K50 Illuminated Touch Buttons

The K50 Touch Series is a versatile family that combines a large, bright indicator with solid-state switching capability activated by a simple touch. There are several models with a variety of input/output options to choose from that fit nearly any application.

- Simple operation with the touch of a finger, hand or whole palm
- Easily actuated with bare hands or work gloves
- Rugged, fully encapsulated IP69K construction
- Models with either latching or momentary outputs
- One-, two- and three-color models available with a variety of colors and option of custom laser surface marking

BANNER

K30 Illuminated Touch Buttons

The K30 Touch Series is a versatile family that combines a small, bright indicator with solid-state switching capability activated by a simple touch. These easy-to-use small indicators are cost-effective with a 22 mm threaded base to fit into industry standard punched holes.

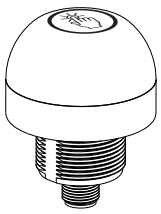
- Simple operation with the touch of a finger, hand or whole palm
- Easily actuated with bare hands or work gloves
- Rugged, fully encapsulated IP69K construction
- Models with either latching or momentary outputs
- One- and two-color models available with a variety of colors and option of custom laser surface marking

BANNER

EZ-LIGHT® Touch Gen 2 K50 Series Illuminated Multipurpose Buttons

Datasheet

General Purpose Multicolor Indicator with Independent Momentary Touch Button Output



Standard Model

Compact Model

- Excellent immunity 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 IP69K per DIN 40050-9 construction for washdown environments
- Three independent colors in one unit: Color 3 overrides Colors 1 and 2, Color 2 overrides Color 1
- Available with PNP and NPN inputs/outputs, depending on model
- Ergonomically designed to eliminate hand, wrist, and arm stresses associated with repeated switch operation; requires no physical force to operate
- Can be actuated with bare hands or gloves
- 12 V DC to 30 V DC operation
- Compact models available for lower profile applications

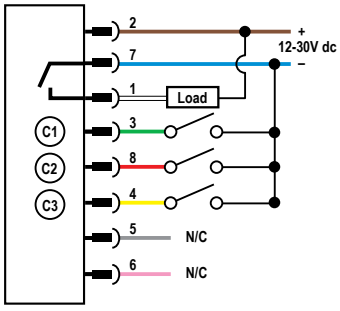
WARNING:
- **Do not use this device for personnel protection**
- Using this device for personnel protection could result in serious injury or death.
- This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A device failure or malfunction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

Models

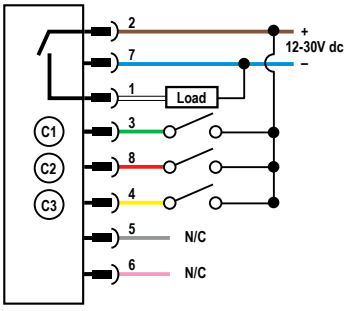
Model [1]	I/O Type	Output State	Color 1	Color 2	Color 3	Connection
K50APT2GRYF2Q	PNP	N.O.	Green	Red	Yellow	Integral 8-pin M12/Euro-style male quick disconnect
K50RPT2GRYF2Q		N.C.				
K50ANT2GRYF2Q	NPN	N.O.				
K50RNT2GRYF2Q		N.C.				

Wiring Diagram

NPN (Sinking) Output Models



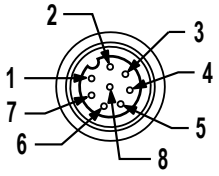
PNP (Sourcing) Output Models



Wiring Key

1 = White
2 = Brown
3 = Green
4 = Yellow
5 = Gray
6 = Pink
7 = Blue
8 = Red

Pinout



Indicator and Output Behavior

Table 1: PNP Models

Input Actions				Touch Button Actions		
Input #1: Pin 3 Green Wire	Input #2: Pin 8 Red Wire	Input #3: Pin 4 Yellow Wire	LED Color	Output Type	Touch	Output: Pin 1 White Wire
Open or -Vdc	Open or -Vdc	Open or -Vdc	Light Off	N.O.	Not touched	PNP Output Off
+V dc	Open or -Vdc	Open or -Vdc	Color #1 On		Touched	PNP Output On

[1]
- To order the 2 m (6.5 ft) PVC cable model, omit the suffix "Q" in the model number. For example, K50APT2GRYF2.
- To order the 150 mm (6 in) PVC cable model with an 8-pin M12/Euro-style quick disconnect, replace the suffix "Q" with "QP" in the model number. For example, K50APT2GRYF2QP.
- To order a compact model, add the suffix "C" after K50 in the model number. For example, K50CAPT2GXDQ.
- Models with a quick disconnect require a mating cordset.

Input Actions				Touch Button Actions		
Input #1: Pin 3 Green Wire	**Input #2: Pin 8 Red Wire**	**Input #3: Pin 4 Yellow Wire**	**LED Color**	**Output Type**	**Touch**	**Output: Pin 1 White Wire**
+V dc	+V dc	Open or -Vdc	Color #2 On	N.C.	Not touched	PNP Output On
+V dc	+V dc	+V dc	Color #3 On		Touched	PNP Output Off
Open or -Vdc	+V dc	Open or -Vdc	Color #2 On			
Open or -Vdc	+V dc	+V dc	Color #3 On			
Open or -Vdc	Open or -Vdc	+V dc	Color #3 On			
+V dc	Open or -Vdc	+V dc	Color #3 On			

Table 2: NPN Models

Input Actions				Touch Button Actions		
Input #1: Pin 3 Green Wire	**Input #2: Pin 8 Red Wire**	**Input #3: Pin 4 Yellow Wire**	**LED Color**	**Output Type**	**Touch**	**Output: Pin 1 White Wire**
Open or +V dc	Open or +V dc	Open or +V dc	Light Off	N.O.	Not touched	NPN Output Off
-Vdc	Open or +V dc	Open or +V dc	Color #1 On		Touched	NPN Output On
-Vdc	-Vdc	Open or +V dc	Color #2 On	N.C.	Not touched	NPN Output On
-Vdc	-Vdc	-Vdc	Color #3 On		Touched	NPN Output Off
Open or +V dc	-Vdc	Open or +V dc	Color #2 On			
Open or +V dc	-Vdc	-Vdc	Color #3 On			
Open or +V dc	Open or +V dc	-Vdc	Color #3 On			
-Vdc	Open or +V dc	-Vdc	Color #3 On			

Specifications

Supply Voltage
12 V DC to 30 V DC

Supply Current
< 75 mA max current at 12 V DC (exclusive of load)
< 50 mA max 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

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

Environmental Rating
IEC IP67, IP69K per DIN 40050-9
Cabled models meet DIN IP69K if the cable is protected from high-pressure spray

Output Response Time
50 milliseconds On and Off

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)

Construction
Housing: polycarbonate
Translucent dome: polycarbonate
Mounting nut: PBT

Vibration and Mechanical Shock
Vibration: 10 Hz to 55 Hz, 1.0 mm peak-to-peak amplitude per IEC 60068-2-6
Shock: 30G 11 ms duration, half sine wave per IEC 60068-2-27

Certifications

Connections
Integral 8-pin M12/Euro-style male quick disconnect, 2 m (6.5 ft) integral PVC cable, or 150 mm (6 in) PVC cable with a 8-pin M12/Euro-style male quick disconnect

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

Power-Up Delay
300 milliseconds

Indicator Lumens

Color	Typical Wavelength	Typical Intensity (lm)
Green	525 nm	29
Red	625 nm	13
Yellow	591 nm	24

Required Overcurrent Protection

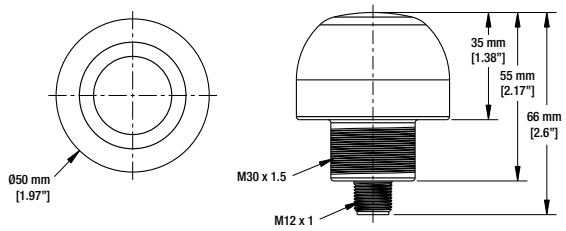
WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

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.

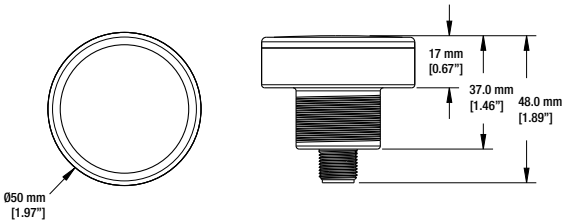
Supply Wiring (AWG)	Required Overcurrent Protection (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

Dimensions

Standard Models



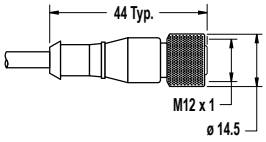
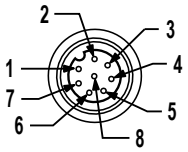
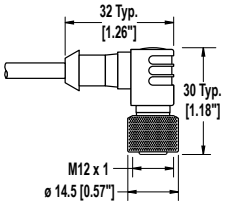
Compact Models



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

Accessories

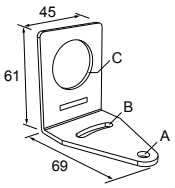
Cordsets

8-Pin Threaded M12/Euro-Style Cordsets with Open-Shield				
Model	**Length**	**Style**	**Dimensions**	**Pinout (Female)**
MQDC2S-806	2.042 m (6.70 ft)	Straight		 1 = White 2 = Brown 3 = Green 4 = Yellow 5 = Gray 6 = Pink 7 = Blue 8 = Red
MQDC2S-815	5.042 m (16.54 ft)			
MQDC2S-830	10.042 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)			

Brackets

SMB30A

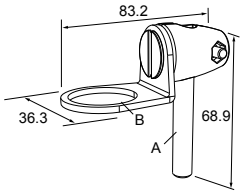
- Right-angle bracket with curved slot for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor
- 12-ga. stainless steel



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

SMB30FA

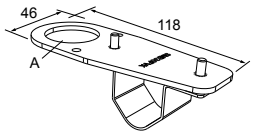
- Swivel bracket with tilt and pan movement for precise adjustment
- Mounting hole for 30 mm sensor
- 12-ga. 304 stainless steel
- Easy sensor mounting to extrude rail T-slot
- Metric and inch size bolt available



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

SMB30FVK

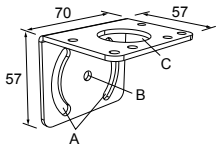
- V-clamp, flat bracket and fasteners for mounting to pipe or extensions
- Clamp accommodates 28 mm dia. tubing or 1 in. square extrusions
- 30 mm hole for mounting sensors



Hole size: A= ø 31

SMB30MM

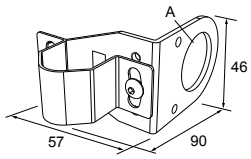
- 12-ga. stainless steel bracket with curved mounting slots for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor



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

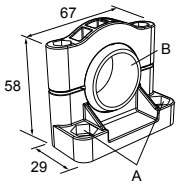
- V-clamp, right-angle bracket and fasteners for mounting sensors to pipe or extrusion
- Clamp accommodates 28 mm dia. tubing or 1 in. square extrusions
- 30 mm hole for mounting sensors



Hole size: A = ø 30.5

SMB30SC

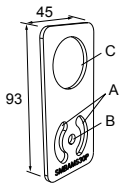
- Swivel bracket with 30 mm mounting hole for sensor
- Black reinforced thermoplastic polyester
- Stainless steel mounting and swivel locking hardware included



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

SMBAMS30P

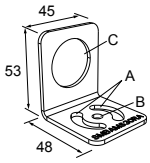
- Flat SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-ga. 300 series stainless steel



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

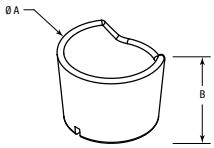
- Right-angle SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-ga. (2.6 mm) cold-rolled steel



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



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

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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.

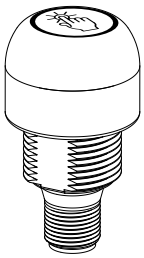
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules and CAN ICES-3 (B)/NMB-3(B). These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, 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.

EZ-LIGHT® Touch Gen 2 K30 Series Illuminated Buttons

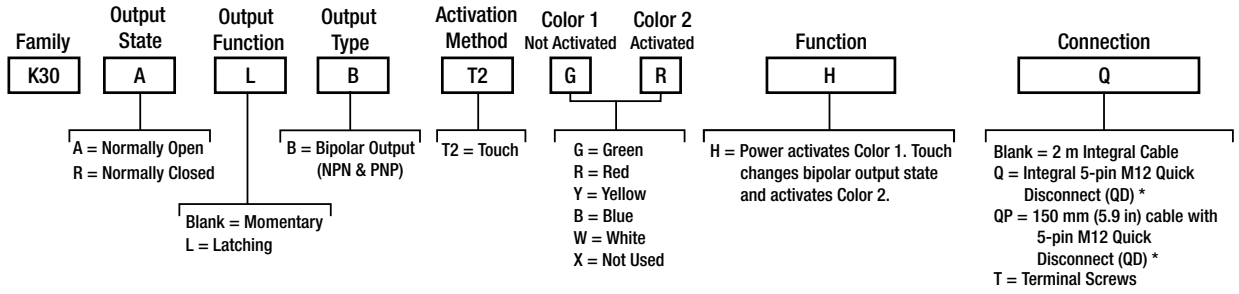
Datasheet

Lighted Touch Button with Bipolar Outputs



- Excellent immunity to false triggering by water spray, detergents, oils, and other foreign materials
- Rugged, cost-effective, and easy-to-install touch button with multicolor light
- Latching versions start up not activated and toggle between activated and not activated on successive touches
- Waterproof IP69K per DIN 40050-9 construction for washdown environments
- Ergonomically designed to eliminate hand, wrist, and arm stresses associated with repeated switch operation; requires no physical force to operate
- Can be actuated with bare hands or gloves
- 12 V DC to 30 V DC operation
- Five color options available
- Terminal connection models available for panel wiring applications

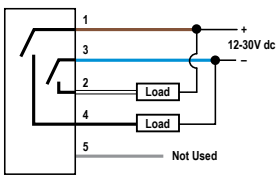
Models



* QD model requires mating cordset

Sample Model	Description
K30ALBT2GRH	Normally open output state, latching output function with bipolar output and two touch activation method. Color 1: Green (not activated), Color 2: Red (activated). Power activates color 1. Touch changes bipolar output state and activates color 2. Two-meter integral cable connection.
K30ABT2XGHT	Normally open output state, momentary output function with bipolar output. Color 1: None, Color 2: Green (activated). Touch changes bipolar output state and activates color 2. Terminal screws.
K30RBT2RGHQ	Normally closed output state, momentary output function with bipolar output. Color 1: Red (not activated), Color 2: Green (activated). Touch changes bipolar output state and activates color 2. Integral 5-pin M12 quick disconnect connection.

Wiring Diagrams



Color Key

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

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

Specifications

Supply Voltage
12 V DC to 30 V DC

Supply Current
55 mA max current (exclusive of load)

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Touch Dwell Time (momentary models only)
If a touch dwells for longer than 60 seconds, the output and indicator color will revert back to the untouched state.

Output Response Time
150 milliseconds ON and OFF

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

Power-Up Delay
300 milliseconds
Latching models start up in a 'not activated' state

Mounting
M22 × 1.5 Threaded base, max torque 2.25 Nm (20 in·lbf)

Connections
5-pin integral M12 QD, 2 m (6.5 ft) PVC integral cable, or 150 mm (6 in) 5-pin M12 PVC cable with QD

Environmental Rating
Rated IEC IP67, and IP69K per DIN 40050-9.
Cabled models also meet IP69K if the cable and cable entrance are protected from high-pressure spray. Indicator side of terminal models meet IEC IP67, and IP69K when installed in an enclosure.
Screw connection points meet IEC IP00.
Meets UL type 4X and 13, when used in a suitable enclosure.

Operating Conditions
–40 °C to +50 °C (–40 °F to +122 °F)
90% at +50 °C maximum relative humidity (non-condensing)

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

Vibration and Mechanical Shock
Vibration: 10 Hz to 55 Hz, 1.0 mm peak-to-peak amplitude per IEC 60068-2-6
Shock: 30G 11 ms duration, half sine wave per IEC 60068-2-27

Certifications

Construction
Housing: polycarbonate
Translucent dome: polycarbonate
Mounting nut: PBT

Indicator Characteristics

Color	Dominant Wavelength (nm) or Color Temperature (CCT)	Lumen Output (Typical at 25 °C)
Green	520 - 535 nm	4.4
Red	620 - 630 nm	1.7
Yellow	585 - 595 nm	4.4
Blue	465 - 475 nm	1.0
White	5665 - 9000K	5.0

Required Overcurrent Protection

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

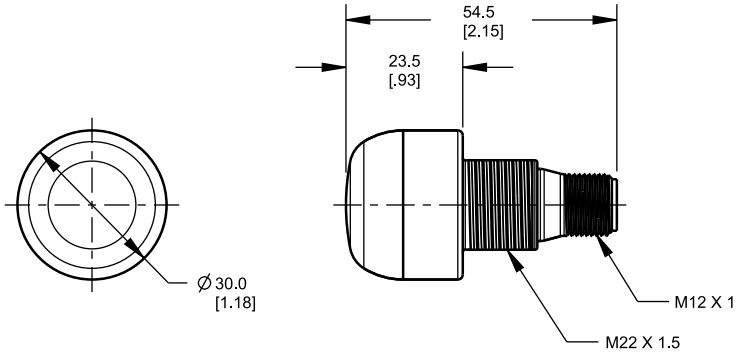
Overcurrent protection is required to be provided by end product application per the supplied table.
Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.
Supply wiring leads < 24 AWG shall not be spliced.
For additional product support, go to www.bannerengineering.com.

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

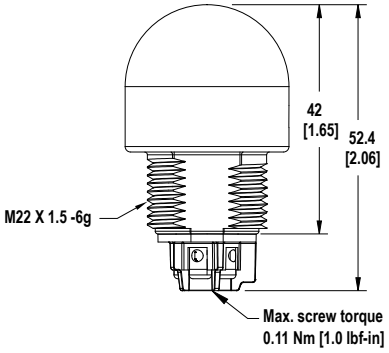
Dimensions

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

Quick-Disconnect Models

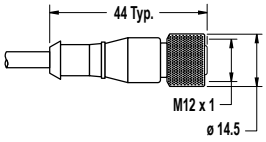
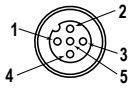
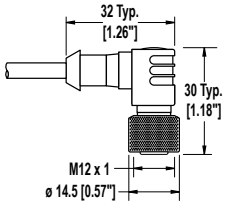


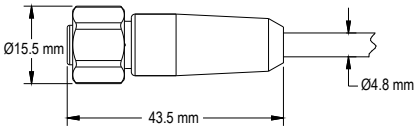
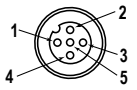
Terminal Models

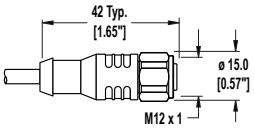
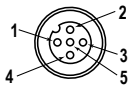


Accessories

Cordsets

5-Pin Threaded M12 Cordsets—Single Ended				
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
MQDC1-506	2 m (6.5 ft)			
MQDC1-515	5 m (16.4 ft)			
MQDC1-530	9 m (29.5 ft)			
MQDC1-506RA	2 m (6.5 ft)	Right-Angle		
MQDC1-515RA	5 m (16.4 ft)			
MQDC1-530RA	9 m (29.5 ft)			

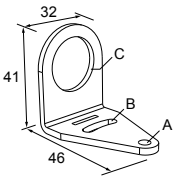
5-Pin Threaded M12 Stainless Steel Washdown Cordsets—Single Ended				
Model	**Length**	**Style**	**Dimensions**	**Pinout (Female)**
MQDC-WDSS-0506	2 m (6.56 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray
MQDC-WDSS-0515	5 m (16.4 ft)			
MQDC-WDSS-0530	9 m (29.5 ft)			

5-Pin Threaded M12 Washdown Cordsets with Shield—Single Ended				
Model	**Length**	**Style**	**Dimensions**	**Pinout (Female)**
MQDCWD-506	2 m (6.56 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray
MQDCWD-530	9 m (29.5 ft)			

Brackets

SMB22A

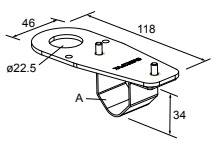
- Right-angle bracket with curved slot for versatile orientation
- 12-ga. stainless steel
- Mounting hole for 22 mm sensor



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

SMB22FVK

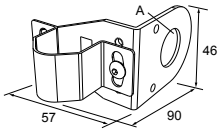
- V-clamp, flat bracket and fasteners for mounting to pipe or extensions
- Clamp accommodates 28 mm diameter tubing or 1 in. square extrusions
- 22 mm hole for mounting sensor



Hole size: A = ø 22.5

SMB22RAVK

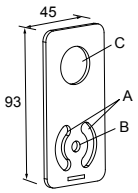
- V-clamp, right-angle bracket and fasteners for mounting to pipe or extensions
- Clamp accommodates 28 mm diameter tubing or 1 in. square extrusions
- 22 mm hole for mounting sensor



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

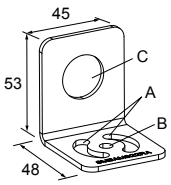


Hole center spacing: A = 26.0, A to B = 13.0

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

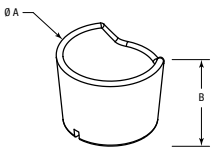


Hole center spacing: A = 26.0, A to B = 13.0

Hole size: A = 26.8 x 7.0, B = ø 6.5, C = ø 22.5

TC-K30-CL

- Touch cover



Diameter: A = 40.7
Height: B = 31

All measurements are listed in millimeters, unless noted otherwise.

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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 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.