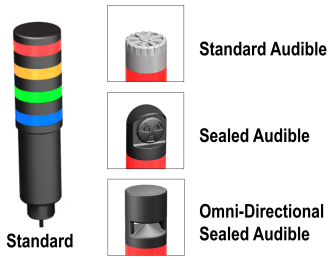
TL50CZ Compact Universal AC Voltage Tower Light

Datasheet

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 opertor 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[1]	# of LED Colors	LED Colors[2]	Connection[3]	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 [1]	# of LED Colors	LED Colors [2]	Connection [3]	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 [1]			# of LED Colors	LED Colors [2]	Connection [3]	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 [1]			# of LED Colors	LED Colors [2]	Connection [3]	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		
TL50CZGYRAOS	TL50CZGYRAOS3	TL50CZGYRAOS4	3	Green, Yellow, Red	5-wire PVC cable	

[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, TL50CZRC or TL50CZRCQP.

[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.

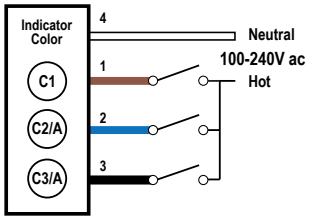
[3]
- To order the 150 mm (6 in) PVC cable model, add the suffix "QP" to the model number. For example, TL50CZRQP.
- Models with a quick disconnect require a mating cordset.

Omni-Directional Sealed Audible Models [1]			# of LED Colors	LED Colors [2]	Connection [3]	Inputs
Continuous	Pulsed at 1.6 Hz	Staccato				
TL50CZBGYRAOS	TL50CZBGYRAOS3	TL50CZBGYRAOS4	4	Blue, Green, Yellow, Red	6-wire PVC cable	

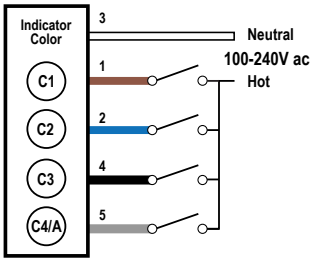
Omni-Directional Sealed Audible Models with Intensity Adjustment [1]			# of LED Colors	LED Colors	Connection [3]	Inputs
Continuous	Pulsed at 1.6 Hz	Staccato				
TL50CZRAOSI	TL50CZRAOSI3	TL50CZRAOSI4	1	Red	4-wire PVC cable	100 V ac to 240 V ac
TL50CZGRAOSI	TL50CZGRAOSI3	TL50CZGRAOSI4	2	Green, Red		
TL50CZGYRAOSI	TL50CZGYRAOSI3	TL50CZGYRAOSI4	3	Green, Yellow, Red	5-wire PVC cable	
TL50CZBGYRAOSI	TL50CZBGYRAOSI3	TL50CZBGYRAOSI4	4	Blue, Green, Yellow, Red	6-wire PVC cable	

Wiring Diagrams

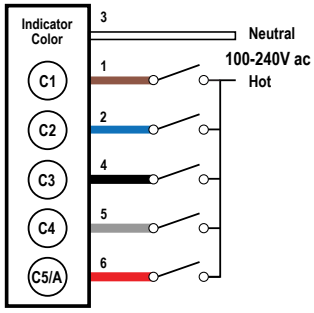
Models with 1 to 3 Segments
4-Wire



Models with 4 Segments
5-Wire



Models with 5 Segments
6-Wire



4-Wire Key:

1 = Brown
2 = Blue
3 = Black
4 = White

C1 = Color 1
C2 = Color 2
C3 = Color 3
A = Audible

5-Wire Key:

1 = Brown
2 = Blue
3 = White
4 = Black
5 = Gray

C1 = Color 1
C2 = Color 2
C3 = Color 3
C4 = Color 4
A = Audible

6-Wire Key:

1 = Brown
2 = Blue
3 = White
4 = Black
5 = Gray
6 = Red

C1 = Color 1
C2 = Color 2
C3 = Color 3
C4 = Color 4
C5 = Color 5
A = Audible

Specifications

Supply Voltage and Current
100 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 µA
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 ± 500 Hz oscillation frequency; maximum intensity 92 dB at 1 m (3.3 ft) (typical)
Sealed Audible Alarm: 2.9 kHz ± 250 Hz oscillation frequency; maximum intensity 94 dB at 1 m (3.3 ft) (typical)
Omni-Directional Sealed Audible Alarm: 2.1 kHz ± 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 ± 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: IEC IP67
Standard Audible: IEC IP50

Certifications
CE c UL US LISTED

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

Indicator Characteristics

Color	Dominant Wavelength (nm) or Color Temperature (CCT)	Color Coordinates[4]		Lumen Output (Typical at 25 °C)
		x	y	
Green	528 nm	–	–	27.0
Red	625 nm	–	–	9.0
Yellow	590 nm	–	–	6.0
Blue	470 nm	–	–	4.5
Orange	608 nm	–	–	18.5
White	6000 K	–	–	25.0
Turquoise	–	0.19	0.37	6.5
Violet	–	0.20	0.08	3.0
Magenta	–	0.35	0.15	3.5
Sky Blue	–	0.19	0.26	14.5

Connections
4-wire, 5-wire, or 6-wire 2 m (6.5 ft) integral cable; 4-pin or 5-pin 150 mm (6 in) PVC cable with a M12/Euro-style quick disconnectt, depending on model
Models with a quick disconnect 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)

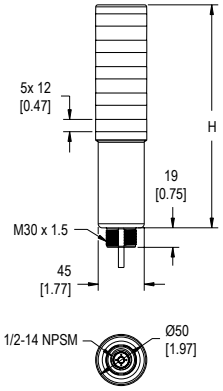
Required Overcurrent Protection
WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

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*.

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

[4] Refer to CIE 1931 chromaticity diagram or color chart, to show equivalent color with indicated color coordinates.

Dimensions



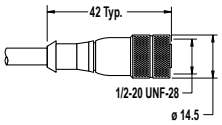
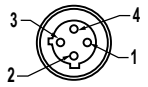
# of Colors	Tower Height (H)			
	Non-Audible	Standard Audible*	Sealed Audible	Omni-Directional Sealed Audible
1	115.2 mm (4.5 in)	146.1 mm 5.8 in)	169.2 mm (6.7 in)	183.2 mm (7.2 in)
2	141.0 mm (5.6 in)	171.9 mm (6.8 in)	195.0 mm (7.7 in)	209.0 mm (8.2 in)
3	166.8 mm (6.6 in)	197.7 mm (7.8 in)	220.8 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)	-	-	-

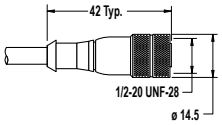
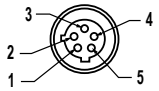
***** Tower height (H) with top unscrewed approximately 3.5 mm to allow sound to escape

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

Accessories

Cordsets

4-Pin Micro-Style Cordsets—Single Ended				
Model	**Length**	**Style**	**Dimensions**	**Pinout (Female)**
MQAC2-406	1.83 m (6 ft)	Straight		
MQAC2-415	4.57 m (15 ft)			
MQAC2-430	9.14 m (30 ft)			1 = Brown 2 = Blue 3 = Black 4 = White

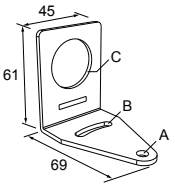
5-Pin Micro-Style Cordsets				
Model	**Length**	**Style**	**Dimensions**	**Pinout**
MQAC2-506	1.83 m (6 ft)	Straight		
MQAC2-515	4.57 m (15 ft)			
MQAC2-530	9.14 m (30 ft)			1 = Brown 2 = Blue 3 = White 4 = Black 5 = Gray

Mounting Brackets

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

SMB30A

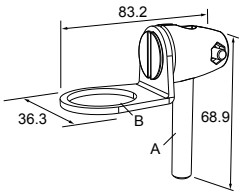
- Right-angle bracket with curved slot for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor
- 12-ga. stainless steel



Hole center spacing: A to B=40
Hole size: A=ø 6.3, B= 27.1 x 6.3, C=ø 30.5

SMB30FA

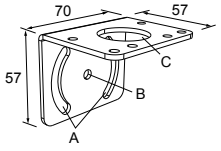
- Swivel bracket with tilt and pan movement for precise adjustment
- Mounting hole for 30 mm sensor
- 12-ga. 304 stainless steel
- Easy sensor mounting to extrude rail T-slot
- Metric and inch size bolt available



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

SMB30MM

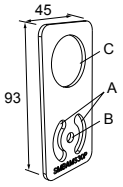
- 12-ga. stainless steel bracket with curved mounting slots for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor



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

SMBAMS30P

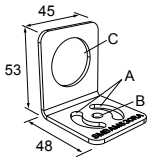
- Flat SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-ga. 300 series stainless steel



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

SMBAMS30RA

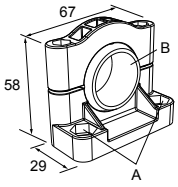
- Right-angle SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-ga. (2.6 mm) cold-rolled steel



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

SMB30SC

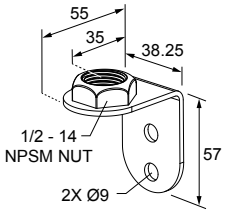
- Swivel bracket with 30 mm mounting hole for sensor
- Black reinforced thermoplastic polyester
- Stainless steel mounting and swivel locking hardware included



Hole center spacing: A=ø 50.8
Hole size: A=ø 7.0, B=ø 30.0

LMBE12RA35

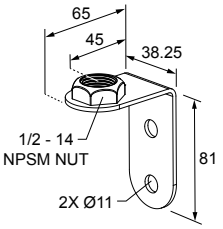
- Direct mounting of stand-off pipe, with common bracket type
- Zinc-plated steel
- 1/2-14 NPSM nut
- Mounting distance from the wall to the center of the 1/2-14 NPSM nut is 35 mm



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

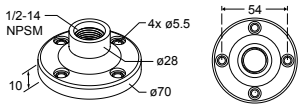
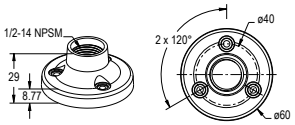
LMB Sealed Right-Angle Bracket

Model	Description	Construction	
LMB30RA	**Direct-Mount Models:** Bracket kit with base, 30 mm adapter, set screw, fasteners, O-rings, and gaskets.	Black polycarbonate	
LMB30RAC		Gray polycarbonate	
LMBE12RA	**Pipe-Mount Models:** Bracket kit with base, ½-14 pipe adapter, set screw, fasteners, O-rings, and gaskets. For use with stand-off pipe (listed and sold separately).	Black polycarbonate	
LMBE12RAC		Gray polycarbonate	

Elevated Mount System

Model			Features	Components
SA-M30TE12 - Black Acetal			• Streamlined black acetal or white UHMW stand-off pipe adapter/cover • Connects between 30 mm light base and ½ in. NPSM/DN15 pipe • Mounting hardware included	
SA-M30TE12C - White UHMW				
Polished 304 Stainless Steel	**Black Anodized Aluminum**	**Clear Anodized Aluminum**	• Elevated-use stand-off pipe (½ in. NPSM/DN15) • Polished 304 stainless steel, black anodized aluminum, or clear anodized aluminum surface • ½ in. NPT thread at both ends • Compatible with most industrial environments	
SOP-E12-150SS 150 mm (6 in) long	**SOP-E12-150A** 150 mm (6 in) long	**SOP-E12-150AC** 150 mm (6 in) long		
SOP-E12-300SS 300 mm (12 in) long	**SOP-E12-300A** 300 mm (12 in) long	**SOP-E12-300AC** 300 mm (12 in) long		
SOP-E12-900SS 900 mm (36 in) long	**SOP-E12-900A** 900 mm (36 in) long	**SOP-E12-900AC** 900 mm (36 in) long		
SA-E12M30 - Black Acetal			• Streamlined black acetal or white UHMW mounting base adapter/cover • Connects between ½ in. NPSM/DN15 pipe and 30 mm (1-3/16 in) drilled hole • Mounting hardware included	
SA-E12M30C - White UHMW				

Pipe Mounting Flange

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	
SA-F12-3	• Elevated-use stand-off pipes (½ in, NPSM/DN15) • M4 mounting hardware and nitrile blend gasket included	Black Polycarbonate	

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