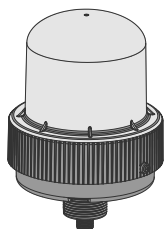


K100 Pro Hazardous Daylight Visible Beacon - DC Datasheet



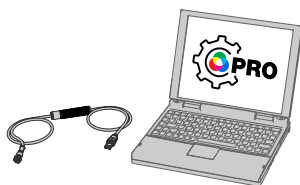
Features

High Daylight Visibility, Programmable Multicolor Indicator with Optional Audible Alarm for Indoor or Outdoor Use



- Highly visible indicator provides bright, even light in direct sunlight
- Ex/HazLoc approvals for potentially explosive environment applications
- Three colors in one device
- Programmable using Banner's Pro Editor software and Pro Converter Cable
- 36 mm threaded polycarbonate base
- Rugged IP69K per DIN 40050-9, UL Type 4X housing
- PNP or NPN operation depending on wiring
- Variety of connector options
- Rugged UV-stabilized polycarbonate base and window
- 12 V DC to 48 V DC operating voltage
- IK10 Impact rating for maximum protection in demanding applications

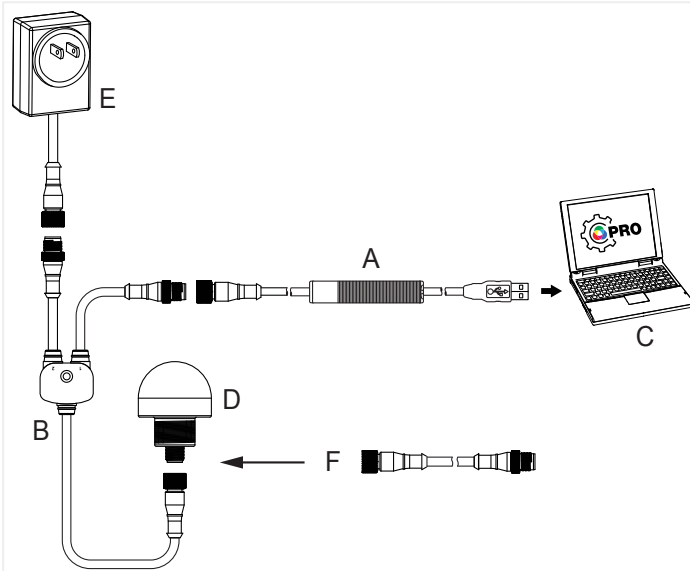
Pro Editor



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 K100 Pro Hazardous Daylight Visible Beacon.

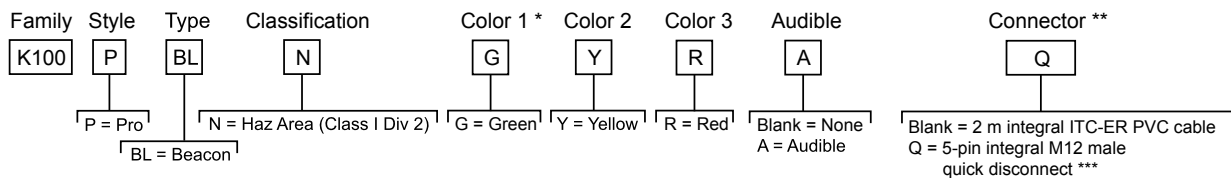


- A = Pro Converter Cable (MQDC-506-USB)
- B = Splitter (CSB-M1251FM1251M)
- C = PC running Pro Editor software
- D = Any Banner Pro Series-enabled device (K50 shown)
- E = Power Supply (PSW-24-1 or PSD-24-4)
- F = 8-Pin to 5-Pin Double-Ended Cordset (MQDC-801-5M-PRO), required for 8-Pin models

Models

Standard models shown. Contact factory for other options.





* Optional colors: Green, Yellow, Red, and Blue

** Models with a quick disconnect require a mating cordset

*** Must be enclosed with a protected conduit or a suitable enclosure

Installation Instructions

Ex/HazLoc Applications



WARNING:

- **Explosive Atmospheres/Hazardous Locations**
- It is the user's responsibility to ensure that all local, state, and national laws, rules, codes, or regulations relating to the installation and use of this device in any particular application are satisfied. This device must be installed by a Qualified Person⁽¹⁾, in accordance with this document and applicable regulations.



WARNING:

- **Explosion Hazard**
- Do not disconnect equipment unless the power has been switched off or the area is known to be non-hazardous.



CAUTION:

- **Electrostatic Discharge (ESD) Special Conditions for Safe Use**
- The nonconducting materials of this device may be susceptible to ignition-capable level of ESD.
- Clean the equipment with only a damp cloth.

General Notes and Conditions for Use

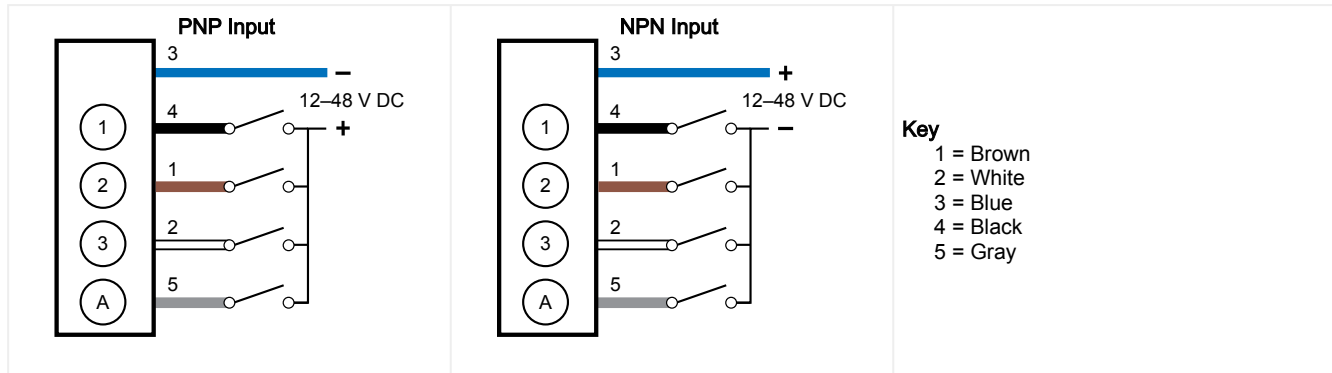
- See Specifications and Wiring Diagrams for important information concerning entity parameters, permissible locations, electrical connections and certifications.
- In addition to the warning above concerning user responsibility, the installation must comply with the following:
 - All installations must comply with all manufacturer's instructions.
 - All applicable wiring methods in accordance with the relevant local regulations and the authority having jurisdiction.
 - U.S. Installations: The relevant requirements of the National Electric Code® (ANSI/NFPA-70 NEC®).
 - Canadian Installations: The relevant requirements of the Canadian Electrical Code (CSA C22.1).
- Do not attempt any repairs to this device; it contains no field-replaceable parts or components. Tampering and/or replacement with non-factory components may adversely affect the safe use of the system.
- The nonconducting materials of this device may be susceptible to ignition-capable level of electrostatic charging and precautions must be taken to avoid this. The user/installer shall ensure that the equipment is not installed in a location where it may be subjected to external conditions (such as high-pressure steam) which are conducive to creating a build-up of electrostatic charges.
- Clean with a damp cloth only.
- If the equipment is likely to come into contact with aggressive substances⁽²⁾, then it is the responsibility of the user to take suitable precautions⁽³⁾ that prevent it from being adversely affected, thus ensuring that the type of protection is not compromised.
- The ingress protection (IP rating) of enclosures/panels may be invalidated by the installation of the beacon. The installation of the beacon in a particular enclosure/panel is subject to the evaluation/acceptance of the authority having jurisdiction.
- Models with integral quick-disconnect (QD) connectors:
 - Use recommended Banner cordsets (see "[Cordsets](#)" on page 7), or suitable quick-disconnect cordsets with threaded retaining nut (see "[Specifications](#)" on page 3). The cordset must be securely fastened using the quick-disconnect retaining nut to prevent disconnection. Maximum connector torque: 6 ft-lbs.
 - Must be installed such that the connector is protected from impact and unauthorized disconnection. The method of protection can include conduit (e.g. pole, pendent), enclosed raceway, a listed enclosure suitable for the intended use, and/or by inaccessible location that excludes possible impact damage.
- The device must be powered by a Class 2 or SELV power supply.

⁽¹⁾ A Qualified Person is a person who, by possession of a recognized degree or certificate of professional training, or who, by extensive knowledge, training and experience, has successfully demonstrated the ability to solve problems relating to the subject matter and work.

⁽²⁾ Aggressive substances—for example, acidic liquids or gases that may attack metals, or solvents that may affect polymeric materials.

⁽³⁾ Suitable precaution—for example, regular checks as part of routine inspections or establishing from the materials data sheet that is resistant to specific chemicals.

Wiring Diagrams



An "X" denotes an active input.

For example: When Input 1 and Input 3 are both active, the indicator will be Color 1 Flashing at 1 Hz.

Default Configuration

Wiring				Operating Mode/Function	
Black (Input 1)	Brown (Input 2)	White (Input 3)	Gray (Input 4)	Non-Audible	Audible
X				Color 1 Steady	Color 1 Steady
	X			Color 2 Steady	Color 2 Steady
		X		Color 3 Steady	Color 3 Steady
X		X		Color 1 Flashing at 1 Hz	Color 1 Flashing at 1 Hz
X	X			Color 2 Flashing at 1 Hz	Color 2 Flashing at 1 Hz
	X	X		Color 3 Flashing at 1 Hz	Color 3 Flashing at 1 Hz
X	X	X		Color 3, 3-pulse Strobe	Color 3, 3-pulse Strobe
			X	Off	Audible Steady, Frequency 2.5 KHz, Volume High
X			X	Color 1 Steady	Color 1 Steady, Audible Steady, Frequency 2.5 KHz, Volume High
	X		X	Color 2 Steady	Color 2 Steady, Audible Steady, Frequency 2.5 KHz, Volume High
		X	X	Color 3 Steady	Color 3 Steady, Audible Steady, Frequency 2.5 KHz, Volume High
X		X	X	Color 1 Flashing at 1 Hz	Color 1 Flashing at 1 Hz, Audible Steady, Frequency 2.5 KHz, Volume High
X	X		X	Color 2 Flashing at 1 Hz	Color 2 Flashing at 1 Hz, Audible Steady, Frequency 2.5 KHz, Volume High
	X	X	X	Color 3 Flashing at 1 Hz	Color 3 Flashing at 1 Hz, Audible Steady, Frequency 2.5 KHz, Volume High
X	X	X	X	Color 3, 3-pulse Strobe	Color 3, 3-pulse Strobe, Audible Steady, Frequency 2.5 KHz, Volume High

Specifications

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Leakage Current Immunity

400 μ A

Indicator Response Time

On response: 325 ms (max)

Off response: 20 ms (max)

Connections

Integral 5-pin M12 male quick-disconnect connector or 2 m (6.5 ft) integral ITC-ER PVC-jacketed cable, depending on model

Models with a quick disconnect require a mating cordset

Connecting 5-pin M12 quick-disconnect cordsets (see "[Cordsets](#)" on page 7): Female single-ended Multiconductor cable (at minimum): UL Style 2517, 24 AWG wire, rated ≥ 80 °C; M12 quick-disconnect connector: per IEC 61076-2-101, must have threaded M12 x 1 retaining nut

Operating Conditions

–40 °C to +60 °C (–40 °F to +140 °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, IP69K per DIN 40050-9, UL Type 4X

LED Lifetime

Lumen maintenance L₇₀

When operating within specifications, output decreases less than 30% after 42,000 hours

Mounting

M36 by 2.0 threaded base, maximum torque 5.0 N·m (44 inch-lbf)

Interior 3/4-14 NPT Thread

Mounting nut included

Adjacent Unit Mounting Separation Distance

Minimum: 0 in (mounted with unit flanges touching)

Audible Characteristics

Sound Intensity at 2.5 KHz, at 1 m (typical):

Low volume setting: 93 dB

Medium volume setting: 96 dB

High volume setting: 101 dB

Construction

Base, Dome, and Nut: Polycarbonate

Approvals

NEC and CEC (cULus)

- Gas and Vapors: Class I Div 2 Groups ABCD T4
- Dust and Fibers/flyings: Class II Div 2 Groups FG T6; Class III Div 1 and Div 2 T6

Pro Editor Configuration

Connection to Pro Editor software enables control of:

- Animation: On, Flash, Rotate, Two Color Flash, Two Color Cycle, Intensity Sweep
- Color: Green, Yellow, Red, Blue
- Wiring: See ["Wiring Diagrams" on page 3](#)
- Intensity: Low, Medium, High
- Speed: Slow, Standard, Fast
 - Slow Flash: 0.5 Hz
 - Standard Flash: 1.0 Hz
 - Fast Flash: 5.0 Hz
 - Slow Rotate: 80 rpm
 - Standard Rotate: 120 rpm
 - Fast Rotate: 160 rpm
- Audible Tones: Pulse, Wobble, Strobe, Whoop, Staccato, Siren, Continuous 1, Continuous 2, Jingle, Melody 1, Melody 2, Melody 3

Pro Converter Cable required to interface between PC and indicator, see accessories

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)

Impact: IK10 (60068-2-75)

Certifications

E530817

Maximum Power Input

Light Only: 12.5 W

Light and Audible: 13.5 W

Supply Voltage and Current

12 V DC to 48 V DC

Product approved with usage of Class 1 or Class 3 Power Supply to achieve Class 2 Power Supply status

Use only with a suitable Class 2 power supply (North America)

Voltage	Maximum Current (mA)			
	Steady On, Flash, or Strobe Function ⁽¹⁾		Rotate Function	
	Light Only	Light & Audible	Light Only	Light & Audible
12	760	820	365	435
18	495	530	235	275
24	395	425	185	220
30	340	365	165	195
36	305	330	150	180
42	280	305	145	170
48	260	285	140	165

Default Indicator Characteristics

At 12 V DC

Color	Dominant Wavelength (nm) or Color Temperature (CCT)	Color Coordinates ⁽²⁾		Lumen Output (Typical at 25 °C)
		x	y	
Green	528 nm	0.1603	0.6973	360
Yellow	589 nm	0.5557	0.4276	525
Red	625 nm	0.6999	0.2982	155
Blue	475 nm	0.1167	0.1121	165

Lumen Output decreases by 15% at 48 V DC

Internal temperature compensation circuitry: Reduces the Lumen Output to decrease the unit internal operating temperature. The amount of reduction is dependent on the ambient operating temperature, supply voltage, color, and/or audible functions being utilized.

⁽¹⁾ Flash or Strobe Mode: Peak current, operating at 50% duty cycle or less.

⁽²⁾ Refer to CIE 1931 chromaticity diagram or color chart, to show equivalent color with indicated color coordinates.

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.

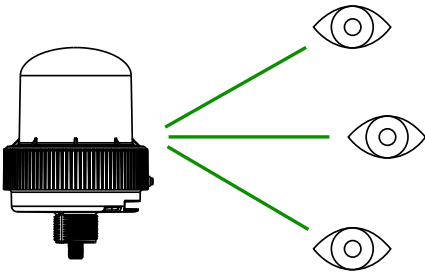
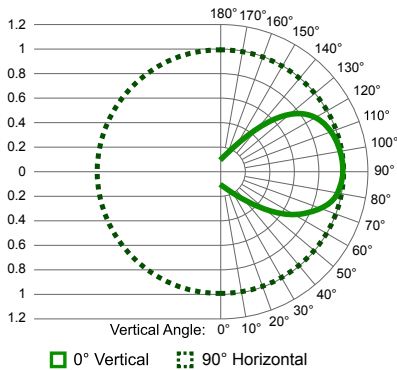
For additional product support, go to www.bannerengineering.com.

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

Photometric Data

Multiply the values shown in the chart by the maximum candela values in the Max. Candela table:

Polar Candela Distribution



Base Candela

Green	46
Yellow	67
Red	20
Blue	21

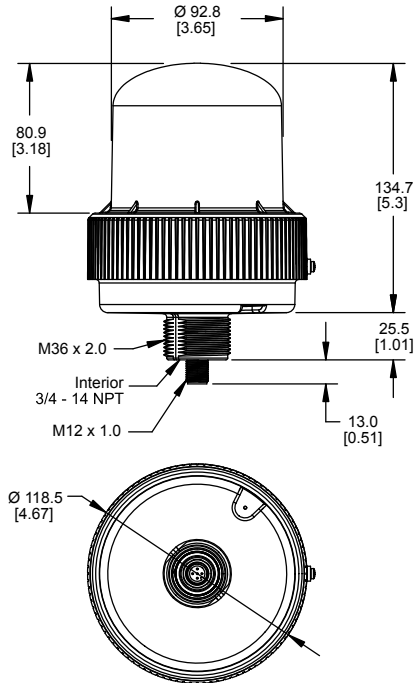
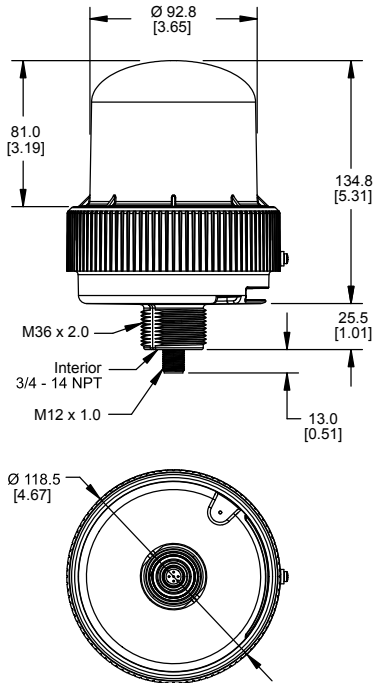
Candela Viewing Angle Example – Red

Angle	Factor	Base ⁽¹⁾	Candela
120 (top view)	0.7	20	14
90 (side view)	1	20	20
60 (bottom view)	0.7	20	14

Dimensions

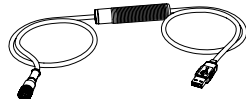
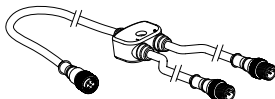
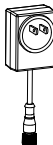
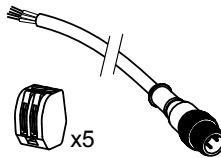
All measurements are listed in millimeters [inches], unless noted otherwise.

⁽¹⁾ Red shown. See Base Candela table.

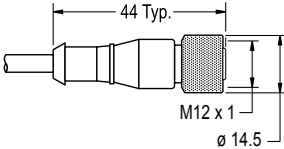
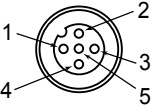
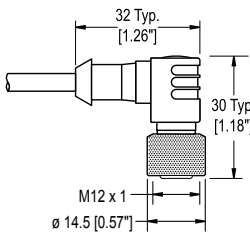
Standard Models	Audible Models
 Technical drawing of Standard Models beacon showing dimensions and mounting details. Dimensions include: Ø 92.8 [3.65], 80.9 [3.18], 134.7 [5.3], 25.5 [1.01], 13.0 [0.51], M36 x 2.0, Interior 3/4 - 14 NPT, M12 x 1.0, and Ø 118.5 [4.67].	 Technical drawing of Audible Models beacon showing dimensions and mounting details. Dimensions include: Ø 92.8 [3.65], 81.0 [3.19], 134.8 [5.31], 25.5 [1.01], 13.0 [0.51], M36 x 2.0, Interior 3/4 - 14 NPT, M12 x 1.0, and Ø 118.5 [4.67].

Accessories

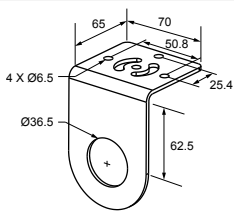
Pro Editor Hardware

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 Pro Editor	
CSB-M1251FM1251M • 5-pin parallel Y splitter (Male-Male-Female) • For full Pro Editor preview capability • Requires external power supply, sold separately	
PSW-24-1 • 24 V DC, 1 A power supply • 2 m (6.5 ft) PVC cable with M12 quick disconnect • Provides external power with splitter cable, sold separately	
ACC-PRO-CABLE5 • Mating accessory for cabled and terminal models • 150 mm (6 inch) PVC cable with M12 quick disconnect • Lever wire nuts included (qty 5) • Required to connect cabled models and screw terminal models to Pro Converter Cable, sold separately	

Cordsets

5-Pin Threaded M12 Cordsets—Single Ended				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC1-501.5	0.5 m (1.5 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray
MQDC1-503	0.9 m (2.9 ft)			
MQDC1-506	2 m (6.5 ft)			
MQDC1-515	5 m (16.4 ft)			
MQDC1-530	9 m (29.5 ft)			
MQDC1-560	18 m (59 ft)			
MQDC1-5100	31 m (101.7 ft)	Right-Angle		
MQDC1-506RA	2 m (6.5 ft)			
MQDC1-515RA	5 m (16.4 ft)			
MQDC1-530RA	9 m (29.5 ft)			
MQDC1-560RA	19 m (62.3 ft)			

Brackets

LMB36RA - Indicator light right-angle mounting 36 mm mounting hole - Stainless steel	
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Elevated Mount System

Model			Features	Components
Black Anodized Aluminum ¾ in. NPT	Black Anodized Aluminum ½ in. NPT	Clear Anodized Aluminum ½ in. NPT		
SOP-E34-150A 150 mm (6 in) long	SOP-E12-150A 150 mm (6 in) long	SOP-E12-150AC 150 mm (6 in) long	- Elevated-use stand-off pipe - Black anodized aluminum or clear anodized aluminum surface - Threaded at both ends - Compatible with most industrial environments	
SOP-E34-300A 300 mm (12 in) long	SOP-E12-300A 300 mm (12 in) long	SOP-E12-300AC 300 mm (12 in) long		
SOP-E34-600A 600 mm (24 in) long	SOP-E12-600A 600 mm (24 in) long	—		
SOP-E34-900A 900 mm (36 in) long	SOP-E12-900A 900 mm (36 in) long	SOP-E12-900AC 900 mm (36 in) long		
SA-M36E12			- Adapter from M36 thread to 12-14 NPSM thread - Streamlined black plastic mounting base adapter/cover - Drilled hole	
SA-M36SOP			- M36 thread adapter with clearance for ¾ pipe mount - Streamlined black plastic mounting base adapter/cover - Drilled hole	

Pipe Mounting Flange			
Model	Features	Construction	
SA-F12	- Elevated-use stand-off pipes (½ in, NPSM/ DN15) - M5 mounting hardware and nitrile gasket included	Die-cast zinc base with black paint	

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Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

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