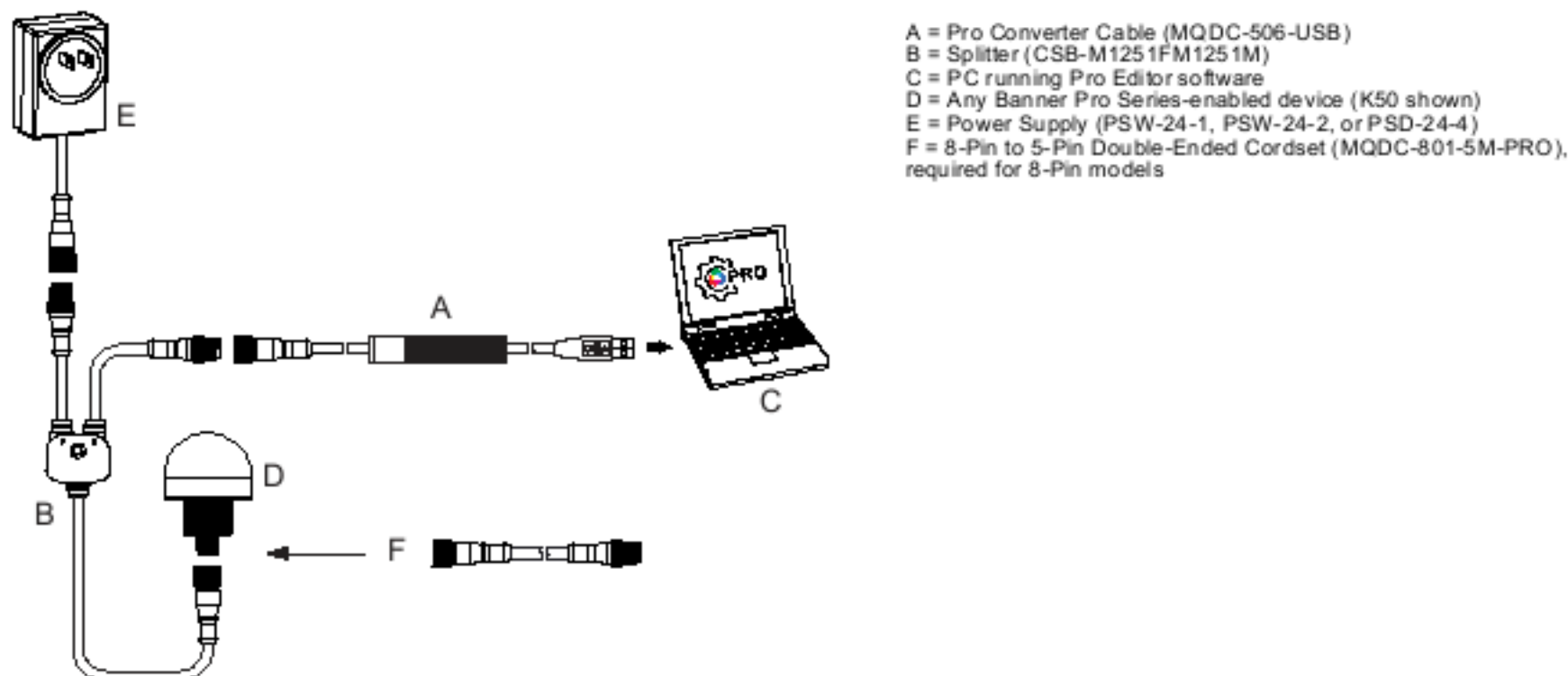
Chapter 3 Pro Editor



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.

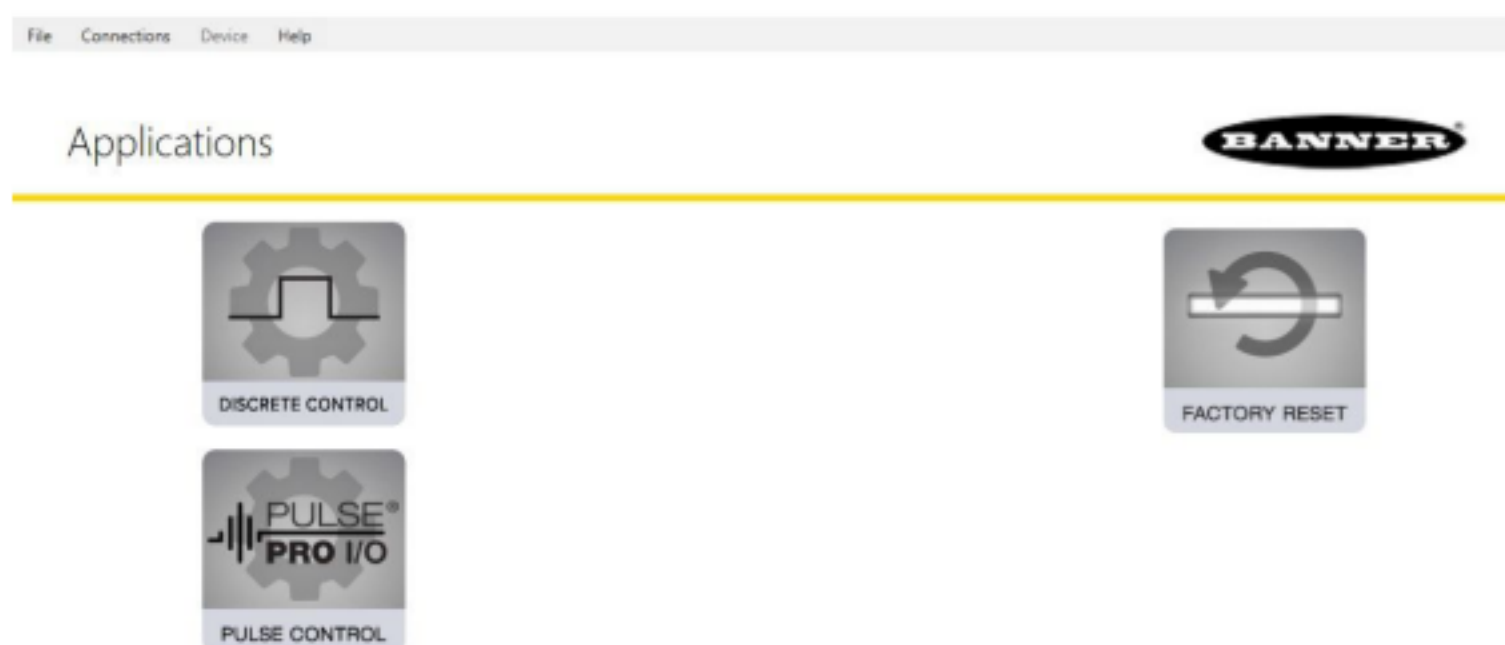
Full Preview Connection (Required)

The full preview connection must be used for the K50 Pro Select Indicator.



K50 Pro Select Pro Editor Program Options

When the K50 Pro Select device is connected to Pro Editor, the software displays two application tiles for Discrete Control and Pulse Control:



Discrete Control

Selecting the Discrete Control tile displays three I/O State tiles:

- Basic
- Advanced
- I/O Block

Discrete Control also contains the Pro ID function, accessed through one of the three I/O State tiles.



Basic I/O State

Basic four-state control. Configurations made in Basic I/O State assign one wire to one state, with the following override control:

- Pin 1 (Brown) overrides Pin 4 (Black)
- Pin 2 (White) overrides Pins 1 and 4 (Brown and Black)
- Pin 5 (Gray) overrides Pins 1, 2, and 4 (Brown, White, and Black)

File Connections Device Pro ID Help

← Applications -> Discrete Control -> Basic

BANNER

Preview	Device State	Animation	Color 1	Intensity 1	Color 2	Intensity 2	Color1%	Speed	Pattern	Direction
Start	Black Wire (Pin 4)	Steady	Red	Hi						
Start	Brown Wire (Pin 1)	Steady	Green	Hi						
Start	White Wire (Pin 2)	Steady	Blue	Hi						
Start	Gray Wire (Pin 5)	Off								

Read Device Settings Write Device Settings

BANNER

Advanced I/O State

Advanced, default I/O state, with 15 state options for maximum configuration ability. Configurations made in Advanced I/O State assign binary wiring combinations of all valid inputs to each state.

File Connections Device Pro ID Help

← Applications -> Discrete Control -> Advanced

BANNER

Preview	Device State	Animation	Color 1	Intensity 1	Color 2	Intensity 2	Color1%	Speed	Pattern	Direction
Start	Black Wire (Pin 4)	Steady	Red	Hi						
Start	Brown Wire (Pin 1)	Steady	Green	Hi						
Start	White Wire (Pin 2)	Steady	Blue	Hi						
Start	Gray Wire (Pin 5)	Off								
Start	Black & Brown	Steady	Yellow	Hi						
Start	Black & White	Steady	Pink	Hi						
Start	Black & Gray	Flash	Red	Hi				Stanc	Norm	
Start	Brown & White	Steady	Cyan	Hi						
Start	Brown & Gray	Flash	Green	Hi				Stanc	Norm	
Start	White & Gray	Flash	Blue	Hi				Stanc	Norm	
Start	Black & Brown & White	Steady		Hi						
Start	Black & Brown & Gray	Flash	Yellow	Hi				Stanc	Norm	
Start	Black & White & Gray	Flash	Pink	Hi				Stanc	Norm	
Start	Brown & White & Gray	Flash	Cyan	Hi				Stanc	Norm	
Start	All 4 Wires	Flash		Hi				Stanc	Norm	

Read Device Settings Write Device Settings

BANNER

I/O Block I/O State

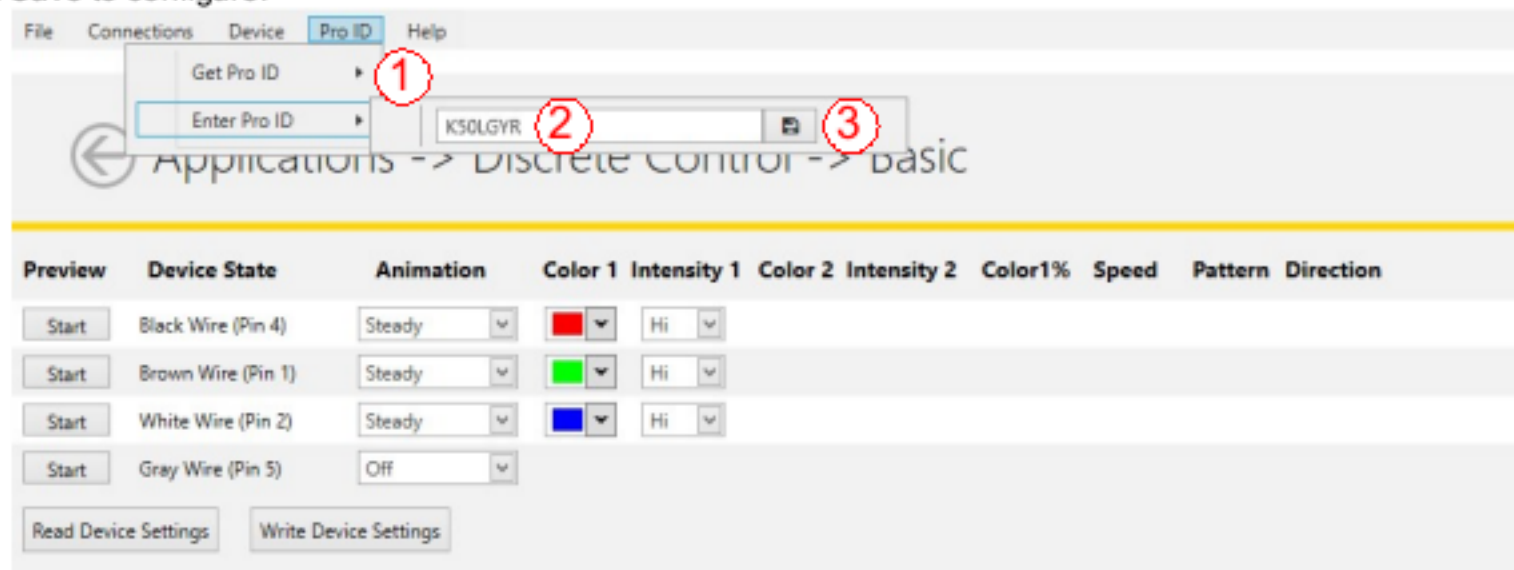
Three-state control for use with I/O block. Configurations made in I/O Block assign states to the black, white, and combination of black and white wires for use with I/O blocks, for which power (brown) and common (blue) are always on for five-pin connections.



Pro ID

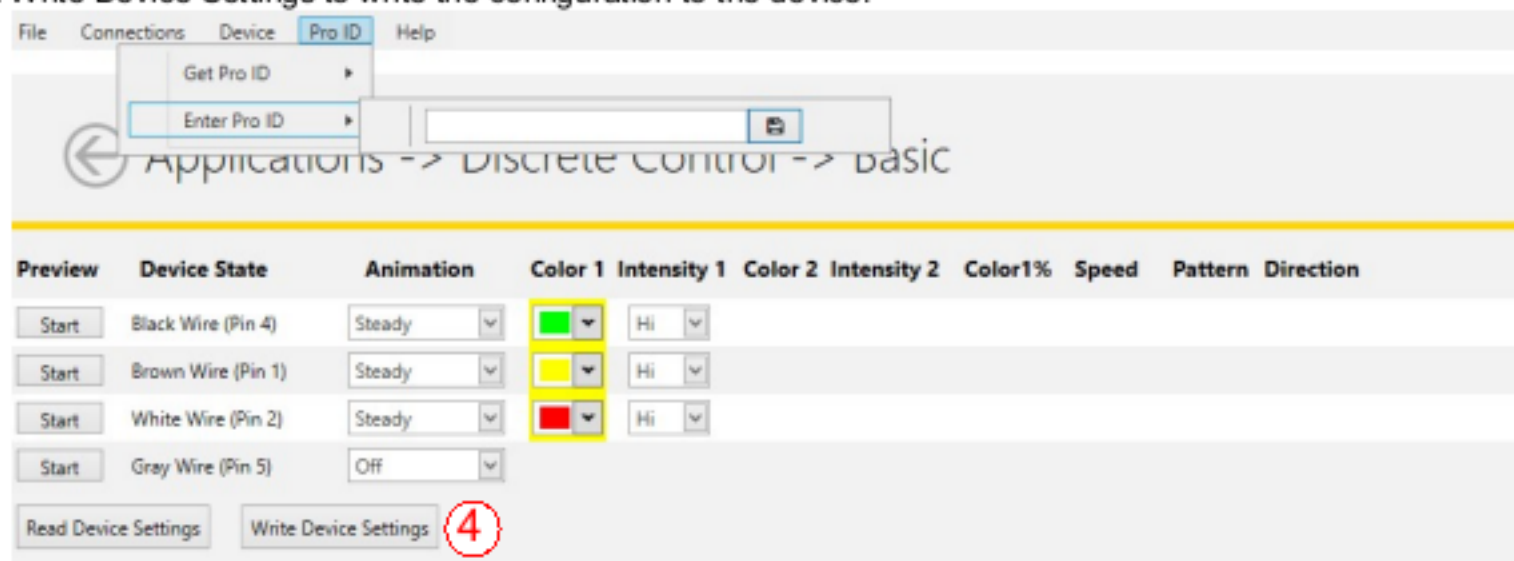
The Pro ID function allows the user to enter a known K50 model to configure a K50 Pro Select device automatically. The user must be in one of the three Discrete Control > I/O State tiles to access this menu.

1. In the top menu, navigate to Pro ID > Enter Pro ID.
2. Enter the model number of the known K50 model that you want to replicate. Do not include the input or connection type from the model number.
For example: Model number K50LGYRPQ should be entered as K50LGYR.
3. Click Save to configure.



The configurations from the K50 model are applied to the settings and are highlighted in yellow (see image below).

4. Click Write Device Settings to write the configuration to the device.



Pulse Control

Selecting the Pulse Control tile displays up to sixteen states that correspond to input frequencies on the white wire. The number of states (1) and input characteristics (2) are user-defined. Ranges are calculated (3).

File Connections Device Help

Applications -> Pulse Control

Number of States: 16 PWM/PPM: PPM PFM Low: 100 PFM High: 600

Preview State Animation Color 1 Intensity 1 Color 2 Intensity 2 Color1% Speed Pattern Direction Range (Hz)

Start	1	Off																100 - 131
Start	2	Steady		Hi														131 - 163
Start	3	Steady		Hi														163 - 194
Start	4	Steady		Hi														194 - 225
Start	5	Steady		Hi														225 - 256
Start	6	Steady		Hi														256 - 288
Start	7	Steady		Hi														288 - 319
Start	8	Steady		Hi														319 - 350
Start	9	Off																350 - 381
Start	10	Flash		Hi					Stanc	Norm								381 - 413
Start	11	Flash		Hi					Stanc	Norm								413 - 444
Start	12	Flash		Hi					Stanc	Norm								444 - 475
Start	13	Flash		Hi					Stanc	Norm								475 - 506
Start	14	Flash		Hi					Stanc	Norm								506 - 538
Start	15	Flash		Hi					Stanc	Norm								538 - 569
Start	16	Flash		Hi					Stanc	Norm								569 - 600

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Chapter 4 Specifications

Supply Voltage and Current

10 V DC to 30 V DC

- 220 mA at 10 V DC (exclusive of load)
- 190 mA at 12 V DC (exclusive of load)
- 115 mA at 24 V DC (exclusive of load)
- 100 mA at 30 V DC (exclusive of load)

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Leakage Current Immunity

400 μ A

Input Response Time

250 milliseconds maximum

Flash

Default 1.5 Hz flash rate using flash input wire

Vibration and Mechanical Shock

Meets IEC 60068-2-6 requirements (Vibration: 10 Hz to 55 Hz, 1.0 mm amplitude, 5 minutes sweep, 30 minutes dwell)

Meets IEC 60068-2-27 requirements (Shock: 30G 11 ms duration, half sine wave)

Operating Conditions

-40 °C to +50 °C (-40 °F to +122 °F)

90% at +50 °C maximum relative humidity (non-condensing)

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

Environmental Rating

IP66, IP67, IP69K per ISO 20653

Connections

Integral 5-pin M12 male quick-disconnect connector

Mounting

M30 by 1.5 threaded base, maximum torque 4.5 N·m (40 inch-lbf)

Mounting nut included

Construction

Base and Dome: Polycarbonate

Mounting Nut: Polybutylene terephthalate (PBT)

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	1.0	30	0.5

Certifications



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1831 Diegem, BELGIUM



Default Indicator Characteristics

Color	Dominant Wavelength (nm) or Color Temperature (CCT)	Color Coordinates ⁽²⁾		Lumen Output Per Segment (Typical at 25 °C)
		X	Y	
Green	522	0.154	0.7	25.1
Red	620	0.689	0.309	13.9
Yellow	576	0.477	0.493	38.1
Blue	466	0.14	0.054	4
White	5700K	0.328	0.337	38.8
Cyan	493	0.17	0.34	27.9
Magenta	-	0.379	0.172	16.8

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.
- 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)

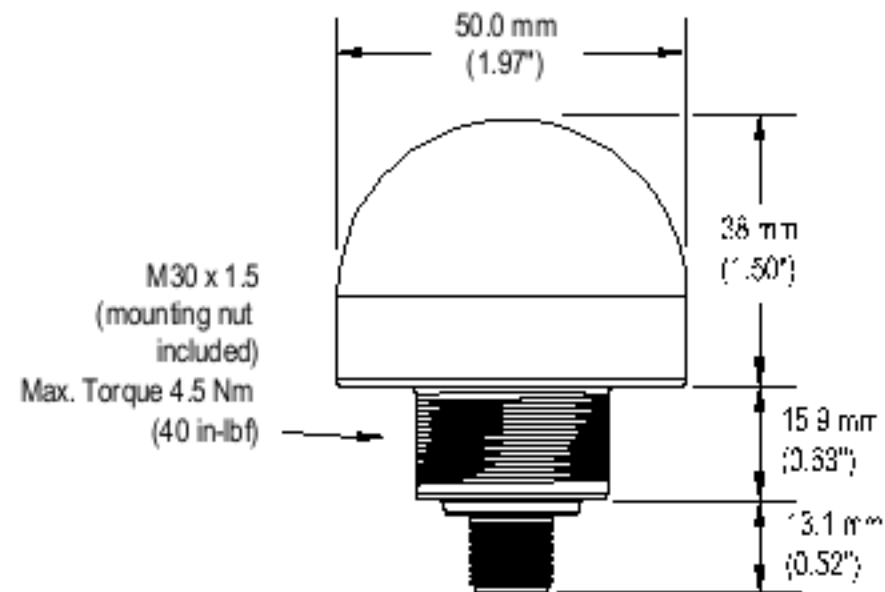
This device complies with CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

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.

⁽²⁾ Refer to CIE 1931 chromaticity diagram or color chart to show equivalent color with indicated color coordinates. Actual coordinates may differ by 10%.

Dimensions

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



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Chapter 5 Accessories

Pro Editor Hardware

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



PSW-24-2

- 24 V DC, 2 A power supply
- 3.5 m (11.5 ft) PVC cable with M12 quick disconnect
- Provides external power with splitter cable, sold separately



Cordsets

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

5-pin Double-Ended M12 Female to M12 Male Cordsets				
Model	Length	Dimensions (mm)	Pinouts	
BC-M12F5-M12M5-22-0.16M	0.16 m (0.52 ft)		Female	1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray
BC-M12F5-M12M5-22-1	1 m (3.28 ft)			
BC-M12F5-M12M5-22-2	2 m (6.56 ft)		Male	
BC-M12F5-M12M5-22-5	5 m (16.4 ft)			
BC-M12F5-M12M5-22-8	8 m (26.25 ft)			
BC-M12F5-M12M5-22-10	10 m (30.81 ft)			
BC-M12F5-M12M5-22-15	15 m (49.2 ft)			

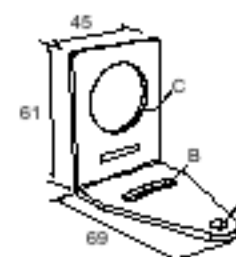
5-pin Double-Ended M12 Female Right-Angle to M12 Male Right-Angle Cordsets				
Model	Length	Dimensions (mm)	Pinouts	
BC-M12F5A-M12M5A-22-1	1 m (3.28 ft)		Female	1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray
BC-M12F5A-M12M5A-22-2	2 m (6.56 ft)			
BC-M12F5A-M12M5A-22-5	5 m (16.4 ft)		Male	
BC-M12F5A-M12M5A-22-8	8 m (26.25 ft)			
BC-M12F5A-M12M5A-22-10	10 m (30.81 ft)			
BC-M12F5A-M12M5A-22-15	15 m (49.2 ft)			

Brackets

SMB30A

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

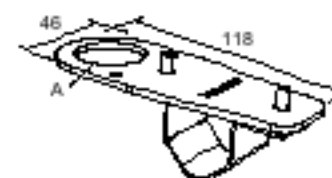
Hole center spacing: A to B=40
 Hole size: A=ø 6.3, B= 27.1 × 6.3, C=ø 30.5



SMB30FVK

- V-clamp, flat bracket and fasteners for mounting to pipe or extensions
- Clamp accommodates 28 mm dia. tubing or 1 in. square extrusions
- 30 mm hole for mounting sensors

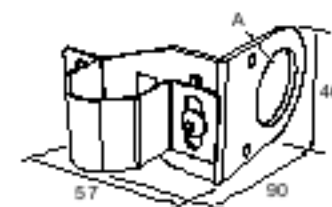
Hole size: A= ø 31



SMB30RAVK

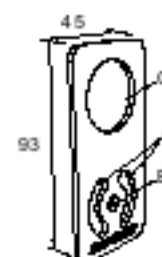
- V-clamp, right-angle bracket and fasteners for mounting sensors to pipe or extrusion
- Clamp accommodates 28 mm dia. tubing or 1 in. square extrusions
- 30 mm hole for mounting sensors

Hole size: A = $\varnothing$ 30.5

**SMBAMS30P**

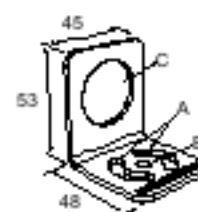
- Flat SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-gauge 300 series stainless steel

Hole center spacing: A=26.0, A to B=13.0
Hole size: A=26.8 × 7.0, B= $\varnothing$ 6.5, C= $\varnothing$ 31.0

**SMBAMS30RA**

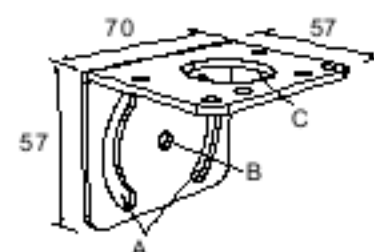
- Right-angle SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-gauge (2.6 mm) cold-rolled steel

Hole center spacing: A=26.0, A to B=13.0
Hole size: A=26.8 × 7.0, B= $\varnothing$ 6.5, C= $\varnothing$ 31.0

**SMB30MM**

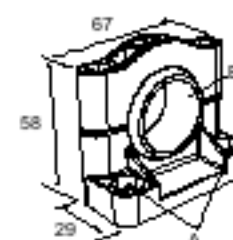
- 12-gauge stainless steel bracket with curved mounting slots for versatile orientation
- Clearance for M6 (1/4 in) hardware
- Mounting hole for 30 mm sensor

Hole center spacing: A = 51, A to B = 25.4
Hole size: A = 42.6 × 7, B = $\varnothing$ 6.4, C = $\varnothing$ 30.1

**SMB30SC**

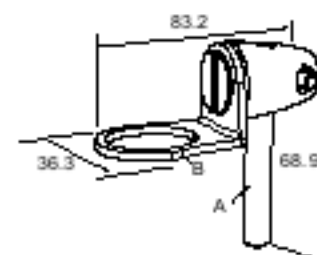
- Swivel bracket with 30 mm mounting hole for sensor
- Black reinforced thermoplastic polyester
- Stainless steel mounting and swivel locking hardware included

Hole center spacing: A= $\varnothing$ 50.8
Hole size: A= $\varnothing$ 7.0, B= $\varnothing$ 30.0

**SMB30FA**

- Swivel bracket with tilt and pan movement for precise adjustment
- Mounting hole for 30 mm sensor
- 12-gauge 304 stainless steel
- Easy sensor mounting to extrude rail T-slot
- Metric- and inch-size bolt available

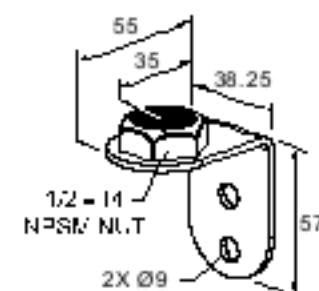
Bolt thread: SMB30FA, A= 3/8 - 16 × 2 in; SMB30FAM10, A= M10 - 1.5 × 50
Hole size: B = $\varnothing$ 30.1



LMBE12RA35

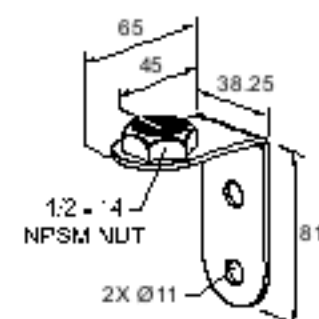
- Direct mounting of stand-off pipe, with common bracket type
- Zinc-plated steel
- 1/2-14 NPSM nut
- Mounting distance from the wall to the center of the 1/2-14 NPSM nut is 35 mm

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 [inches], unless noted otherwise. The measurements provided are subject to change.

Wash-Down Cover

WC-K50 Washdown Cover

- FDA-grade silicone
- Fits K50 indicators
- IP67 and IP69K rated



Elevated Mount System

Model		Description	Components
SA-M30E12P - Black Acetal		• Streamlined black acetal stand-off pipe adapter/cover • Connects between 30 mm light base and 1/2 in. NPSM/DN15 pipe • Mounting hardware included	
Black Anodized Aluminum	Clear Anodized Aluminum	• Elevated-use stand-off pipe (1/2 in. NPSM/DN15) • Polished 304 stainless steel, black anodized aluminum, or clear anodized aluminum surface • 1/2 in. NPT thread at both ends: one end screws into the internal threads of the light's base, and one end screws into the mounting base adapter/cover • Compatible with most industrial environments	
SOP-E12-150A	SOP-E12-150AC		
150 mm (6 in) long	150 mm (6 in) long		
SOP-E12-300A	SOP-E12-300AC		
300 mm (12 in) long	300 mm (12 in) long		
SOP-E12-600A	SOP-E12-600AC		
600 mm (24 in) long	600 mm (24 in) long		
SOP-E12-900A	SOP-E12-900AC		
900 mm (36 in) long	900 mm (36 in) long		

Chapter Contents

Chapter 6 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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