TL50 Tower Light with IO-Link®

Features

Multi-Color General-Purpose or Audible Indicators

- 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 standards, sealed, or omni-directional audible element
- Compact devices are completely self-contained, no controller needed
- 12 V DC 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 = 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 (IEC IP67)
- A = Audible (IEC 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 = Integral 4-pin M12 quick disconnect (DC only)
- QP = 150 mm 4-pin M12 PVC cable with quick disconnect

**Models with quick disconnect 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.

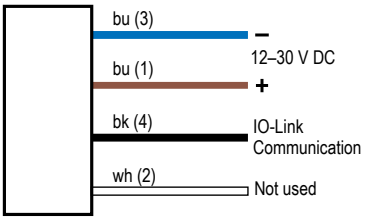
Process Data Out is transmitted cyclically to the IO-Link device from the IO-Link master. These values written to the TL50 are used to perform one of the following functions:

- 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

Process Data Out															
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	

195180
p/n: 195180 Rev. F

Wiring



Key

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

Specifications

Supply Voltage and Current

12 V DC to 30 V DC

Indicators–maximum current per LED color:

- 160 mA at 12 V DC
- 70 mA at 24 V DC
- 55 mA at 30 V DC

Standard Audible Alarm: 50 mA maximum current

Sealed Audible Alarm: 60 mA maximum current

Omni-Directional Sealed Audible: 70 mA maximum current

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Input Response Time

Indicator On/Off: 10 milliseconds maximum

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)

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

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.

Connections

Integral 4-pin M12 male quick-disconnect connector (DC only), or 150 mm (6 in) PVC-jacketed cable with a 4-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)

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

UL Type 4X Indoor and UL Type 13

Non-Audible and Sealed Audible: IP67

Standard Audible: IP50

Indicators

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

Indicator Characteristics

Color	Dominant Wavelength or Color Temperature (CCT)	Color Coordinates[1]		Typical Lumen Output (lm)
		x	y	
Green	528 nm	–	–	31
Red	625 nm	–	–	13
Yellow	590 nm	–	–	32
Blue	470 nm	–	–	8
Orange	608 nm	–	–	9.5
White	6000 K	–	–	36
Turquoise	–	0.19	0.37	22
Violet	–	0.2	0.08	4
Magenta	–	0.35	0.15	4.5
Sky Blue	–	0.19	0.26	16

[1] Refer to the CIE 1930 (x,y) Chromaticity Diagram, 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.

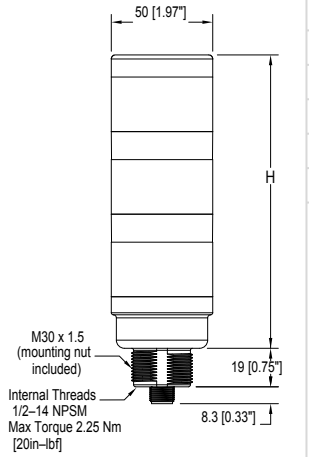
Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
20	5.0	26	1.0
22	3.0	28	0.8
24	2.0	30	0.5

Certifications

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

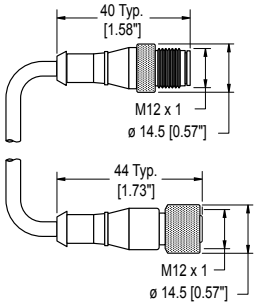
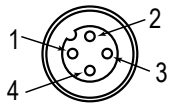
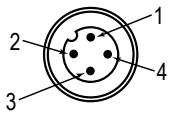
Dimensions

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

Dimensions	# of Colors	Tower Height (H)			
		Non-Audible	Standard Audible[2]	Sealed Audible	Omni-Directional Sealed Audible
	1	61.2 mm (2.4 in)	92 mm (3.6 in)	115.1 mm (4.5 in)	129.1 mm (5.1 in)
	2	101.9 mm (4 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 mm (8.8 in)	254.8 mm (10 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 in)	–	–	–

Accessories

Cordsets

4-Pin Double-Ended M12 Female to M12 Male Cordsets				
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 (2.99 ft)			
MQDEC-406SS	1.83 m (6 ft)			
MQDEC-412SS	3.66 m (12 ft)			
MQDEC-415SS	4.58 m (15 ft)			
MQDEC-420SS	6.10 m (20 ft)			
MQDEC-430SS	9.14 m (30.2 ft)			
MQDEC-450SS	15.2 m (49.9 ft)			

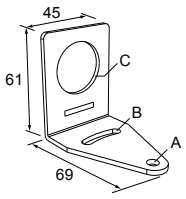
Mounting Brackets

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

SMB30A

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

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

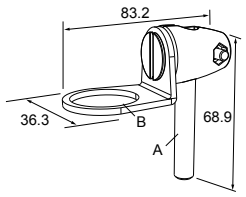


[2] Tower height (H) with top unscrewed approximately 3.5 mm (0.18 in) to allow sound to escape.

SMB30FA

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

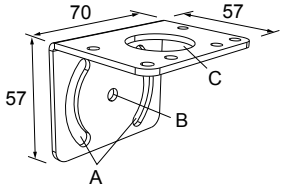
Bolt thread: SMB30FA, A= 3/8 - 16 × 2 in; SMB30FAM10, A= M10 - 1.5 × 50
Hole size: B= ø 30.1



SMB30MM

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

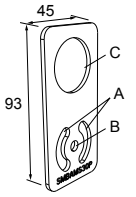
Hole center spacing: A = 51, A to B = 25.4
Hole size: A = 42.6 × 7, B = ø 6.4, C = ø 30.1



SMBAMS30P

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

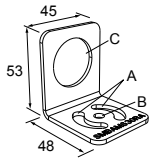
Hole center spacing: A=26.0, A to B=13.0
Hole size: A=26.8 × 7.0, B=ø 6.5, C=ø 31.0



SMBAMS30RA

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

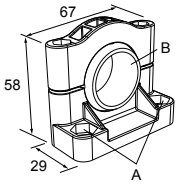
Hole center spacing: A=26.0, A to B=13.0
Hole size: A=26.8 × 7.0, B=ø 6.5, C=ø 31.0



SMB30SC

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

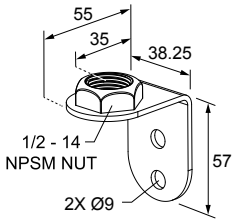
Hole center spacing: A=ø 50.8
Hole size: A=ø 7.0, B=ø 30.0



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

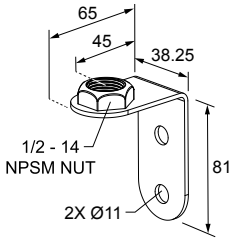
Hole center spacing: 20.0



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

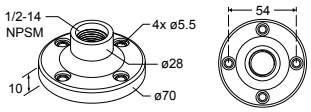
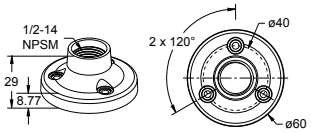
Hole center spacing: 35.0



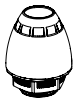
LMB Sealed Right-Angle Bracket

Model	Description	
LMB30RA - Black polycarbonate **LMB30RAC** - Gray polycarbonate	• **Direct-Mount Models** • Bracket kit with base, 30 mm adapter, set screw, fasteners, O-rings, and gaskets.	
LMBE12RA - Black polycarbonate **LMBE12RAC** - Gray polycarbonate	• **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)	

Pipe Mounting Flange

Pipe Mounting Flange			
Model	**Description**	**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	

Elevated Mount System

Model			Description	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: one end screws into the internal threads of the light's base, and one end screws into the mounting base adapter/cover • 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				

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