EZ-LIGHT® TL50 Tower Light with IO-Link®

Datasheet

Standard

Standard Audible

Sealed Audible

Omni-Directional Sealed Audible

- Rugged, cost-effective, and easy-to-install multi-segment indicators
- Illuminated segments provide easy-to-see operator guidance and indication of equipment status
- Up to seven stacked colors available
- 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
- 12 to 30 V dc operation with IO-Link control
- No assembly required

Models

Family: TL50

Color Position: 1 2 3 4 5 6 7 — G Y R _ _ _ _

- G - Green
- Y - Yellow
- R - Red
- B - Blue
- W - White
- T - Turquoise
- O - Orange
- V - Violet
- S - Sky Blue
- M - Magenta
- Blank - Audible Only

Position 7 is not available with audible

Audible Alarm:
- Blank - None (IP67)
- A - Audible (IP50)
- ALS - Sealed Audible Continuous Tone
- ALS3 - Sealed Audible Pulsed Tone
- ASL4 - Sealed Audible Staccato Tone
- AOS - Omni-Directional Sealed Audible Continuous Tone
- AOSI - Omni-Directional Sealed Audible Continuous Tone with Intensity Adjust
- AOS3 - Omni-Directional Sealed Audible Pulsed Tone
- AOS3I - Omni-Directional Sealed Audible Pulsed Tone with Intensity Adjust
- AOS4 - Omni-Directional Sealed Audible Staccato Tone
- AOS4I - Omni-Directional Sealed Audible Staccato Tone with Intensity Adjust

Control: K

- K - IO-Link

Housing Color:
- Blank - Black
- C - Gray

Connection: Q

- Q - M12/Euro-style QD (dc only)
- QP - M12/Euro-style Pigtail QD

QD models require a mating cordset

Example models include: TL50WBGYRKQ or TL50GYRAOSIKQ. The first color listed is the bottom color, going up in successive order.

IO-Link Process Data Out (Master to Device)

IO-Link® is a point-to-point communication link between a master device and a sensor and/or light. It can be used to automatically parameterize sensors or lights and to transmit process data. For the latest IO-LINK protocol and specifications, please visit *www.io-link.com*.

For the latest IODD files, please refer to the Banner Engineering Corp website at: *www.bannerengineering.com*.

Process Data Out is transmitted cyclically to the IO-Link device from the IO-Link master. These values written to the TL50 are used to perform one of the following functions:

- Tower light and audible segments turn off = 00
- Tower light and audible segments turn on = 01
- Tower light segment flashes; audible segment turns on = 10

Bits															
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	0	0	1	1	0	1	0	0	0	1	0	0	1	0	1
		Segment 7		Segment 6		Segment 5		Segment 4		Segment 3		Segment 2		Segment 1	
Example:		On		Flashing		Flashing		Off		Flashing		On		On	

Specifications

Supply Voltage and Current
12 to 30 V dc
Maximum current per LED color:
160 mA at 12 V dc
70 mA at 24 V dc
55 mA at 30 V dc
Maximum current for Standard Audible Alarm: 50 mA
Maximum current for Omni-Directional Sealed Audible: 70 mA
Maximum current for Sealed Audible Alarm: 60 mA

Supply **Protection** Circuitry
Protected against reverse polarity and transient voltages

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.
Omni-Directional Sealed Audible Alarm: No adjustment.

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)

Construction
Bases and Covers: ABS
Light Segment: Polycarbonate

Operating Conditions
Non-Audible: –40 °C to +50 °C (–40 °F to +122 °F)
Standard and Audible Sealed: –20 °C to +50 °C (–4 °F to +122 °F)
95% at +50 °C maximum relative humidity (non-condensing)

Environmental **Rating**
NEMA/UL Type 13
Non-Audible and Sealed Audible: IEC IP67
Standard Audible: IEC IP50

Vibration and Mechanical Shock
All models meet Mil Std. 202F requirements. Method 201A (vibration: 10 Hz to 60 Hz max., double amplitude 0.06 inch, maximum acceleration 10G). Also meets IEC 947-5-2 requirements: 30G 11 ms duration, half sine wave.

Certifications

Input Response Time
Indicator On/Off: 10 ms (maximum)

Indicators
LEDs are independently selected; 1 to 7 segments depending on the model (lights and audible alarms are counted as segments)

Color	Dominant Wavelength or Color Temperature (CCT)	Color Coordinates *		Typical Lumen Output (lm)
		X	Y	
Green	528 nm	NA	NA	31
Red	625 nm	NA	NA	13
Yellow	590 nm	NA	NA	32
Blue	470 nm	NA	NA	8
Orange	608 nm	NA	NA	9.5
White	6000 K	NA	NA	36
Turquoise	NA	0.19	0.37	22
Violet	NA	0.20	0.08	4
Magenta	NA	0.35	0.15	4.5
Sky Blue	NA	0.19	0.26	16

* Refer to the CIE 1930 (x,y) Chromaticity Diagram, to show equivalent color with indicated color coordinates.

Connections
Integral 4-pin M12/Euro-style male quick disconnect (QD)

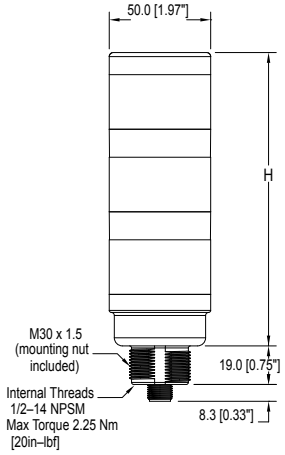
Required Overcurrent **Protection**

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

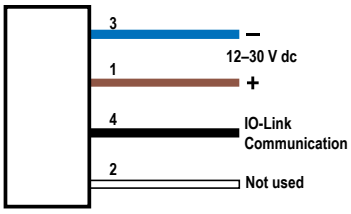
Dimensions



# of Colors	Tower Height (H)			
	Non-Audible	Standard Audible*	Sealed Audible	**Omni-Directional** Sealed Audible
1	61.2 mm (2.4 in)	92.0 mm (3.6 in)	115.1 mm (4.5 in)	129.1 mm (5.1 in)
2	101.9 mm (4.0 in)	132.7 mm (5.2 in)	155.8 mm (6.1 in)	169.8 mm (6.7 in)
3	142.6 mm (5.6 in)	173.4 mm (6.8 in)	196.5 mm (7.7 in)	210.5 mm (8.3 in)
4	183.3 mm (7.2 in)	214.1 mm (8.4 in)	237.2 mm (9.3 in)	251.2 mm (9.9 in)
5	224.0 mm (8.8 in)	254.8 mm (10.0 in)	277.9 mm (10.9 in)	291.1 mm (11.5 in)
6	264.7 mm (10.4 in)	298.5 mm (11.8 in)	318.6 mm (12.5 in)	332.6 mm (13.1 in)
7	305.4 mm (12.0 in)	–	–	–
* Tower height (H) with top unscrewed approximately 3.5 mm (0.18 in) to allow sound to escape				

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

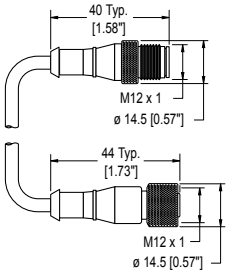
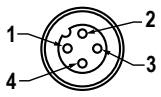
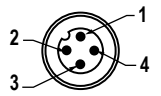
Wiring Diagram



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

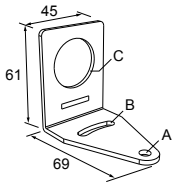
Accessories

Cordsets

4-Pin Threaded M12/Euro-Style Cordsets—Double Ended				
Model	Length	Style	Dimensions	Pinout
MQDEC-401SS	0.31 m (1 ft)	Male Straight/ Female Straight		Female  Male  1 = Brown 2 = White 3 = Blue 4 = Black
MQDEC-403SS	0.91 m (3 ft)			
MQDEC-406SS	1.83 m (6 ft)			
MQDEC-412SS	3.66 m (12 ft)			
MQDEC-420SS	6.10 m (20 ft)			
MQDEC-430SS	9.14 m (30 ft)			
MQDEC-450SS	15.2 m (50 ft)			

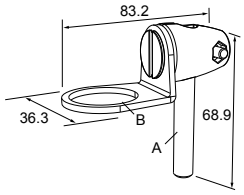
Mounting Brackets

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



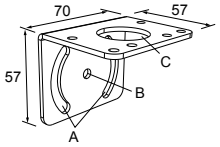
Hole center spacing: A to B=40
Hole size: A=ø 6.3, B= 27.1 x 6.3, C=ø 30.5

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



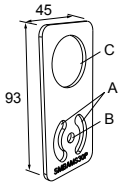
Bolt thread: SMB30FA, A= 3/8 - 16 x 2 in; SMB30FAM10, A= M10 - 1.5 x 50
Hole size: B= ø 30.1

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



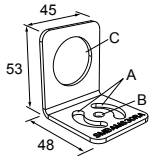
Hole center spacing: A = 51, A to B = 25.4
Hole size: A = 42.6 x 7, B = ø 6.4, C = ø 30.1

SMBAMS30P
- Flat SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-ga. 300 series stainless steel



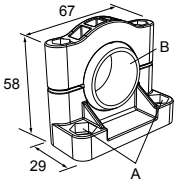
Hole center spacing: A=26.0, A to B=13.0
Hole size: A=26.8 x 7.0, B=ø 6.5, C=ø 31.0

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

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

LMB Sealed Right-Angle Bracket

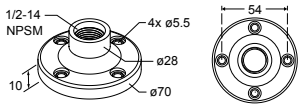
Model	**Description**	**Construction**	
LMB30RA	Direct-Mount Models: Bracket kit with base, 30 mm adapter, set screw, fasteners, o-rings, and gaskets	Black polycarbonate	
LMB30RAC		Gray polycarbonate	
LMBE12RA	Pipe-Mount Models: Bracket kit with base, ½-14 pipe adapter, set screw, fasteners, o-rings, 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		

Model			Features	Components
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	• For use elevated 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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