# K50 Pro Touch Button Product Manual

Original Instructions
p/n: 240396 Rev. C
05-Jun-25
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ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

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# Chapter 1 Features



- Bright, uniform touch button
- Three default colors in one device (Green, Red, Yellow)
- Programmable using Banner's Pro Editor software and Pro Converter Cable
- Translucent polycarbonate dome
- Rugged IP66, IP67, IP69K per ISO 20653 and UL Type 4X and UL Type 13 design
- Bimodal inputs and output (PNP/NPN), depending on source wiring
- Excellent immunity to false triggering by water spray, detergents, oils, and other foreign materials
- Devices are completely self-contained—no controller needed
- Ergonomically designed to eliminate hand, wrist, and arm stresses associated with repeated switch operation; no physical force required to operate
- Can be actuated with bare hands or gloves; sensitivity can be adjusted using Pro Editor software

## Models

| Model Name | Style | Color and Input | Connector[1] |
|---|---|---|---|
| **K50** | **PST** | **GRY3** | **Q** |
| | PST = Programmable touch button | GRY3 = RGB Multicolor (3 colors, 5-pin)<br>RGB14 = RGB Multicolor (14 colors, 8-pin) | Q = Integral 5-pin or 8-pin M12 male quick-disconnect connector |

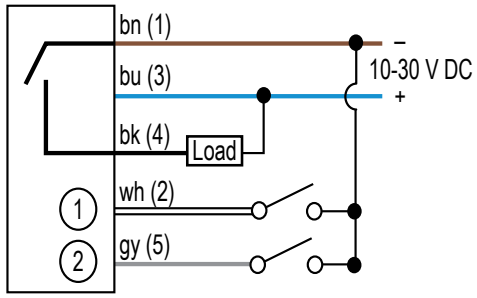
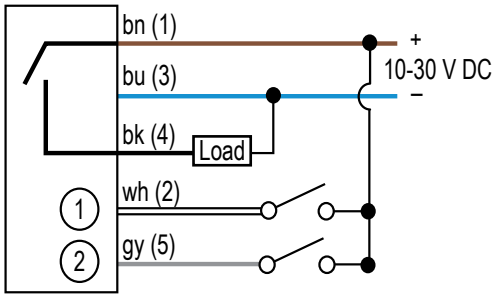
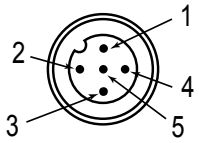
[1] Models with a quick-disconnect connector require a mating cordset.


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# Chapter 2 Wiring

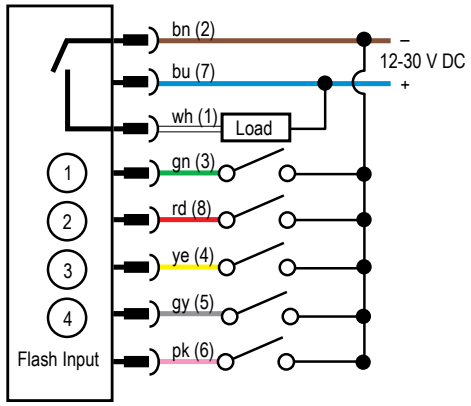
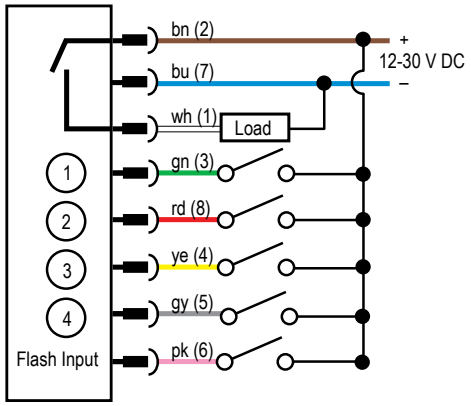
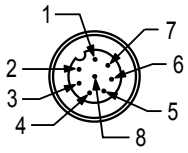
*GRY3 Wiring Diagrams*

| NPN | PNP | Pinout |
|---|---|---|
|  |  | <br>Pin 4 (Black) is Output 1. Touch actuation toggles the output. |

*GRY3 Multicolor Color/Function Definition*

| | Green | Yellow | Red |
|---|---|---|---|
| Input 1 | X | X | |
| Input 2 | | X | X |

*RGB14 Wiring Diagrams*

| NPN | PNP | Pinout |
|---|---|---|
|  |  |  |

*RGB14 Multicolor Color/Function Definition*

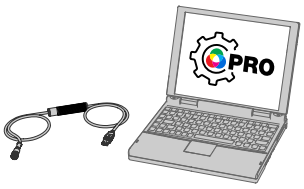
| | Red | Yellow | Green | Cyan | Blue | Magenta | White | Amber | Rose | Lime Green | Orange | Sky Blue | Violet | Spring Green |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Input 1 | X | X | | | | X | X | | X | | X | | X | |
| Input 2 | | X | X | X | | | X | | | X | X | | | X |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


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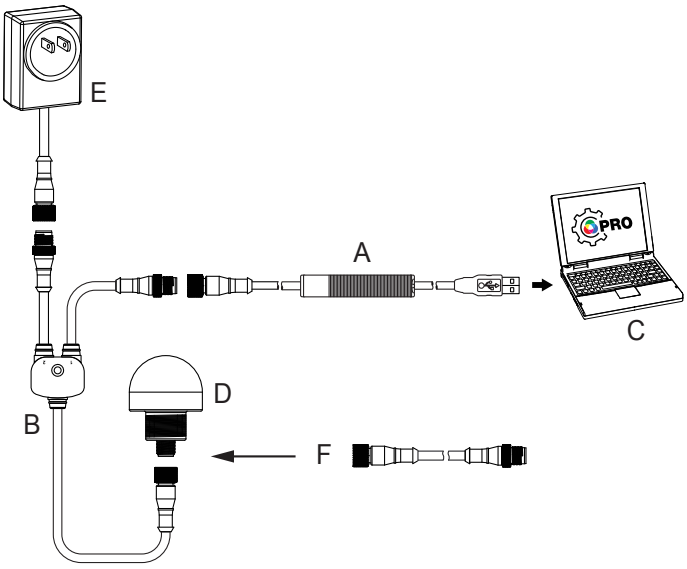
# Chapter 3 Pro Editor




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 Touch Button.




A = Pro Converter Cable (MQDC-506-USB)
B = Splitter (CSB-M1251FM1251M)
C = PC running Pro Editor software
D = Any Banner Pro Series-enabled device (K50 shown)
E = Power Supply (PSW-24-1, PSW-24-2, or PSD-24-4)
F = 8-Pin to 5-Pin Double-Ended Cordset (MQDC-801-5M-PRO), required for 8-Pin models

## K50 Pro Touch Button Pro Editor Program Options

### Touch Devices

Touch devices have the following animations available to them:

| Animations | Description |
|---|---|
| **Off** | Device or segment is off |
| **Steady** | Color 1 is on at the defined intensity |
| **Flash** | Color 1 flashes at the defined speed, color intensity, and pattern (normal, strobe, three pulses, SOS, or random) |
| **Two Color Flash** | Color 1 and Color 2 flash alternately at the defined speed, color intensities, and pattern (normal, strobe, three pulses, SOS, or random) |
| **50/50** | Color 1 displays on 50% and Color 2 displays on the other 50% statically at the defined color intensities |

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| Animations | Description |
|---|---|
| **50/50 Rotate** | Color 1 displays on 50% and Color 2 displays on the other 50% while rotating at the defined speed, color intensities, rotational direction |
| **Chase** | Color 1 is displayed as a single spot against the background of Color 2 while rotating at the defined speed, color intensities, rotational direction |
| **Intensity Sweep** | Color 1 continuously increases and decreases intensity between 0% to 100% on each device or on every segment at the defined speed and color intensity |
| **Demo** | Demo sequence cycles through several sets of colors and configurations to highlight example applications |

When a touch device is connected, **Device Logic Mode** configuration displays.

By default, when a touch device is connected, Pro Editor opens **Device Logic Mode** configuration populated with the configuration written to the device. If no device logic mode is selected, use the **Device Logic Mode** drop-down to select a logic mode, then write the configuration to the device. Three **Device Logic Modes** are available:

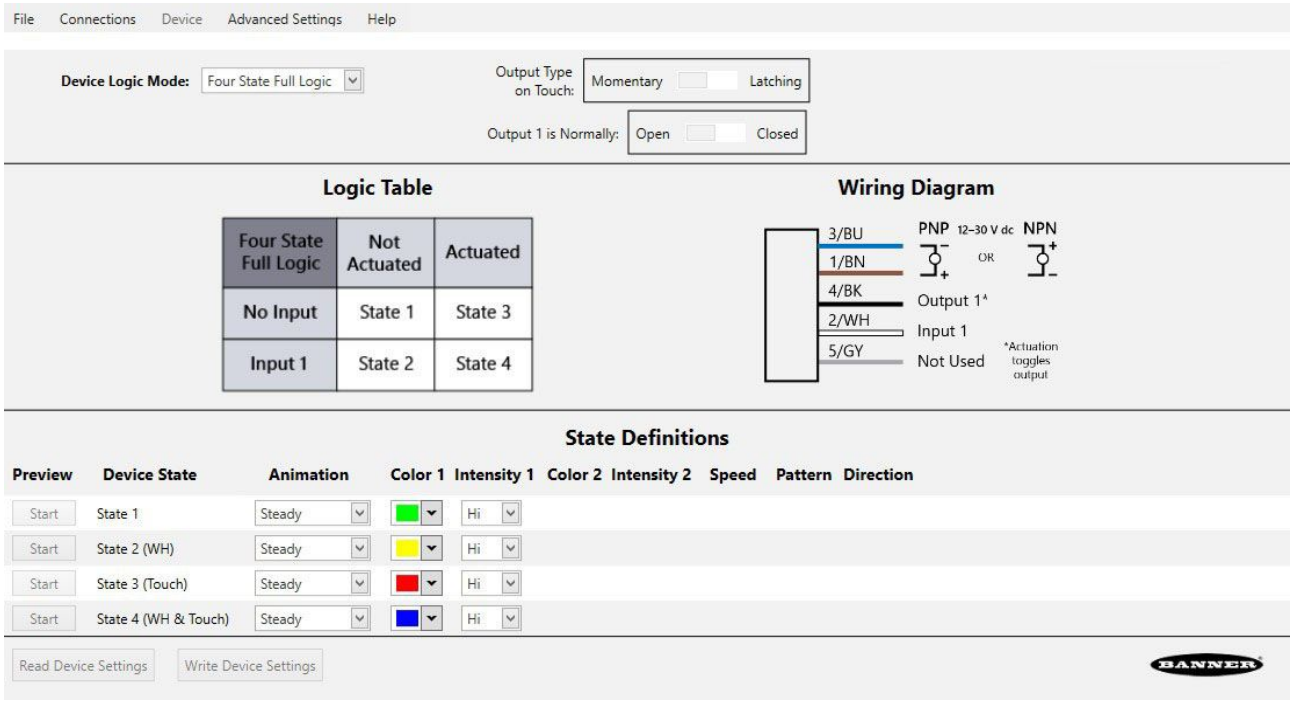
- Four State Full Logic
- Three State Advanced Control
- Seven State Advanced Control

## Device Logic Mode – Four State Full Logic

When using Four State Full Logic, four device states are activated by one input wire and the touch button. The touch button also toggles the output(s).

Assuming power is on using the blue and brown wires:

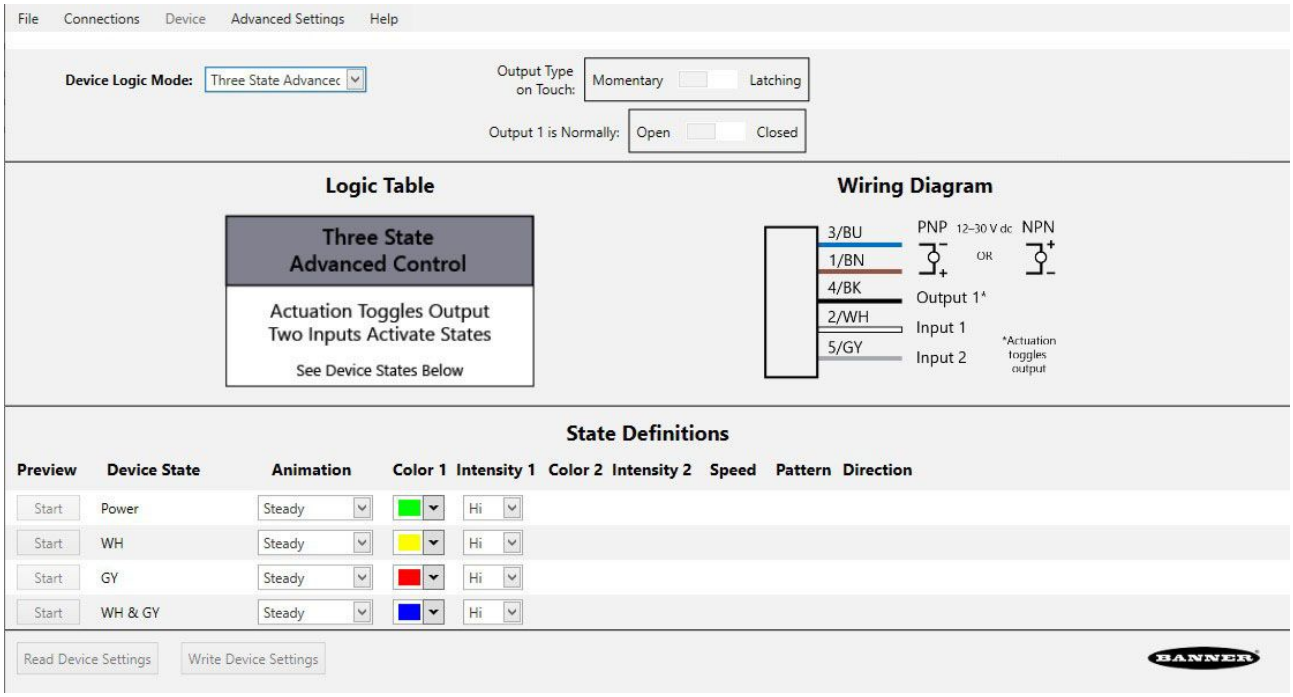
**State 1:** Input Inactive, Touch Inactive
**State 2:** Input Active, Touch Inactive
**State 3:** Input Inactive, Touch Active
**State 4:** Input Active, Touch Active




## Device Logic Mode – Three State Advanced Control

When using Three State Advanced Control, four device states are activated by two input wires. The touch button toggles the output(s) with no device state change.


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## Device Logic Mode – Seven State Advanced Control

**NOTE:** Seven State Advanced Control is only available on 8-pin models.

When using Seven State Advanced Control, seven device states are activated by three input wires. An additional power state can be defined. The touch button toggles the output(s) with no device state change.

Voltage values shown in wiring diagrams vary depending on the connected device.

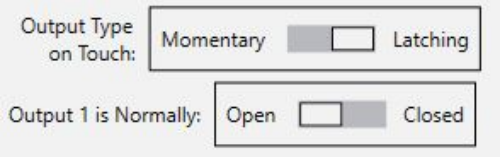



## Global Parameters and Advanced Settings

When connected to the K50 Pro Touch Button device, the following global parameters appear in the configuration display.


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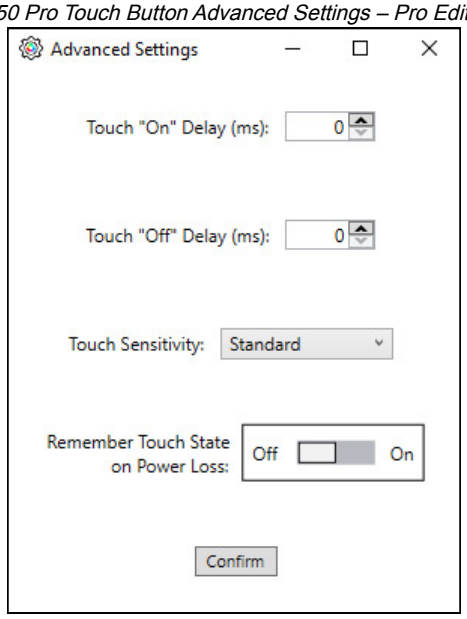
*K50 Pro Touch Button Global Parameters – Pro Editor*




| K50 Pro Touch Button Parameter | Description |
|---|---|
| **Output Type on Touch** | In Momentary mode, the output only toggles while the touch button is touched. In Latching mode, the output toggles each time the touch button is pressed.[2] |
| **Output 1 is Normally** | In Open mode, output 1 is turned ON with touch input. In Closed mode, output 1 is turned OFF with touch input. |

When an actuator device is connected, the following **Advanced Settings** can be accessed by clicking on the **AdvancedSettings** menu.

*K50 Pro Touch Button Advanced Settings – Pro Editor*




| K50 Pro Touch Button Setting | Description |
|---|---|
| **Touch "On" Delay (ms)** | The length of time the touch button needs to be pressed to trigger "touch active" state. |
| **Touch "Off" Delay (ms)** | The length of time before the device returns to "touch inactive" state after the touch button is released. |
| **Touch Sensitivity** | The touch button is easily toggled in High mode, and resists unintentional toggling in Low mode. |
| **Remember Touch State on Power Loss** | When the Global Parameter **Output Type on Touch** is set to Latching the **Remember Touch State on Power Loss** setting, determines whether touch state should be reset or retained when power is restored. When ON the touch state will be retained when power to the device is lost. When OFF the touch state will be reset when power to the device is lost. |

[2] When **Output Type on Touch** is set to Latching mode, output state and device state transitions both occur on the leading edge of touch input.


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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 transient voltages and output short-circuit

**Leakage Current Immunity**

400 µA

**Touch Dwell Time**

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

**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 or integral 8-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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**Output Ratings**

**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


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### Default Indicator Characteristics

| Color | Dominant Wavelength (nm) or Color Temperature (CCT) | Color Coordinates[3] | | Lumen Output Per Segment (Typical at 25 °C) |
|---|---|---|---|---|
| | | X | Y | |
| Green | 522 | 0.154 | 0.7 | 19.5 |
| Red | 620 | 0.689 | 0.309 | 10.3 |
| Yellow | 576 | 0.477 | 0.493 | 25.8 |
| Blue | 466 | 0.14 | 0.054 | 3.7 |
| White | 5700K | 0.328 | 0.337 | 30.5 |
| Cyan | 493 | 0.17 | 0.34 | 22.1 |
| Magenta | - | 0.379 | 0.172 | 12.7 |
| Amber | 589 | 0.556 | 0.42 | 17.9 |
| Rose | - | 0.515 | 0.22 | 10.6 |
| Lime Green | 562 | 0.388 | 0.561 | 25.3 |
| Sky Blue | 486 | 0.155 | 0.247 | 17.8 |
| Orange | 599 | 0.616 | 0.37 | 14.3 |
| Violet | - | 0.217 | 0.089 | 7.1 |
| Spring Green | 508 | 0.177 | 0.536 | 20 |

# 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.

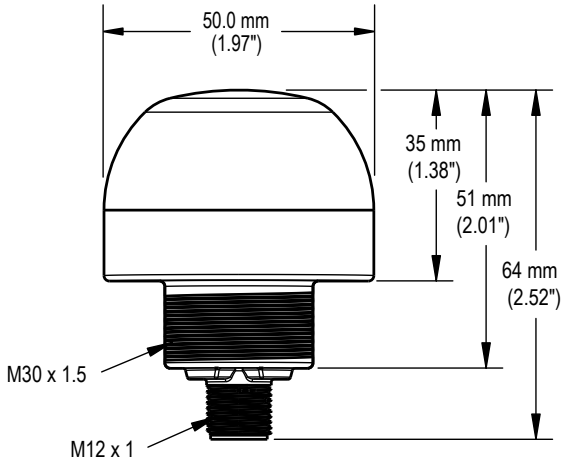
Cet appareil est conforme à la norme NMB-3(B). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas occasionner d'interférences, et (2) il doit tolérer toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité du dispositif.

[3] Refer to CIE 1931 chromaticity diagram or color chart to show equivalent color with indicated color coordinates. Actual coordinates may differ by 10%.


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# Dimensions

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





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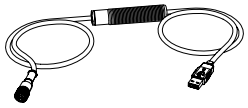
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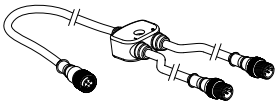
# Chapter 5 Accessories

## Pro Editor Hardware

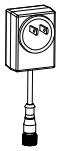
**MQDC-506-USB**
- Pro Converter Cable
- 1.83 m (6 ft) length 5-pin M12 quick disconnect to Device and USB to PC
- Required for connection to the configuration software



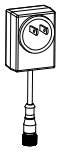
**CSB-M1251FM1251M**
- 5-pin parallel Y splitter (Male-Male-Female)
- For full Pro Editor preview capability
- Requires external power supply, sold separately



**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



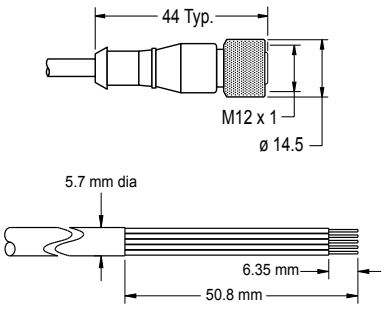
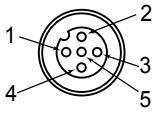
**MQDC-801-5M-PRO**
- 8-pin to 5-pin double-ended cordset
- 0.31 m (1 ft) PVC cable with M12 quick disconnects
- Required to connect 8-pin Pro Series-enabled devices to Pro Converter Cable (MQDC-506-USB), sold separately

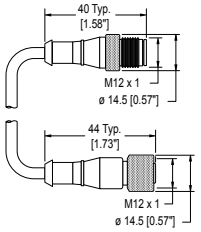
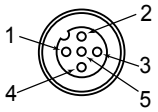
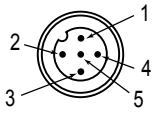


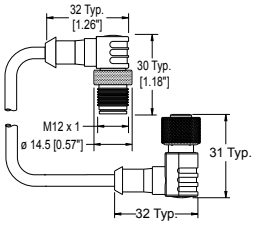
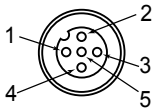
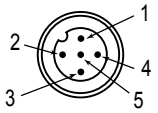

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# Cordsets

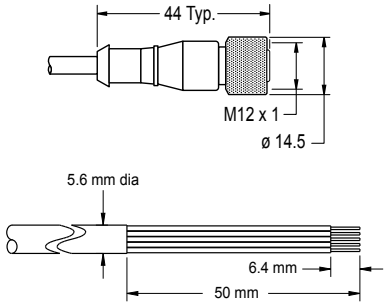
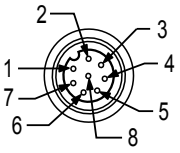
All measurements are listed in millimeters [inches], unless noted otherwise. The measurements provided are subject to change.

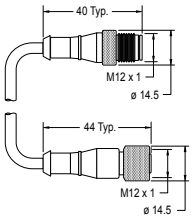
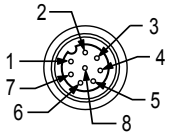
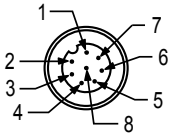
| 5-pin Single-Ended M12 Female Cordsets | | | | |
|---|---|---|---|---|
| **Model** | **Length** | **Dimensions (mm)** | **Pinout (Female)** | |
| **BC-M12F5-22-1** | 1 m (3.28 ft) |  |  | 1 = Brown<br>2 = White<br>3 = Blue<br>4 = Black<br>5 = Gray |
| **BC-M12F5-22-2** | 2 m (6.56 ft) | | | |
| **BC-M12F5-22-5** | 5 m (16.4 ft) | | | |
| **BC-M12F5-22-8** | 8 m (26.25 ft) | | | |
| **BC-M12F5-22-10** | 10 m (30.81 ft) | | | |
| **BC-M12F5-22-15** | 15 m (49.2 ft) | | | |

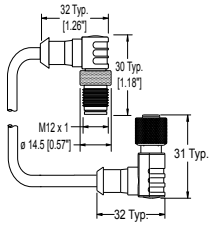
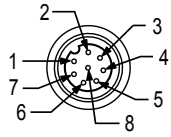
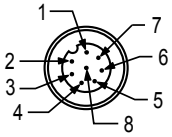
| 5-pin A-Code Double-Ended M12 Female to M12 Male Cordsets | | | | |
|---|---|---|---|---|
| **Model** | **Length** | **Dimensions (mm)** | **Pinouts** | |
| **BC-M12F5-M12M5-22-1** | 1 m (3.28 ft) |  | Female<br><br>Male<br> | 1 = Brown<br>2 = White<br>3 = Blue<br>4 = Black<br>5 = Gray |
| **BC-M12F5-M12M5-22-2** | 2 m (6.56 ft) | | | |
| **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 A-Code 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<br><br>Male<br> | 1 = Brown<br>2 = White<br>3 = Blue<br>4 = Black<br>5 = Gray |
| **BC-M12F5A-M12M5A-22-2** | 2 m (6.56 ft) | | | |
| **BC-M12F5A-M12M5A-22-5** | 5 m (16.4 ft) | | | |
| **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) | | | |


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| 8-pin Single-Ended M12 Female Shielded Cordsets | | | | |
|---|---|---|---|---|
| **Model** | **Length** | **Dimensions (mm)** | **Pinout (Female)** | |
| **BC-M12F8-24-1-SF** | 1 m (3.28 ft) |  |  | 1 = White<br>2 = Brown<br>3 = Green<br>4 = Yellow<br>5 = Gray<br>6 = Pink<br>7 = Blue<br>8 = Red |
| **BC-M12F8-24-2-SF** | 2 m (6.56 ft) | | | |
| **BC-M12F8-24-5-SF** | 5 m (16.4 ft) | | | |
| **BC-M12F8-24-8-SF** | 8 m (26.25 ft) | | | |
| **BC-M12F8-24-10-SF** | 10 m (30.81 ft) | | | |
| **BC-M12F8-24-15-SF** | 15 m (49.2 ft) | | | |

| 8-pin Double-Ended M12 Female to M12 Male Cordsets | | | | |
|---|---|---|---|---|
| **Model** | **Length** | **Dimensions (mm)** | **Pinouts (Female)** | **Pinouts (Male)** |
| **BC-M12F8-M12M8-24-1** | 1 m (3.28 ft) |  |  |  |
| **BC-M12F8-M12M8-24-2** | 2 m (6.56 ft) | | | |
| **BC-M12F8-M12M8-24-5** | 5 m (16.4 ft) | | | |
| **BC-M12F8-M12M8-24-8** | 8 m (26.25 ft) | | 1 = White<br>2 = Brown<br>3 = Green<br>4 = Yellow | 5 = Gray<br>6 = Pink<br>7 = Blue<br>8 = Red |
| **BC-M12F8-M12M8-24-10** | 10 m (30.81 ft) | | | |
| **BC-M12F8-M12M8-24-15** | 15 m (49.2 ft) | | | |

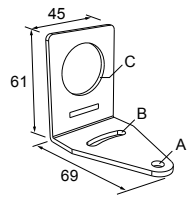
| 8-pin Double-Ended M12 Female Right-Angle to M12 Male Right-Angle Cordsets | | | | |
|---|---|---|---|---|
| **Model** | **Length** | **Dimensions (mm)** | **Pinouts (Female)** | **Pinouts (Male)** |
| **BC-M12F8A-M12M8A-24-1** | 1 m (3.28 ft) |  |  |  |
| **BC-M12F8A-M12M8A-24-2** | 2 m (6.56 ft) | | | |
| **BC-M12F8A-M12M8A-24-5** | 5 m (16.4 ft) | | | |
| **BC-M12F8A-M12M8A-24-8** | 8 m (26.25 ft) | | 1 = White<br>2 = Brown<br>3 = Green<br>4 = Yellow | 5 = Gray<br>6 = Pink<br>7 = Blue<br>8 = Red |
| **BC-M12F8A-M12M8A-24-10** | 10 m (30.81 ft) | | | |
| **BC-M12F8A-M12M8A-24-15** | 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



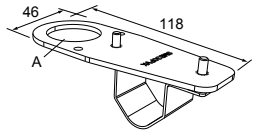


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**SMB30FVK**

- 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

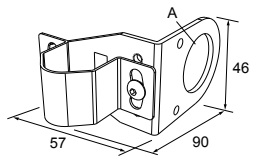
**Hole size:** A= ø 31




**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

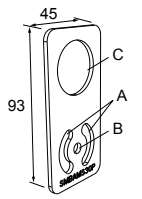
**Hole size:** A = ø 30.5




**SMBAMS30P**

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

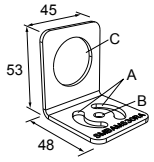
**Hole center spacing:** A=26.0, A to B=13.0
**Hole size:** A=26.8 × 7.0, B=ø 6.5, C=ø 31.0




**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

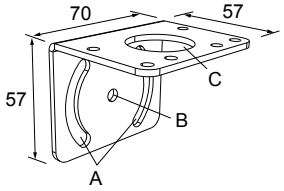
**Hole center spacing:** A=26.0, A to B=13.0
**Hole size:** A=26.8 × 7.0, B=ø 6.5, C=ø 31.0




**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

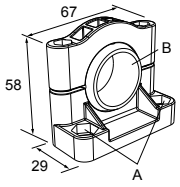
**Hole center spacing:** A = 51, A to B = 25.4
**Hole size:** A = 42.6 × 7, B = ø 6.4, C = ø 30.1




**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



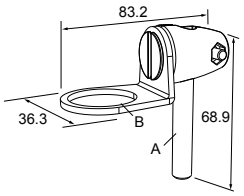


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**SMB30FA**

- 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

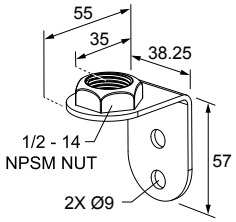
**Bolt thread:** SMB30FA, A= 3/8 - 16 × 2 in; SMB30FAM10, A= M10 - 1.5 × 50
**Hole size:** B= ø 30.1




**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

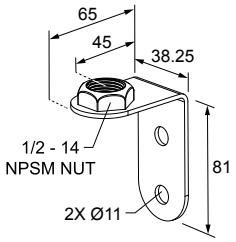
**Hole center spacing:** 20.0




**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

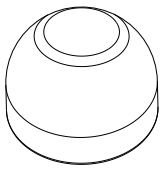



All measurements are listed in millimeters [inches], unless noted otherwise. The measurements provided are subject to change.

# Wash-Down Cover

**WC-K50T** Washdown Cover

- FDA-grade silicone
- Fits K50 touch buttons
- IP67 and IP69K rated



# Elevated Mount System

| Model | Description | Components |
|---|---|---|
| **SA-M30E12P** - Black Acetal | • Streamlined black acetal stand-off pipe adapter/cover<br>• Connects between 30 mm light base and ½ in. NPSM/ DN15 pipe<br>• Mounting hardware included |  |

Continued on page 17


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Continued from page 16

| Model | | Description | Components |
|---|---|---|---|
| **Black Anodized Aluminum** | **Clear Anodized Aluminum** | • Elevated-use stand-off pipe (½ in. NPSM/DN15)<br>• Polished 304 stainless steel, black anodized aluminum, or clear anodized aluminum surface<br>• ½ 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<br>• Compatible with most industrial environments |  |
| **SOP-E12-150A**<br>150 mm (6 in) long | **SOP-E12-150AC**<br>150 mm (6 in) long | | |
| **SOP-E12-300A**<br>300 mm (12 in) long | **SOP-E12-300AC**<br>300 mm (12 in) long | | |
| **SOP-E12-600A**<br>600 mm (24 in) long | **SOP-E12-600AC**<br>600 mm (24 in) long | | |
| **SOP-E12-900A**<br>900 mm (36 in) long | **SOP-E12-900AC**<br>900 mm (36 in) long | | |


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# Chapter 6 Product Support and Maintenance

## Clean with Mild Detergent and Warm Water

Wipe down the device with a soft cloth dampened with a mild detergent and warm water solution. Do not use any other chemicals for cleaning.

## Repairs

Contact Banner Engineering for troubleshooting of this device. **Do not attempt any repairs to this Banner device; it contains no field-replaceable parts or components.** If the device, device part, or device component is determined to be defective by a Banner Applications Engineer, they will advise you of Banner's RMA (Return Merchandise Authorization) procedure.

> **IMPORTANT:** If instructed to return the device, pack it with care. Damage that occurs in return shipping is not covered by warranty.

## Contact Us

Banner Engineering Corp. headquarters is located at: 9714 Tenth Avenue North | Plymouth, MN 55441, USA | Phone: + 1 888 373 6767

For worldwide locations and local representatives, visit www.bannerengineering.com.

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