Pro Editor Software Instruction Manual

Original Instructions
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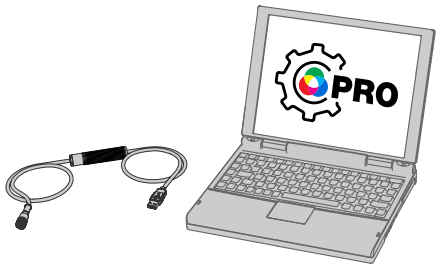
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Overview 4

Chapter 1 Software Description

Software that Enables Field Configuration of Banner Pro Series-enabled Devices



- Allows configuration of Banner Pro Series-enabled lighting and indicator devices
- Free to download and available from the product page of any Pro Series-enabled device or at www.bannerengineering.com/proeditor
- Works on Microsoft® Windows® 7 and 10[1]
- Pro Converter Cable MQDC-506-USB required to connect PC-based Pro Editor software to Pro Series-enabled lighting and indicator devices
- Full preview capabilities are available with the use of power supply PSW-24-1 or PSD-24-4 and splitter CSB-M1251FM1251M. The power supply and splitter are required for connection to all Pro Series-enabled devices.

NOTE: Administrative rights are required to install the Pro Editor software.

Overview

Banner's Pro Editor software offers an easy way to configure Pro Series-enabled indication, touch, and illumination devices, allowing users full control of device states and device logic modes. The easy-to-use configuration software provides a variety of tools and capabilities to solve a wide range of applications such as indicating machine status or warm-up time, indicating unique steps in an assembly process, or incorporating status information into touch buttons.

Select Pro Editor devices include a preview mode that allows users to verify device performance before writing a configuration to a device.

Set up any Pro Series-enabled device using the free Pro Editor software, available for download at www.bannerengineering.com/proeditor.

To view Pro Series-enabled devices, visit www.bannerengineering.com/proeditor.

[1] Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and/or other countries.

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Chapter 2 Specifications and Requirements

Pro Editor Software PC Requirements

Operating System
Microsoft® Windows® operating system versions 7[(2)] or 10[(3)]

Hard Drive Space
120 MB

[(2)] Windows 7 requires manual installation of Pro Converter Cable driver. See "Install the Pro Converter Cable Driver (Windows 7)" on page 7 for more information.

[(3)] Microsoft® and Windows® are registered trademarks of Microsoft® Corporation in the United States and/or other countries.

USB
Available USB port

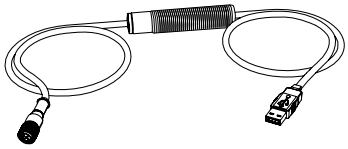
Screen Resolution
1366 × 768 full-color minimum

Third-Party Software
.NET version 4.6.2 or higher

IMPORTANT: Administrative rights are required to install the Pro Editor software.

Pro Converter Cable – Required for use with Pro Editor

The Pro Converter Cable, model MQDC-506-USB, is required for use with Pro Editor. Use the Pro Converter Cable to connect Pro Series-enabled devices to read, write, and preview device states.



- Connects Pro Series-enabled devices to the PC-based Pro Editor software
- Can be used with mating accessory ACC-PRO-CABLE5 for connection to devices with an integral cable or terminal connection
- Double-ended cordset MQDC-801-5M-PRO required to connect 8-pin devices to Pro Converter Cable; see "Accessories" on page 42 for more information
- Full preview capabilities are available with the use of power supply PSW-24-1 and splitter CSB-M1251FM1251M; see "Accessories" on page 42 for more information

NOTE: When connected to a Microsoft Windows 10 device for the first time, the Pro Converter Cable automatically installs the correct Microsoft driver. When connected to a Microsoft Windows 7 device for the first time, the Pro Converter Cable drivers must be installed manually. See "Install the Pro Converter Cable Driver (Windows 7)" on page 7 for more information.

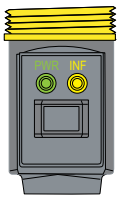
Model

Model	Adapter	Length	Connections
MQDC-506-USB	Pro Editor Software	1.86 m (6 ft)	USB and 5-pin M12 male quick-disconnect connector

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Features

Pro Converter Cable LED Indicators



PWR (Cable Power Indicator)

Off: No power
Slow flashing green (0.5 Hz): Normal Mode

INF (Device Information Indicator)

Off: Device power off
Solid amber: Device power on
Fast flashing red (10 Hz): Device power fault

Pro Converter Cable Specifications

Input Voltage

5 V DC from USB Type A connector

Output Voltage

20 V DC

Banner Compatible Devices

View compatible devices at www.bannerengineering.com/proeditor

Certifications

CE

Indicators

2 LED indicators:

Green Flashing: Power on
Amber Solid: Device on
Red Flashing: Device power fault

Communications

5-pin M12 male quick-disconnect connector compatible with Banner Pro Series-enabled devices

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.

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Install the Pro Converter Cable Driver (Windows 7) 7
Connect the Cables 8
Connect a Device 9

Chapter 3 Installation Instructions

Install the Pro Editor Software

IMPORTANT: Administrative rights are required to install the Pro Editor software.

1. Download the latest version of the software from www.bannerengineering.com/proeditor.
2. Navigate to the downloaded file **ProEditorInstaller.exe**.
3. Double-click the installer to open **Banner Pro Editor Setup**.
4. Accept the terms in the License Agreement by selecting the checkbox.
5. Click **Install** to install the software.
6. Depending on your system settings, a pop-up window may appear prompting to allow Pro Editor to make changes to your computer. Click **Yes**.
7. Click **Close** to exit the installer after installation is complete.

Update the Pro Editor Software

The current version of the Pro Editor software is available for download from www.bannerengineering.com/proeditor.

When connected to a network, if a Pro Editor software update is available, a red icon displays in the bottom right corner of Pro Editor. See "Device Connection Status and Software Update Notification" on page 35 for more information.

Install the Pro Converter Cable Driver (Windows 7)

When connected to a PC running Microsoft Windows 7 for the first time, the Pro Converter Cable drivers must be installed manually. To manually install the Pro Converter Cable driver on a Windows 7 device, follow these steps.

NOTE: After connecting the Pro Converter Cable to a PC running Microsoft Windows 7 the following message may appear: "Device driver software not successfully installed".

1. Download the latest driver file from www.bannerengineering.com/proeditor.
2. Unzip (extract) the file labeled ProConverterCable_driver to a new location.
3. Open **Control Panel**.
4. Open **Device Manager** (in the System and Security category). The Pro Converter Cable is listed as **Communications Translator** under **Other Devices** with an exclamation mark icon next to it indicating that the device driver has not been successfully installed.
5. Right-click on **Communications Translator** and select **Update Driver Software...**.
6. Click **Browse my computer for driver software**.
7. Click on **Com ports**.
8. Click **Let me pick from a list of device drivers on my computer**.
9. Make sure that **Show All Devices** is selected and click **Next**.
10. Click **Have Disk...**.
11. Click **Browse...** and select the driver file. For example, banner0x00D2_cdc.inf.
12. Click **OK**.
13. A message displays that the driver has an Authenticode signature. Click **Next**.

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14. An update driver warning displays. Click **Yes**.
15. An installation message displays. Click **install**.

The Pro Converter Cable is listed as a COM Port under Ports in **Device Manager**.

Connect the Cables

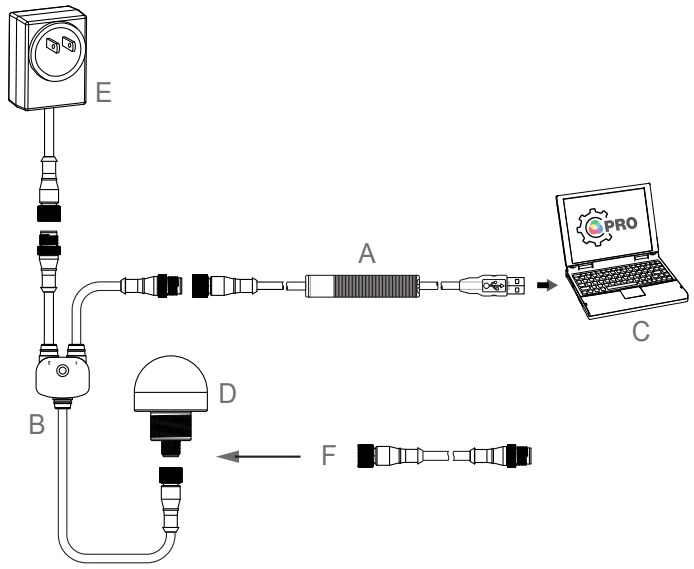
There are two options for connecting a Pro Series-enabled device to Pro Editor.

1. Connect a device using a Pro Converter Cable, splitter, and power supply for full preview capabilities. For more information, refer to the Pro Devices Technical Note (p/n b_4485056).
2. Connect a device using a Pro Converter Cable for limited preview capabilities.

NOTE: If your Pro Series-enabled device has an integral cable or terminal connection, a mating accessory (ACC-PRO-CABLE5) is required to connect the device to the Pro Converter Cable. See for more information.

NOTE: If your Pro Series-enabled device has an 8-pin connector, a double-ended cordset (MQDC-801-5M-PRO) is required to connect the device to the Pro Converter Cable. See for more information.

Full Preview Connection



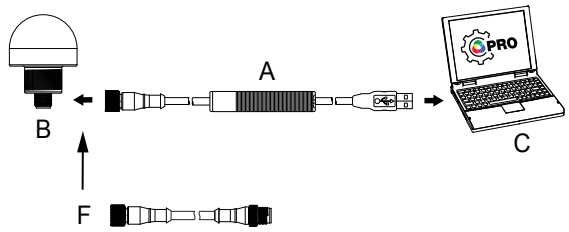
The full preview connection is recommended for all Pro-series enabled devices, and is required for the following devices:

- Tower Lights: TL50 Pro, TLF100 Pro
- Indicators: K90 Pro, K100 Pro, K100 Pro Beacon
- Strip Lights: All Pro-Series strip lights

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 or PSD-24-4)
F = 8-Pin to 5-Pin Double-Ended Cordset (MQDC-801-5M-PRO), required for 8-Pin models

Limited Preview Connection

Because of supply current restrictions when using a Pro Converter Cable to connect a device to Pro Editor, some preview features may be unavailable, including certain animations and colors. For information regarding device preview capabilities when using a Pro Converter Cable setup, contact a Banner applications engineer.



The limited preview connection is required for the following devices:

- Indicators: S22 Pro
- Touch Buttons: All Pro-Series touch buttons

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A = Pro Converter Cable
B = Banner Pro Series-enabled device (K50 shown)
C = PC running Pro Editor software
F = 8-Pin to 5-Pin Double-Ended Cordset (MQDC-801-5M-PRO), required for 8-Pin models

Connect a Device

After connecting a Pro Series-enabled device to a PC, follow these steps to connect the device to Pro Editor. Only one device can be connected to Pro Editor at a time.

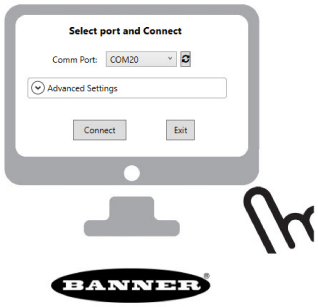
1. Open Pro Editor.

Pro Editor



2. Click **Connect**.

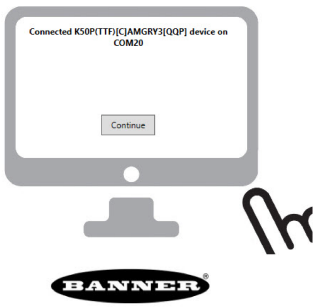
Pro Editor Connection Dialog



3. Select the Comm Port from the drop-down list. If the communication port that you have connected the device to is not available, click the ↻ refresh button and then select the comm port from the drop-down list.
4. Click **Connect**.
5. When a device is successfully connected, the following message appears:

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Successful Connection



6. Click **Continue**.

NOTE: For information regarding Advanced Settings, contact a Banner applications engineer.

After a device is successfully connected, Pro Editor reads the device configuration and displays it.

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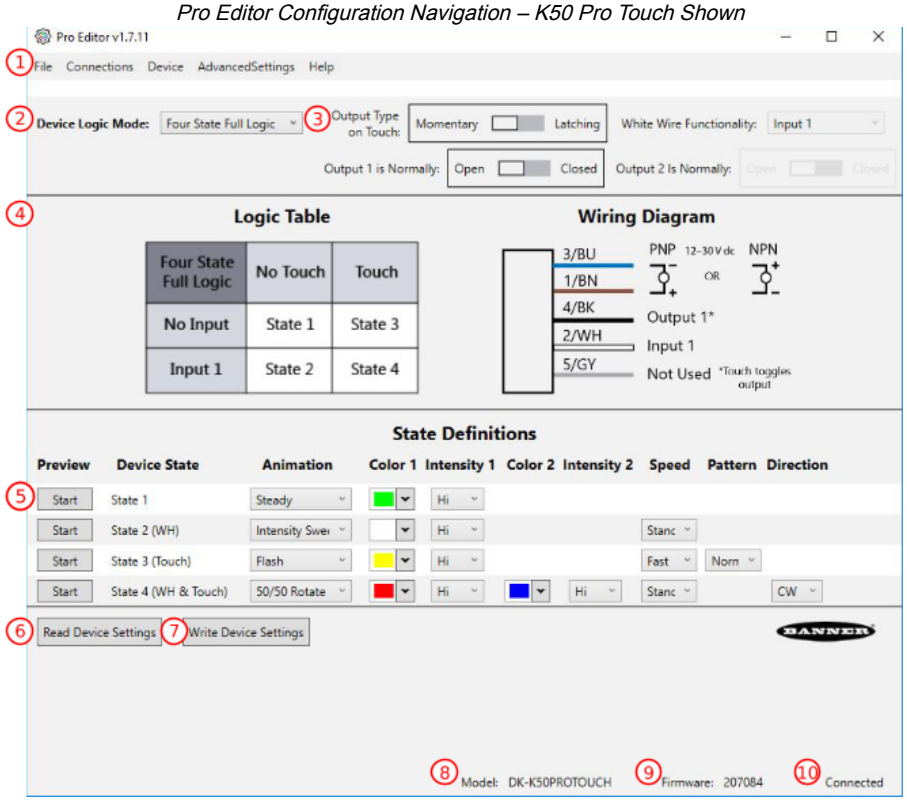
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Tower Light Devices 19
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Chapter 4 Navigating Pro Editor

Pro Editor provides access to read, write, and preview device states.

NOTE: This Instruction Manual covers Pro Editor v2.2. Interface and functionality details may be different in other versions of Pro Editor.

Pro Editor Configuration Navigation – K50 Pro Touch Shown



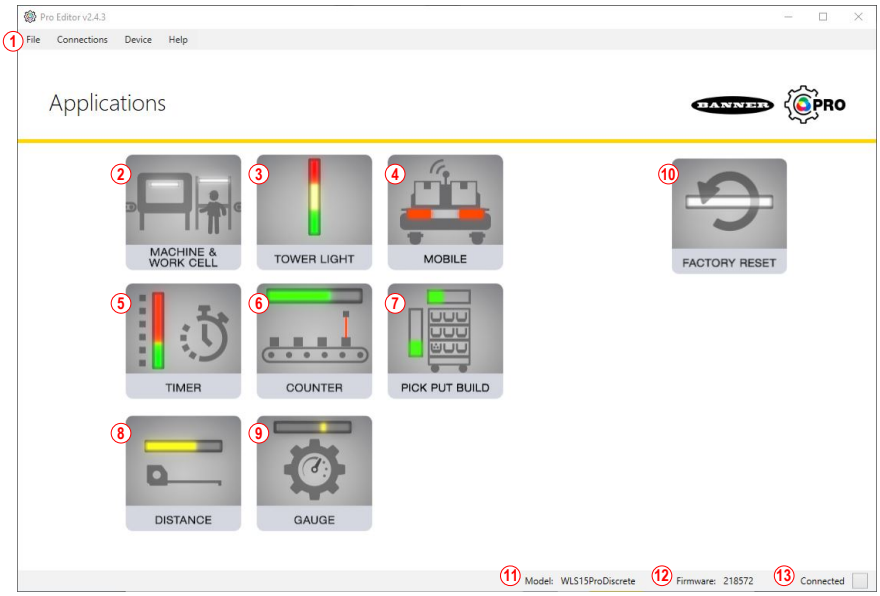
Key for Indicator, Touch, and Tower Light Devices

1. Menu Bar: File, Connections, Device, AdvancedSettings, Help
2. Device Logic Mode* or I/O State** Drop-down
3. Global Parameters*
4. Logic Table and Wiring Diagram*
5. Device Function Rows
6. Read Device Settings
7. Write Device Settings
8. Connected Device Information
9. Connected Device Firmware ID
10. Device Connection Status and Software Update Notification

*Touch device configuration only, Global Parameters change depending on the connected device
** Indicator device configuration only

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Pro Editor Configuration Navigation – WLS15 Pro Shown



Key for Strip Light Devices

1. Menu Bar: File, Connections, Device, Help
2. Machine & Work Cell Application
3. Tower Light Application
4. Mobile Application
5. Timer Application
6. Counter Application
7. Pick Put Build Application
8. Distance Application
9. Gauge Application
10. Factory Reset
11. Connected Device Information
12. Connected Device Firmware ID
13. Device Connection Status and Software Update Notification

Menu Bar

File Menu Option	Description
Save Current Config	Saves the current configuration.
Open Config File	Opens a saved configuration file.
Exit	Exit Pro Editor.

Connections Menu Option	Description
Connect	Opens the **Connection** dialog.
Disconnect	Disconnects the connected Pro Series-enabled device.
Start Offline Mode	Opens the device list, and after selecting a required device, allows Pro Editor to be used while not connected to a network.

Device Menu Option	Description
Open Legacy Default Template	Loads the selected Legacy configuration to replicate the functionality of select factory configured devices. **NOTE:** Menu option only available on touch devices.
Restore Device Factory Configuration	**IMPORTANT:** Performing a **Restore Device Factory Configuration** deletes the configuration stored on the connected device and replaces it with the default factory configuration. To restore a device to its factory configuration, select **Restore Device Factory Configuration**. The current configuration on the device is deleted and replaced by the factory configuration, which will then be read by Pro Editor. If the **Device Logic Mode** drop-down reads "**–Please Select–**", manually select the appropriate logic mode.

NOTE: Advanced Settings are only available for select Pro devices.

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Click **Advanced Settings** to open the **Advanced Settings** configuration display. For more information, see "Global Parameters and Advanced Settings" on page 15.

Help—This Instruction Manual is accessible from within Pro Editor under **Help**.

Indicator Devices

Depending on the device connected to Pro Editor, one of three configuration parameters displays:

- When an indicator device is connected, **I/O State** configuration displays.
- When a touch device is connected, **Device Logic Mode** configuration displays. For touch device configuration, see "Touch and Sensor Devices" on page 13.
- When a strip light device is connected, a common applications selection displays. See "Strip Light Devices " on page 22.

By default, when an indicator device is connected, Pro Editor opens **I/O State** configuration in **Advanced**. Three **I/O States** are available:

- Basic
- Advanced
- I/O Block

I/O State – Basic

Four state control. Configurations made in I/O State Basic assign one wire to one state, with the following override control:

- Pin 1 (Brown) overrides Pin 4 (Black)
- Pin 2 (White) overrides Pins 1 and 4 (Brown and Black)
- Pin 5 (Gray) overrides Pins 1, 2, and 4 (Brown, White, and Black)

I/O State – Advanced

Default I/O state with full 15 state options for maximum configurability. Configurations made in Advanced assign binary wiring combinations of all valid inputs to each state.

I/O State – I/O Block

Three state control for use with I/O block. Configurations made in I/O Block assign states to the black, white, and combination of black and white wires for use with I/O blocks for which power (brown) and common (blue) are always on for five pin connections.

Touch and Sensor Devices

Depending on the device connected to Pro Editor, one of two configuration parameters displays:

- When a touch device is connected, **Device Logic Mode** configuration displays.
- When an indicator device is connected, **I/O State** configuration displays. For indicator device configuration, see "Indicator Devices" on page 13.

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).

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

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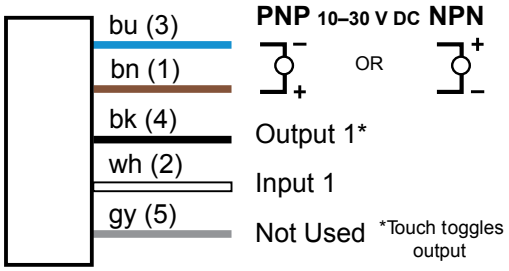
Assuming power is on using the blue and brown wires:

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

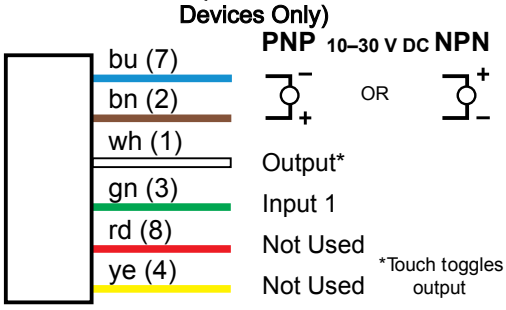
Four State Full Logic Table – Pro Editor

Four State Full Logic	No Touch	Touch
No Input	State 1	State 3
Input 1	State 2	State 4

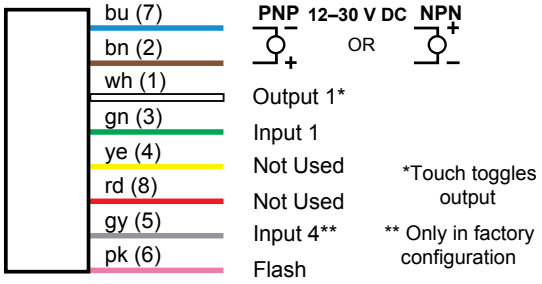
5-Pin/5-Wire Pro Devices



8-Pin/6-Wire Models (S22 Pro Touch and K30 RGB7 Devices Only)



8-Pin/8-Wire Models



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.[4]

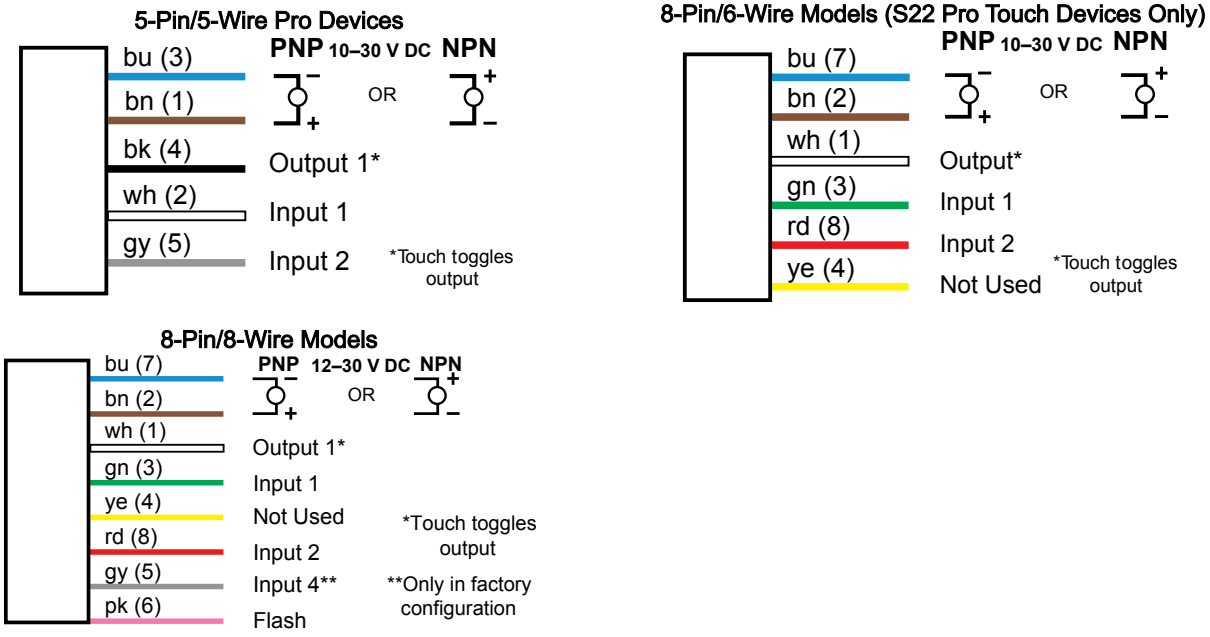
Voltage values shown in wiring diagrams vary depending on the connected device.

Three State Advanced Control Table – Pro Editor

Three State Advanced Control
Touch Toggles Output **Two Inputs Activate States** **See Device States Below**

[4] When configuring a 5-Wire K50 Pro Touch device to use two outputs, the Three State Advanced Control Device Logic Mode has two device states that are toggled by a single input wire.

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Device Logic Mode – Seven State Advanced Control

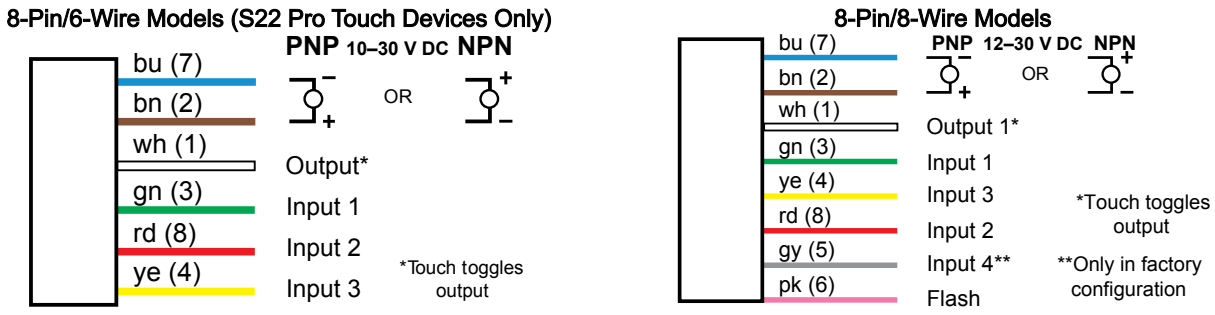
NOTE: Seven State Advanced Control is only available on 8-Pin (6-Wire or 8-Wire) Pro Series-enabled devices.

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.

Seven State Advanced Control Table – Pro Editor

Seven State Advanced Control
Touch Toggles Output **Three Inputs Activate States** **See Device States Below**

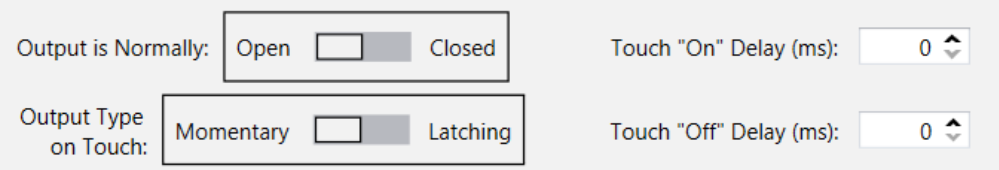


Global Parameters and Advanced Settings

Depending on the connected Pro Series-enabled device, the following global parameters appear in the configuration display.

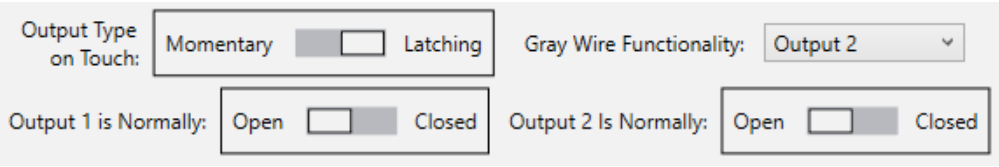
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S22 Pro Touch Global Parameters – Pro Editor



S22 Touch Parameter	Description
Output is Normally	In Open mode, the output is turned ON with touch input. In Closed mode, the output is turned OFF with touch input.
Output Type on Touch	In Momentary mode, the output is toggled only while the touch button is touched. In Latching mode, the output toggles each time the touch button is pressed.[5]
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.

K50 Pro Touch Global Parameters – Pro Editor



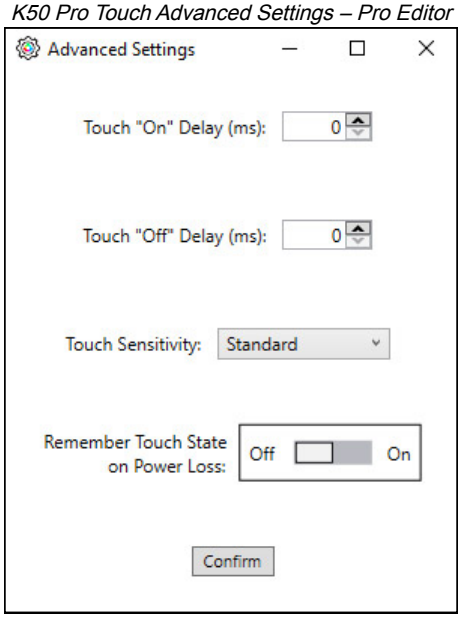
K50 Pro Touch Parameter	Description
Output Type on Touch	In Momentary mode, the output only toggles while the touch button is touched. In Latching mode, the output toggles each time the touch button is pressed.[6]
Output 1 is Normally	In Open mode, output 1 is turned ON with touch input. In Closed mode, output 1 is turned OFF with touch input.
White/Gray Wire Functionality[7]	Determines whether the configurable wire should behave as an input or an output.
Output 2 is Normally	In Open mode, output 2 is turned ON with touch input. In Closed mode, output 2 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.

[5] 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.
[6] 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.
[7] The configurable wire color depends on the wire count of the connected device. 5-Wire devices do not allow for custom wire configuration when in Four State Full Logic Mode. See "Device Logic Mode – Four State Full Logic " on page 13.

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K50 Pro Touch Advanced Settings – Pro Editor



K50 Pro Touch 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.

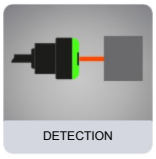
Optical Adjustable Field (AF) Sensors

Set sensor parameters for the following applications:

- Detection
- Distance
- Coarse Distance

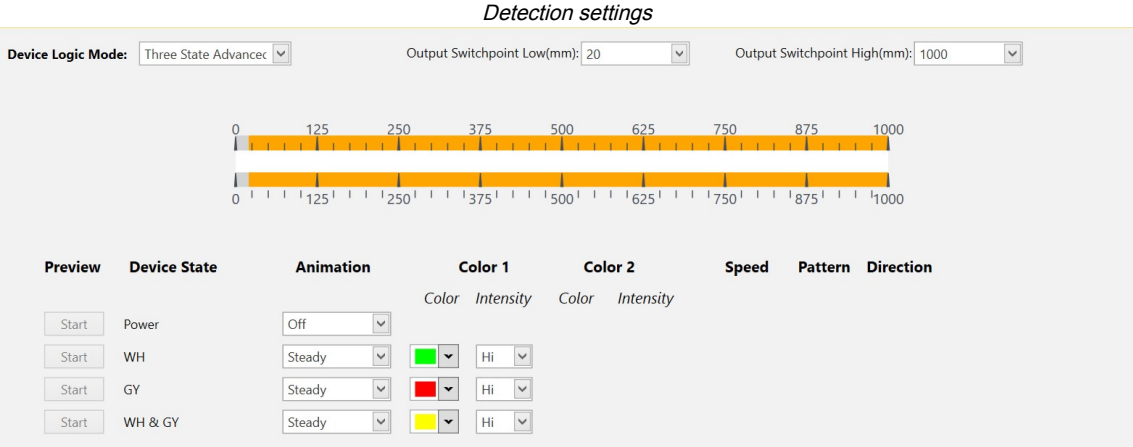
Application: Detection

Detect materials or objects using an adjustable field up to a specific distance, ignoring objects beyond this distance (background suppression), or within a windowed range.



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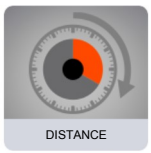
Detection settings



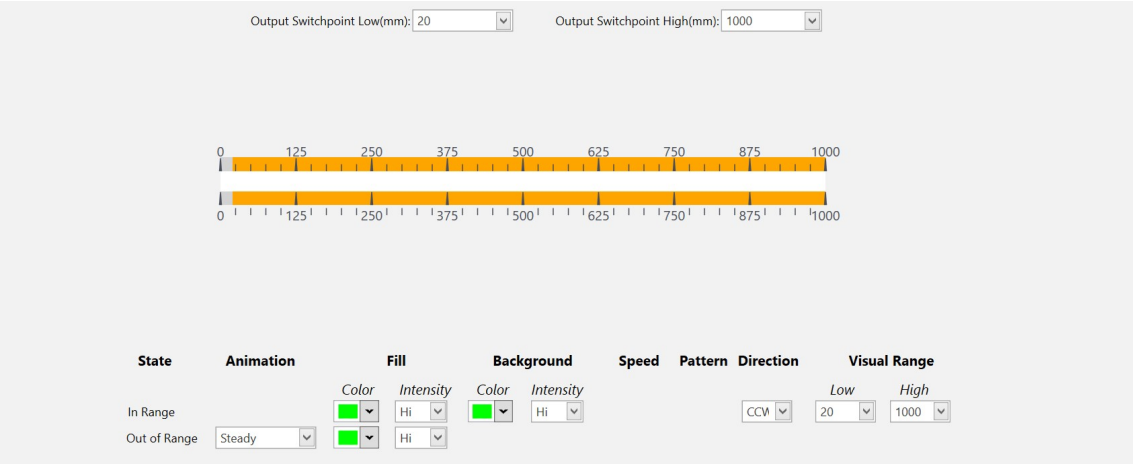
Application: Distance

Set the device to operate as a gauge, which allows the user to configure a background color and a fill color to display how far an object is within the Detection Area.

As an object moves along the sensing range, the proportion of fill color to background color changes in a clockwise (CW) or counter-clockwise (CCW) direction. The proportion of fill color increases as an object approaches the maximum range, and decreases as it moves towards the minimum.



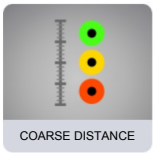
Distance settings



Application: Coarse Distance

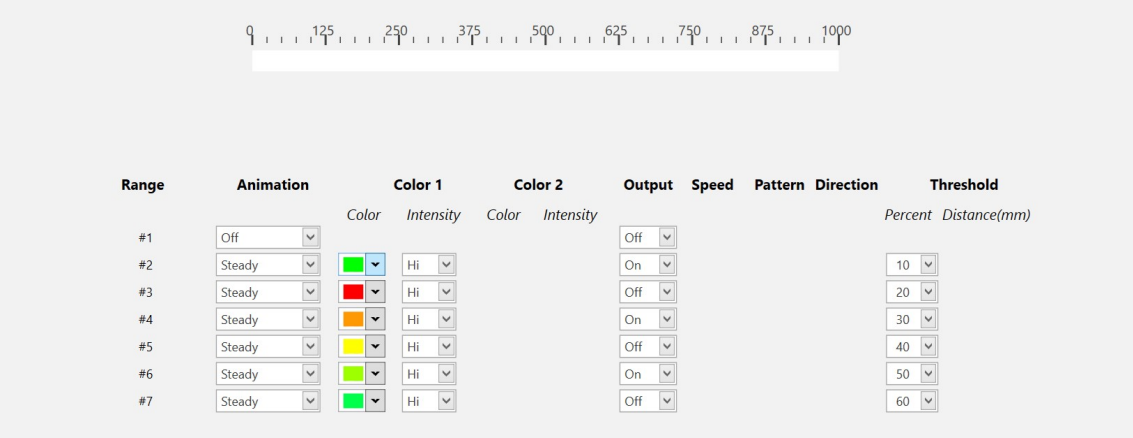
Divide the Detection Area into custom zones to generate a unique animation when an object is present within that zone distance.

Configure up to six zones for animation and output state. The minimum zone distance is 50 mm.



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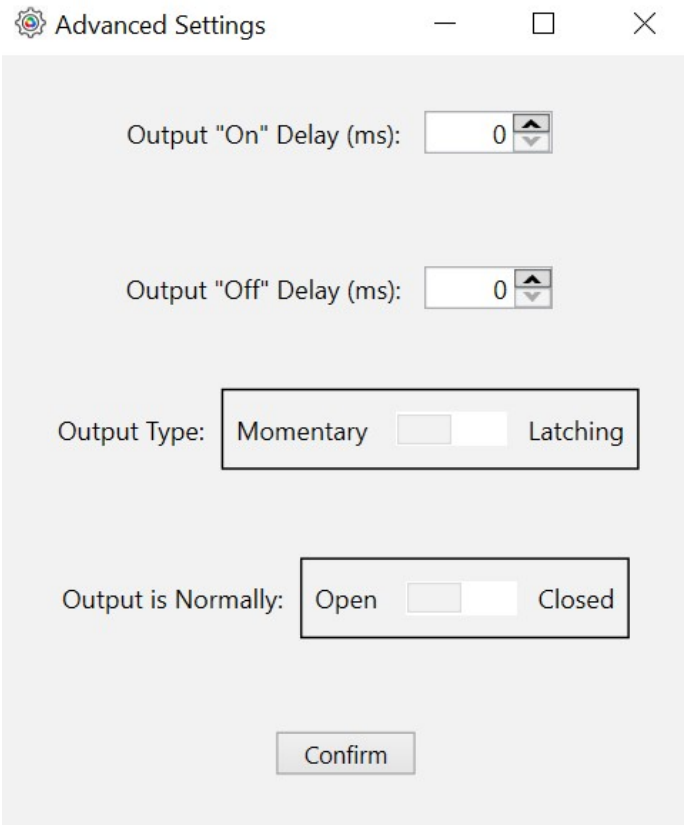
Coarse distance settings



Advanced Settings

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

Optical AF Sensor Advanced Settings – Pro Editor



Tower Light Devices

Set tower light parameters for the following applications:

- Tower Light
- Process Visualization
- Timer
- Counter
- Level

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NOTE: The TLF100 has a separate, but functionally identical application list.

The wiring diagrams for tower light devices are updated based on the input wires selected for each mode. By default, tower lights are in segment mode. For more information about segment mode default inputs, see the corresponding tower light datasheet.

All wiring diagrams display a seven segment tower light. For devices that do not have seven segments, the wiring diagram shows these inputs/segments as NOT PRESENT.

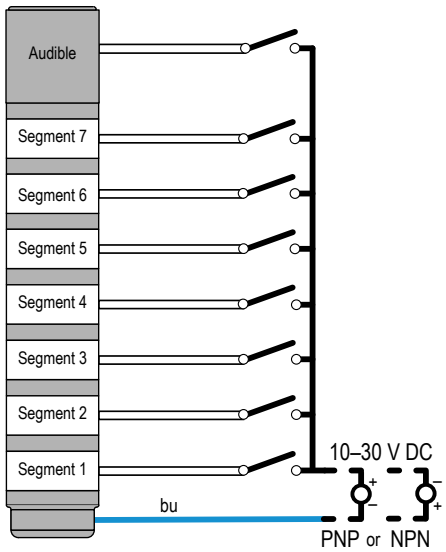
Application: Tower Light

Activate each segment and control the input wire, color, animation, intensity, and speed. For information about the animation settings, see "Animation " on page 37.



In the Tower Light application, a single input can be assigned to one or multiple segments. The dedicated audible input overrides audible functions that have been assigned to segment inputs.

Wiring diagram for tower light application



Tower light application settings

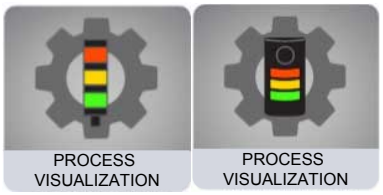
State Definitions: Segments

Preview	Segment	Wire	Animation	Color 1	Intensity	Color 2	Intensity	Speed	Pattern	Direction	Audible
Start	Audible	Gray (5)									Off
Start	3	White (2)	Steady		Hi						Off
Start	2	Brown (1)	Steady		Hi						Off
Start	1	Black (4)	Steady		Hi						Off
	Action	Disable									

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Application: Process Visualization

The process visualization option enables a choice of colors, animations, speeds, and intensities to provide visual information that corresponds to equipment or process status. Single color illumination states are also available.



Process visualization settings

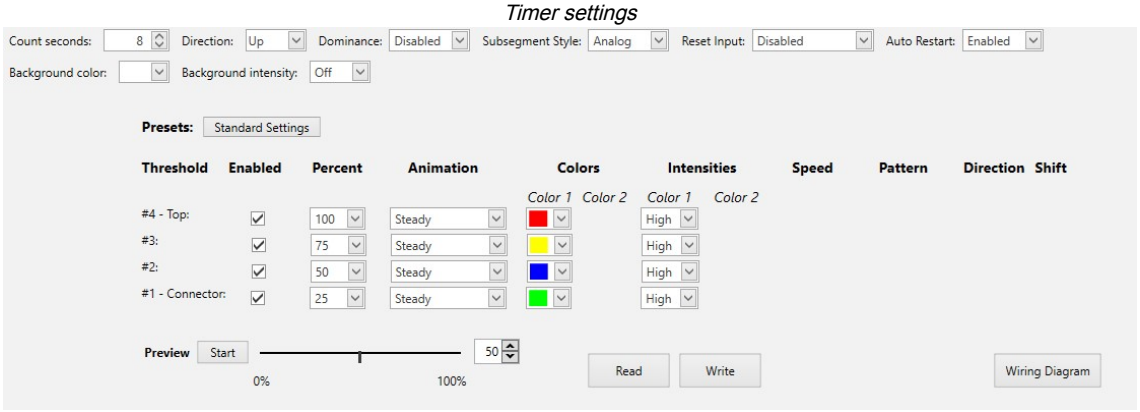


Application: Timer

Set a total time and up to four thresholds. Start and stop the timer counting up or down with discrete control. Colors change across threshold values.



Timer settings



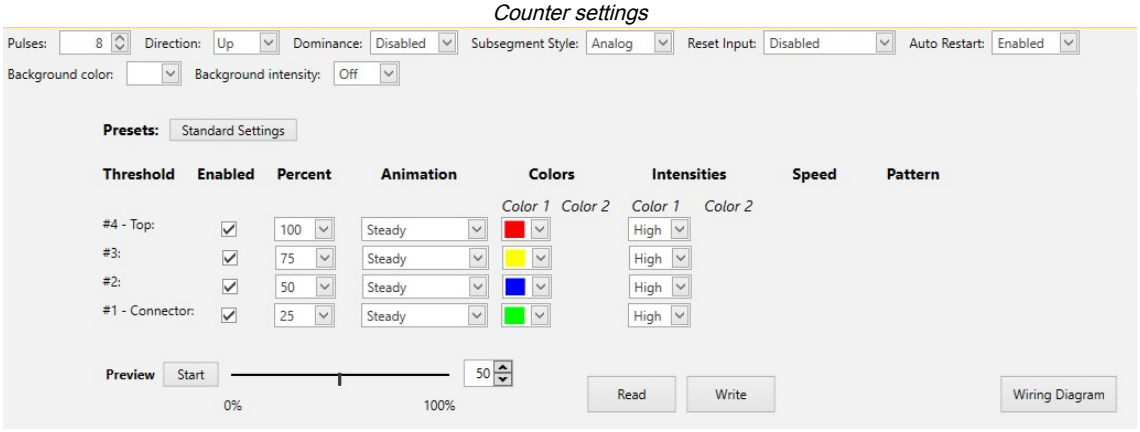
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Application: Counter

Set a total count and up to four thresholds. Discrete, rising edge pulses count up or down. Colors change across threshold values.

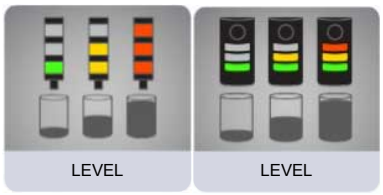


Counter settings

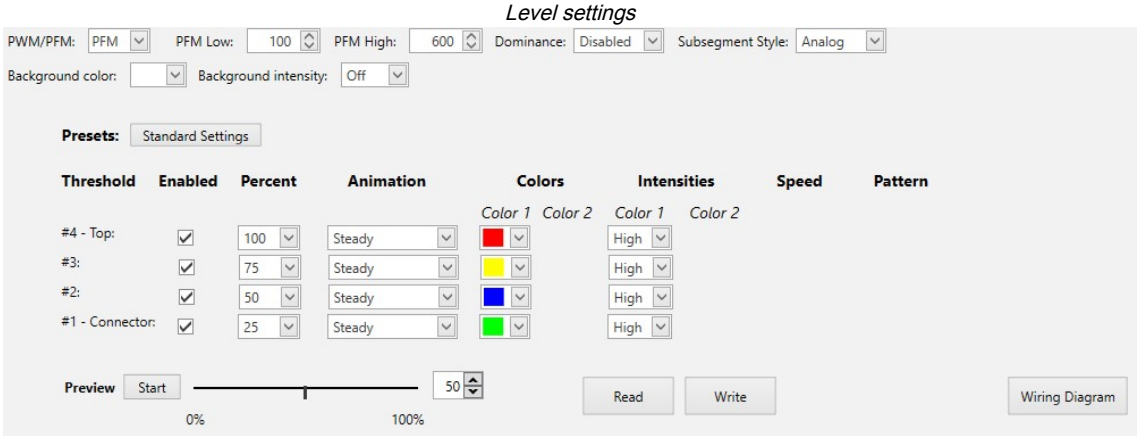


Application: Level

Adjust position and color continuously based on the PFM or PWM input value and defined animation in up to four thresholds while maintaining an optional steady background for the segments outside of the active threshold range. The PFM signal frequency range can be from 100 to 5,000 Hz. The PWM duty cycle range can be from 0 to 100%.



Level settings



Strip Light Devices

Set strip light parameters for the following applications:

- Machine and Work Cell
- Tower Light
- Timer
- Counter

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- Distance
- Gauge
- Mobile (WLS15 Pro only)
- Pick Put Build (WLS15 Pro only)

Application: Machine and Work Cell

Choose colors and animations to create up to seven discretely controlled illumination and status states. Spans functionality from single segment to two-colored animations.

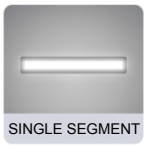


By default, when the sub-applications for Machine and Work Cell are selected, Pro Editor opens **I/O State** configuration in **Advanced**. Three **I/O states** are available:

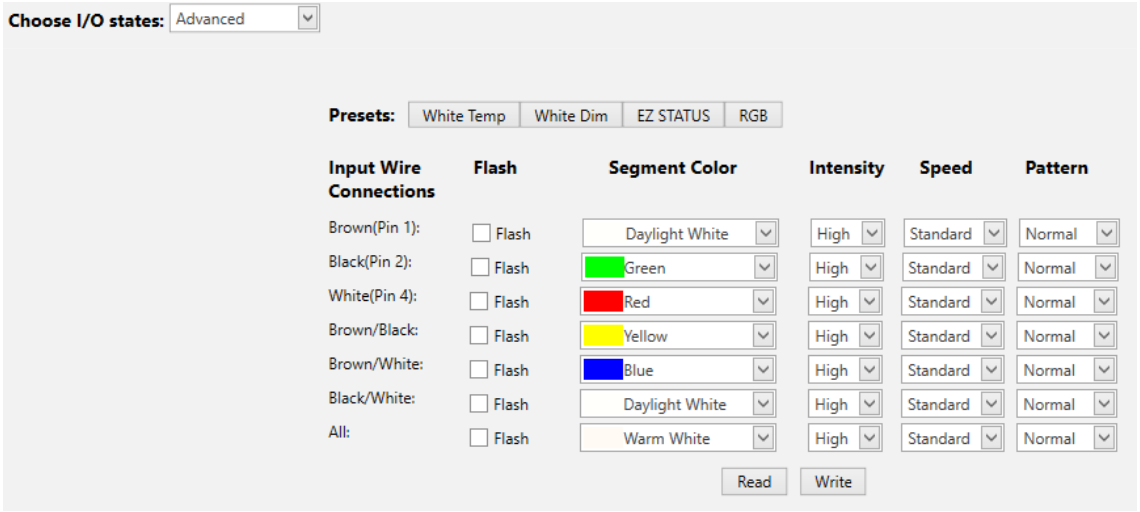
I/O State Configuration Settings	Description
Basic	Configurations made in this state assign one wire to one state, with the following override control: • Pin 4 (Black) overrides Pin 1 (Brown) • Pin 2 (White) overrides Pins 1 and 4 (Brown and Black)
Advanced	I/O state with full seven state options for maximum configuration. Configurations made in Advanced assign binary wiring combinations of all valid inputs to each state.
I/O Block	Three state control for use with I/O block. Configurations made in I/O Block assign states to the black, white, and combination of black and white wires for use with I/O blocks for which power (brown) and common (blue) are always on for five pin connections.

Single Segment

The single segment option shows the strip light in one solid color. The input wires are used to change colors. Flashing and intensity options are available. Presets are available for common configurations, which can be adjusted as desired.



Single segment settings



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End Status

The end status option shows the inside section of the strip light in one color and the ends of the light in another. The size of the two sections are customizable. The input wires are used to change color states. Flashing and intensity options are available.



End status settings



Process Visualization

The process visualization option enables a choice of colors, animations, speeds, and intensities to provide visual information that corresponds to equipment or process status. Single color illumination states are also available.



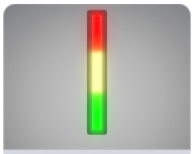
Process visualization settings



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Application: Tower Light

Choose colors and animations to create a discretely controlled two or three segment indicator.



Two Segment

The two segment option uses the strip light as a tower light with two defined segments. The segments are controlled independently with input wires. Animations, colors, and intensities are configurable.

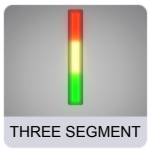


Two segment settings



Three Segment

The three segment option uses the strip light as a tower light with three defined segments. The segments are controlled independently with input wires. Animations, colors, and intensities are configurable.



Three segment settings



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Application: Timer



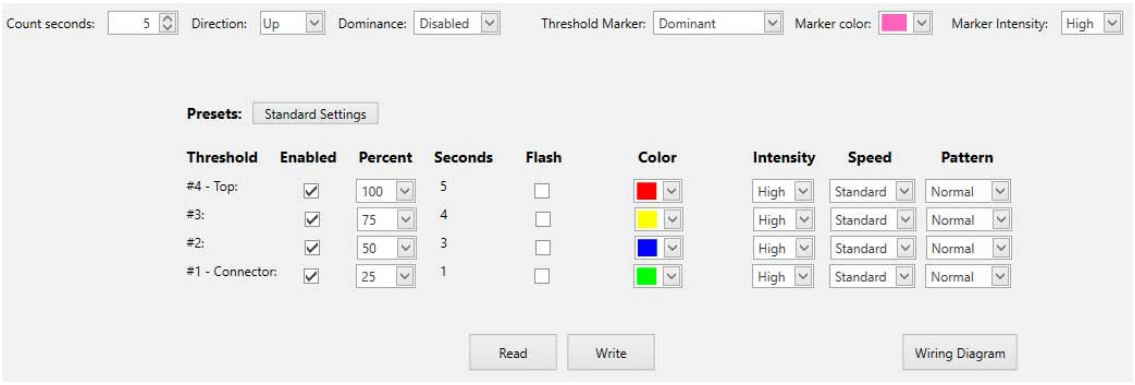
Set a total time and up to four thresholds. Start and stop the timer counting up or down with discrete control. Colors change across threshold values.

Basic Timer



The timer option uses the strip light as a timer, counting up or counting down. Thresholds are available to change the visual appearance of the light as time advances. The timer starts when the supply voltage is applied to the timer run input wire, and paused when left floating or tied to ground. The timer resets when the supply voltage is applied to the reset wire. The timer automatically resets when it reaches the final count. Threshold markers[8] can be applied, from which color and intensity can be defined.

Basic timer settings



Timer with Background

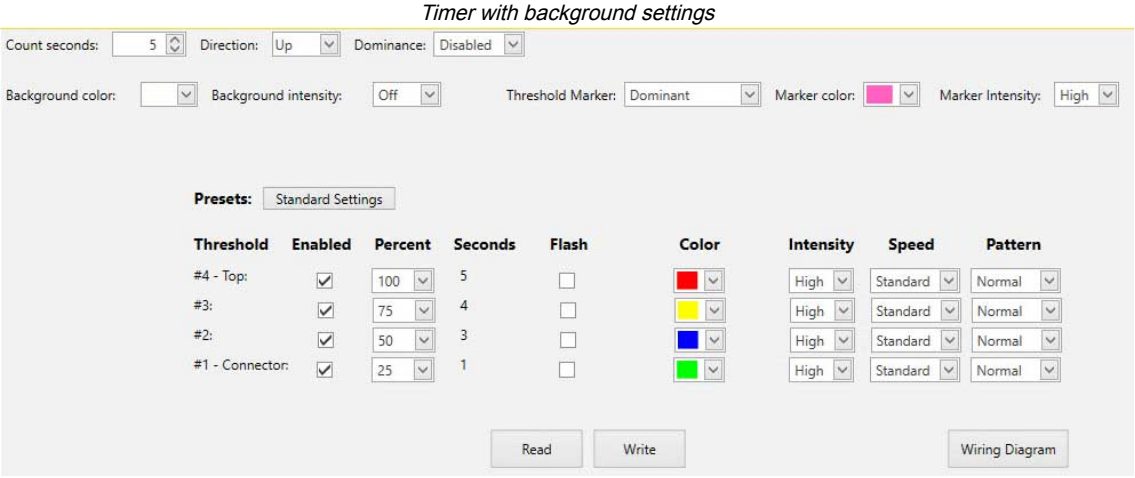


The timer option uses the strip light as a timer, counting up or counting down. Thresholds are available to change the visual appearance of the light as time advances. The timer starts when the supply voltage is applied to the timer run input wire, and paused when left floating or tied to ground. The timer resets when the supply voltage is applied to the reset wire. The timer automatically resets when it reaches the final count. A steady global background or threshold markers[9] can be applied, from which color and intensity can be defined.

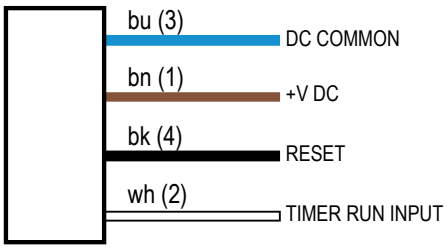
[8] Threshold markers only apply to WLS15 Pro devices.
[9] Threshold markers only apply to WLS15 Pro devices.

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Timer with background settings



Wiring diagram for timer



Application: Counter

Set a total count and up to four thresholds. Discrete, rising edge pulses count up or down. Colors change across threshold values.



Basic Counter

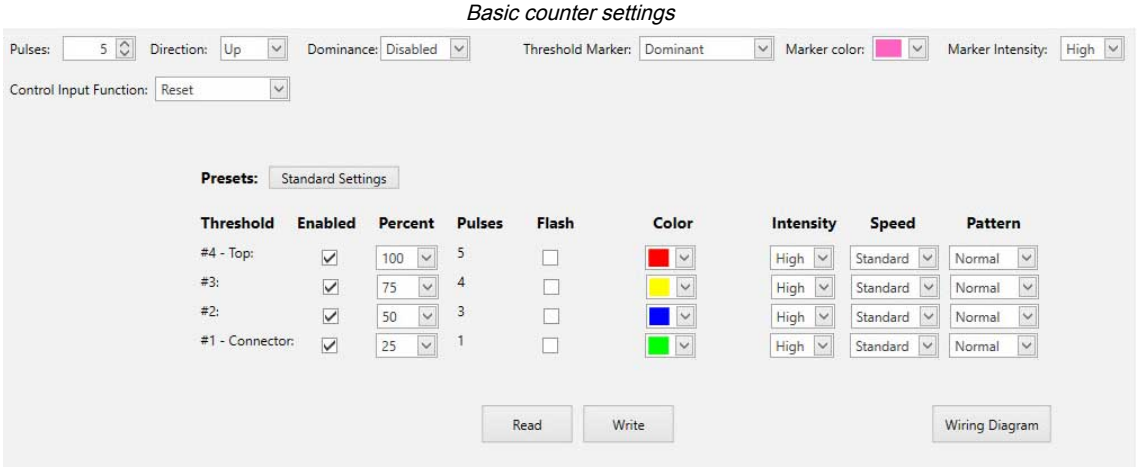
The counter option converts input pulses to movement of LEDs along the length of the light based on thresholds that define colors, intensity, and flashing. When the rising edge of the supply voltage pulse is applied to the counter input wire, the count changes by one. The counter resets when the supply voltage is applied to the reset wire. The counter automatically resets when it reaches the final count. Threshold markers[10] can be applied, from which color and intensity can be defined.



[10] Threshold markers only apply to WLS15 Pro devices.

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Basic counter settings

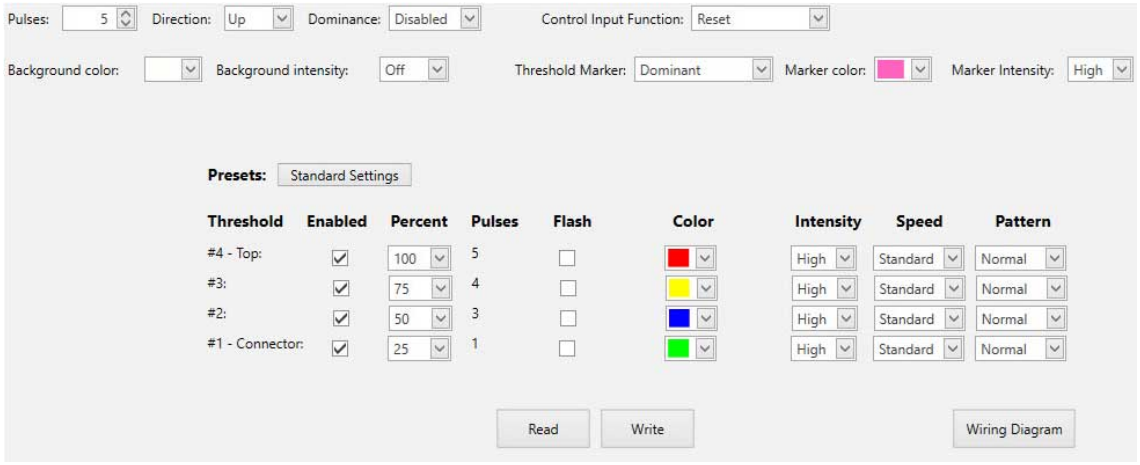


Counter with Background

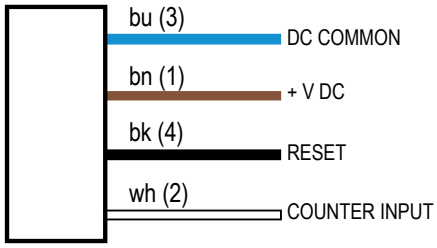
The counter option converts input pulses to movement of LEDs along the length of the light based on thresholds that define colors, intensity, and flashing. When the rising edge of the supply voltage pulse is applied to the counter input wire, the count changes by one. The counter resets when the supply voltage is applied to the reset wire. The counter automatically resets when it reaches the final count. A steady global background or threshold markers[11] can be applied, from which color and intensity can also be defined.



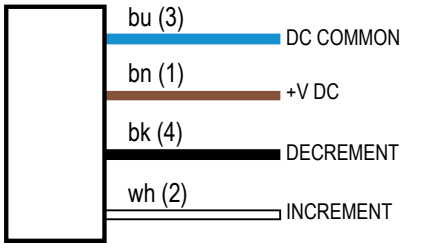
Counter with background settings



Wiring diagram for counter input



Wiring diagram for counter increment-decrement

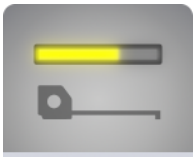


[11] Threshold markers only apply to WLS15 Pro devices.

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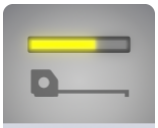
Application: Distance

The distance mode uses the light to display colored LEDs proportional to a PFM (pulse frequency modulation) or PWM (pulse width modulation) input. Four thresholds are available to change color, flashing, and intensity as the input value changes.

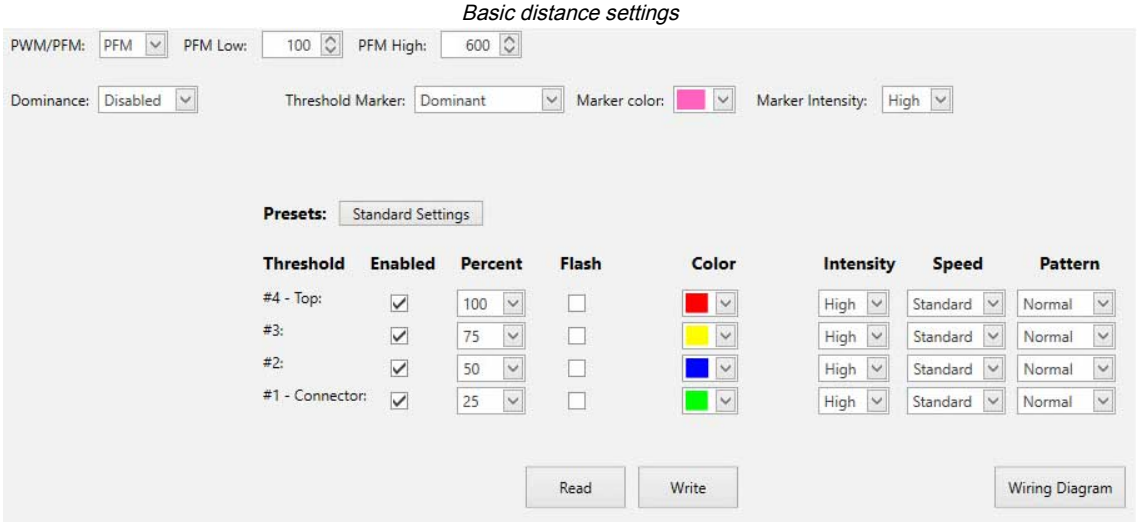

DISTANCE

Basic Distance

The distance option controls the color and position of the LEDs based on a defined PFM or PWM input range. The PFM signal frequency range can be from 100 to 10,000 Hz. The PWM duty cycle range can be from 0 to 100%. The light adjusts position and color continuously based on the input value and defined color, flash, and intensity in up to four thresholds. Threshold markers[12] can be applied, from which color and intensity can also be defined.


BASIC DISTANCE

Basic distance settings



Distance with Background

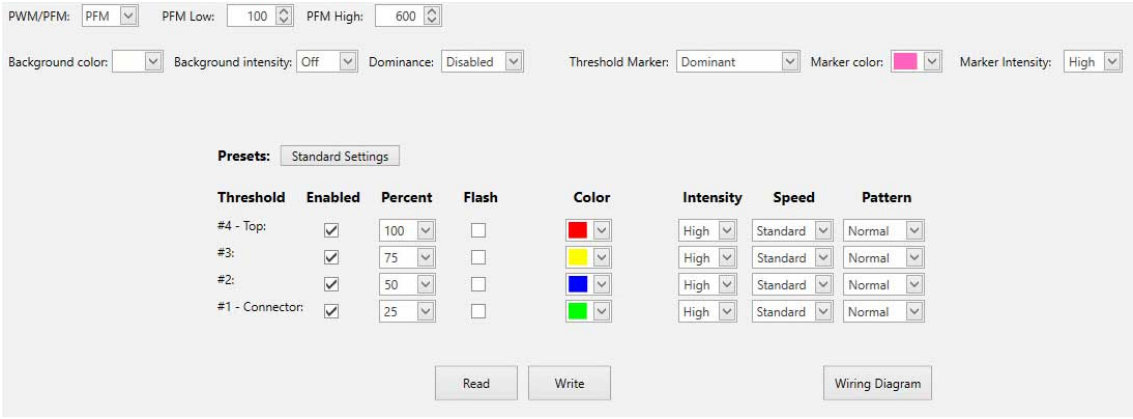
The distance option controls the color and position of the LEDs based on a defined PFM or PWM input range. The PFM signal frequency range can be from 100 to 10,000 Hz. The PWM duty cycle range can be from 0 to 100%. The light adjusts position and color continuously based on the input value and defined color, flash, and intensity in up to four thresholds while maintaining a steady background for LEDs outside the active threshold range. A steady global background or threshold markers[13] can be applied, from which color and intensity can be defined.


DISTANCE WITH BACKGROUND

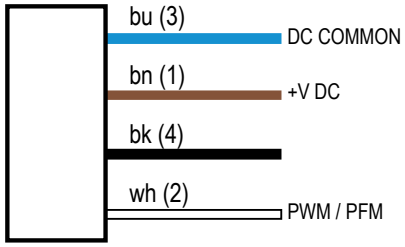
[12] Threshold markers only apply to WLS15 Pro devices.
[13] Threshold markers only apply to WLS15 Pro devices.

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Distance with background settings



Wiring diagram for distance



Coarse Distance (WLS15 Pro only)

Choose colors, intensities, and flash patterns to create up to seven discretely controlled levels based on input wiring logic states for simple distance and level indication.



Coarse distance settings



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Application: Gauge

The gauge mode uses the light to display a colored band of LEDs in a position proportional to a PFM or PWM input. Upper, lower, and center thresholds are available to change color, animation, and intensity as the input signal changes. The width of the band is configurable.

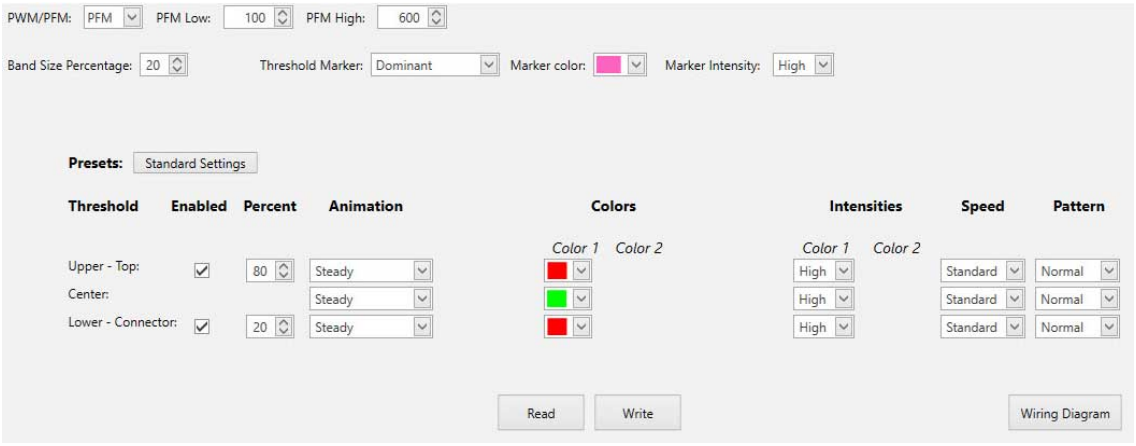


Basic Gauge

The gauge option controls the color and position of a band of LEDs based on a defined PFM or PWM input range. The PFM signal frequency range can be from 100 to 10,000 Hz. The PWM duty cycle range can be from 0 to 100%. The width of the band is defined as a percentage of total lighted length. The light adjusts the position and color of the band continuously based on the input signal and defined color, flash, intensities, and animations in upper, lower, and center thresholds. Threshold markers[14] can be applied, from which color and intensity can also be defined.



Basic gauge settings



Gauge with Background

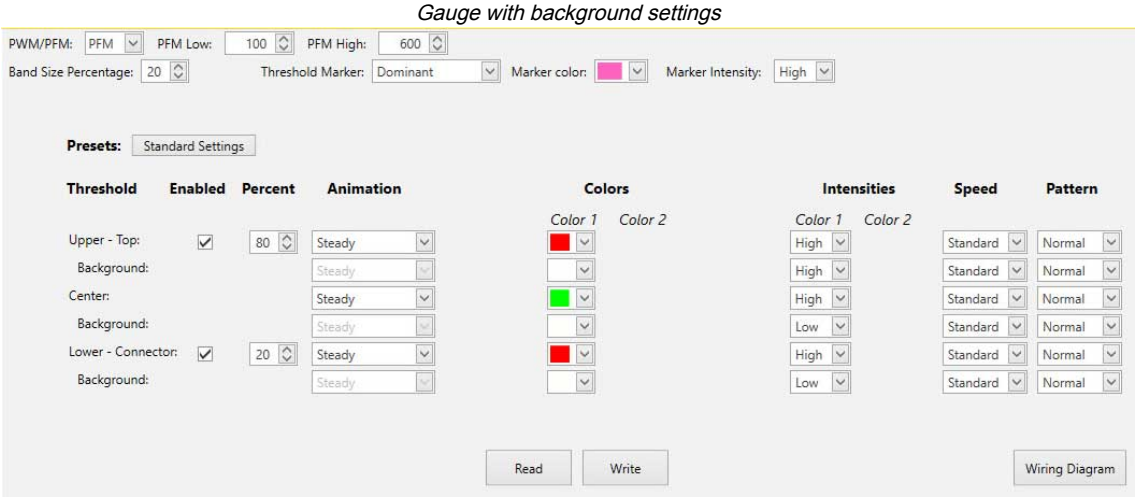
The gauge option controls the color and position of a band of LEDs based on a defined PFM or PWM input range. The PFM signal frequency range can be from 100 to 10,000 Hz. The PWM duty cycle range can be from 0 to 100%. The width of the band is defined as a percentage of total lighted length. The light adjusts the position and color of the band and background continuously based on the input signal and defined color, flash, intensities, and animations in upper, lower, and center thresholds. A steady global background or threshold markers[15] can be applied, from which color and intensity can be defined.



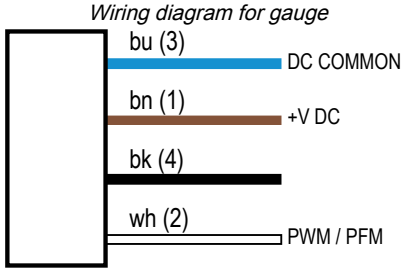
[14] Threshold markers only apply to WLS15 Pro devices.
[15] Threshold markers only apply to WLS15 Pro devices.

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Gauge with background settings



Wiring diagram for gauge



Application: Mobile (WLS15 Pro only)

Choose colors and animations to create states that can be used for advanced and intuitive indication on mobile equipment.



Basic Warning

Choose colors, intensities, and animations to create a discretely controlled, three segment indicator for the communication of equipment status. The segments are controlled independently with input wires.



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Basic warning settings

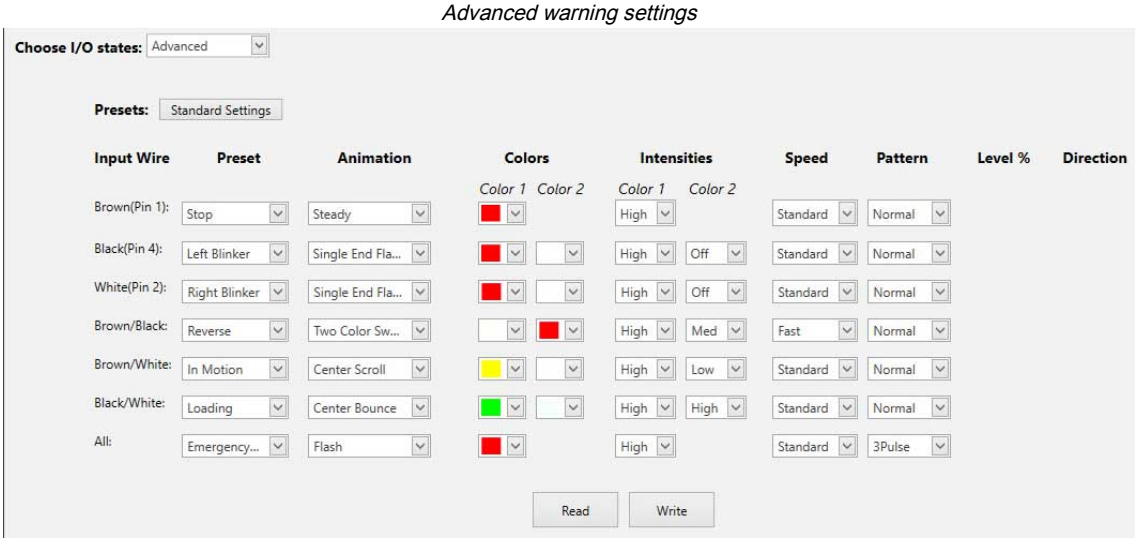


Advanced Warning

Create up to seven discretely controlled status indicators, and use presets for Loading and Emergency Stop conditions. Colors, animations, speeds, and intensities provide equipment status.


ADVANCED WARNING

Advanced warning settings



Application: Pick Put Build (WLS15 Pro only)

Choose colors and animations to create states that can be used to guide operators, signal material status, enable light-guided assembly, create pick-to-light operations, and enable kitting operations.


PICK PUT BUILD

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Basic Segment

Choose colors, intensities, and animations to create a discretely controlled, two or three segment indicator for the communication of processes.



Basic segment settings

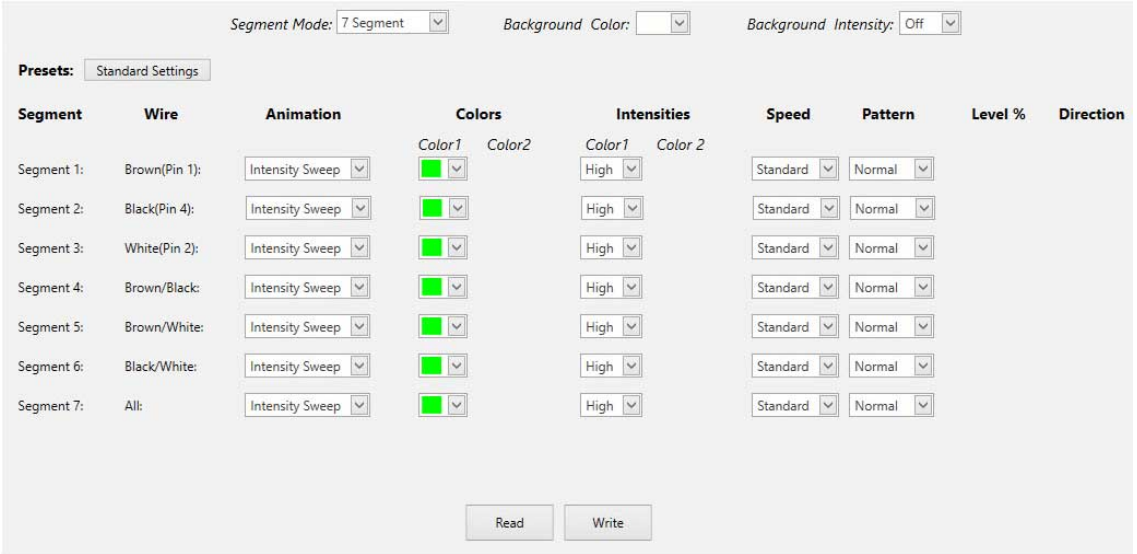


Advanced Segment

Enable up to seven discretely controlled segments to be used as individual indication states. Only one segment can be enabled at once.



Advanced segment settings



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Read Device Settings

To read the settings of the connected device, click **Read Device Settings**. Upon successful completion, the message "Device Read Success" displays momentarily. Pro Editor populates the settings of the connected device.

Write Device Settings

To write settings to a device, select **Write Device Settings**. Once successful, the message "Device Write Success" appears momentarily. The connected device is ready for use.

Connected Device Information

The model number and firmware information of the connected device is shown at the bottom of the screen.

Device Connection Status and Software Update Notification

Status	Description
Connected	A Pro Series-enabled device is connected to the Pro Editor software.
Not Connected	A Pro Series-enabled device is not connected to the Pro Editor software.
	When connected to a network, if a Pro Editor software update is available, a red icon displays in the bottom right corner of Pro Editor. To update Pro Editor, click on the notification icon and click **Upgrade** when prompted. Pro Editor closes, and an installer is downloaded to the desktop on your computer. Double-click the installer to begin the update.

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Chapter 5 Configure a Device

Read, write, and preview device states using the following controls.

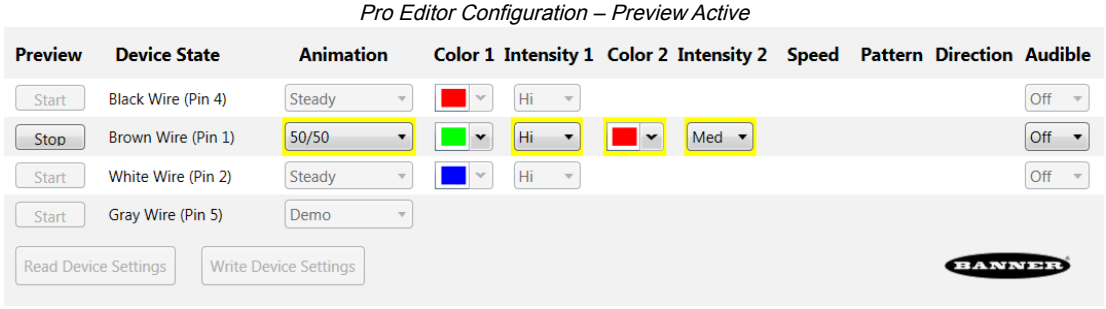
NOTE: After editing a device state setting or loading a configuration file, any settings that are not written to the connected device are highlighted yellow. Disconnecting the device from Pro Editor before writing device settings will result in these settings being lost.

Devices can still be written to or configured with Pro Editor while in Offline Mode. See **Start Offline Mode** in "Menu Bar" on page 12.

Preview

To preview a device state, click **Start** on the desired device function row. The selected row remains available for editing while all other rows are locked and shown as grayed out. If any options are changed during this time they are highlighted yellow while all other rows and the **File** and **Device** menu items are locked[16].

Pro Editor Configuration – Preview Active



To stop preview, click **Stop**. Any device state options that were changed will remain but are not written to the device unless **Write Device Settings** is clicked. In segment mode, multiple tower light device states can be previewed at once. For all other devices and modes, only one state can be previewed at a time.

NOTE: By default, when not in preview mode, a connected 5-pin indicator device displays the configured Brown and Gray Device State function. An 8-pin indicator device displays the configured Brown and Yellow Device State functions.

NOTE: If using the limited preview capabilities setup, some preview features may be unavailable, including certain animations and colors.

NOTE: If using the limited preview capabilities setup, a red flashing LED on the Pro Converter Cable indicates a device power fault. See "Troubleshooting" on page 44 for more information.

[16] When applicable, the **File** and **Device** items are disabled when a device is in Preview Mode.

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NOTE: The preview function is not currently available for strip light devices.

Device State

The **Device State** table lists the animation configurations which can be activated by input wires. The listed wire color(s) must be ON for the device state to display.

NOTE: For indicator and tower light devices, the blue or brown wire should always be connected to ground, depending on desired polarity.

NOTE: For touch devices, the blue and brown wires should always be connected to power and ground, depending on desired polarity.

NOTE: For touch devices in Four State Full Logic mode, wire colors are replaced with state numbers corresponding to the active logic mode.

Animation

One animation can be configured for each wire status. Some animations have additional options available once selected. For example, if the 50/50 rotate animation is selected the Color 1, Intensity 1, Color 2, Intensity 2, Speed, and Direction controls become available.

Indicators and Tower Lights

Animations	Description	All Indicators	Tower Lights	K100 Beacon	K100 Indicator
Off	Device or segment is off	X	X	X	X
Steady	Color 1 is on at the defined intensity	X	X	X	X
Flash	Color 1 flashes at the defined speed, color intensity, and pattern (normal, strobe, three pulses, SOS, or random)	X	X	X	X
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)	X	X		X
50/50	Color 1 displays on 50% and Color 2 displays on the other 50% statically at the defined color intensities	X	X		
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	X			
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	X			
Scroll	Color 1 fills two segments and those segments move in one direction, up or down against the background of Color 2 at the defined speed, color intensities, and rotational direction		X		
Bounce	Color 1 fills two segments and those segments move up and down between the top and bottom of the tower against the background of Color 2 at the defined speed, color intensities, and rotational direction		X		
Rotate	Color 1 circles the device at the defined speed, intensity, and direction			X	
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	X	X		X

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Animations	Description	All Indicators	Tower Lights	K100 Beacon	K100 Indicator
Color Sweep	The device continuously shifts between Color 1 and Color 2 at the defined speed and intensities	X			X
Sequence	Color 1 displays steady on at the defined Color 1 percentage and Color 2 displays steady on the remaining percentage of the device at their defined intensities	X			
Wave	Color 1 and Color 2 spin in the defined direction around the device's circumference continuously, alternating between the primary and background colors, at the defined speed and intensities	X			X
Double Wave	Color 1 and Color 2 expand bidirectionally around the device's circumference continuously, alternating between the primary and background colors, at the defined speed and intensities	X			X
Color Spectrum	The device scrolls through the 14 predefined colors with a different color on each segment at the defined speed, Color 1 intensity, and rotational direction		X		

Strip Lights and TLF100

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)
Two Color Shift	Color 1 and Color 2 flash alternately on adjacent LEDs at the defined speed and color intensities
Ends Steady	Color 1 defines the center 75% of the light. Color 2 defines the 12.5% of the light on each end. Center and ends are on steady. Center proportion can be defined in End Status mode
Ends Flash	Color 1 defines the center 75% of the light. Color 2 defines the 12.5% of the light on each end. The ends will flash at defined speed and pattern. Center proportion can be defined in End Status mode
Scroll	Color 1 defines a band 20% of the length of the light that moves in one direction from one end of the light to the other end of the light against the background of Color 2 at the defined speed and color intensity
Center Scroll	Color 1 defines a band 10% the length of the light that moves from the center of the light to the ends of the light against the background of Color 2 at the defined speed and color intensities
Bounce	Color 1 defines a band 20% of the length of the light that moves from one end of the light to the other end of the light against the background of Color 2 at the defined speed and color intensity
Center Bounce	Color 1 defines a band 10% the length of the light that moves from the center of the light to the ends of the light and then back to the center against the background of Color 2 at the defined speed and color intensity
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
Two Color Sweep	Color 1 and Color 2 define the end values of a line across the color gamut. The light continuously displays a color by moving along the line at the defined speed and color intensity
Color Spectrum	The light scrolls through the 13 predefined colors with a different color on each LED at the defined speed, Color 1 intensity, and direction
Single End Steady (WLS15 Pro and TLF100 only)	Color 1 is solid on at the defined intensity on one end of the device
Single End Flash (WLS15 Pro and TLF100 only)	Color 1 flashes at the defined speed, color intensity, and pattern (normal, strobe, three pulse, SOS, or random) on one end of the device
Spectrum (TLF100 only)	The tower light scrolls through the 14 predefined colors with a different color on each segment at the defined speed, Color 1 intensity, and rotational direction

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Pattern

The Pattern control sets the pattern of the flash animation.

Pattern	Description
Normal	Alternating Color 1; Color 2 at 50% duty cycle
Strobe	Continuous Color 1; Color 2 flashes at 20% duty cycle
3-Pulse	Three consecutive Color 1 pulses at 10% duty cycle on Color 2 background
SOS	Short pulse, short pulse, short pulse, long pulse, long pulse, long pulse, short pulse, short pulse, short pulse alternating Color 1 and Color 2
Random	Random sequence of light signals

Color 1 or Color 2

The following colors are available for Color 1 and Color 2.[17]

- Red
- Green
- Yellow
- Blue
- Magenta
- Cyan
- White
- Amber
- Rose
- Lime Green
- Orange
- Sky Blue
- Violet
- Spring Green

Only available on strip light devices:

- Neutral White (5700K)
- Warm White (3000K)
- Fluorescent White (4100K)
- Daylight White (5000K)
- Incandescent White (2700K)
- Cool White (6500K)

Intensity 1 or Intensity 2

The Intensity control sets the intensity of a color. Color 1 is controlled by Intensity 1. Color 2, if applicable, is controlled by Intensity 2.

Intensity	Indicator, Touch, and Tower Light Devices	Strip Light Devices
Hi	100%	100%
Med	60%	50%
Low	25%	20%
Off	0%	0%

Speed

The Speed control sets the speed of five animation options: flash, chase, rotate, scroll, and bounce.

Flash, Scroll, and Bounce Animation Speed

Speed	Description
Slow	0.5 Hz
Standard	1 Hz
Fast	5 Hz

[17] The following colors are uncalibrated to achieve higher saturation: Red, Green, and Blue. They may show greater variance between devices than other colors.

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Rotational and Chase Animation Speed

Speed	Description
Slow	1 Hz
Standard	2 Hz
Fast	4Hz

K100-Specific Rotational Speeds

Speed	Description
Slow	80 rpm
Standard	120 rpm
Fast	160 rpm

Direction

The Direction control sets the direction of the animation.

Direction	Description
Clockwise (CW)	Animation rotates in clockwise direction. Applies to 50/50 rotate and chase.
Counterclockwise (CCW)	Animation rotates in counterclockwise direction. Applies to 50/50 rotate and chase.
Up	Animation originates from the connector end
Down	Animation originates from the non-connector end

Shift Enable

Shift enable controls the 50/50, 50/50 Rotate, and Chase animations in Run and Action Mode.

When applied, the shift enable consecutively offsets each segment animation by one LED.

Audible

The Audible control sets Audible options.

NOTE: This setting is only available with Pro Series-enabled audible devices.

For advanced audible devices (A) only: when configuring the device's Pattern setting, the audible tone will match the pattern of the flash animation * (Steady, Strobe, Pulse, SOS, Random).

Audible	K50 Pro Touch (A)	K50 Pro Compact (A)	K100 (A)	K50 Indicator	TLF100	Other Pro-Series Devices
OFF	X	X	X	X	X	X
Steady*	X	X	X[(18)]	X		X
Pulse*	X	X	X[(18)]	X		X
SOS*	X	X	X[(18)]	X		X
Strobe*	X	X	X	X		
Random*	X	X	X	X		

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[(18)] Only available in the Pro Indicator model.

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Audible	K50 Pro Touch (A)	K50 Pro Compact (A)	K100 (A)	K50 Indicator	TLF100	Other Pro-Series Devices
Wobble	X	X	X		X	
Siren	X	X	X		X	
Whoop	X	X	X		X	
Jingle	X	X	X		X	
Melody 1	X	X	X		X	
Melody 2	X	X	X		X	
Melody 3	X	X	X		X	
Staccato	X	X	X		X	
Continuous 1	X	X	X		X	
Continuous 2	X	X	X		X	

Vibration

The Vibration control sets Vibration options.

NOTE: Only available with Pro Series-enabled vibration feedback devices.

The vibration is contingent on touch and has a maximum total on-time per touch of 3 seconds.

In Four State Full Logic mode, Vibration can only be defined for States 3 and 4 in which the touch conditions occur. In Three State and Seven State Advanced Control, the vibration can be defined for any state and is contingent on both the input(s) and a touch condition.

Vibration	Description
Off	No vibration on touch
On	Steady vibration on touch
Pattern	Only available if Animation is defined as Flash or Two Color Flash. The vibration follows the defined animation Pattern (Normal, Strobe, 3-Pulse, SOS, Random) and animation Speed (Slow, Standard, Fast).

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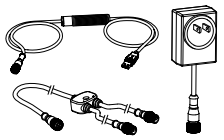
Chapter 6 Accessories

Pro Editor Hardware

PRO-KIT

Includes:

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



PRO-KIT-K50

Includes:

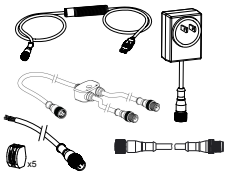
- Pro Series-enabled K50 (K50L2RGB7Q)
- Pro Converter Cable (MQDC-506-USB)
- Splitter (CSB-M1251FM1251M)
- Power Supply (PSW-24-1)



PRO-KIT-ACC

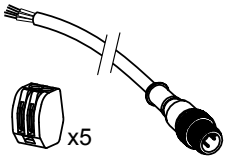
Includes:

- Pro Converter Cable (MQDC-506-USB)
- Splitter (CSBM1251FM1251M)
- Power Supply (PSW-24-1)
- 8-pin to 5-pin double-ended cordset (MQDC-801-5M-PRO)
- Mating accessory for cabled and terminal models (ACC-PRO-CABLE5)



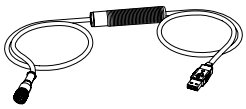
ACC-PRO-CABLE5

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



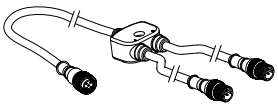
MQDC-506-USB

- 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

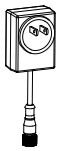
- 5-pin parallel Y splitter (Male-Male-Female)
- For full Pro Editor preview capability
- Requires external power supply, sold separately



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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



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



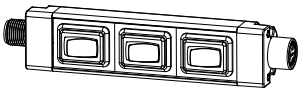
PSD-24-4

- 90 to 264 V AC 50/60 Hz input
- Includes a 1.8 m (6 ft) US-style 5-15P input plug
- 24 V DC UL Listed Class 2 M12 connector output
- 4 A total current



LC28PB2-3Q

- In-line switch with M12 connectors
- Rugged metal housing
- Perfect for DC-powered task lights, indicators, and tower lights
- Rated for up to 30 V DC



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Chapter 7 Product Support and Maintenance

Troubleshooting

Pro Editor Error Messages

Error Message	Recommended Solution
Found device (#) with Firmware ID/Version (#/#), which does not match the selected device (#) with Firmware ID/version (#/#). Advanced Settings fields have not been updated. Please contact the manufacturer for device updates.	The detected device has outdated firmware. Connect a different device or contact Banner support regarding firmware updates.
Error reading device information. Unable to update Advanced Settings fields.	Autodetect failed to read the device settings. Try again or attempt to connect with manual settings. If the error persists, contact Banner support regarding firmware updates.
No device found. Please check your USB connection or try a different COM Port.	Autodetect did not find any devices on the specified COM port. Ensure the Device Type and COM Port selections are correct, and that the device is properly connected and powered.
Connection failed: No connector box was detected on the selected port.	No Banner Pro Series-enabled device found on the specified COM port. Ensure the COM Port selection is correct, and that the device is properly connected and powered (if applicable).
Device (#) with Firmware ID (#) does not match the selected device (#) with Firmware ID (#). Please select the correct device or contact the manufacturer for updates.	Ensure that the correct Device Type is selected and attempt to connect again. If the error persists, contact Banner support regarding firmware updates.
Device (#) with Firmware version (#) does not match the selected device (#) with Firmware version (#). Please select the correct device or contact the manufacturer for updates.	Ensure that the correct Device Type is selected and attempt to connect again. If the error persists, contact Banner support regarding firmware updates.
Connection failed: Window was manually closed during connection attempt.	Open the Connection dialog and re-configure your connection. Do not close the Connection dialog while a connection attempt is in progress.
Connection failed: Unable to read device model and firmware info.	Try to connect again. If the error persists, contact Banner support regarding firmware updates.
Connection failed: Device was not detected. Please check the wired connection.	Verify that the device is properly connected and powered, and ensure the connection settings are correct.
Checksum mismatch: This file contains a bad checksum. It was either modified outside of Pro Editor or created by an earlier version of Pro Editor. Would you like to open the file anyway? If it's a valid file, re-saving it once it's opened will repair its checksum.	If the configuration file was created by an earlier version of Pro Editor, click **yes** and re-save the file to update the checksum. If the file may have been changed manually, click **no** to avoid loading bad configuration parameters.

Pro Converter Cable Error

LED Behavior	Error	Recommended Solution
Fast flashing red (10 Hz)	Device Power Fault	Connect the device using the recommended full preview capabilities setup. To continue using the limited preview capabilities setup, disconnect the cable and reconnect the device to the PC. If error persists, contact Banner support.

Maintenance

Maintenance tasks include updating the Pro Editor software as new versions become available.

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Update the Pro Editor Software

The current version of the Pro Editor software is available for download from www.bannerengineering.com/proeditor.

When connected to a network, if a Pro Editor software update is available, a red icon displays in the bottom right corner of Pro Editor. See "Device Connection Status and Software Update Notification" on page 35 for more information.

Pro Editor Release Notes

Version	Devices	General
2.8	Added support for K100 Pro, K70 Pro, and K30 Pro devices	K30 Pro Indicator view control highlights correct indexes now Corrected Sequence Animation scaling for K30 Pro
2.3	Added support for WLS15 Pro, K90 Pro, and K50 Pro Beacon	--
2.2	Added support for WLS27 Pro	--
1.9	Added support for vibration-enabled K50 Pro Touch devices	--
1.8	Added support for TL50 Pro	Changed connection screen
1.7	Added support for K50 Pro Touch Added **AdvancedSettings** menu for K50 Pro Touch devices Added **Device** menu Moved **Open Legacy Default Template** and **Restore Device Factory Configuration** commands from **File** menu to new **Device** menu	Updated config file checksum to ignore comments; opening an existing config file in Pro Editor and re-saving it will update it to the new checksum format Added Sentry integration to automatically report crash data and usage statistics; for more information see the README.txt file located in the Pro Editor installation directory
1.5	Added support for S22 Pro Touch Added support for S22 Pro Indicator Replaced **Open Factory Default File** option in **File** menu with **Restore Device Factory Configuration** command Added **Help** button next to **Choose I/O states** drop-down for indicator devices Indicator devices now default to **Advanced** I/O state when connected Added tooltips for **Read Device Settings** and **Write Device Settings** buttons	Connection Window—Device type is now auto-detected when connecting a device. **Scan for Device** functionality in **Advanced Settings** can now scan for all supported device types at once. **Comm Port** selection is remembered when the **Connection** window is opened within a Pro Editor session. General—New Config file format saves I/O state parameter and reduces file size; users are prompted to re-save their existing files on load to upgrade to new format

Contact Us

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