Features

50 mm Programmable Multicolor RGB Device with Optical Sensor

- Programmable using Banner's Pro Editor software and Pro Converter Cable
- Up to 14 default colors with flash input in one unit
- Devices are completely self-contained—no controller needed
- Rated IP67 and IP69K per ISO 20653
- Immune to ambient light, EMI, and RFI interference
- 12 V DC to 30 V DC operation

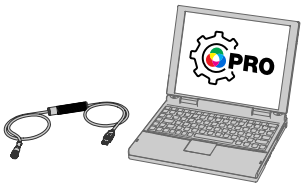
WARNING:

- **Do not use this device for personnel protection**
- Using this device for personnel protection could result in serious injury or death.
- This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A device failure or malfunction can cause either an energized (on) or de-energized (off) output condition.

Models

Family	Style	Activation method	Output State	Output Function	Color Control	Connector[1]
K50	P	FF50	A	M	GRY3	Q
K50	P = Pro	FF50 = 50 mm Fixed Field[2] FF100 = 100 mm Fixed Field[2] FF200 = 200 mm Fixed Field[2]	A = Normally Open	M = Momentary L = Latching	GRY3 = Progammable Multicolor (3 colors, 5-pin) RGB14 = Programmable Multicolor (14 colors, 8-pin)	Blank = 2 m (6.5 ft) integral PVC-jacketed cable Q = Integral 5-pin or 8-pin M12 male quick-disconnect connector, depending on model QP = 150 mm (6 in) PVC-jacketed cable with a 5-pin or 8-pin M12 male quick-disconnect connector, depending on model

Pro Editor



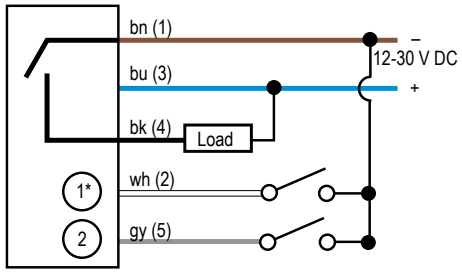
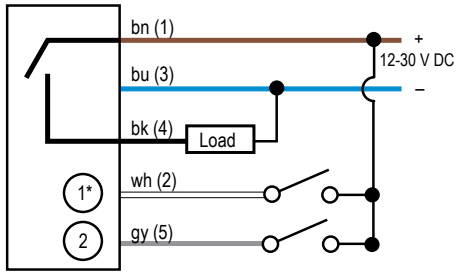
Use Banner's Pro Editor software and Pro Converter Cable to create custom configurations by selecting different colors, flash patterns, and animations.
For more information visit www.bannerengineering.com/proeditor.

(1) Models with a quick-disconnect connector require a mating cordset.
(2) Cutoff distance varies from specified range based on target and tolerances.

221058
p/n: 221058 Rev. A

Wiring Diagrams

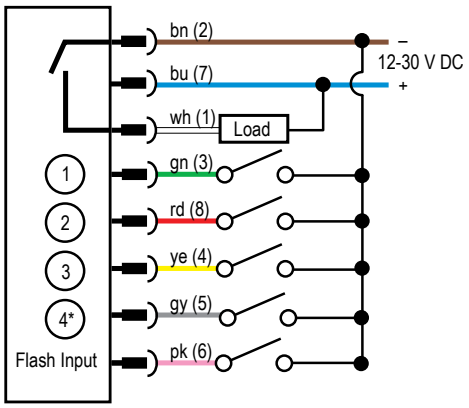
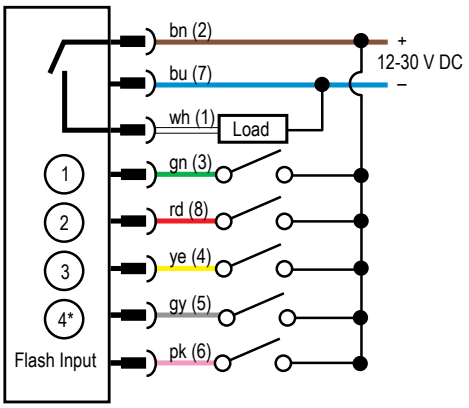
GRY3 Models

NPN	PNP	Key
		Pin 1 = Brown Pin 2 = White* Pin 3 = Blue Pin 4 = Black Pin 5 = Gray Activation toggles output *Can be configured as an output using Pro Editor software

GRY3 Multicolor Color/Function Definition

	Green	Yellow	Red
Input 1	X	X	
Input 2		X	X

RGB14 Models

NPN	PNP	Key
		Pin 1 = White Pin 2 = Brown Pin 3 = Green Pin 4 = Yellow Pin 5 = Gray* Pin 6 = Pink Pin 7 = Blue Pin 8 = Red Activation toggles output *Can be configured as an output using Pro Editor software

RGB Multicolor Color/Function Definition

	Red	Yellow	Green	Cyan	Blue	Magenta	White	Amber	Rose	Lime Green	Orange	Sky Blue	Violet	Spring Green
Input 1	X	X				X	X		X		X		X	
Input 2		X	X	X			X			X	X			X
Input 3				X	X	X	X					X	X	X
Input 4								X	X	X	X	X	X	X

Specifications

Supply Voltage
12 V DC to 30 V DC

Supply Current
150 mA maximum current at 12 V DC (exclusive of load)

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Leakage Current Immunity
400 µA

Output Rating
Maximum load: 150 mA
ON-state saturation voltage: < 2 V DC at 10 mA; <2.5 V DC at 150 mA
OFF-state leakage current: <10 µA at 30 V DC

Output Response Time
Power-Up Delay: 500 milliseconds maximum
Input Response: 40 milliseconds maximum
Output Response: 300 milliseconds maximum

Operating Conditions

–40 °C to +50 °C (–40 °F to +122 °F)

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

Environmental Rating

Standard Models: IP67, IP69K per ISO 20653

Cabled models also meet IP69K per ISO 20653 if the cable and cable entrance are protected from high-pressure spray

Mounting

M30 × 1.5 threaded base, maximum torque 4.5 N·m (40 in·lbf)

Pro Editor Configuration

Connection to Pro Editor software enables control of:

- **Animation:** Steady, Flash, Two Color Flash, 50/50, 50/50 Rotate, Chase, Intensity Sweep, Demo
- **Color:** Green, Red, Yellow, Blue, White, Cyan, Magenta, Amber, Rose, Lime Green, Orange, Sky Blue, Violet, Spring Green
- **Intensity:** Low, Medium, High
- **Speed:** Slow, Standard, Fast
- **Output State:** Normally Open, Normally Closed, Momentary, Latching, On Delay, Off Delay
- **Logic Type:** Three State Advanced Control (F2 Mode), Seven State Advanced Control (F2 Mode), Four State Full Logic (Custom)
- One pin configurable as either an input or an output

Pro Converter Cable required to interface between PC and indicator, see accessories

Construction

Standard Model Base, Dome, and Nut: Polycarbonate

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)

Connections

2 m (6.5 ft) integral PVC-jacketed cable, integral 5-pin or 8-pin M12 male quick-disconnect connector, or 150 mm (6 in) PVC-jacketed cable with a 5-pin or 8-pin M12 male quick-disconnect connector, depending on model

Models with a quick disconnect require a mating cordset

Storage

–40 °C to +70 °C (–40 °F to +158 °F)

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

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

Default Indicator Characteristics

Color	Dominant Wavelength (nm)or Color Temperature (CCT)	Color Coordinates[3]		Lumen Output (Typical at 25 °C)
		x	y	
Green	522	0.154	0.700	14.2
Red	620	0.689	0.309	7.1
Yellow	576	0.477	0.493	20.5
Blue	466	0.140	0.054	4.0
White	5700K	0.328	0.337	21.6
Cyan	493	0.170	0.340	15.8
Magenta	–	0.379	0.172	9.5
Amber	589	0.556	0.420	13.5
Rose	–	0.515	0.220	7.8
Lime Green	562	0.388	0.561	18.4
Sky Blue	486	0.155	0.247	16.8
Orange	599	0.616	0.370	10.4
Violet	–	0.217	0.089	8.3
Spring Green	508	0.177	0.536	14.6

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.

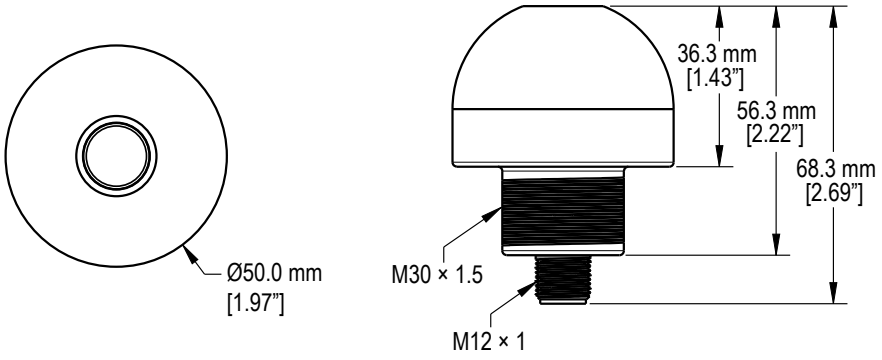
Industry Canada ICES-003(B)

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.

Dimensions

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



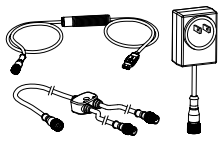
[3] Refer to the CIE 1931 (x,y) Chromaticity Diagram to show equivalent color with indicated color coordinates. Actual coordinates may differ ± 5%.

Accessories

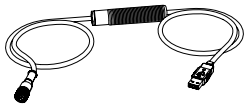
Pro Editor Hardware

PRO-KIT

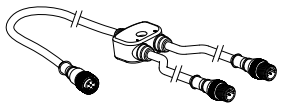
Includes:
- Pro Converter Cable (MQDC-506-USB)
- Splitter (CSB-M1251FM1251M)
- Power Supply (PSW-24-1)



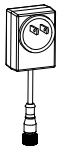
MQDC-506-USB
- Pro Converter Cable
- 1.83 m (6 ft) length 5-pin M12 quick disconnect to Device and USB to PC
- Required for connection to the configuration software



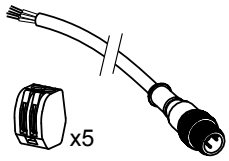
CSB-M1251FM1251M
- 5-pin parallel Y splitter (Male-Male-Female)
- For full Pro Editor preview capability
- Requires external power supply, sold separately



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

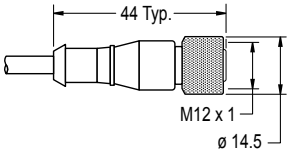
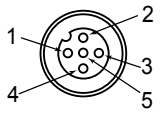


ACC-PRO-CABLE5
- Mating accessory for cabled and terminal models
- 150 mm (6 inch) PVC cable with M12 quick disconnect
- Lever wire nuts included (qty 5)
- Required to connect cabled models and screw terminal models to Pro Converter Cable, sold separately



MQDC-801-5M-PRO
- 8-pin to 5-pin double-ended cordset
- 0.31 m (1 ft) PVC cable with M12 quick disconnects
- Required to connect 8-pin Pro Series-enabled devices to Pro Converter Cable (MQDC-506-USB), sold separately

Cordsets

5-Pin Single-Ended M12 Female Cordsets				
Model	**Length**	**Style**	**Dimensions**	**Pinout (Female)**
MQDC1-501.5	0.5 m (1.5 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray
MQDC1-503	0.9 m (2.9 ft)			
MQDC1-506	2 m (6.5 ft)			
MQDC1-515	5 m (16.4 ft)			
MQDC1-530	9 m (29.5 ft)			
MQDC1-560	18 m (59 ft)			
MQDC1-5100	31 m (101.7 ft)			

Continued on page 6

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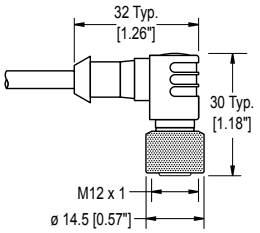
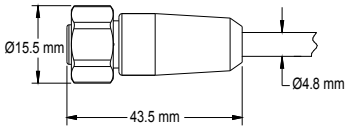
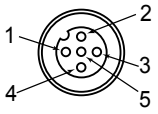
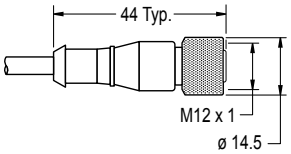
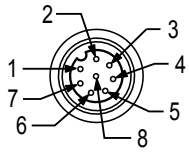
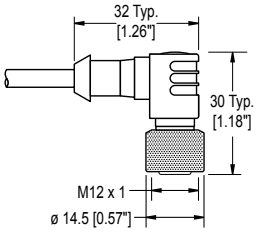
5-Pin Single-Ended M12 Female Cordsets

Model	Length	Style	Dimensions	Pinout (Female)
MQDC1-506RA	2 m (6.5 ft)	Right-Angle		
MQDC1-515RA	5 m (16.4 ft)			
MQDC1-530RA	9 m (29.5 ft)			
MQDC1-560RA	19 m (62.3 ft)			

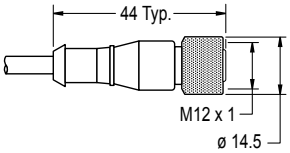
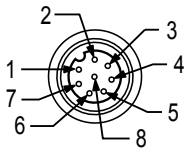
5-Pin Single-Ended M12 Female Stainless Steel Washdown Cordsets

Model	Length	Style	Dimensions	Pinout (Female)
MQDC-WDSS-0506	2 m (6.56 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray
MQDC-WDSS-0515	5 m (16.4 ft)			
MQDC-WDSS-0530	9 m (29.5 ft)			

8-Pin Single-Ended M12 Female Open-Shielded Cordsets

Model	Length	Style	Dimensions	Pinout (Female)
MQDC2S-806	2.04 m (6.7 ft)	Straight		 1 = White 2 = Brown 3 = Green 4 = Yellow 5 = Gray 6 = Pink 7 = Blue 8 = Red
MQDC2S-815RA	5 m (16.4 ft)			
MQDC2S-830	10.04 m (32.95 ft)			
MQDC2S-850	16 m (52.49 ft)			
MQDC2S-806RA	2 m (6.56 ft)	Right-Angle		
MQDC2S-815RA	5 m (16.4 ft)			
MQDC2S-830RA	10 m (32.81 ft)			
MQDC2S-850RA	16 m (52.49 ft)			

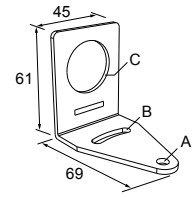
8-Pin Single-Ended M12 Female Open-Shielded, Washdown, Stainless Steel Cordsets

Model	Length	Style	Dimensions	Pinout (Female)	
MQDC-WDSS-0806	2 m (6.56 ft)	Straight			
MQDC-WDSS-0815	5 m (16.4 ft)				
MQDC-WDSS-0830	9 m (29.53 ft)			1 = White 2 = Brown 3 = Green 4 = Yellow	5 = Gray 6 = Pink 7 = Blue 8 = Red

Brackets

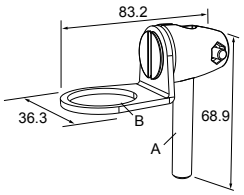
SMB30A
- Right-angle bracket with curved slot for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor
- 12-gauge stainless steel

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



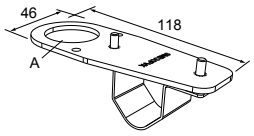
SMB30FA
- Swivel bracket with tilt and pan movement for precise adjustment
- Mounting hole for 30 mm sensor
- 12-gauge 304 stainless steel
- Easy sensor mounting to extrude rail T-slot
- Metric- and inch-size bolt available

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



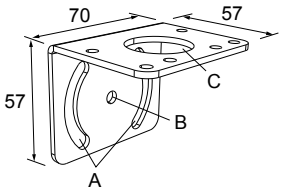
SMB30FVK
- V-clamp, flat bracket and fasteners for mounting to pipe or extensions
- Clamp accommodates 28 mm dia. tubing or 1 in. square extrusions
- 30 mm hole for mounting sensors

Hole size: A= ø 31



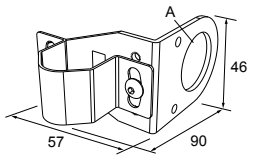
SMB30MM
- 12-gauge stainless steel bracket with curved mounting slots for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor

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



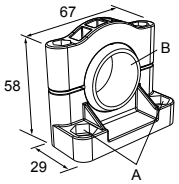
SMB30RAVK
- V-clamp, right-angle bracket and fasteners for mounting sensors to pipe or extrusion
- Clamp accommodates 28 mm dia. tubing or 1 in. square extrusions
- 30 mm hole for mounting sensors

Hole size: A = ø 30.5



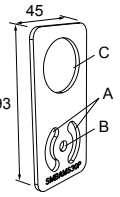
SMB30SC
- Swivel bracket with 30 mm mounting hole for sensor
- Black reinforced thermoplastic polyester
- Stainless steel mounting and swivel locking hardware included

Hole center spacing: A=ø 50.8
Hole size: A=ø 7.0, B=ø 30.0



SMBAMS30P
- Flat SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-gauge 300 series stainless steel

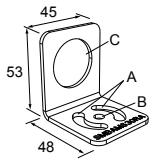
Hole center spacing: A=26.0, A to B=13.0
Hole size: A=26.8 × 7.0, B=ø 6.5, C=ø 31.0



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

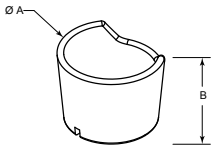
Hole center spacing: A=26.0, A to B=13.0
Hole size: A=26.8 × 7.0, B=ø 6.5, C=ø 31.0



TC-K50-CL

- Touch cover

Diameter: A = 67 mm
Height: B = 42.5 mm



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