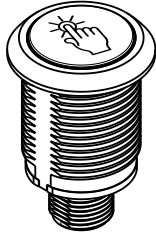


# S22 Pro Touch Button



## Datasheet

22 mm Programmable Multicolor RGB Flush Mount Indicator with Independent Momentary or Latching Touch Button Output



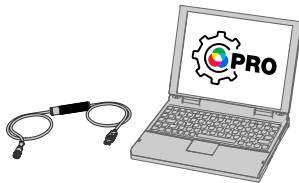
- Programmable using Banner Pro Editor software and Pro Converter Cable; Pro Editor compatibility applies to all S22 Pro Touch Button models
- Resistance to false triggering by water spray, detergents, oils, and other foreign materials
- Rugged, cost-effective, and easy-to-install multicolor indicator with touch button
- Waterproof DIN IP69K construction for washdown environments
- Up to 7 independent colors in one unit
- 22 mm threaded polycarbonate base
- Ergonomically designed to eliminate hand, wrist, and arm stresses associated with repeated switch operation; require no physical force to operate
- Can be actuated with bare hands or gloves
- 10 V dc to 30 V dc operation
- Terminal connection models available for panel wiring applications
- Bimodal inputs and outputs (PNP/NPN), depending on source wiring



**WARNING: Not To Be Used for Personnel Protection**

Never use this device as a sensing device for personnel protection. Doing so could lead to serious injury or death. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition.

## Pro Editor

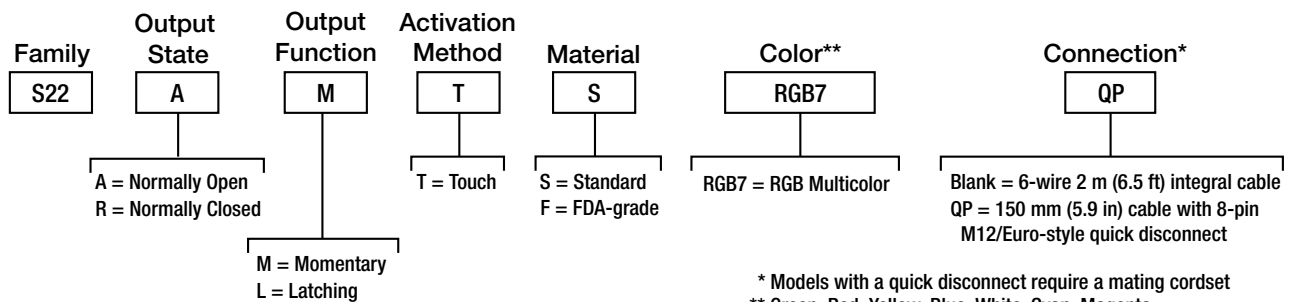


Use Banner's Pro Editor software and Pro Converter Cable to create custom configurations by selecting different colors, flash patterns, and animations.

For more information visit [www.bannerengineering.com/proeditor](http://www.bannerengineering.com/proeditor).

## Models

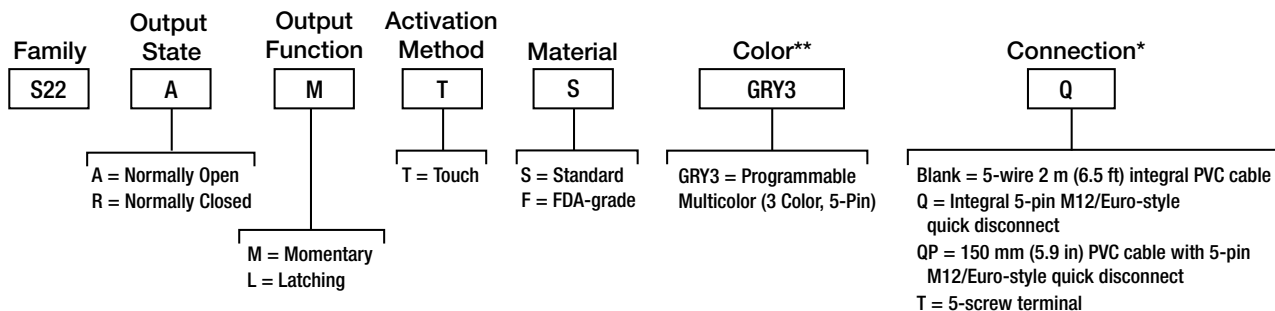
### RGB7 Multicolor Models



Three inputs activate seven colors. Touch changes output state.



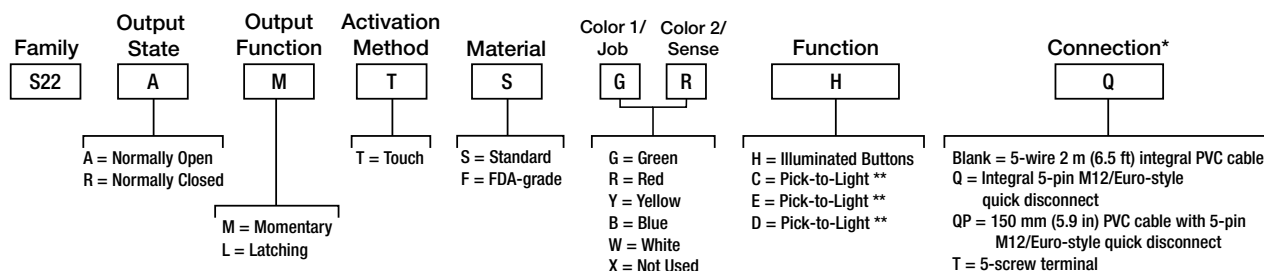
GRY3 Multicolor Models



\* Models with a quick disconnect require a mating cordset  
\*\* Green, Red, Yellow

Two inputs activate three colors. Touch changes output state.

One- or Two-Color/Function Models



\* Models with a quick disconnect require a mating cordset  
\*\* Latching output function not available

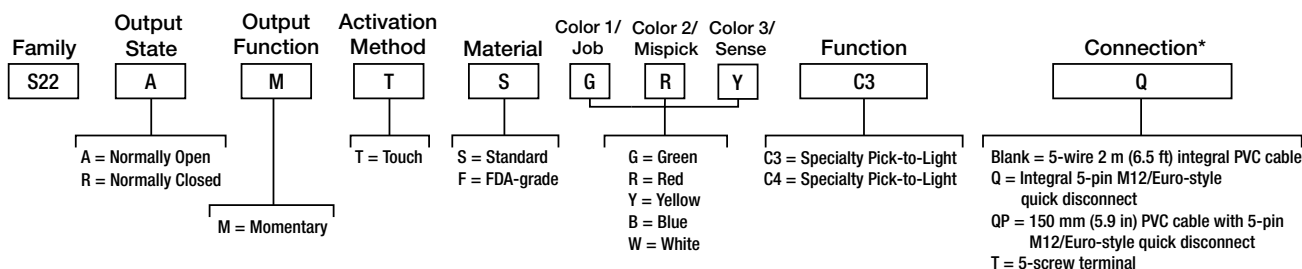
**H Logic:** Power activates Color 1. Touch changes output state and activates Color 2. Latch and momentary options.

**C Logic:** Input activates Color 1. Touch activates Color 2 and Output.

**E Logic:** Input activates Color 1. Touch activates Output. Touch with inactive input activates Color 2.

**D Logic:** Input activates Color 1. Touch activates Output.

One-, Two-, or Three-Color/Function Models



\* Models with a quick disconnect require a mating cordset

**C3 Logic:** Input activates Color 1. Touch with active input activates Color 3 and Output. Touch with inactive input activates Color 2 and Output. 500 ms leading edge off-delay.

**C4 Logic:** Input activates Color 1. Touch with active input activates Color 3 and Output. Touch with inactive input activates Color 2 and Output for 5 seconds. 500 ms leading edge off-delay.

# Wiring Diagrams

## RGB7 Multicolor Models

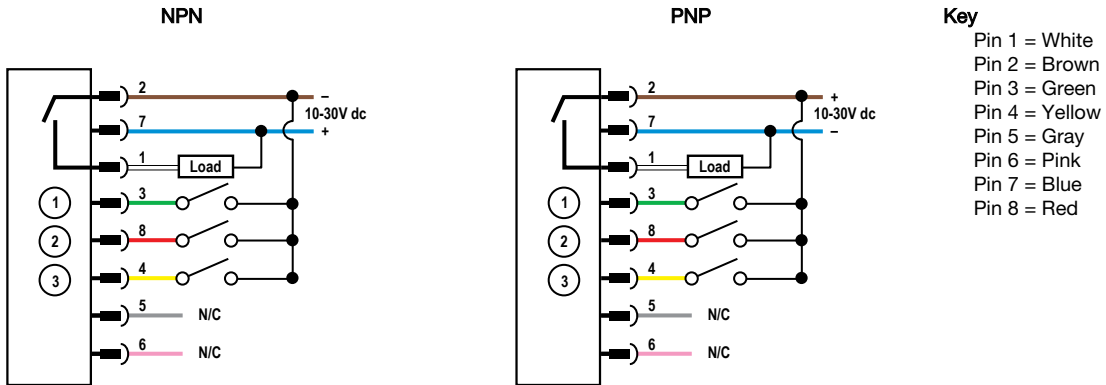


Table 1: RGB Multicolor Color/Function Definition

	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

## GRY3 Multicolor Models

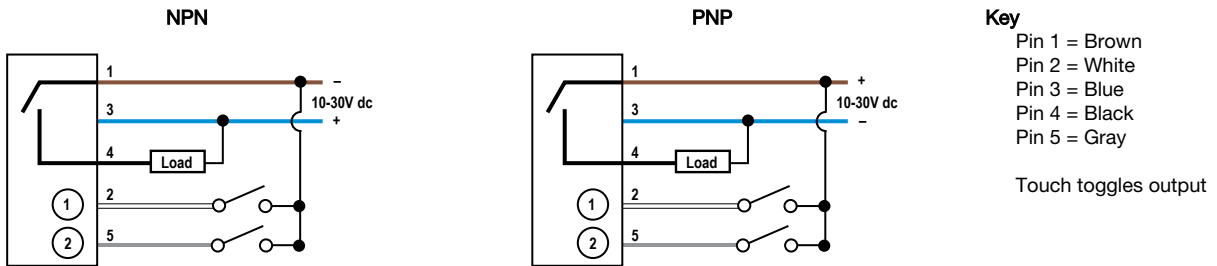
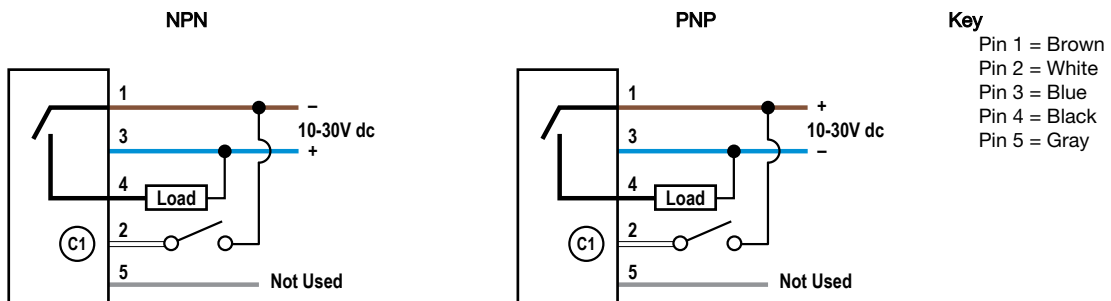


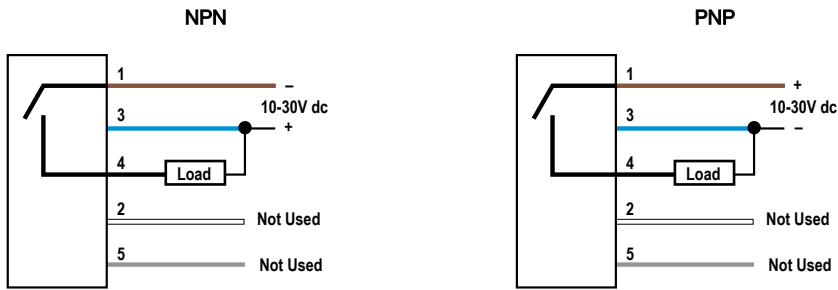
Table 2: GRY3 Multicolor Color/Function Definition

	Green	Yellow	Red
Input 1	X	X	
Input 2		X	X

## One- or Two-Color/Function; C, D, and E Logic Models

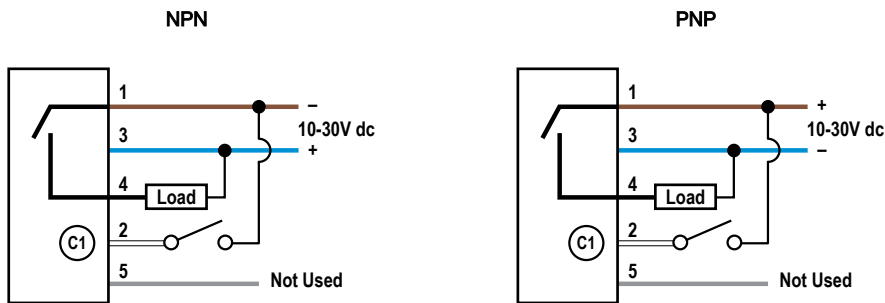


One- or Two-Color/Function; H Logic Models



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

One-, Two-, or Three-Color/Function; C3 & C4 Logic Models



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

Cabled wiring diagrams are shown. Quick disconnect wiring diagrams are functionally identical.

# Specifications

### Supply Voltage

10 V dc to 30 V dc

### Supply Current

- 80 mA maximum current at 10 V dc (exclusive of load)
- 70 mA maximum current at 12 V dc (exclusive of load)
- 45 mA maximum current at 24 V dc (exclusive of load)
- 40 mA maximum current at 30 V dc (exclusive of load)

### Supply Protection Circuitry

Protected against reverse polarity and transient voltages

### 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

### Leakage Current Immunity

400 µA

### Response Time

- Power-Up Delay:** 250 milliseconds maximum
- Input Response:** 20 milliseconds maximum
- Output Response:** 300 milliseconds maximum

### Touch Dwell Time

If touch dwells for longer than 60 seconds, the output will revert back to the untouched state.

### 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

### Mounting

M22 by 1.5 threaded base, maximum torque 2.25 N·m (20 inch-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)

### 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

- Standard Models:** IEC IP66, IEC IP67, DIN IP69K
- Cabled models also meet DIN IP69K if the cable and cable entrance are protected from high-pressure spray
- Indicator side of terminal models meet DIN IP69K when installed in an enclosure
- Screw connection points meet IEC IP00
- FDA Models:** IEC IP66, IEC IP67, and DIN IP69K

### Certifications



### Pro Editor Configuration

Connection to Pro Editor software enables control of:

- **Animation:** Steady, Flash, Two Color Flash, 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)

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 <sup>†</sup>		Lumen Output (Typical at 25 °C)
		x	y	
Green	527	0.178	0.700	0.175
Red	625	0.699	0.297	0.075
Yellow	572	0.438	0.500	0.250
Blue	465	0.141	0.056	0.025
White	5700K	0.328	0.337	0.240
Cyan	492	0.192	0.336	0.195
Magenta	-	0.354	0.149	0.095
Amber	585	0.520	0.434	0.165
Rose	-	0.506	0.213	0.085
Lime Green	557	0.350	0.564	0.210
Sky Blue	485	0.167	0.240	0.165
Orange	597	0.594	0.379	0.130
Violet	424	0.184	0.085	0.045
Spring Green	507	0.167	0.517	0.180

### Required Overcurrent Protection



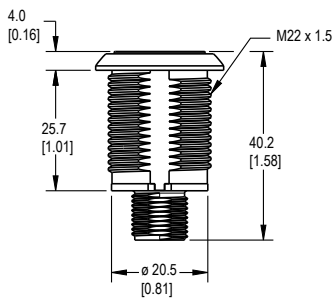
**WARNING:** Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

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](http://www.bannerengineering.com).

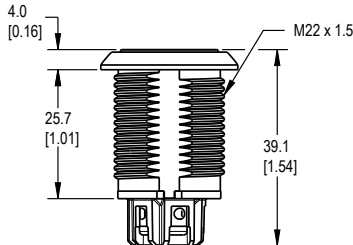
Supply Wiring (AWG)	Required Overcurrent Protection (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

# Dimensions

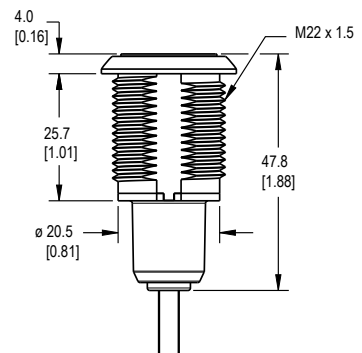
### Quick-Disconnect Models



### Terminal Models



### Cabled Models



<sup>†</sup> Refer to the CIE 1930 (x,y) Chromaticity Diagram, to show equivalent color with indicated color coordinates.

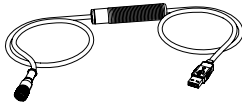
All measurements are listed in millimeters [inches], unless noted otherwise.

## Accessories

### Pro Editor Hardware

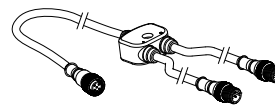
#### MQDC-506-USB

- 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



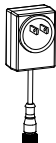
#### CSB-M1251FM1251M

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



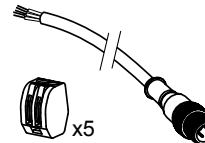
#### PSW-24-1

- 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-806217

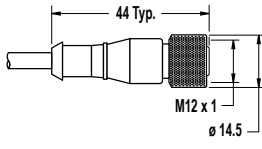
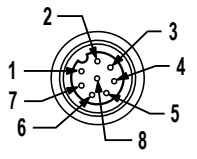
- 8-pin to 5-pin double-ended cordset
- 0.31 m (1 ft) PVC cable with M12/Euro-style quick disconnects
- Required to connect 8-pin Pro Series-enabled devices to Pro Converter Cable (MQDC-506-USB), sold separately

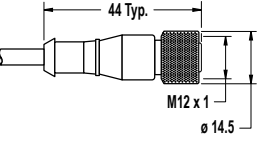
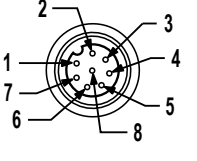


## Cordsets

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		<p>1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray</p>
MQDC1-506	1.83 m (6 ft)			
MQDC1-515	4.57 m (15 ft)			
MQDC1-530	9.14 m (30 ft)	Right-Angle		
MQDC1-508RA	1.83 m (6 ft)			
MQDC1-515RA	4.57 m (15 ft)			
MQDC1-530RA	9.14 m (30 ft)			

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

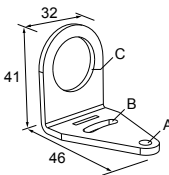
8-Pin Threaded M12/Euro-Style Cordsets with Open-Shield				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC2S-806	1.83 m (6 ft)	Straight		 <p>1 = White 2 = Brown 3 = Green 4 = Yellow 5 = Gray 6 = Pink 7 = Blue 8 = Red</p>
MQDC2S-815	4.57 m (15 ft)			
MQDC2S-830	9.14 m (30 ft)			
MQDC2S-850	15.2 m (50 ft)	Right-Angle		
MQDC2S-806RA	1.83 m (6 ft)			
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		 <p>1 = White      5 = Gray 2 = Brown      6 = Pink 3 = Green      7 = Blue 4 = Yellow      8 = Red</p>
MQDC-WDSS-0815	4.57 m (15 ft)			
MQDC-WDSS-0830	9.14 m (30 ft)			

## Brackets

### SMB22A

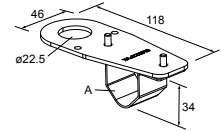
- Right-angle bracket with curved slot for versatile orientation
- 12-ga. stainless steel
- Mounting hole for 22 mm sensor



Hole center spacing: A to B = 26.0  
Hole size: A = ø 4.6, B = 4.6 x 16.9, C = 22.2

### SMB22FVK

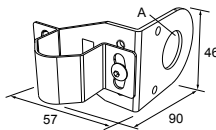
- V-clamp, flat bracket and fasteners for mounting to pipe or extensions
- Clamp accommodates 28 mm diameter tubing or 1 in. square extrusions
- 22 mm hole for mounting sensor



Hole size: A = ø 22.5

### SMB22RAVK

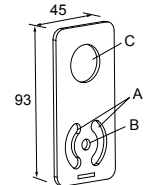
- V-clamp, right-angle bracket and fasteners for mounting to pipe or extensions
- Clamp accommodates 28 mm diameter tubing or 1 in. square extrusions
- 22 mm hole for mounting sensor



Hole size: A = ø 22.5

### SMBAMS22P

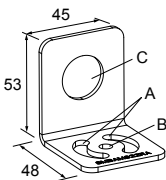
- Flat SMBAMS series bracket with 22 mm hole for mounting sensors
- Articulation slots for 90+° rotation
- 12-ga. (2.6 mm) cold-rolled steel



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 22.5

**SMBAMS22RA**

- Right-angle SMBAMS series bracket with 22 mm hole for mounting sensors
- Articulation slots for 90+° rotation
- 12-ga. (2.6 mm) cold-rolled steel

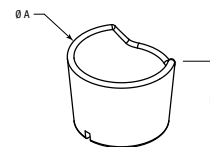


**Hole center spacing:** A = 26.0, A to B = 13.0

**Hole size:** A = 26.8 x 7.0, B =  $\varnothing$  6.5, C =  $\varnothing$  22.5

**TC-K30-CL**

- Touch cover



**Diameter:** A = 40.7  
**Height:** B = 31

All measurements are listed in millimeters, unless noted otherwise.

## 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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This Warranty is exclusive and limited to repair or, at the discretion of Banner Engineering Corp., replacement. **IN NO EVENT SHALL BANNER ENGINEERING CORP. BE LIABLE TO BUYER OR ANY OTHER PERSON OR ENTITY FOR ANY EXTRA COSTS, EXPENSES, LOSSES, LOSS OF PROFITS, OR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM ANY PRODUCT DEFECT OR FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER ARISING IN CONTRACT OR WARRANTY, STATUTE, TORT, STRICT LIABILITY, NEGLIGENCE, OR OTHERWISE.**

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For patent information, see [www.bannerengineering.com/patents](http://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.