



# Signaling Specifications

Bulletin Numbers 854J, 854K, 855B, 855BS/BM/BL, 855D, 855E, 855F, 855H/HM, 855L, 855P, 855R, 855T, 855W, 855X/XM, 856T

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# Bulletin 855E/855T Control Tower™ Stack Lights

This product line includes 50 mm (855E) and 70 mm (855T) stack lights.

## 50 mm Control Tower Stack Lights

These devices are designed to communicate application status, alerting you to critical equipment and system needs on the plant floor. They can be pre-assembled to save time or ordered as separate light and sound modules for customized field assembly.



Flashing Incandescent

## Light Modules

855E -  $\frac{10}{a}$   $\frac{FN}{b}$   $\frac{4}{c}$

a	
Voltage	
Code	Description
00	0...250V AC/DC (no lamp module) <sup>(1)</sup>
12	12V AC/DC
24	24V AC/DC
10	120V AC
20	240V AC

b	
Light Module Type	
Code	Description
XN	Steady no lamp <sup>(1)</sup>
DN	Steady incandescent
FN	Flashing incandescent
TL	Steady socket-mount LED
GL	Flashing socket-mount LED
BL	Strobe

c	
Lens Color	
Code	Description
3	Green
4	Red
5	Amber
6	Blue
7	Clear
8	Yellow
9	Magenta <sup>(2)</sup>

(1) Can only be selected with module type XN, voltage code 00. Accepts socket mount incandescent lamp types only.

(2) Magenta color can only be selected with module type TL voltage code 24 or 10 or module type XN for voltage code 00.

## Sound Modules

Sound modules have continuous and pulsing tones. Maximum sound output is 103 dB at 1 m (3.3 ft). A reduced volume setting is available by changing the position of the volume DIP switch, which produces a sound output of 88 dB(A) at 1 m (3.3 ft). Maximum sound output is 80 dB(A) at 1 m (3.3 ft).



Black Two-tone Sound Module

855E -  $\frac{B}{a}$   $\frac{10}{b}$   $\frac{TA3}{c}$

a	
Housing Color	
Code	Description
B	Black
G	Gray

b	
Voltage	
Code	Description
12	12V AC/DC
24	24V AC/DC
10	120V AC
20	240V AC

c	
Module Type	
Code	Description
SA3	Single circuit/single tone piezo style steady/pulsing DIP switch selectable
TA3	Two circuit/two-tone piezo style steady/pulsing DIP switch selectable

# Standard Stack Light Bases

Surface-mount Base with Cap



Vertical-mount Base with Cap



Pole-mount Bases



Quick-release Base



855E - B VM C  
           a       b       c

a	
Housing Color	
Code	Description
B	Black
G	Gray

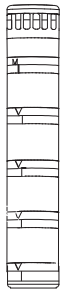
b	
Base Type	
Code	Description
CB	Surface mount with 1/2 in. NPT threading
RB	Surface mount with M20 metric threading
SB	Surface mount with PG16 threading
TM	25 mm (0.98 in.) tube mount
VM	Vertical mount
PM10	10 cm (3.9 in.) aluminum pole-mount base
PM25	25 cm (9.8 in.) aluminum pole-mount base
PM40	40 cm (15.7 in.) aluminum pole-mount base
PM60	60 cm (23.6 in.) aluminum pole-mount base
PM80	80 cm (31.5 in.) aluminum pole-mount base
MM10	10 cm (3.9 in.) quick-release base
MM25	25 cm (9.8 in.) quick-release base
MM40	40 cm (15.7 in.) quick-release base

c	
Cap Option <sup>(1)</sup>	
Code	Description
Blank	No cap
C	Cap included

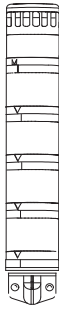
(1) Quick-release bases always include a cap.

### Pre-configured Tower Lights, 1...5 Modules

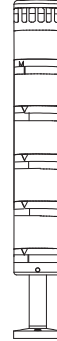
Surface Mount



Vertical Mount



10 cm Pole Mount



25 cm Pole Mount



Level 5  
Level 4  
Level 3  
Level 2  
Level 1

**855 EC - B 10 Y 3 L 5 B 3 F 7 Y 6**  
a b c d e d e d e d e d e  
(Level 1, d+e) (Level 2, d+e) (Level 3, d+e) (Level 4, d+e) (Level 5, d+e)

a	
Base Type	
Code	Description
EC	Surface mount - 1/2 in. NPT threading
ES	Surface mount - PG16
EV	Vertical mount
EM	25 mm tube mount
EP	10 cm (3.9 in.) pole mount
EE	25 cm (9.8 in.) pole mount

b	
Base & Cap Color	
Code	Description
B	Black
G	Gray



c	
Voltage	
Code	Description
12	12V AC/DC
24	24V AC/DC
10	120V AC
20	240V AC

d	
Module Type	
Code	Description
D	Steady incandescent
F	Flashing incandescent
Y	Steady LED
L	Flashing LED
B	Strobe
P	Single-circuit piezo sound module
Q	Two-circuit piezo sound module <sup>(1)</sup>


e	
Lens Color/Sound	
Code	Description
1	Sound module <sup>(2)</sup>
3	Green
4	Red
5	Amber
6	Blue
7	Clear
8	Yellow

(1) If the two-circuit sound module (option Q in Table d) is selected, the maximum number of light modules that are allowed is three.  
(2) Sound module option can only be selected with Module Type option P or Q in Table d. They must be in the top position of the stack.

## Accessories – Bulletin 855E/855T







Description		Voltage	Cat. No.
 <p>(BA15d Bayonet) 19 mm Socket Height</p>	Incandescent Lamps	12V AC/DC	855T-L12
		24V AC/DC	855T-L24
		120V AC	855T-L10
		240V AC	855T-L20
Description		Color	Cat. No.
 <p>LED Lamps for Socket-mounted Modules For Industrial Use Only</p>	12V AC/DC	Red	855E-LL12R
		Green	855E-LL12G
		Amber	855E-LL12A
		Blue	855E-LL12B
		Yellow	855E-LL12Y
		White <sup>(1)</sup>	855E-LL12W
	24V AC/DC	Red	855E-LL24R
		Green	855E-LL24G
		Amber	855E-LL24A
		Blue	855E-LL24B
		Yellow	855E-LL24Y
		White <sup>(1)</sup>	855E-LL24W
	120V AC	Red	855E-LL10R
		Green	855E-LL10G
		Amber	855E-LL10A
		Blue	855E-LL10B
		Yellow	855E-LL10Y
		White <sup>(1)</sup>	855E-LL10W
	240V AC	Red	855E-LL20R
		Green	855E-LL20G
		Amber	855E-LL20A
		Blue	855E-LL20B
		Yellow	855E-LL20Y
		White <sup>(1)</sup>	855E-LL20W

(1) White LED lamps are to be used with a clear or magenta lens option.

Description		Color	Cat. No.
 <p>Caps (top of stack) The cap is installed to the top of the uppermost light module. No cap is needed if the top module is a sound module or a light/with sound module.</p>	Black	855E-ABCAP <sup>(1)</sup>	
	Gray	855E-AGCAP <sup>(1)</sup>	
	Black	855T-ABCAP <sup>(2)</sup>	
	Gray	855T-AGCAP <sup>(2)</sup>	
–	Module Securing Screws (Bag of 5)		855E-ASC <sup>(1)</sup>

(1) For use with Bulletin 855E Control Tower™ stack lights only.  
 (2) For use with Bulletin 855T Control Tower stack lights only.

Table 102 - Gaskets

	Description	Cat. No.
	Lens O-ring Seal Replacement rubber O-rings are to be installed between all bases, light, sound, and light/with sound modules. (Package quantity = 5)	855E-ALSG <sup>(1)</sup>
		855T-ALSG <sup>(2)</sup>
	Surface Mount Gasket Replacement flat gasket is to be placed between the mounting surface and the surface mount base. (Package quantity = 5)	855E-ASFG <sup>(3)</sup>
		855T-ASFG <sup>(4)</sup>
	Pole Foot Gasket Replacement flat gasket is to be placed between the mounting surface and the pole base bottom foot. (Must order multiples of 5.) For use with Cat. No. 855T-BPM10C and 855T-BPM25C pole bases, Cat. No. 854J-BSFC and 854J-BSFQD5C bases, and Bul. 855T, 855E, 855F, 855D, 854J, and 854K quick release bases.	855T-APFG
	Vertical Mount Gasket Replacement flat gasket is to be placed between the mounting surface and the vertical mount base (Cat. No. 854J-BVMC). (Package quantity = 5)	855T-AVFG
	Tube Mount Gasket Replacement O-ring gasket is to be placed in the tube mount pole opening before the tube is installed (BTM- and GTM-type bases). (Package quantity = 5)	855T-AVFG
	Mounting Screw Washer Kit Replacement flat washers are used to provide a seal where the mounting screw meets the pole base. (1 kit includes 20 pieces) (Package quantity = 20)	855T-AMSG






(1) For use with Bulletin 855E Control Tower stack lights only.

(2) For use with Bulletin 855T Control Tower stack lights only.

(3) For use with Bulletin 855E Control Tower stack lights (SB, RB, &amp; CB bases) only.



(4) For use with Bulletin 855T Control Tower stack lights (BSB and BCB bases) only.

Table 103 - Pole Connection Boxes<sup>(1)</sup>, Hole Plugs, and Cable Glands

	Description	Cat. No.
	Black surface mount with PG16 threaded side entrance	855T-BSMP
	Black surface mount with M20 threaded side entrance	855T-BSMR
	Black vertical mount with PG16 threaded side entrance	855T-BVMP
	Black vertical mount with M20 threaded side entrance	855T-BVMR
	Black magnetic mount with PG16 threaded side entrance	855T-BMMP
	Black magnetic mount with M20 threaded side entrance	855T-BMMR
	Black magnetic mount with 1/2 in. NPT threaded side entrance	855T-BMMN
	Black PG16 threaded hole plug	855T-ABUP
	Black M20 threaded hole plug	855T-ABUR
	Black PG16 threaded cable gland	855T-ABCP
	Black M20 threaded cable gland	855T-ABCR
	Black 1/2 in. NPT sealing connector	855T-ABHN
-	Mounting Screws (M5 x 40 screws) for mounting Pole Mount Base to Pole Connection Box	855T-AJBS

(1) For use with Bulletin 855E and 855T pole mount bases, except for stainless steel and quick release base types.

Table 104 - Mounting Kits

	Description	Cat. No.
	Vertical Mount Kit Kit includes vertical bracket and set of three sealing washers. For use with 855E surface mount base.	855E-AVM
	Vertical Mount Kit Kit includes vertical bracket and set of three sealing washers. For use with 856T and 855E pole mount bases, 856T surface mount bases, and 856T M12 QD bases.	855T-AVM

## Specifications

**IMPORTANT** Based on the weight and style and mounting, tower lights are subject to damage from shock vibration. The following specifications are reference guidelines for maximum acceptable conditions.

**Table 105 - Mechanical**

Standard Bases		Shock [G]	Vibration [G]
Surface-mount base or 10 cm aluminum pole base	1 module stack	150	5
	3 module stack	45	1.5
	5 module stack	35	0.75
Vertical base or 25 cm aluminum pole base	1 module stack	95	3.5
	3 module stack	30	1.25
	5 module stack	20	0.5
Recommended wire size		0.5...1.5 mm <sup>2</sup> (22...16 AWG)	
Recommended terminal torque		0.87 N•m (7 lb•in)	

**Table 106 - Environmental**

Attribute		Value
Ingress Ratings	Light modules with cap	UL Type 4/4X/13, IP66
	Sound modules	UL Type 4/4X/13, IP66
	Surface, vertical, tube mount bases	UL Type 4/4X/13, IP66
	Pole-mount bases	UL Type 4/4X/13, IP66
	Flange-style base with M12 micro connector <sup>(1)</sup>	UL Type 4/4X/13, IP66
Temperature ranges	Operating	-25...+50 °C (-13...+122 °F)
	Storage	-40...+85 °C (-40...+185 °F)

(1) UL Type 1 when used with Cat. No. 855T-AVM mounting bracket.

**Table 107 - Materials**

Part	Material
Bases, caps, lens covers, sound module housings, lenses	Polycarbonate
Lamp socket	Polycarbonate
Rubber seals and gaskets	Nitrile rubber
Pole (for aluminum pole assembly)	Aluminum
Pole base footing (for aluminum pole base)	Polycarbonate
Insulation sleeve (for pole insulation)	Polyolefin
Mounting screw washers	Polypropylene

**Table 108 - Light Output**

Device	Light Output			
	12V AC/DC	24V AC/DC	120V AC	240V AC
Steady incandescent	0.5 MSCP	2.5 MSCP	3.0 MSCP	0.49 MSCP
Flashing incandescent	6.3 lumens	31.4 lumens	37.7 lumens	6.2 lumens
Strobe	1 J per lamp			
Steady, flashing socket mount LED	Red	900...2240 mcd		
	Green	900...1800 mcd		
	Amber	1400...3550 mcd		
	Blue	224...560 mcd		
	White and yellow	900...1800 mcd		

**Table 109 - Operating Voltage**

Device	Operating Voltage			
	12V AC/DC	24V AC/DC	120V AC	240V AC
Light modules and sound modules	12V AC/DC (±10%)	24V AC/DC (±10%)	110V AC, 50 Hz (±10%) 120V AC, 60 Hz (±10%)	230V AC, 50 Hz (±10%) 240V AC, 60 Hz (±10%)

**Table 110 - Lamp Life Ratings (Design Life) Average Life Under Static, No Vibration, Conditions**

Device	Lamp Life Rating			
	12V AC/DC	24V AC/DC	120V AC	240V AC
Incandescent modules <sup>(1) (2)</sup>	8000 hr	7000 hr	3000 hr	1600 hr
LED modules	100,000 hr			
Strobe modules	15,000 hr			
Sound modules	20,000 hr			

(1) First failures at about 35% of average life. Severe vibration can reduce life to 44% of average life.

(2) Flashing applications can reduce life to 50% of average life.

**Table 111 - Current Consumption**

Device		Current Consumption [mA]		
		24V AC/DC	120V AC	240V AC
Light only modules	Steady LED	22 (red, amber, and yellow) 33 (green, blue, and white)	30 (red, amber, and yellow) 29 (green, blue, and white)	
	Flashing LED	28 (red, amber, and yellow) 36 (green, blue, and white)	30 (red, amber, and yellow) 29 (green, blue, and white)	
	Strobe LED	35 (red, amber, and yellow) 65 (green, blue, and white)	10	
Sound modules	Single-tone	65	31	32

**Table 112 - Flashing and Tone Frequency**

Attribute	Value
	Flashing Frequency (Light Only Modules)
Flashing incandescent modules	12V module approximately 1.5 Hz 24V, 120V, and 240V modules approximately 2 Hz Time ON/Time OFF = 1:1
Flashing LED modules	Approximately 1.5 Hz; Time On/Time OFF = 1:1
LED strobe modules	Approximately 2 Hz (flash duration 1/50,000 second)
<b>Flashing and Tone Frequency (Light Modules/with Sound Set at Continuous Tone)</b>	
Tone frequency	Tone frequency is preset at 2800 Hz
<b>Flashing and Tone Pulsing Frequencies (Light Modules/with Sound Set at Pulsing Tone)</b>	
Tone frequency	Tone frequency is preset at 2800 Hz

**Table 113 - Decibel Rating (Sound Modules) <sup>(1)</sup>**

Device	Decibel Rating
Single-tone sound module (SA3)	Maximum volume ranges from 88 dB(A) or 103 dB(A) (volume adjustable by DIP switch)
Two-tone sound module (TA3)	

(1) All dB(A) ratings are determined at a distance of 1 m (3.3 ft) from the sound module.

**Table 114 - Leakage Current Impact**

All light and sound modules can absorb up to 3 mA of leakage current from solid-state outputs without module activation.

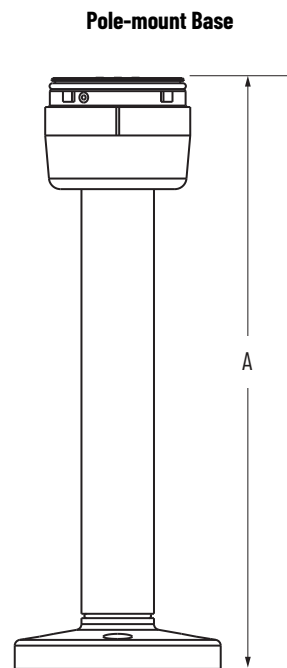
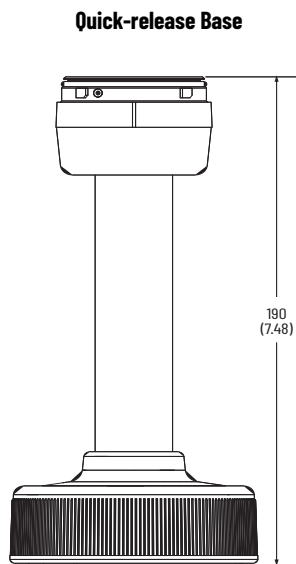
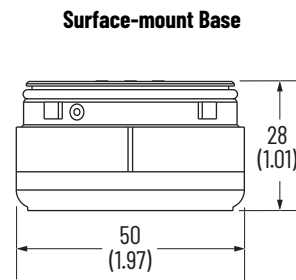
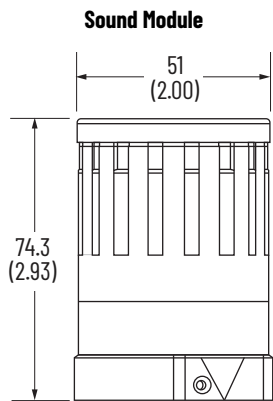
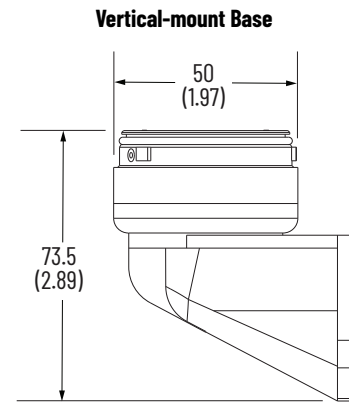
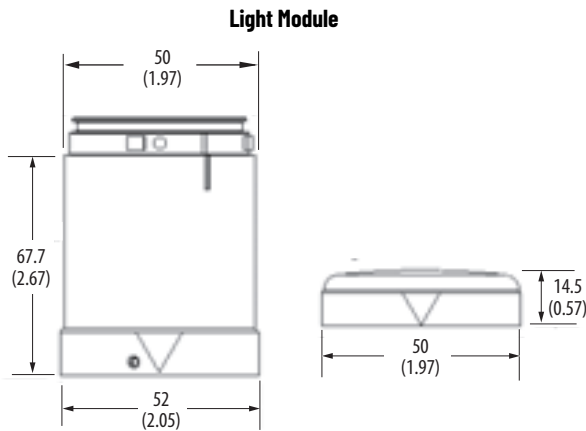
**Table 115 - Standards and Certifications**

Standards Compliance	Certifications
<ul style="list-style-type: none"> <li>UL 508</li> <li>CSA C22.2 No. 14</li> <li>EN/IEC 60947-1</li> <li>EN/IEC 60947-5-1</li> </ul>	<ul style="list-style-type: none"> <li>cULus Listed (File No. E14840, Guides NKCR, NKCR7)</li> <li>CE Marked</li> </ul>



## Approximate Dimensions

Dimensions in millimeters (inches). Dimensions are not intended to be used for manufacturing purposes.



		Pole-mount Base				
Height		PM10	PM25	PM40	PM60	PM80
mm (in.)	A	131 5.16	280.5 11.04	430.5 16.95	630.5 24.82	830.6 32.70

## 70 mm Control Tower Stack Lights

These devices are designed to communicate application status, alerting you to critical equipment and system needs on the plant floor. They can be pre-assembled to save time or ordered as separate light and sound modules for customized field assembly.

### Light Modules

#### Red Flashing Incandescent (Black Housing)



855T - B 10 FN 4  
 a b c d

a	
Housing Color	
Code	Description
B	Black
G	Gray

b	
Voltage	
Code	Description
00	0...250V AC/DC (use only with module code XN)
12	12V AC/DC
24	24V AC/DC
10	120V AC
20	240V AC

c	
Light Module Type	
Code	Description
XN	Steady no lamp <sup>(1)</sup>
DN	Steady incandescent
FN	Flashing incandescent
TL	Steady LED
GL	Flashing LED
RL	Rotating LED, simulated with fixed LEDs <sup>(2)</sup>
BR	Strobe

d	
Lens Color	
Code	Description
3	Green
4	Red
5	Amber
6	Blue
7	Clear
8	Yellow

- (1) Use only with Voltage Code 00. Accepts LED module or incandescent lamp.  
 (2) Only available with Voltage Codes 10 or 24, and Color Codes 3, 4, or 5.

## Combined Light Modules with Piezo Sounder

All single-circuit modules contain a selected light option with a sound device that operates simultaneously. All two-circuit modules contain two circuits that allow for separate operation of light or sound. The piezo-style sound modules can be switched to pulsing or continuous sound with a DIP switch. Additionally, the volume can be adjusted to either low (92 dB(A)) or high (107 dB(A)), via a DIP switch. UL Type 4/4X/13, IP65.

### Combination Module



855T -  B    10    DC    3   
           a    b    c    d

a	
Housing Color	
Code	Description
B	Black
G	Gray

b	
Voltage	
Code	Description
12	12V AC/DC
24	24V AC/DC
10	120V AC
20	240V AC

c	
Combined Module Type <sup>(1) (2)</sup>	
Code	Description
DC	Steady incandescent with sound
DD	Two-circuit steady incandescent with sound
FC	Flashing incandescent with sound
TC	Steady LED with sound
GC	Flashing LED with sound
BC	Strobe with sound

d	
Lens Color	
Code	Description
3	Green
4	Red
5	Amber
6	Blue
7	Clear
8	Yellow

(1) The single-circuit combined light/with sound module uses one circuit in a stack. It can be used with a maximum of four light modules and must be placed in the top position of a stack.  
 (2) The two-circuit combined light/with sound module uses two circuits in a stack. It can be used with a maximum of three light modules and must be placed in the top position of a stack.

## Transducer-style Sound Modules

- UL Type 12, IP54
- Up to 15 tones
- Adjustable volume from 85...103 dB at 1 m (3.3 ft)
- Adjustable frequency and speed tone

### Sound Module



855T -  B    10    SA1   
           a    b    c

a	
Housing Color	
Code	Description
B	Black
G	Gray

b	
Voltage	
Code	Description
12	12V AC/DC
24	24V AC/DC
10	120V AC
20	240V AC

c	
Module Type	
Code	Description
SA1	Single-tone sound module with 13 different tones <sup>(1)</sup>
TA1	Dual-tone sound module with 15 sets of dual-tone combinations <sup>(2)</sup>

(1) This module uses one circuit in a stack. It can be used with maximum of any four light modules and must be placed on top of stack.  
 (2) This module uses two circuits in a stack. It can be used with a maximum of any three light modules and must be placed on top of stack.

## Piezo-style Sound Modules

- Single- or dual-circuit versions
- High/low volume selectable via DIP switch

855T -  $\frac{G}{a}$   $\frac{24}{b}$   $\frac{TA2}{c}$

a	
Housing Color	
Code	Description
B	Black
G	Gray

b	
Voltage	
Code	Description
12	12V AC/DC
24	24V AC/DC
10	120V AC
20	240V AC

c	
Module Type	
Code	Description
SA2	<ul style="list-style-type: none"> <li>• Single-tone/single-circuit piezo-style module with continuous or pulsing tones (modified by a DIP switch)</li> <li>• Type 12</li> <li>• Volume 97 dB or 85 dB @ 1 m (3.3 ft)</li> </ul>
TA2	<ul style="list-style-type: none"> <li>• Dual-tone/dual-circuit piezo-style module with continuous or pulsing tone (modified by energizing one or two circuits of sound modules)</li> <li>• Type 12</li> <li>• Volume 97 dB or 85 dB @ 1 m (3.3 ft)</li> </ul>
SA3	<ul style="list-style-type: none"> <li>• Single-circuit piezo-style module with continuous or pulsing tones (modified by a DIP switch)</li> <li>• Type 4/4X/13</li> <li>• Volume 107 dB or 92 dB @ 1 m (3.3 ft)</li> </ul>
TA3	<ul style="list-style-type: none"> <li>• Dual-circuit piezo-style module with continuous or pulsing tone (modified by energizing one or two circuits of sound modules)</li> <li>• Type 4/4X/13</li> <li>• Volume 107 dB or 92 dB @ 1 m (3.3 ft)</li> </ul>

## Standard and DeviceNet Stack Light Bases

Surface-mount Base with Cap



Vertical-mount Base with Cap



10 cm Pole-mount Base



25 cm Quick-release Base



80 cm Powder-coated Stainless Steel Pole-mount Base with Cap



Surface-mount, Conduit-mount Base with Stranded Wire Cable



Vertical-mount Base with Micro-connect Cable and Cap



10 cm Pole-mount Base with Micro-connect Cable and Cap



40 cm Powder-coated Stainless Steel Pole-mount Base



855T - DL1 B PM10 C  
a b c c

a	
Network Connection Type	
Code	Description
Blank	No network connection
DM1	DeviceNet® micro-connect with 1 m (3.3 ft) cable <sup>(1)</sup>
DS2	DeviceNet® stranded wire connect with 2 m (6.6 ft) cable <sup>(1)</sup>
DL1	DeviceNet mini-connect with 1 m (3.3 ft) cable <sup>(1)</sup>

b	
Housing Color	
Code	Description
B	Black
G	Gray

c	
Base Type	
Code	Description
CB	Surface mount – 1/2 in. NPT conduit mount
SB	Surface mount – PG16 conduit mount
RB	Surface mount – M20 x 1.5 conduit mount
VM	Vertical mount
TM	25 mm diameter tube mount
PM10	10 cm (3.9 in.) aluminum pole mount base
PM25	25 cm (9.8 in.) aluminum pole mount base
PM40	40 cm (15.7 in.) aluminum pole mount base
SPM10	10 cm (3.9 in.) stainless steel pole mount <sup>(2)</sup>
SPM25	25 cm (9.8 in.) stainless steel pole mount <sup>(2)</sup>
SPM40	40 cm (15.7 in.) stainless steel pole mount <sup>(2)</sup>
SPM60	60 cm (23.6 in.) stainless steel pole mount <sup>(2)</sup>
SPM80	80 cm (31.5 in.) stainless steel pole mount <sup>(2)</sup>
MM10	10 cm (3.9 in.) quick release base
MM25	25 cm (9.8 in.) quick release base
MM40	40 cm (15.7 in.) quick release base

d	
Cap Option	
Code	Description
Blank	No cap
C	Cap included

(1) DeviceNet bases DL1, DM1, or DS2 can only be used with 24V AC/DC and they are only available with Base Types CB, SB, VM, TM, PM10, or PM25.  
 (2) Stainless steel tube is powder-coated in black.



## Accessories

See [Accessories – Bulletin 855E/855T on page 78](#).

## Specifications

**IMPORTANT** Based on the weight and style and mounting, tower lights are subject to damage from shock vibration. The following specifications are reference guidelines for maximum acceptable conditions.

**Table 116 - Mechanical**

Attribute		Shock [G]	Vibration [G]
Standard bases	Surface-mount base or 10 cm (3.9 in.) aluminum pole base	1 module stack	5
		3 module stack	1.5
		5 module stack	0.75
	Vertical base or 25 cm (9.8 in.) aluminum pole base	1 module stack	3.5
		3 module stack	1.25
		5 module stack	0.5
DeviceNet bases	Surface-mount base or 10 cm (3.9 in.) aluminum pole base	1 module stack	5
		3 module stack	1.5
		5 module stack	0.75
	Vertical base or 25 cm (9.8 in.) aluminum pole base	1 module stack	3.5
		3 module stack	1.25
		5 module stack	0.5
Recommended wire size		0.5...2.5 mm <sup>2</sup> (22...14 AWG)	
Recommended terminal torque		0.8 N•m (7 lb•in)	

**Table 117 - Environmental**

Attribute	Value	
Ingress ratings	Light modules with cap and combined light/sound modules	UL Type 4/4X/13, IP65
	Sound modules (SA1, SA2, TA1, TA2)	UL Type 12, IP54
	Sound modules (SA3, TA3)	UL Type 4/4X/13, IP65
	Surface, vertical, tube mount, and On-Machine™ bases	UL Type 4/4X/13, IP65
	Pole-mount bases (aluminum)	UL Type 4/13, IP65
	Pole-mount bases (stainless steel)	UL Type 4/4X/13, IP65
Temperature ranges	Operating	-25...+70 °C (-13...+158 °F)
	Storage	-40...+85 °C (-40...+185 °F)

**Table 118 - Materials**

Part	Material
Bases, caps, lens covers, sound module housings, lenses, lamp sockets	Polycarbonate
Rubber seals and gaskets	Nitrile rubber
Pole (for aluminum pole assembly)	Aluminum
Pole base footing (for aluminum pole base)	Polycarbonate
Pole (for stainless steel assembly)	Powder-coated stainless steel
Pole base footing (for stainless steel pole base)	Zinc
Insulation sleeve (for pole insulation)	Polyolefin
Surface and vertical-mount pole connection box and magnetic mount housing	Polycarbonate
Mounting screw washers	Polypropylene
DeviceNet base grommet	Neoprene®
DeviceNet cable jackets	CPE (Chlorinated Polyethylene)
DeviceNet cable connectors	Santoprene®

Table 119 - Light Output

Device		Light Output			
		12V AC/DC	24V AC/DC	120V AC	240V AC
Steady incandescent		0.5 MSCP 6.3 Lumens	2.5 MSCP 31.4 Lumens	3.0 MSCP 37.7 Lumens	0.49 MSCP 6.2 Lumens
Flashing incandescent					
Strobe		3 J per lamp			
Steady/flashing socket mount LED	Red	900...2240 mcd			
	Green	900...1800 mcd			
	Amber	1400...3550 mcd			
	Blue	224...560 mcd			
	White and yellow	900...1800 mcd			

Table 120 - Operating Voltage

Device	Operating Voltage			
	12V AC/DC	24V AC/DC	120V AC	240V AC
Light modules and sound modules	12V AC/DC (±10%)	24V AC/DC (±10%)	110V AC, 50 Hz (±10%) 120V AC, 60 Hz (±10%)	230V AC, 50 Hz (±10%) 240V AC, 60 Hz (±10%)

Table 121 - Lamp Life Ratings (Design Life) Average Life Under Static, No Vibration, Conditions

Device	Lamp Life Rating			
	12V AC/DC	24V AC/DC	120V AC	240V AC
Incandescent modules <sup>(1) (2)</sup>	8000 hr	7000 hr	3000 hr	1600 hr
LED modules	100,000 hr			
Strobe modules	15,000 hr			
Sound modules	20,000 hr			

(1) First failures at about 35% of average life. Severe vibration can reduce life to 44% of average life.

(2) Flashing applications can reduce life to 50% of average life.

Table 122 - Current Consumption

Device		Current Consumption [mA]			
		12V AC/DC	24V AC/DC	120V AC	240V AC
Light only modules	Steady incandescent	208	271	58	23
	Steady or flashing LED	42	29	21	20
	Strobe	240	170	50	35
Light modules with sound	Steady incandescent/with sound	218	281	78	43
	Flashing incandescent/with sound	218	281	78	43
	Steady or flashing LED/with sound (red, amber, yellow)	100	62	22.5	20
	Steady or flashing LED/with sound (green, blue, white)	250	180	70	55
	Strobe/with sound	250	180	70	55
Transducer style sound modules	Single- and two-circuit modules	30	65	110V/50 Hz 120V/60 Hz 60 mA	230V/50 Hz 240V/60 Hz 60 mA
Piezo style sound modules	Single- and two-circuit modules	27	45	43	40
DeviceNet bases		—	70	—	—



**Table 123 - Flashing and Tone Frequency**

Attribute	Value
<b>Flashing Frequency (Light Only Modules)</b>	
Flashing incandescent modules	12V module approximately 1.5 Hz 24V, 120V, and 240V modules approximately 2 Hz Time ON/Time OFF = 1:1
Flashing LED modules	Approximately 1.5 Hz; Time On/Time OFF = 1:1
Strobe modules	Approximately 2 Hz (flash duration 1/50,000 second)
<b>Flashing and Tone Frequency (Light Modules/with Sound Set at Continuous Tone)</b>	
Tone frequency	Preset at 2400 Hz or 3300 Hz
Flashing incandescent/ with sound	12V module approximately 1.5 Hz 24V, 120V, and 240V modules approximately 1.6 Hz
Flashing LED/ with sound	Flashing frequency approximately 1.5 Hz
Strobe/with sound	Flashing frequency approximately 1.4 Hz
<b>Flashing and Tone Pulsing Frequencies (Light Modules/with Sound Set at Pulsing Tone)</b>	
Tone frequency	Preset at 2400 Hz or 3300 Hz
Steady incandescent/ with sound	Sound Pulsing Frequency – 1.5 Hz
Flashing incandescent/ with sound	Flashing and Pulsing Frequency the same for 12V module approximately 1.5 Hz, for 24V, 120V, and 240V modules approximately 1.6 Hz
Steady LED/ with sound	Sound Pulsing Frequency – 1.5 Hz
Flashing LED/ with sound	Flashing and Pulsing Frequency the same at 1.5 Hz
Strobe/with sound	Flashing and Pulsing Frequency the same at 1.4 Hz

**Table 124 - Decibel Rating (Sound Modules)**

Device	Decibel Rating <sup>(1)</sup>
Selectable tone sound module (SA1, TA1)	Maximum volume ranges from 64...103 dB(A) (volume adjustable) Based on tone that is selected for all settings except signal horn, which has a maximum of 80 dB(A)
Piezo sound module (SA2, TA2)	High 97 dB/Low 85 dB, selectable via DIP switch
Piezo sound module (SA3, TA3)	High 107 dB/Low 95 dB, selectable via DIP switch
Piezo light modules and light modules/with sound (set at continuous or pulsing tone)	High 107 dB/Low 95 dB, selectable via DIP switch

(1) All dB(A) ratings are determined at a distance of 1 m (3.3 ft) from sound module.

**Table 125 - Leakage Current Impact**

All light modules, sound modules, and light/sound modules can absorb up to 3 mA of leakage current from solid-state outputs without module activation. Some light and light modules with sound may not turn off completely when connected to solid-state outputs that emit leakage current. The following modules can be affected by an output module emitting a maximum of 3 mA. A dry contact can be used to reduce the effect of leakage current.

12V AC/DC, 24V AC/DC, 120V AC, 240V AC	All light/sound combination modules
--	-------------------------------------

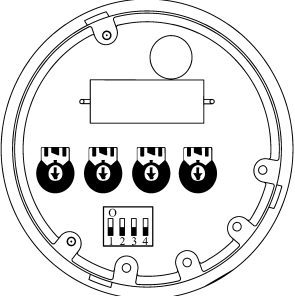












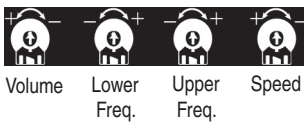













**Table 126 - DeviceNet Bases**

Attribute	Value
Communication rate options	125K, 250K, 500K, Autobaud

**Table 127 - Standards and Certifications**

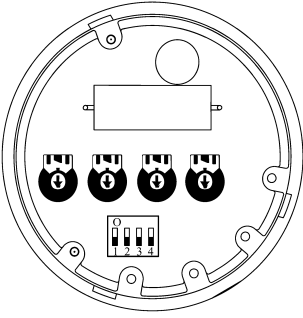



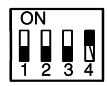


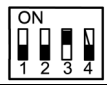


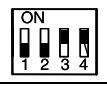


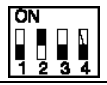


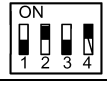
















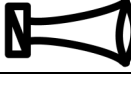








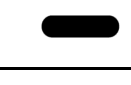

Standards Compliance	Certifications
<ul style="list-style-type: none"> <li>UL 508</li> <li>CSA C22.2 No. 14</li> <li>EN/IEC 60947-1</li> <li>EN/IEC 60947-5-1</li> </ul>	<ul style="list-style-type: none"> <li>cULus Listed (File No. E14840, Guides NKCR, NKCR7)</li> <li>CE Marked</li> </ul>

## Transducer Style Single-circuit Sound Module (SA1)

	DIP Switch Position	Tone Description	Speed [Hz]	Upper Frequency [Hz]	Lower Frequency [Hz]	Volume [dB(A)]	
<b>Adjustable Sound Settings</b>							
		Triangle Tone		7...22	1500	500	80...100
		Continuous Tone		—	(1)	500	83...100
		Interrupted Tone		0.5...1.5	(1)	500...1500	83...103
		Changing Tone		0.5...1.5	500...1500	500...1500	83...103
		Saw Tooth Tone Ascending		0.5...1.5	500...1500	500...1500	83...103
		Saw Tooth Tone Descending		0.5...1.5	500...1500	500...1500	83...103
<b>Rotated View of Sound Settings</b>							
		Sine wave Tone		0.5...1.5	500...1500	500...1500	82...102
		DIN-Emergency Signal	DIN 33404	1	1200	500	82...102
		Siren (Non-repeating)		2...4 s	1500	500	83...103
		Signal Horn Continuous Tone		—	(1)	100...350	64...80
		Three-tone Gong		2...4 s	660 550 440	660 550 440	76...95
		Two-tone Gong		2...4 s	550 440	550 440	75...93
		Gong		1...3 s	(1)	500...1500	75...93

(1) Set to maximum (+).

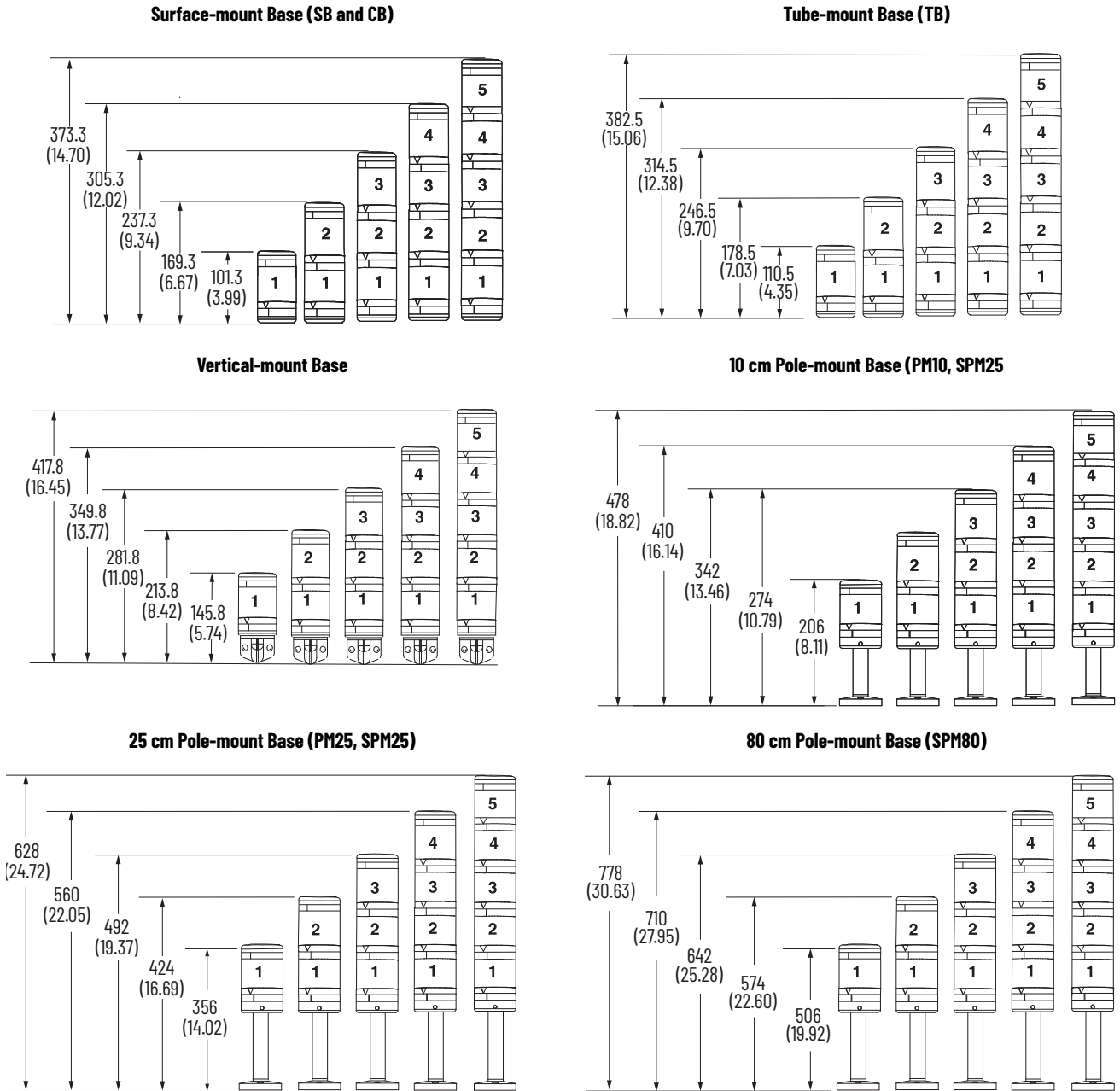
## Transducer Style Dual-circuit Sound Module (TA1)

	DIP Switch Position	Tone A	Tone B
<b>Adjustable Sound Settings</b>			
		Triangle Tone 	Continuous Tone 
		Continuous Tone 	Changing Tone 
		Continuous Tone 	Interrupted Tone 
		Interrupted Tone 	Three-tone Gong 
		Interrupted Tone 	Siren (Non-repeating) 
		Changing Tone 	DIN-Emergency Signal DIN 33404
		Saw Tooth Tone Ascending 	Continuous Tone 
<b>Rotated View of Sound Settings</b>			
 <p>Volume Lower Freq. Upper Freq. Speed</p>		Saw Tooth Tone Descending 	Interrupted Tone 
		Sine-wave Tone 	DIN-Emergency Signal DIN 33404
		DIN-Emergency Signal DIN 33404	Three-tone Gong 
		Siren (Non-repeating) 	Triangle Tone 
		Signal Horn Continuous Tone 	Continuous Tone 
		Three-tone Gong 	Sine-wave Tone 
		Two-tone Gong 	Two-tone Gong (Non-repeating) 
		Gong 	Continuous Tone 

## Approximate Dimensions

Dimensions in millimeters (inches). Dimensions are not intended to be used for manufacturing purposes.

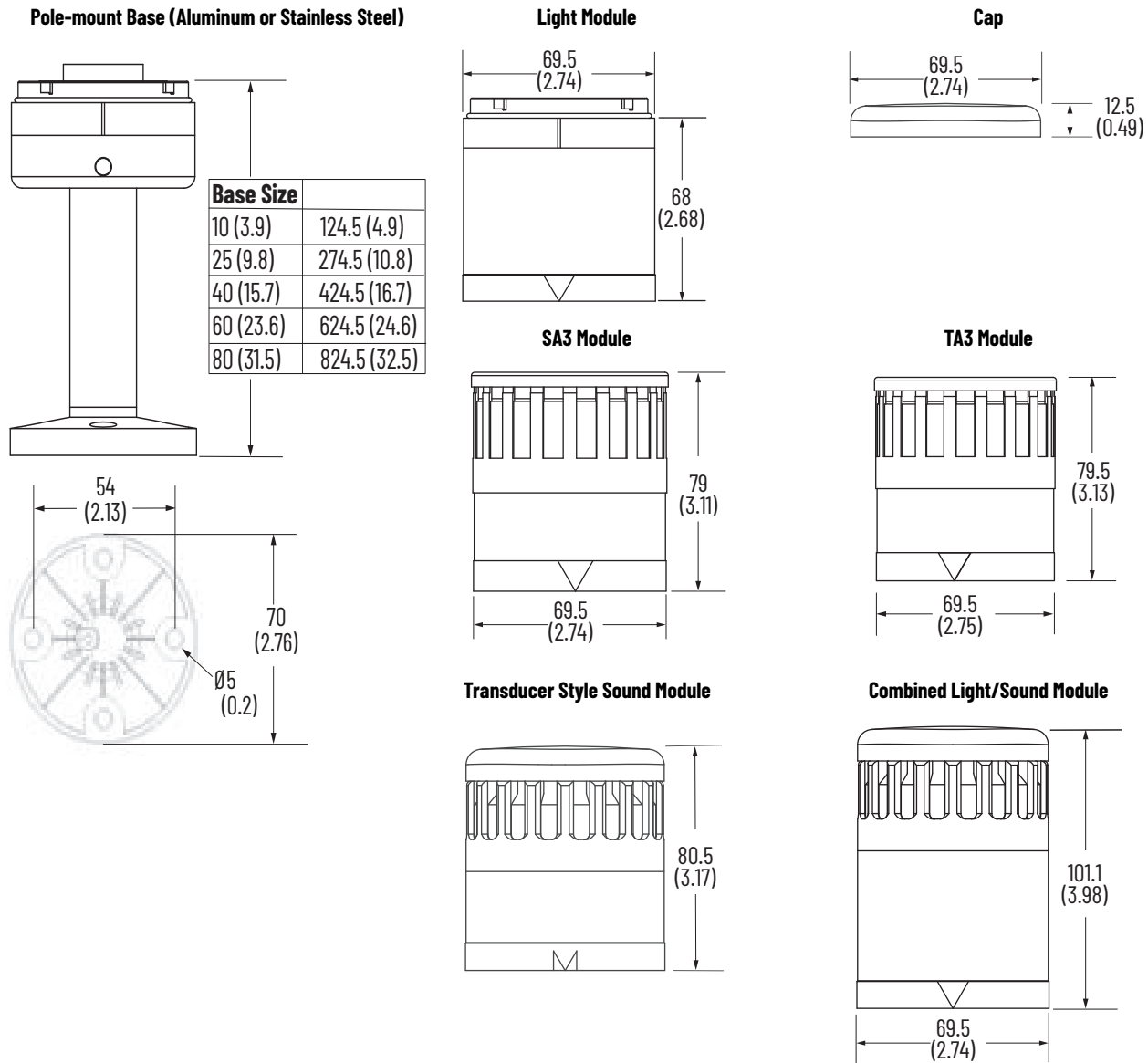
**Table 128 - Assembled Control Tower Lights – Light Modules Only or Light Modules with Sound Module on Top Position <sup>(1)</sup>**



(1) If a combined light/sound module is used, add 21.5 mm (0.8 in.) to vertical dimensions.

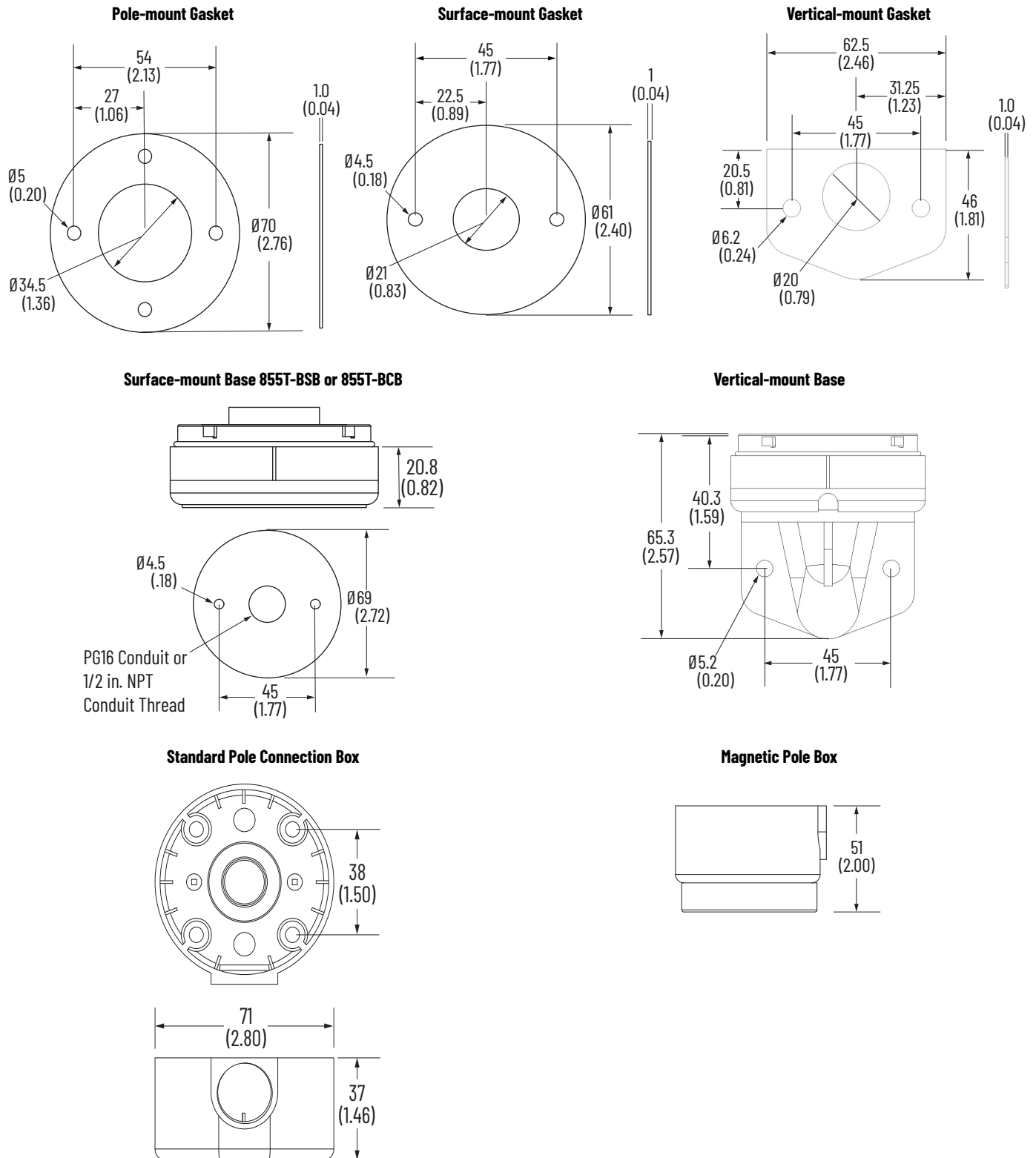
Dimensions in millimeters (inches). Dimensions are not intended to be used for manufacturing purposes.

**Table 129 - Component and Accessory Dimensions**



Dimensions in millimeters (inches). Dimensions are not intended to be used for manufacturing purposes.

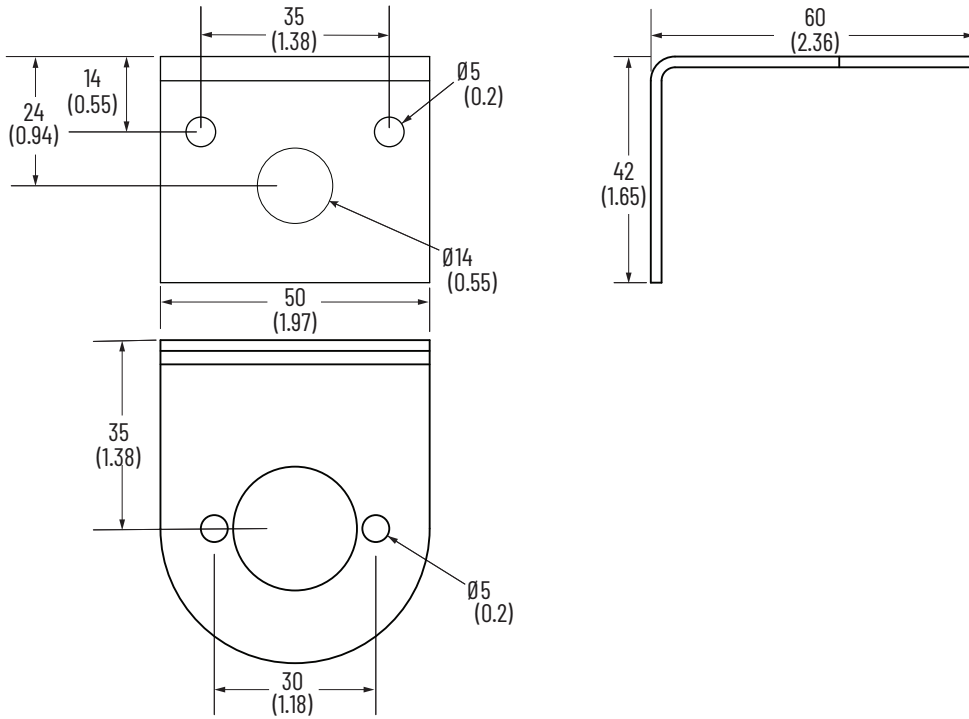
**Table 130 - Component and Accessory Dimensions**



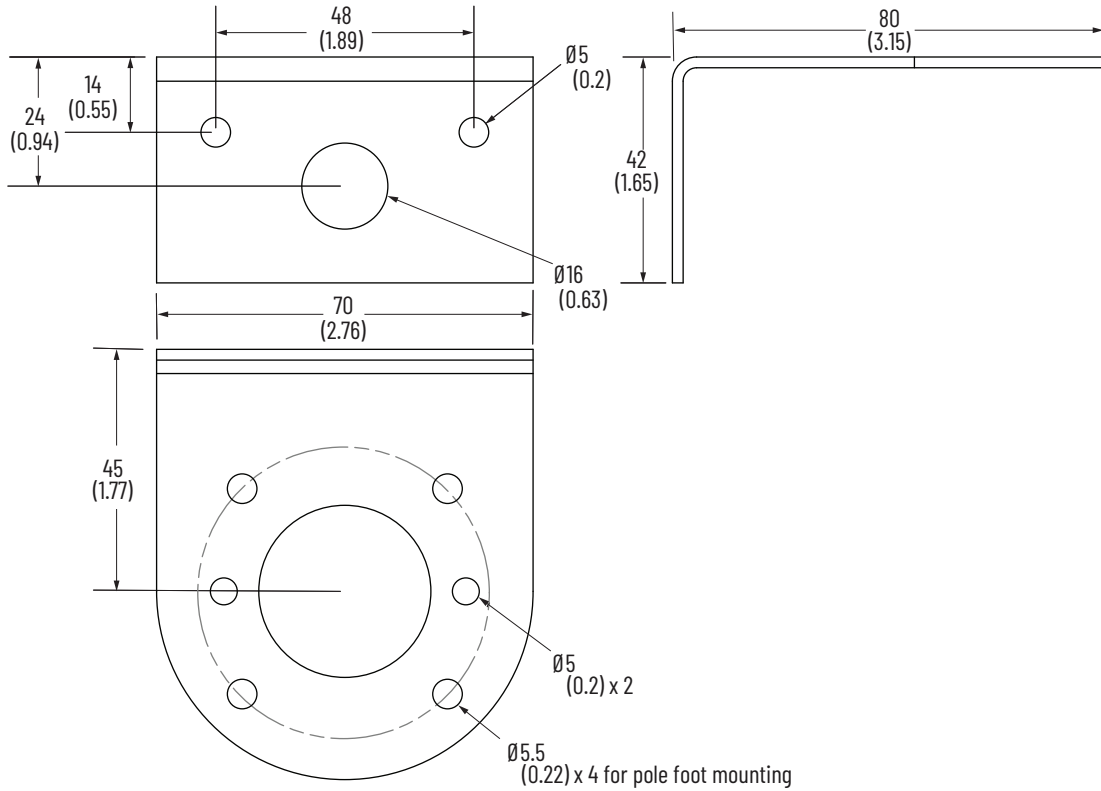
Dimensions in millimeters (inches). Dimensions are not intended to be used for manufacturing purposes.

**Table 131 - Component and Accessory Dimensions**

**Vertical-mount Bracket Cat. No. 855E-AVM**



**Vertical-mount Bracket Cat. No. 855T-AVM**



# Bulletin 856T 70 mm Control Tower Stack Lights

These devices give you the flexibility to meet the widest range of applications with a reduced number of components. This system uses a modular design that incorporates brighter LED illumination and a broad offering of sound technologies. All signals in the system are 24V AC/DC powered, which means that just three power modules can cover the entire system. They can be purchased as separate components or as a preconfigured, factory-assembled stack light for optimal flexibility.

## Light Modules

**Steady LED Module**



**Multi-function LED Module**



**Steady/Flashing Beacon Style**



856T - B T 4  
           a       b       c

a	
Housing Color	
Code	Description
B	Black

b	
Module Type	
Code	Description
T	Steady LED
B	Multi-function LED steady/flashing/strobe 1/strobe 2
R	Rotating LED
MC	7-color LED (RGB) <sup>(1)(2)</sup>
GB	Steady/flashing, non-stackable beacon style
SB	Strobe 1/strobe 2, non-stackable beacon style <sup>(3)</sup>
RB	Rotating LED, non-stackable beacon style <sup>(4)</sup>
MB	7-color LED (RGB), non-stackable beacon style <sup>(1)(2)</sup>

c	
Output Color	
Code	Description
3	Green
4	Red
5	Amber
6	Blue
7	Clear
8	Yellow
9	Magenta <sup>(5)</sup>
Blank	For use with Module Type MC and MB only

- (1) Output Color must be Blank (Table c).
- (2) Can use three circuits to display up to seven colors, two circuits to display three colors, or one circuit to display one color.
- (3) Can only be used with Output Color 4, 5, or 6 (Table c).
- (4) Can only be used with Output Color 4 or 5 (Table c).
- (5) Cannot be used with Module Type R and GB (Table b).