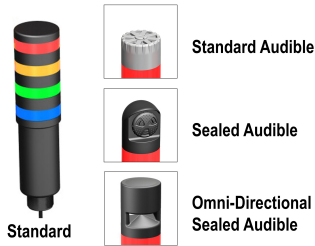


# TL50CZ Compact Universal AC Voltage Tower Light



## Features

### Multi-Color General-Purpose or Audible Indicators



- Bright, uniform lighted segments at only half the height of the standard TL50 models
- Rugged, cost-effective, and easy-to-install multi-segment indicators
- Illuminated segments provide easy-to-install multi-segment indicators
- Illuminated segments provide easy-to-see operator guidance and indication of equipment status
- Displays up to 5 colors
- Available in black or light gray housing
- Audible models available with standard, sealed, or omni-directional audible element
- Compact devices are completely self-contained, no controller needed
- 100 V AC to 240 V AC operation
- No assembly required

## Models

### Non-Audible Models

Models <sup>(1)</sup>	# of LED Colors	LED Colors <sup>(2)</sup>	Connection <sup>(3)</sup>	Inputs
TL50CZR	1	Red	4-wire PVC cable	100 V AC to 240 V AC
TL50CZGR	2	Green, Red		
TL50CZGYR	3	Green, Yellow, Red		
TL50CZBGYR	4	Blue, Green, Yellow, Red	5-wire PVC cable	
TL50CZWBGYR	5	White, Blue, Green, Yellow, Red	6-wire PVC cable	

### Standard Audible Models

Models <sup>(1)</sup>	# of LED Colors	LED Colors <sup>(2)</sup>	Connection <sup>(3)</sup>	Inputs
TL50CZRA	1	Red	4-wire PVC cable	100 V AC to 240 V AC
TL50CZGRA	2	Green, Red		
TL50CZGYRA	3	Green, Yellow, Red	5-wire PVC cable	
TL50CZBGYRA	4	Blue, Green, Yellow, Red	6-wire PVC cable	

### Sealed Audible Models

Models <sup>(1)</sup>			# of LED Colors	LED Colors <sup>(2)</sup>	Connection <sup>(3)</sup>	Inputs
Continuous	Pulsed at 1.6 Hz	Staccato				
TL50CZRALS	TL50CZRALS3	TL50CZRALS4	1	Red	4-wire PVC cable	100 V AC to 240 V AC
TL50CZGRALS	TL50CZGRALS3	TL50CZGRALS4	2	Green, Red		
TL50CZGYRALS	TL50CZGYRALS3	TL50CZGYRALS4	3	Green, Yellow, Red	5-wire PVC cable	
TL50CZBGYRALS	TL50CZBGYRALS3	TL50CZBGYRALS4	4	Blue, Green, Yellow, Red	6-wire PVC cable	

### Omni-Directional Sealed Audible Models

Models <sup>(1)</sup>			# of LED Colors	LED Colors <sup>(2)</sup>	Connection <sup>(3)</sup>	Inputs
Continuous	Pulsed at 1.6 Hz	Staccato				
TL50CZRAOS	TL50CZRAOS3	TL50CZRAOS4	1	Red	4-wire PVC cable	100 V AC to 240 V AC
TL50CZGRAOS	TL50CZGRAOS3	TL50CZGRAOS4	2	Green, Red		

Continued on page 2

(1)

- Models with black housing are listed. For gray housing, add the suffix "C" at the end of the cabled model number or before the "QP" in 150 mm (6 in) PVC cable model numbers. For example, TL50CZR or TL50CZRCP.

(2)

- The first color listed is the bottom color, going up in successive order.
- Five color options are available in non-audible cabled models.
- Four color options are only available in audible cabled models.
- Available colors include: Green (G), Red (R), Yellow (Y), Blue (B), Orange (O), White (W), Turquoise (T), Violet (V), Magenta (M) and Sky Blue (S).
- Contact Banner Engineering for other colors and color combinations.

(3)

- To order the 150 mm (6 in) PVC cable model, add the suffix "QP" to the model number. For example, TL50CZRQP.
- Models with a quick-disconnect connector require a mating cordset.



Continued from page 1

Models <sup>(1)</sup>			# of LED Colors	LED Colors <sup>(2)</sup>	Connection <sup>(3)</sup>	Inputs
Continuous	Pulsed at 1.6 Hz	Staccato				
TL50CZGYRAOS	TL50CZGYRAOS3	TL50CZGYRAOS4	3	Green, Yellow, Red	5-wire PVC cable	
TL50CZBGYRAOS	TL50CZBGYRAOS3	TL50CZBGYRAOS4	4	Blue, Green, Yellow, Red	6-wire PVC cable	

*Omni-Directional Sealed Audible Models with Intensity Adjustment*

Models <sup>(1)</sup>			# of LED Colors	LED Colors	Connection <sup>(3)</sup>	Inputs
Continuous	Pulsed at 1.6 Hz	Staccato				
TL50CZRAOSI	TL50CZRAOSI3	TL50CZRAOSI4	1	Red	4-wire PVC cable	100 V AC to 240 V AC
TL50CZGRAOSI	TL50CZGRAOSI3	TL50CZGRAOSI4	2	Green, Red		
TL50CZGYRAOSI	TL50CZGYRAOSI3	TL50CZGYRAOSI4	3	Green, Yellow, Red	5-wire PVC cable	
TL50CZBGYRAOSI	TL50CZBGYRAOSI3	TL50CZBGYRAOSI4	4	Blue, Green, Yellow, Red	6-wire PVC cable	

## Wiring

Models with 1 to 3 Segments: 4-Wire	Models with 4 Segments: 5-Wire	Models with 5 Segments: 6-Wire
<p><b>4-Wire Key:</b> C1 = Color 1 C2 = Color 2 C3 = Color 3 A = Audible</p>	<p><b>5-Wire Key:</b> C1 = Color 1 C2 = Color 2 C3 = Color 3 C4 = Color 4 C5 = Color 5 A = Audible</p>	<p><b>6-Wire Key:</b> C1 = Color 1 C2 = Color 2 C3 = Color 3 C4 = Color 4 C5 = Color 5 A = Audible</p>

## Specifications

**Supply Voltage and Current**

100 AC to 240 V AC at 50 Hz or 60 HZ

Indicators—maximum current per LED color:

- 60 mA at 100 V AC
- 50 mA at 120 V AC
- 31 mA at 240 V AC

**Standard Audible Alarm:** 30 mA maximum current**Sealed Audible Alarm:** 35 mA maximum current**Omni-Directional Sealed Audible Alarm:** 45 mA maximum current**Supply Protection Circuitry**

Protected against transient voltages

**Input Response Time**

Indicator On/Off: 500 milliseconds maximum

**Leakage Current Immunity**500  $\mu$ A

Application Note: The use of relay output PLC is recommended since there is no leakage current. Solid state output PLCs often have leakage current above 1 mA and, therefore, turn the light on in the off state. To counteract the leakage current, a shunt resistor must be used. A resistor must be applied from the neutral wire of the device to the hot wire of each channel of the device.

**Audible Alarm**

**Standard Audible Alarm:** 2.7 kHz  $\pm$  500 Hz oscillation frequency; maximum intensity 92 dB at 1 m (3.3 ft) (typical)

**Sealed Audible Alarm:** 2.9 kHz  $\pm$  250 Hz oscillation frequency; maximum intensity 94 dB at 1 m (3.3 ft) (typical)

**Omni-Directional Sealed Audible Alarm:** 2.1 kHz  $\pm$  250 Hz oscillation frequency; maximum intensity 99 dB at 1 m (3.3 ft) (typical)

**Omni-Directional Sealed Audible Alarm with Intensity Adjustment:** 2.1 kHz  $\pm$  250 Hz oscillation frequency; maximum intensity 95 dB at 1 m (3.3 ft) (typical)

**Audible Adjustment**

**Standard Audible Alarm:** Unscrew the cover (up to 1.5 turns maximum) to adjust the audible intensity. (Do not exceed 1.5 turns or the cover may detach during operation.) For maximum intensity, rotate the center plug 180° counterclockwise to remove it.

**Sealed Audible Alarm and Omni-Directional Sealed Audible Alarm with Intensity Adjustment:** Rotate the front cover until the desired intensity is reached.

**Typical Reduction in Sound Intensity with Audible Adjustment (maximum to minimum):**

- **Standard Audible:** 30 dB
- **Sealed Audible:** 20 dB
- **Omni-directional Sealed Audible:** 12 dB

**Operating Conditions**

**Non-Audible:** -40 °C to +50 °C (-40 °F to +122 °F)

**Standard and Sealed Audible:** -20 °C to +50 °C (-4 °F to +122 °F)

95% at +50 °C maximum relative humidity (non-condensing)

**Environmental Rating**

UL Type 4X Indoor and UL Type 13

**Non-Audible and Sealed Audible:** IP67**Standard Audible:** IP50**Certifications**

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

**Indicators**

LEDs are independently selected; 1 to 5 colors; 10 color options available

**Connections**

4-wire, 5-wire, or 6-wire 2 m (6.5 ft) integral cable; or 150 mm (6 in) PVC-jacketed cable with a 4-pin or 5-pin M12 male quick-disconnect connector, depending on model

Models with a quick-disconnect connector require a mating cordset

**Construction**

**Bases and Covers:** ABS

**Light Segment:** 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)

**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](http://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

**Indicator Characteristics**

Color	Dominant Wavelength (nm) or Color Temperature (CCT)	Color Coordinates <sup>(4)</sup>		Lumen Output (Typical at 25 °C)
		x	y	
Green	528 nm	–	–	27
Red	625 nm	–	–	9
Yellow	590 nm	–	–	6
Blue	470 nm	–	–	4.5
Orange	608 nm	–	–	18.5
White	6000 K	–	–	25
Turquoise	–	0.19	0.37	6.5
Violet	–	0.2	0.08	3
Magenta	–	0.35	0.15	3.5
Sky Blue	–	0.19	0.26	14.5

**Dimensions**

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

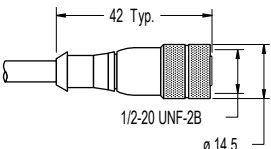
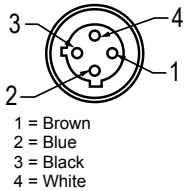
Dimensions	# of Segments	Tower Height (H)			
		Non-Audible	Standard Audible <sup>(5)</sup>	Sealed Audible	Omni-Directional Sealed Audible
	1	115.2 mm (4.5 in)	146.1 mm (5.8 in)	169.2 mm (6.7 in)	183.2 mm (7.2 in)
	2	141 mm (5.6 in)	171.9 mm (6.8 in)	195 mm (7.7 in)	209 mm (8.2 in)
	3	166.8 mm (6.6 in)	197.7 mm (7.8 in)	220.8 mm (8.7 in)	234.8 mm (9.2 in)
	4	192.6 mm (7.6 in)	223.5 mm (8.8 in)	246.6 mm (9.7 in)	260.6 mm (10.3 in)
	5	218.4 mm (8.6 in)	-	-	-

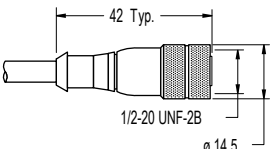
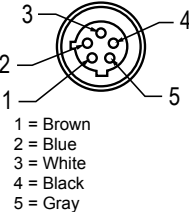
<sup>(4)</sup> Refer to CIE 1931 chromaticity diagram or color chart, to show equivalent color with indicated color coordinates.

<sup>(5)</sup> Tower height (H) with top unscrewed approximately 3.5 mm to allow sound to escape.

## Accessories

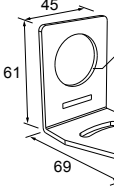
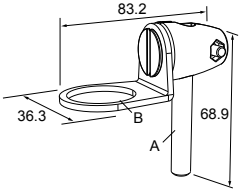
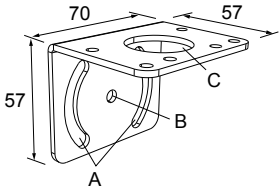
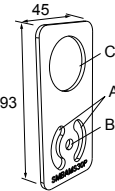
### Cordsets

4-Pin Single-Ended 1/2-In Dual Key Female Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
MQAC2-406	2 m (6.56 ft)	Straight		
MQAC2-415	5 m (16.4 ft)			
MQAC2-430	9.14 m (30 ft)			

5-Pin Single-Ended 1/2-In Dual Key Female Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
MQAC2-506	2 m (6.56 ft)	Straight		
MQAC2-515	5 m (16.4 ft)			
MQAC2-530	9.14 m (30 ft)			

### Mounting Brackets

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

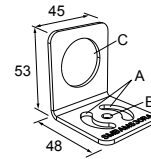
<b>SMB30A</b> <ul style="list-style-type: none"> <li>Right-angle bracket with curved slot for versatile orientation</li> <li>Clearance for M6 (¼ in) hardware</li> <li>Mounting hole for 30 mm sensor</li> <li>12-gauge stainless steel</li> </ul> <p><b>Hole center spacing:</b> A to B=40  <b>Hole size:</b> A=ø 6.3, B= 27.1 × 6.3, C=ø 30.5</p>	
<b>SMB30FA</b> <ul style="list-style-type: none"> <li>Swivel bracket with tilt and pan movement for precise adjustment</li> <li>Mounting hole for 30 mm sensor</li> <li>12-gauge 304 stainless steel</li> <li>Easy sensor mounting to extrude rail T-slot</li> <li>Metric- and inch-size bolt available</li> </ul> <p><b>Bolt thread:</b> SMB30FA, A= 3/8 - 16 × 2 in; SMB30FAM10, A= M10 - 1.5 × 50  <b>Hole size:</b> B= ø 30.1</p>	
<b>SMB30MM</b> <ul style="list-style-type: none"> <li>12-gauge stainless steel bracket with curved mounting slots for versatile orientation</li> <li>Clearance for M6 (¼ in) hardware</li> <li>Mounting hole for 30 mm sensor</li> </ul> <p><b>Hole center spacing:</b> A = 51, A to B = 25.4  <b>Hole size:</b> A = 42.6 × 7, B = ø 6.4, C = ø 30.1</p>	
<b>SMBAMS30P</b> <ul style="list-style-type: none"> <li>Flat SMBAMS series bracket</li> <li>30 mm hole for mounting sensors</li> <li>Articulation slots for 90°+ rotation</li> <li>12-gauge 300 series stainless steel</li> </ul> <p><b>Hole center spacing:</b> A=26.0, A to B=13.0  <b>Hole size:</b> A=26.8 × 7.0, B=ø 6.5, C=ø 31.0</p>	

**SMBAMS30RA**

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

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

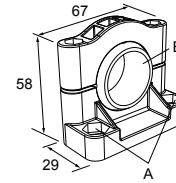
**Hole size:** A=26.8 × 7.0, B=∅ 6.5, C=∅ 31.0

**SMB30SC**

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

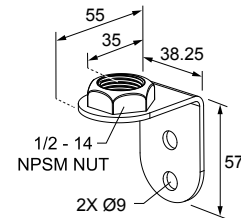
**Hole center spacing:** A=∅ 50.8

**Hole size:** A=∅ 7.0, B=∅ 30.0

**LMBE12RA35**

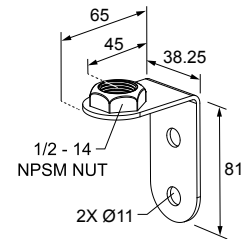
- Direct mounting of stand-off pipe, with common bracket type
- Zinc-plated steel
- 1/2-14 NPSM nut
- Mounting distance from the wall to the center of the 1/2-14 NPSM nut is 35 mm

**Hole center spacing:** 20.0

**LMBE12RA45**

- Direct mounting of stand-off pipe, with common bracket type
- Zinc-plated steel
- 1/2-14 NPSM nut
- Mounting distance from the wall to the center of the 1/2-14 NPSM nut is 45 mm

**Hole center spacing:** 35.0

**LMB Sealed Right-Angle Bracket**



Model	Description	
<b>LMB30RA</b> - Black polycarbonate <b>LMB30RAC</b> - Gray polycarbonate	<ul style="list-style-type: none"> <li>• <b>Direct-Mount Models</b></li> <li>• Bracket kit with base, 30 mm adapter, set screw, fasteners, O-rings, and gaskets.</li> </ul>	
<b>LMBE12RA</b> - Black polycarbonate <b>LMBE12RAC</b> - Gray polycarbonate	<ul style="list-style-type: none"> <li>• <b>Pipe-Mount Models</b></li> <li>• Bracket kit with base, ½-14 pipe adapter, set screw, fasteners, O-rings, and gaskets</li> <li>• For use with stand-off pipe (listed and sold separately)</li> </ul>	

**Elevated Mount System**

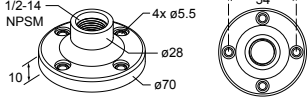
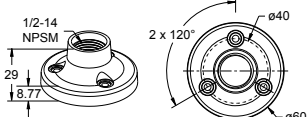
Model	Description	Components
<b>SA-M30TE12</b> - Black Acetal <b>SA-M30TE12C</b> - White UHMW	<ul style="list-style-type: none"> <li>• Streamlined black acetal or white UHMW stand-off pipe adapter/cover</li> <li>• Connects between 30 mm light base and ½ in. NPSM/ DN15 pipe</li> <li>• Mounting hardware included</li> </ul>	

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Model			Description	Components
<b>Polished 304 Stainless Steel</b>	<b>Black Anodized Aluminum</b>	<b>Clear Anodized Aluminum</b>		
<b>SOP-E12-150SS</b> 150 mm (6 in) long	<b>SOP-E12-150A</b> 150 mm (6 in) long	<b>SOP-E12-150AC</b> 150 mm (6 in) long	<ul style="list-style-type: none"> <li>Elevated-use stand-off pipe (½ in. NPSM/DN15)</li> <li>Polished 304 stainless steel, black anodized aluminum, or clear anodized aluminum surface</li> <li>½ in. NPT thread at both ends: one end screws into the internal threads of the light's base, and one end screws into the mounting base adapter/cover</li> <li>Compatible with most industrial environments</li> </ul>	
<b>SOP-E12-300SS</b> 300 mm (12 in) long	<b>SOP-E12-300A</b> 300 mm (12 in) long	<b>SOP-E12-300AC</b> 300 mm (12 in) long		
<b>SOP-E12-900SS</b> 900 mm (36 in) long	<b>SOP-E12-900A</b> 900 mm (36 in) long	<b>SOP-E12-900AC</b> 900 mm (36 in) long		
<b>SA-E12M30</b> - Black Acetal				
<b>SA-E12M30C</b> - White UHMW			<ul style="list-style-type: none"> <li>Streamlined black acetal or white UHMW mounting base adapter/cover</li> <li>Connects between ½ in. NPSM/DN15 pipe and 30 mm (1-3/16 in) drilled hole</li> <li>Mounting hardware included</li> </ul>	

## Pipe Mounting Flange

Pipe Mounting Flange			
Model	Description	Construction	
<b>SA-F12</b>	<ul style="list-style-type: none"> <li>Elevated-use stand-off pipes (½ in. NPSM/DN15)</li> <li>M5 mounting hardware and nitrile gasket included</li> </ul>	Die-cast zinc base with black paint	
<b>SA-F12-3</b>	<ul style="list-style-type: none"> <li>Elevated-use stand-off pipes (½ in. NPSM/DN15)</li> <li>M4 mounting hardware and nitrile blend gasket included</li> </ul>	Black Polycarbonate	

## Banner Engineering Corp Limited Warranty

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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This Warranty is exclusive and limited to repair or, at the discretion of Banner Engineering Corp., replacement. **IN NO EVENT SHALL BANNER ENGINEERING CORP. BE LIABLE TO BUYER OR ANY OTHER PERSON OR ENTITY FOR ANY EXTRA COSTS, EXPENSES, LOSSES, LOSS OF PROFITS, OR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM ANY PRODUCT DEFECT OR FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER ARISING IN CONTRACT OR WARRANTY, STATUTE, TORT, STRICT LIABILITY, NEGLIGENCE, OR OTHERWISE.**

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