

CAUTION

**PLEASE CONTACT CURRY
SUPPLY COMPANY BEFORE
ATTEMPTING ANY CHANGES TO
THE ELECTRICAL SYSTEMS.
DOING SO MAY CAUSE
EQUIPMENT DAMAGE OR VOID
WARRANTY.**

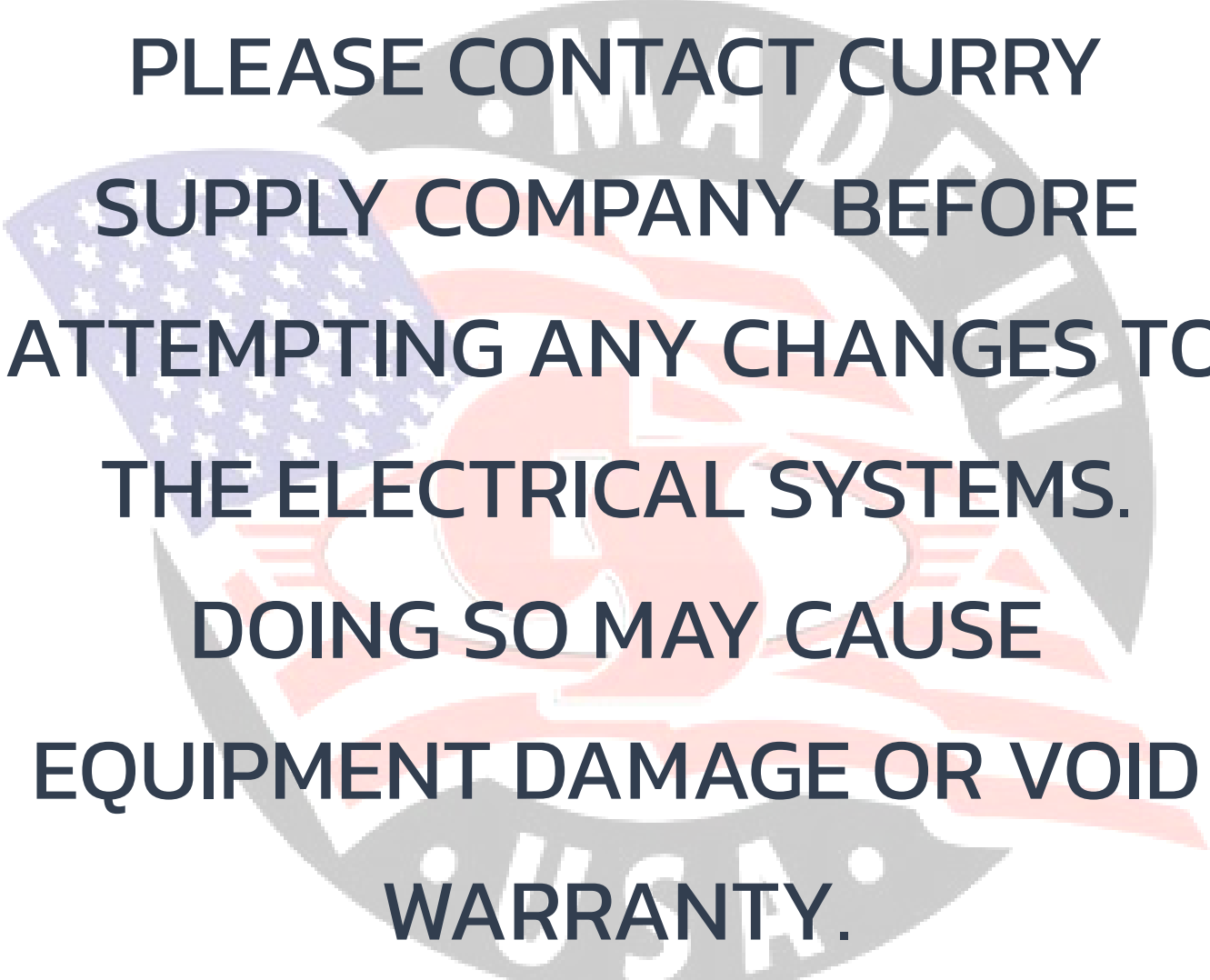


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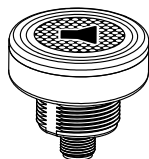
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K50 Pro Compact with Audible Indicator



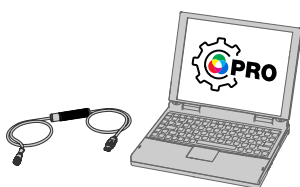
Datasheet

50 mm Compact Programmable Multicolor RGB Audible Indicator



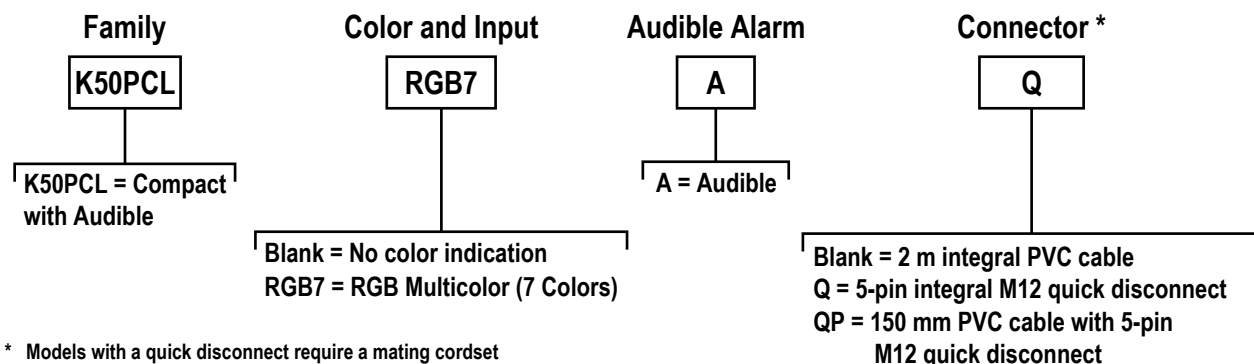
- Bright, uniform indicator light
- Designed with integrated audible alarm
- Available for lower profile applications
- Seven default colors in one device (Green, Red, Yellow, Blue, White, Cyan, Magenta)
- Programmable using Banner's Pro Editor software and Pro Converter Cable
- 30 mm threaded polycarbonate base
- Translucent polycarbonate cover
- Rugged IP67, IP69K per DIN 40050-9 and UL Type 4X and UL Type 13 design
- Bimodal inputs (PNP/NPN), depending on source wiring
- Variety of connector options
- 14 different tones available including intensity and input control
- Two model options - with or without RGB indication

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.

Models



Wiring Diagrams

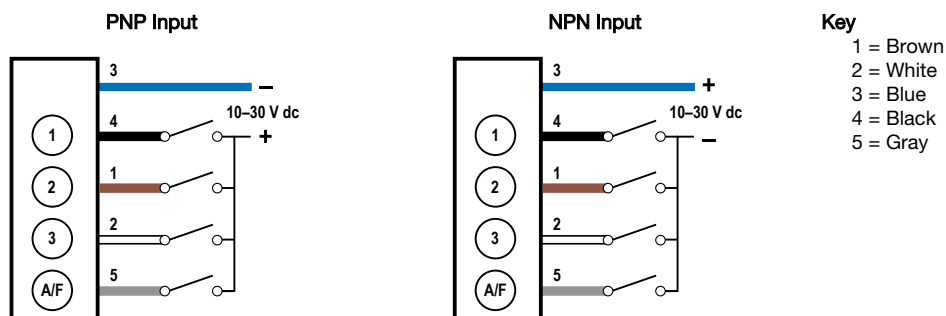


Table 1: RGB with Audible Indicator Default Values

Color	Red	Green	Yellow	Blue	Magenta	Cyan	White	Audible (No color)
Input 1	X		X		X		X	
Input 2		X	X			X	X	
Input 3				X	X	X	X	
Input 4 ¹								X

Table 2: Audible Indicator Only – Default Values for Low Intensity Tones

Audible	Continuous 2	Whoop	Pulse	Staccato	Siren	Jingle	Melody 1
Input 1	X			X	X		X
Input 2		X		X		X	X
Input 3			X		X	X	X
Input 4 ²							

An "X" denotes an active input, for example when Input 1 and Input 3 are active, the indicator will show Magenta.

Specifications

Supply Voltage and Current

12 V DC to 30 V DC

Standard Models: 210 mA maximum

- 199 mA at 12 V DC
- 83 mA at 24 V DC
- 69 mA at 30 V DC

Audible-Only Models: 25 mA maximum

- 22 mA at 12 V DC
- 14 mA at 24 V DC
- 13 mA at 30 V DC

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Leakage Current Immunity

400 µA

Input Response Time

250 milliseconds maximum

Audible Characteristics

Values shown apply to continuous tone. Frequency and intensity response vary depending on the Audible Tone selected.

2.9 KHz ± 250 Hz

Audible Intensity:

- Low intensity at 2.9 KHz: 83 dB at 1 m
- Medium intensity at 2.9 KHz: 88 dB at 1 m
- High intensity at 2.9 KHz: 92 dB at 1 m

Connections

Integral 5-pin M12 male quick-disconnect connector, 150 mm (6 in) PVC cable with an M12 quick disconnect, or 2 m (6.5 ft) integral PVC cable, depending on model. Models with a quick disconnect require a mating cordset.

Mounting

M30 by 1.5 threaded base, maximum torque 4.5 N-m (40 inch-lbf). Mounting nut included.

Construction

Model Base, Dome, and Nut: Polycarbonate

Vibration and Mechanical Shock

Meets IEC 60068-2-6 requirements (Vibration: 10 Hz to 55 Hz, 1.0 mm amplitude, 5 minutes sweep, 30 minutes dwell).
Meets IEC 60068-2-27 requirements (Shock: 30G 11 ms duration, half sine wave).

Operating Conditions

–40 °C to +50 °C (–40 °F to +122 °F)
90% at +50 °C maximum relative humidity (non-condensing)
Storage Temperature: –40 °C to +70 °C (–40 °F to +158 °F)

Environmental Rating

IP67, IP69K per DIN 40050-9
Meets UL Type 4X, and UL Type 12 or UL Type 13 when mounted in a UL Type 12 or Type 13 enclosure.
All cabled models also meet IP69K per DIN 40050-9 if the cable and cable entrance are protected from high-pressure spray.

Certifications



Banner Engineering Europe Park Lane, Culliganlaan 2F
bus 3, 1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House, Blenheim Court,
Wickford, Essex SS11 8YT, Great Britain

Pro Editor Configuration

Connection to Pro Editor software enables control of:

- Animation: On, Flash, Two Color Flash, 50/50, 50/50 Rotate, Chase, Intensity Sweep, Demo
- Color: Green, Red, Yellow, Blue, White, Cyan, Magenta, Amber, Rose, Lime Green, Orange, Sky Blue, Violet, Spring Green
- Intensity: Low, Medium, High
- Speed: Slow, Standard, Fast
- Audible Tones: Pulse, Wobble, Strobe, Whoop, Staccato, Siren, Continuous 1, Continuous 2, Jingle, Melody 1, Melody 2, Melody 3
- Audible Intensity: Low, Medium, High

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

Default Indicator Characteristics

Color	Dominant Wavelength (nm) or Color Temperature (CCT)	Color Coordinates ³		Lumen Output (Typical at 25 °C)
		x	y	
Green	532	0.181	0.735	8.9
Red	621	0.691	0.308	3.9
Yellow	578	0.473	0.474	11.6
Blue	467	0.137	0.056	1.6
Magenta	-	0.379	0.177	5.7
Cyan	492	0.150	0.334	10.1
Amber	590	0.552	0.414	7.8
Rose	-	0.508	0.230	4.7
Lime Green	565	0.393	0.535	11.5
Orange	600	0.611	0.370	6
Sky Blue	485	0.146	0.241	10.6
Violet	-	0.212	0.091	3.4
Spring Green	509	0.157	0.553	9.3
White	5700K	0.328	0.337	13.7

Required Overcurrent Protection



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

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

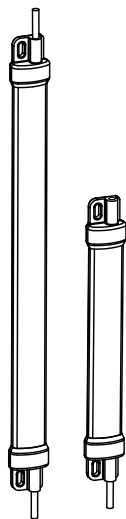
Supply Wiring (AWG)	Required Overcurrent Protection (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

¹ Input 4 controls audible functionality. Apply 12 V DC to 30 V DC to add audible to the color indication, or leave floating for color indication only.

² Input 4 controls audible intensity. Apply 12 V DC to 30 V DC for high intensity, or leave floating for low intensity.

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

Instruction Manual Quick Start Guide



Banner's WLS15 LED Strip Lights have sturdy aluminum inner frames, encased in shatter resistant, UV-stabilized, polycarbonate shells, making them ideal for indoor and outdoor applications.

- Low-profile, space-saving design
- Rugged, water-resistant design
- Available in six lengths from 220 mm to 1200 mm
- Daisy chain power to multiple lights
- Optional snap clips for easy installation and repositioning
- Capability to dim lights using PWM input
- Operates on 12 V DC or 24 V DC in one model
- Models are available with two colors in one device

These Work Light Strips are available as either stand-alone models, or as cascade models that can be "daisy-chained" together for longer lighting runs, with a minimum of wiring.

Stand-alone models have one end for power connection and no connections at opposite end. A stand-alone model may be used as the last in the cascade series.

Cascade models have one end for power connection, and a connection at the opposite end for connecting to other lights in the cascade. A double-ended accessory cordset may be used between each pair of lights in a cascade to extend the distance between lights.



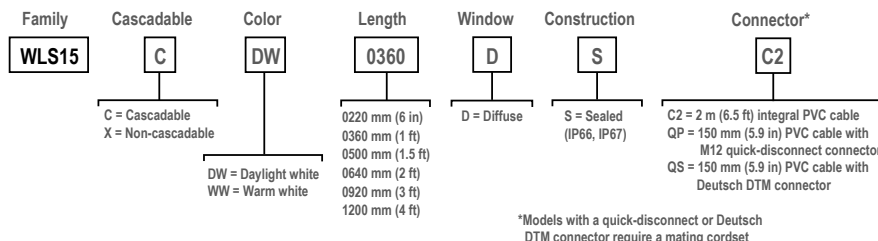
For PWM dimming, use with the LC65P2T 2-wire dimmer module. For more information, refer to the LC65 LED Dimmer Module datasheet, p/n [177086](#). This module can only be used with the single color models.

IMPORTANT: Read the following instructions before operating the light. Please download the complete WLS15 LED Strip Light technical documentation, available in multiple languages, from www.bannerengineering.com for details on the proper use, applications, Warnings, and installation instructions of this device.

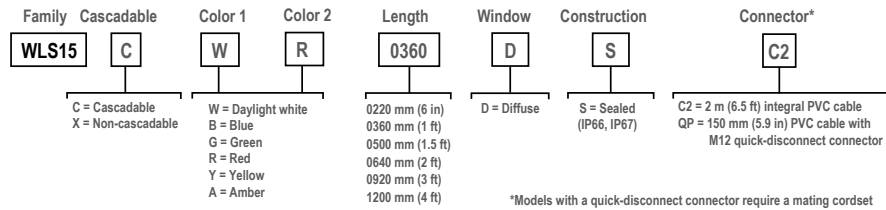
IMPORTANT: Lea el siguiente instructivo antes de operar el luminario. Por favor descargue desde www.bannerengineering.com toda la documentación técnica de los WLS15 LED Strip Light, disponibles en múltiples idiomas, para detalles del uso adecuado, aplicaciones, advertencias, y las instrucciones de instalación de estos dispositivos.

IMPORTANT: Lisez les instructions suivantes avant d'utiliser le luminaire. Veuillez télécharger la documentation technique complète des WLS15 LED Strip Light sur notre site www.bannerengineering.com pour les détails sur leur utilisation correcte, les applications, les notes de sécurité et les instructions de montage.

Single Color Models



Dual Color Models



Wiring Diagrams

QP Models					
Male	Female	Pin	Wire Color	Single Color Models	Dual Color Models
		1	brown	12 V DC or 24 V DC	Color 1: 12 V DC or 24 V DC
		3	blue	DC common	DC common
		4	black	Not used	Color 2: 12 V DC or 24 V DC (color 2 overrides color 1)
		2	white	Not used	Not used

QS Models: Single Color Models Only					
Male	Female	Pin	Wire Color	Connection	
		1	brown	12 V DC or 24 V DC	
		2	blue	DC common	

Specifications

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Supply Voltage

12 V DC or 24 V DC nominal

Absolute operational limits of 10 V DC to 15 V DC and 20 V DC to 27 V DC

Use only with a suitable Class 2 power supply (UL) or a SELV power supply (CE)

Single Color Light Models can be PWM dimmed between 25% to 100% with a frequency up to 1000 Hz

See electrical characteristics on the product's label

Supply Current

Light Length	Typical Current (A) at 25°C ⁽¹⁾		Max. Current (A) at -40°C	
	12 V DC	24 V DC	12 V DC	24 V DC
0220 mm	0.19	0.10	0.24	0.12
0360 mm	0.38	0.20	0.48	0.24
0500 mm	0.57	0.30	0.72	0.36
0640 mm	0.76	0.40	0.96	0.48
0920 mm	1.14	0.60	1.44	0.72
1200 mm	1.52	0.80	1.92	0.96

⁽¹⁾ Typical current values are shown at 25 °C – current and lumen values decrease 0.4% per 1 °C from ambient. For example, a 1200 mm unit will have a maximum current of 1.92 A at -40 °C and 1.33 A at +60 °C.

Connections

2 m (6.5 ft) integral PVC-jacketed cable, 150 mm (6 in) PVC-jacketed cable with a 4-pin M12 male quick-disconnect connector, or 150 mm (5.9 in) 2-pin Deutsch DTM series sealed cable; models with a quick disconnect or Deutsch DTM connector require a mating cordset

Do not spray the cable with a high-pressure sprayer or cable damage will result.

Mounting

Integral mounting slots for M4 (#8) screws, tighten to 5 in-lbf max torque

Multiple bracket options available

Secure cables within 150 mm (5.9 inches) of the light

Construction

Clear anodized aluminum housing; Polycarbonate outer housing, Polyamide end caps

Environmental Rating

Rated IP66 and IP67

Suitable for wet locations per UL 2108

Vibration and Mechanical Shock

Vibration: 10 Hz to 55 Hz, 1.0 mm peak-to-peak amplitude per IEC 60068-2-6

Shock: 15G 11 ms duration, half sine wave per IEC 60068-2-27

Operating Temperature

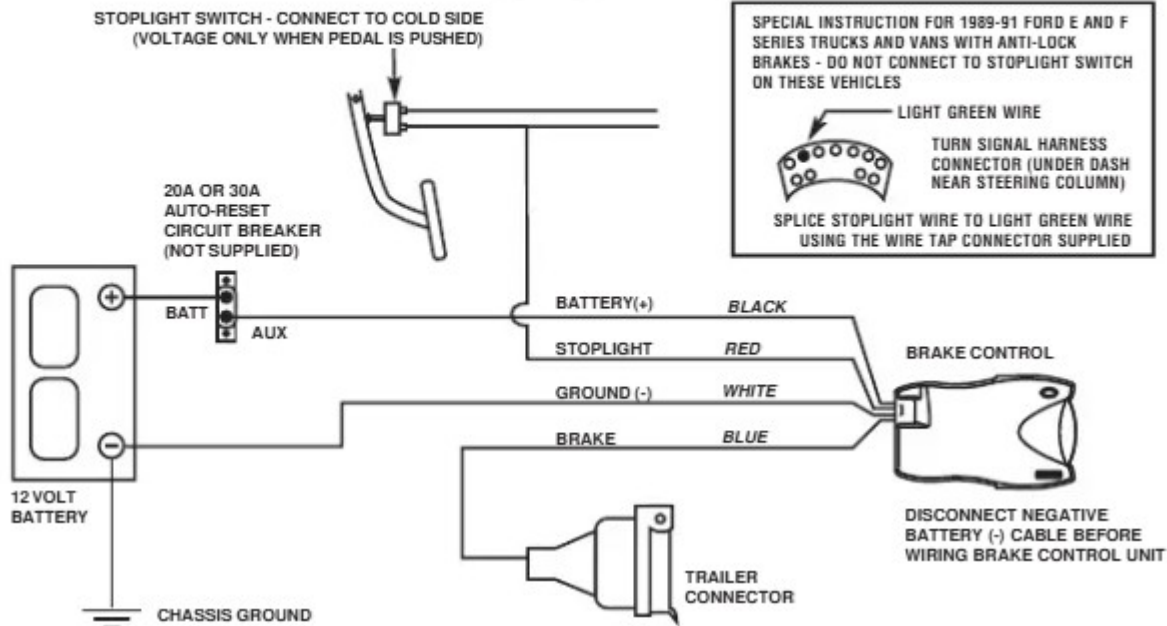
-40 °C to +60 °C (-40 °F to +140 °F)

95% at +60 °C maximum relative humidity (non-condensing)

Storage Temperature

-40 °C to +70 °C (-40 °F to +158 °F)

Generic Wiring Diagram



READ THIS FIRST:

Read and follow all instructions carefully before wiring brake control. Keep these instructions with the brake control for future reference.

Important Facts to Remember

1. The brake control must be installed with a 12 volt negative ground system. (To install with a positive ground system use Tekonsha® P/N 3191.)
2. **WARNING** Reversing BLACK and WHITE wires or improper wiring will damage or destroy brake control.
3. **WARNING** Be sure to solidly connect all four wires or brake control will not function properly.
4. Soldering is recommended or crimp-on butt connectors are a suitable substitution.
5. Route all wires as far from the radio antenna as possible to reduce AM interference.

6. **CAUTION** Use of proper gauge wire when installing the brake control is CRITICAL; smaller gauge wire may result in less than efficient braking. **Minimum** wire gauges are as follows:

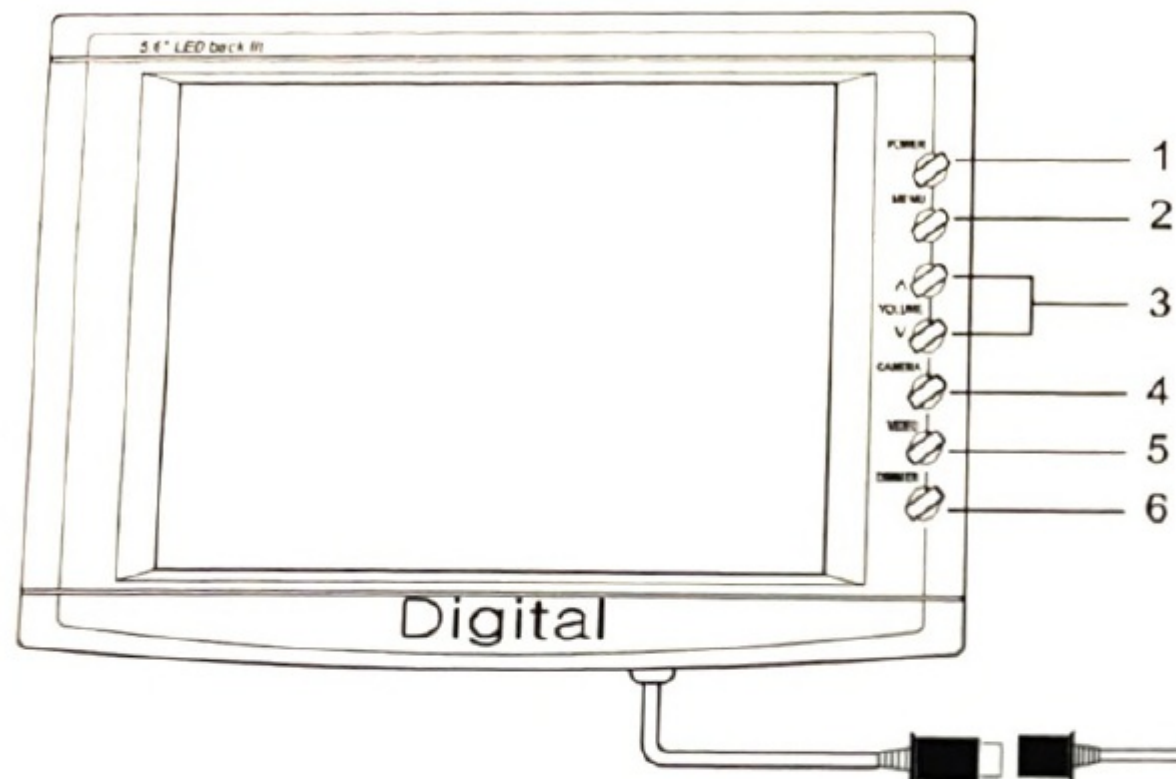
- 1-2 axle applications – 14 GA.
- 3-4 axle applications – 12 GA.

7. Collection of water inside the trailer connector mounted on the tow vehicle will reduce the life of the connector.
8. Technical Assistance Call Toll-Free: 1-888-785-5832 or www.tekonsha.com

Wiring Legend

- + BLACK Wire (Positive Battery)
- WHITE Wire (Negative Battery)
- ⊗ RED Wire (cold side of stoplight switch)
- 🔌 BLUE Wire (brake output to trailer)

1. The WHITE (-) wire must be connected to a known ground.
2. **CAUTION** Inadequate grounding may cause intermittent braking or lack of sufficient voltage to trailer brakes. The WHITE wire must be connected to a suitable ground location. The negative terminal of the battery is a suitable ground location in the absence of a Trailer Tow Package connection.
3. Connect BLACK (+) wire through an automatic reset circuit breaker (20 amp for 1-2 axles, 30 amp for 3-4 axles) to the POSITIVE (+) terminal of the battery. The BLACK wire is the power supply line to the brake control.
4. The RED (stoplight) wire must be connected to the cold side of the brake pedal stoplight switch. Splice down line from the switch; DO NOT disturb the position of the switch.
5. The BLUE (brake output) wire must be connected to the trailer connector's brake wire.



Pin No. Description

1	Video
2	Audio
3	DC 12V Power
4	Ground
5	Heater B+



* OPTIONAL CAMERA & CABLE

