K50 Pro Touch Button

BANNER®
more sensors, more solutions
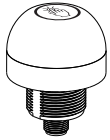
Datasheet

50 mm Programmable Multicolor RGB Indicator with Independent Momentary or Latching Touch Button Output
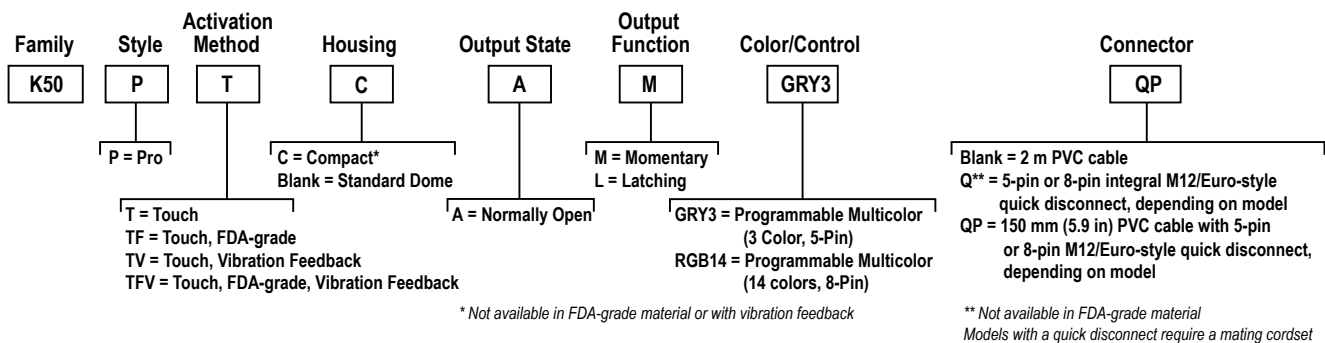
Standard Model

Compact Model

- Excellent immunity to false triggering by water spray, detergents, oils, and other foreign materials
- Programmable using Banner's Pro Editor software and Pro Converter Cable
- Vibration feedback models available for an unmistakable touch confirmation
- Up to 14 default colors with flash input in one unit
- Devices are completely self-contained—no controller needed
- Rated IEC IP67 and IP69K per DIN 40050-9
- Ergonomically designed to eliminate hand, wrist, and arm stresses associated with repeated switch operation; no physical force required to operate
- 12 V dc to 30 V dc operation
- Can be actuated with bare hands or gloves; adjustable sensitivity using Pro Editor software
- Compact models available for lower profile applications
- Models constructed from FDA-grade materials available
- Configurable input/output with Pro Editor software
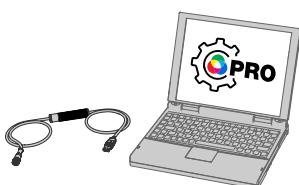- Device can be configured to remember touch state on power loss using Pro Editor software

⚠️ **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	Housing	Output State	Output Function	Color/Control	Connector
K50	P	T	C	A	M	GRY3	QP

P = Pro

C = Compact*
Blank = Standard Dome

T = Touch
TF = Touch, FDA-grade
TV = Touch, Vibration Feedback
TFV = Touch, FDA-grade, Vibration Feedback

A = Normally Open

M = Momentary
L = Latching

GRY3 = Programmable Multicolor (3 Color, 5-Pin)
RGB14 = Programmable Multicolor (14 colors, 8-Pin)

Blank = 2 m PVC cable
Q** = 5-pin or 8-pin integral M12/Euro-style quick disconnect, depending on model
QP = 150 mm (5.9 in) PVC cable with 5-pin or 8-pin M12/Euro-style quick disconnect, depending on model

* Not available in FDA-grade material or with vibration feedback

** Not available in FDA-grade material
Models with a quick disconnect require a mating cordset

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*.

Wiring Diagrams

For the Vibration Feedback models, for all touch conditions, the default **Vibration Feedback** is **On** and the type of vibration feedback is **Steady**.
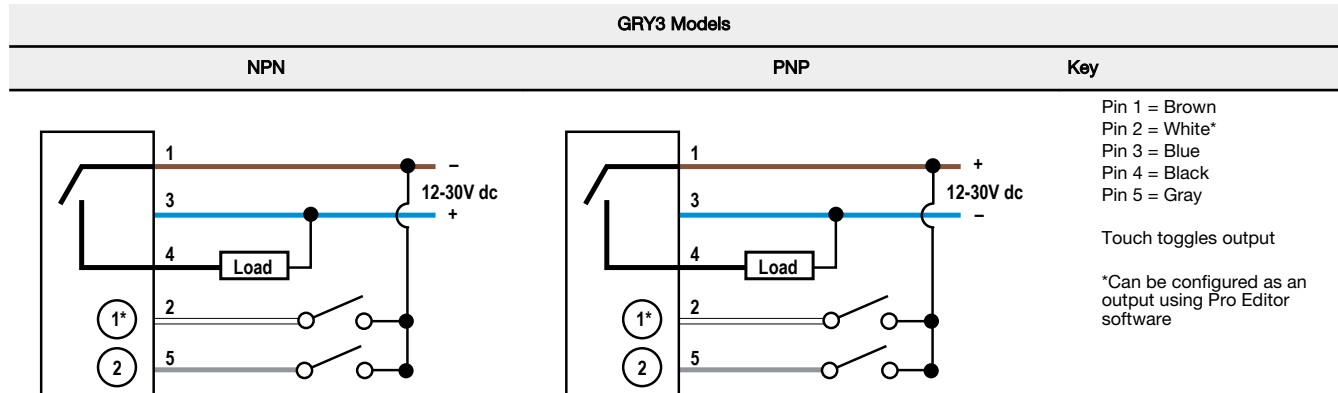
GRY3 Models		
NPN	PNP	Key

Pin 1 = Brown
Pin 2 = White*
Pin 3 = Blue
Pin 4 = Black
Pin 5 = Gray

Touch toggles output

*Can be configured as an output using Pro Editor software

Table 1: 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

Touch toggles output

*Can be configured as an output using Pro Editor software
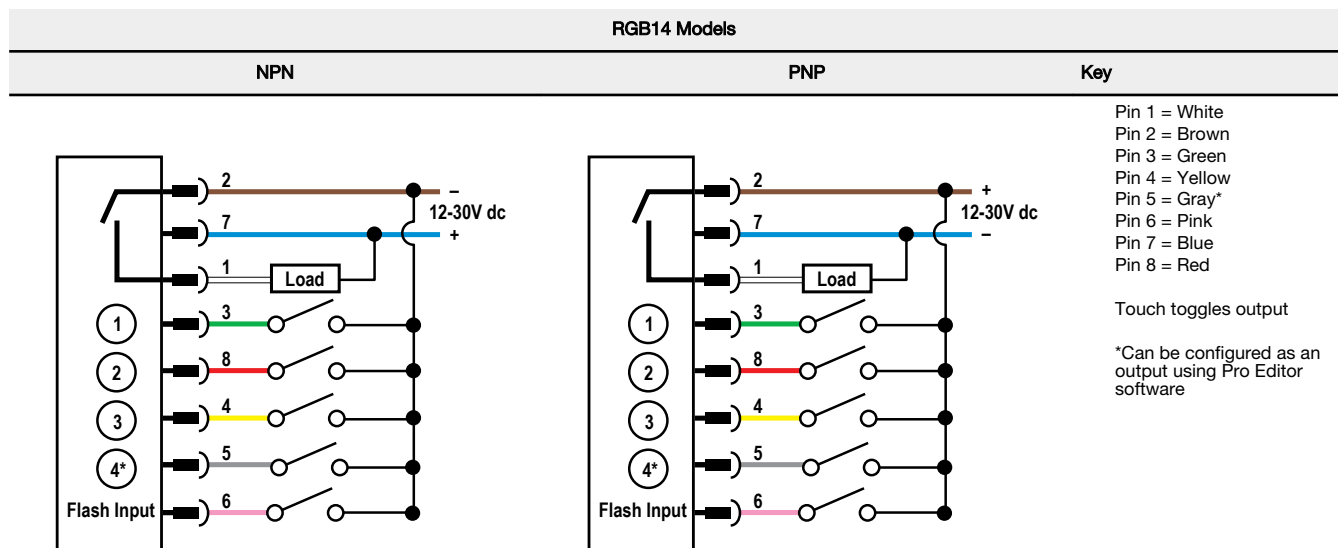
Table 2: RGB Multicolor Color/Function Definition

	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
175 mA maximum current at 12 V dc (exclusive of load)
93 mA maximum current at 24 V dc (exclusive of load)
82 mA maximum current at 30 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

Touch Dwell Time
If touch dwells for longer than 60 seconds, the output will revert to the untouched state

Vibration Feedback Characteristics
Max Total On-Time Per Touch: 3 seconds
Mechanical Life: 500,000 cycles
For all touch conditions, the default Vibration Feedback is On and the type of vibration feedback is Steady

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: IEC IP67, IP69K per DIN 40050-9
Cabled models also meet IP69K per DIN 40050-9 if the cable and cable entrance are protected from high-pressure spray
FDA Models: IEC IP67, IP69K per DIN 40050-9

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

Construction
Standard Model Base, Dome, and Nut: Polycarbonate
FDA Model Base, Dome, and Nut: FDA-grade copolyester

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
5-pin or 8-pin integral M12/Euro-style quick disconnect, 2 m (6.5 ft) integral PVC cable, or 5-pin or 8-pin 150 mm (5.9 inch) PVC cable with a M12/Euro-style quick disconnect, depending on model
Models with a quick disconnect require a mating cordset

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

Certifications

CE
c(UL)us LISTED

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, Remember Touch State on Power Loss
- **Vibration Feedback:** On, Pattern, Off
- **Touch Sensitivity:** Low, Standard, High
- **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

Default Indicator Characteristics

Color	Dominant Wavelength (nm)or Color Temperature (CCT)	Color Coordinates[1]		Lumen Output (Typical at 25 °C)[2]
		x	y	
Green	522	0.154	0.700	16.5
Red	620	0.689	0.309	8.3
Yellow	576	0.477	0.493	23.8
Blue	466	0.140	0.054	4.6
White	5700K	0.328	0.337	25.1
Cyan	493	0.170	0.340	18.4
Magenta	–	0.379	0.172	11.1
Amber	589	0.556	0.420	15.7
Rose	–	0.515	0.220	9.1
Lime Green	562	0.388	0.561	21.4
Sky Blue	486	0.155	0.247	19.5
Orange	599	0.616	0.370	12.1
Violet	–	0.217	0.089	9.7
Spring Green	508	0.177	0.536	17.0

Required Overcurrent Protection

⚠️ **WARNING:** Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.
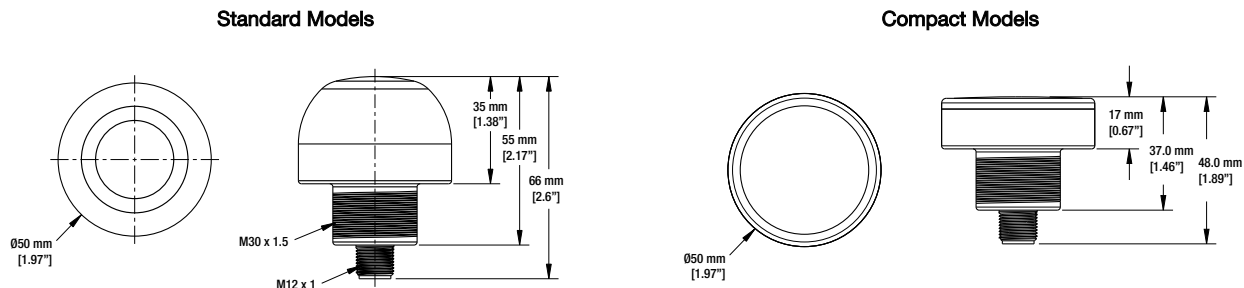
Overcurrent protection is required to be provided by end product application per the supplied table.
Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.
Supply wiring leads < 24 AWG shall not be spliced.
For additional product support, go to *www.bannerengineering.com*.

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

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[1] Refer to the CIE 1931 (x,y) Chromaticity Diagram to show equivalent color with indicated color coordinates. Actual coordinates may differ ± 5%.
[2] Values shown apply to dome models only. Compact models are 20% lower.

Dimensions

Standard Models

Ø50 mm [1.97"]

35 mm [1.38"]
55 mm [2.17"]
66 mm [2.6"]

M30 x 1.5

M12 x 1

Compact Models

Ø50 mm [1.97"]

17 mm [0.67"]
37.0 mm [1.46"]
48.0 mm [1.89"]

All measurements are listed in millimeters [inches], unless noted otherwise.
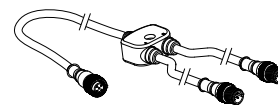
Accessories

Pro Editor Hardware

MQDC-506-USB
- Pro Converter Cable
- 1.83 m (6 ft) M12/Euro-style quick disconnect to Device and USB to PC
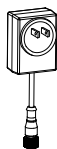- Required for connection to Pro Editor
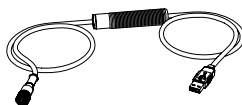
CSB-M1251FM1251M
- 5-pin parallel Y splitter (Male-Male-Female)
- For full Pro Editor preview capability
- Requires external power supply, sold separately

PSW-24-1
- 24 V dc, 1 A power supply
- 2 m (6.5 ft) PVC cable with M12/Euro-style 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/Euro-style quick disconnect
- Lever wire nuts included (qty 5)
- Required to connect cabled models to Pro Converter Cable, sold separately
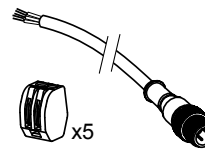
MQDC-801-5M-PRO
- 8-pin to 5-pin double-ended cordset
- 0.31 m (1 ft) PVC cable with M12/Euro-style quick disconnects
- Required to connect 8-pin Pro Series-enabled devices to Pro Converter Cable (MQDC-506-USB), sold separately

Cordsets

5-Pin Threaded M12/Euro-Style Cordsets—Single Ended				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC1-501.5	0.50 m (1.5 ft)	Straight	44 Typ. / M12 x 1 / ø 14.5	1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray
MQDC1-506	1.83 m (6 ft)			
MQDC1-515	4.57 m (15 ft)			
MQDC1-530	9.14 m (30 ft)			

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5-Pin Threaded M12/Euro-Style Cordsets—Single Ended				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC1-506RA	1.83 m (6 ft)	Right-Angle	32 Typ. [1.26"] 30 Typ. [1.18"] M12 x 1 ø 14.5 [0.57"]	
MQDC1-515RA	4.57 m (15 ft)			
MQDC1-530RA	9.14 m (30 ft)			

5-Pin Threaded M12/Euro-Style Washdown Stainless Steel Cordsets—Double Ended				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC-WDSS-0506	1.83 m (6 ft)	Straight	Ø15.5 mm Ø4.8 mm 43.5 mm	1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray
MQDC-WDSS-0515	4.57 m (15 ft)			
MQDC-WDSS-0530	9.14 m (30 ft)			

8-Pin Threaded M12/Euro-Style Cordsets with Open-Shield				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC2S-806	1.83 m (6 ft)	Straight	44 Typ. M12 x 1 ø 14.5	1 = White 2 = Brown 3 = Green 4 = Yellow 5 = Gray 6 = Pink 7 = Blue 8 = Red
MQDC2S-815	4.57 m (15 ft)			
MQDC2S-830	9.14 m (30 ft)			
MQDC2S-850	15.2 m (50 ft)			
MQDC2S-806RA	1.83 m (6 ft)	Right-Angle	32 Typ. [1.26"] 30 Typ. [1.18"] M12 x 1 ø 14.5 [0.57"]	
MQDC2S-815RA	4.57 m (15 ft)			
MQDC2S-830RA	9.14 m (30 ft)			
MQDC2S-850RA	15.2 m (50 ft)			

8-Pin Threaded M12/Euro-Style Cordsets with Open-Shield—Washdown, Stainless Steel				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC-WDSS-0806	1.83 m (6 ft)	Straight	44 Typ. M12 x 1 ø 14.5	
MQDC-WDSS-0815	4.57 m (15 ft)			

8-Pin Threaded M12/Euro-Style Cordsets with Open-Shield—Washdown, Stainless Steel				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC-WDSS-0830	9.14 m (30 ft)			1 = White 5 = Gray 2 = Brown 6 = Pink 3 = Green 7 = Blue 4 = Yellow 8 = Red

Brackets

SMB30A

- Right-angle bracket with curved slot for versatile orientation
- Clearance for M6 (¼ in) hardware
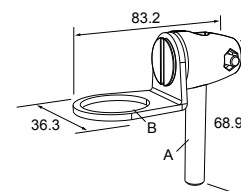- Mounting hole for 30 mm sensor
- 12-ga. stainless steel
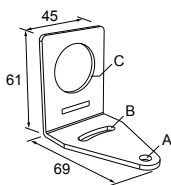
Hole center spacing: A to B=40
Hole size: A=ø 6.3, B= 27.1 x 6.3, C=ø 30.5

SMB30FA

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

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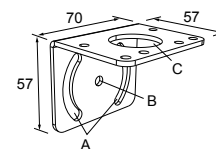**Hole size:** B= ø 30.1

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
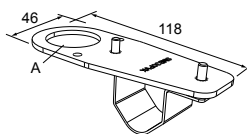
Hole size: A= ø 31

SMB30MM

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

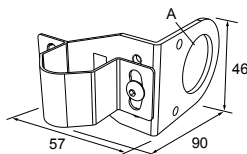**Hole center spacing:** A = 51, A to B = 25.4
**Hole size:** A = 42.6 x 7, B = ø 6.4, C = ø 30.1

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
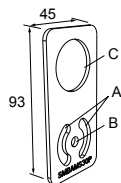- Stainless steel mounting and swivel locking hardware included
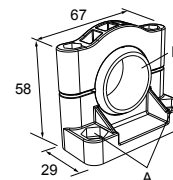
Hole center spacing: A=ø 50.8
Hole size: A=ø 7.0, B=ø 30.0

SMBAMS30P

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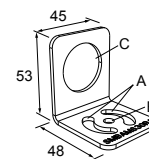- Articulation slots for 90°+ rotation
- 12-ga. 300 series stainless steel

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

SMBAMS30RA

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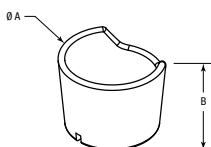- 12-ga. (2.6 mm) cold-rolled steel

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

TC-K50-CL
- Touch cover

Ø A

B

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

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

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

This device complies with part 15 of the FCC Rules and CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules and CAN ICES-3 (B)/NMB-3(B). These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the manufacturer.

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