Bulletin 855T — 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 preassembled 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(1)
DN	Steady incandescent
FN	Flashing incandescent
TL	Steady LED
GL	Flashing LED
RL	Rotating LED, simulated with fixed LEDs(2)
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 (1) (2)	
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 (1)
TA1	Dual-tone sound module with 15 sets of dual-tone combinations (2)

(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 – G 24 TA2
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**
SA2	• Single-tone/single-circuit piezo-style module with continuous or pulsing tones (modified by a DIP switch) • Type 12 • Volume 97 dB or 85 dB @ 1 m (3.3 ft)
TA2	• Dual-tone/dual-circuit piezo-style module with continuous or pulsing tone (modified by energizing one or two circuits of sound modules) • Type 12 • Volume 97 dB or 85 dB @ 1 m (3.3 ft)
SA3	• Single-circuit piezo-style module with continuous or pulsing tones (modified by a DIP switch) • Type 4/4X/13 • Volume 107 dB or 92 dB @ 1 m (3.3 ft)
TA3	• Dual-circuit piezo-style module with continuous or pulsing tone (modified by energizing one or two circuits of sound modules) • Type 4/4X/13 • Volume 107 dB or 92 dB @ 1 m (3.3 ft)

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

40 cm Powder-coated Stainless Steel Pole-mount Base

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

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

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

Vertical-mount Base with Micro-connect Cable and Cap

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 (1)
DS2	DeviceNet stranded wire connect with 2 m (6.6 ft) cable (1)
DL1	DeviceNet mini-connect with 1 m (3.3 ft) cable (1)

b	
Housing Color	
Code	**Description**
B	Black
G	Gray

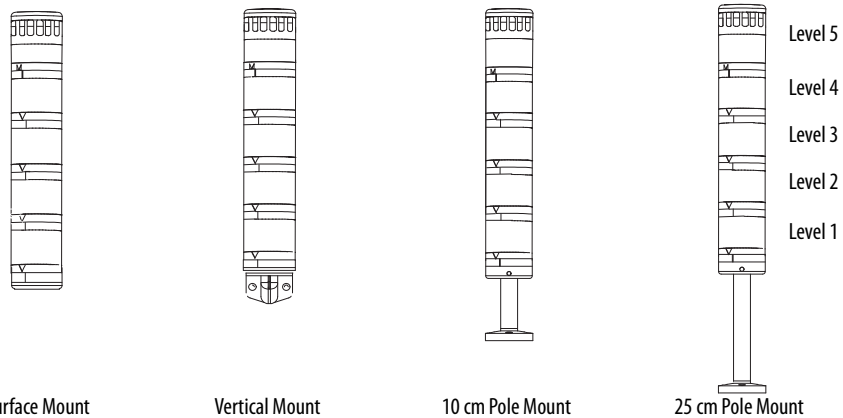
c	
Base Type	
Code	**Description**
CB	Surface mount—1/2 in. NPT conduit mount
SB	Surface mount — PG16 conduit mount
RB	Surface mount — M20 x 1.5 conduit mount
VM	Vertical mount
TM	25 mm diameter tube mount
PM10	10 cm (3.9 in.) aluminum pole mount base
PM25	25 cm (9.8 in.) aluminum pole mount base
PM40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

Pre-configured Control Tower Lights, 1…5 Modules



Surface Mount | Vertical Mount | 10 cm Pole Mount | 25 cm Pole Mount

855	TS	–	DL1	B	24	Y	4	L	5	B	3	F	7	Y	6
	a		b	c	d	e	f	e	f	e	f	e	f	e	f
						(Level 1, e+f)		(Level 2, e+f)		(Level 3, e+f)		(Level 4, e+f)		(Level 5, e+f)	

a	
Base Type	
Code	**Description**
TC	Surface mount 1/2 in. NPT conduit
TS	Surface mount PG16 conduit
TV	Vertical mount
TP	10 cm (3.9 in.) pole mount
TE	25 cm (9.8 in.) pole mount
TM	25 mm diameter tube mount

b	
Network Options (1)	
Code	**Description**
Blank	Standard
DL1	DeviceNet mini-connect with 1 m (3.3 ft) cable
DM1	DeviceNet micro-connect with 1 m (3.3 ft) cable
DS2	DeviceNet stranded wire connect with 2 m (6.6 ft) cable

c	
Housing Color	
Code	**Description**
B	Black
G	Gray

(1) DeviceNet bases DL1, DM1, or DS2 can only be used with 24V AC/DC.

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

e	
Module Type	
Code	**Description**
D	Steady incandescent
F	Flashing incandescent
Y	Steady LED
L	Flashing LED
B	Strobe
T	Steady incandescent with sound (1)
H	Flashing incandescent with sound (1)
J	Dual-circuit steady incandescent with sound
E	Steady LED with sound (1)
G	Flashing LED with sound (1)
Z	Strobe with sound (1)
A	Transducer single-circuit sounder UL Type 12, IP54 (1)
W	Transducer dual-circuit sounder UL Type 12, IP54 (1)
P	Single-circuit piezo alarm
Q	Dual-circuit piezo alarm

f	
Lens Color/Sound	
Code	**Description**
1	Sound module (2)
3	Green
4	Red
5	Amber
6	Blue
7	Clear
8	Yellow

(1) Only one sound module or light module/with sound can be assembled per stack. These modules must be placed in the top position.

(2) Sound module from Table f can only be selected with single-tone or two-tone module types from Table e.

Accessories

See Accessories — Bulletin 855E/855T on page 72.

Specifications

Table 112 - Mechanical

Attribute			Based on the weight and style of mounting; tower lights are subject to damage from shock and vibration. The following are reference guidelines for maximum acceptable conditions.	
			Shock [G]	**Vibration [G]**
Standard Bases	Surface-mount Base or 10 cm (3.9 in.) Aluminum Pole Base	One module stack	150	5
		Three module stack	45	1.5
		Five module stack	35	0.75
	Vertical Base or 25 cm (9.8 in.) Aluminum Pole Base	One module stack	95	3.5
		Three module stack	30	1.25
		Five module stack	20	0.5
DeviceNet Bases	Surface-mount Base or 10 cm (3.9 in.) Aluminum Pole Base	One module stack	50	5
		Three module stack	45	1.5
		Five module stack	35	0.75
	Vertical Base or 25 cm (9.8 in.) Aluminum Pole Base	One module stack	50	3.5
		Three module stack	30	1.25
		Five module stack	20	0.5
Recommended Wire Sizes			0.5…2.5 mm^2 (22…14 AWG)	
Recommended Terminal Torque			0.8 N•m (7 lb•in)	

Table 113 - 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 114 - 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	CPR Chlorinated Polyethylene
DeviceNet Cable Connectors	Santoprene®

Table 115 - Light Output

Device		Light Output			
		12V AC/DC	24V AC/DC	120V ACC	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 116 - 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 117 - 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[1] [2]	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 118 - 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 119 - 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
Strobe Modules	Approximately 2 Hz (flash duration 1/50,000 second)
Flashing and Tone Frequency (Light Modules/with Sound Set at Continuous Tone)	
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
Flashing and Tone Pulsing Frequencies (Light Modules/with Sound Set at Pulsing Tone)	
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 120 - Decibel Rating (Sound Modules)

Device	Decibel Rating (1)
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 121 - 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

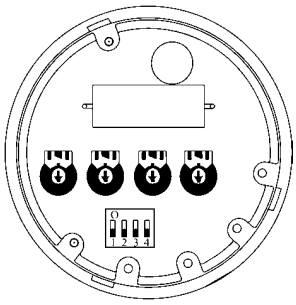
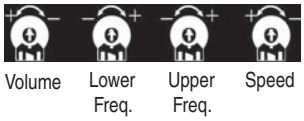
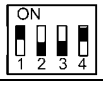
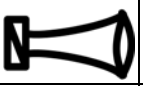
Table 122 - DeviceNet Bases

Attribute	Value
Communication Rate Options	125K, 250K, 500K, Autobaud

Table 123 - Standards and Certifications

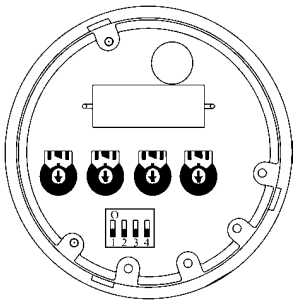
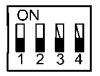
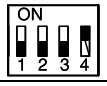
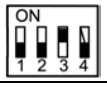
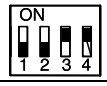
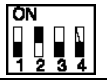
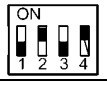
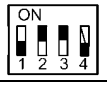
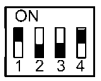
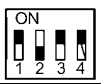
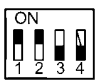
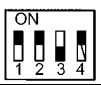
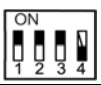
Attribute	Bulletin 855T — 70 mm Control Tower Stack Lights
Standards Compliance	• UL 508 • CSA C22.2 No. 14 • EN/IEC 60947-1 • EN/IEC 60947-5-1
Certifications	• c-UL-us Listed (File No. E14840, Guides NKCR, NKCR7) • CE Marked

Transducer Style Single-circuit Sound Module (SA1)

	DIP Switch Position	Tone Description		Speed [Hz]	Upper Frequency [Hz]	Lower Frequency [Hz]	Volume [dB(A)]
 Adjustable Sound Settings		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
 Volume Lower Freq. Upper Freq. Speed Rotated View of Sound Settings		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		76…95
		Two-Tone Gong		2…4 s	550 440		75…93
		Gong		1…3 s	(1)	500…1500	75…93

(1) Set to maximum (+).

Transducer Style Dual-circuit Sound Module (TA1)

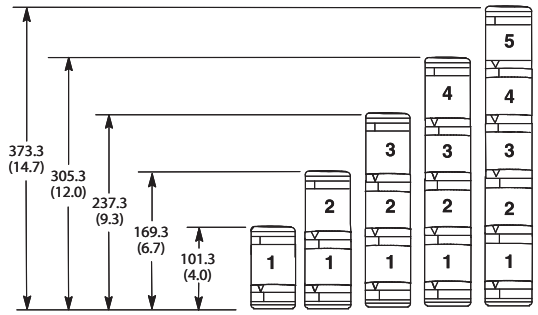
	DIP Switch Position	Tone A		Tone B	
 Adjustable Sound Settings		Triangle Tone		Continuous Tone	
		Continuous Tone		Changing Tone	
		Continuous Tone		Interrupted Tone	
		Interrupted Tone		Three-Tone Gong	
		Interrupted Tone		Siren (Non-Repeating)	
		Changing Tone		DIN-Emergency Signal	DIN 33404
		Saw Tooth Tone Ascending		Continuous Tone	
 Volume Lower Freq. Upper Freq. Speed Rotated View of Sound Settings		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

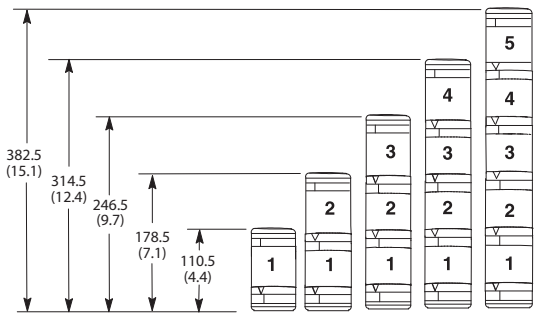
Dimensions in millimeters (inches). Dimensions are not intended to be used for manufacturing purposes.

Figure 9 - Assembled Control Tower Lights — Light Modules Only or Light Modules with Sound Module on Top Position (1)

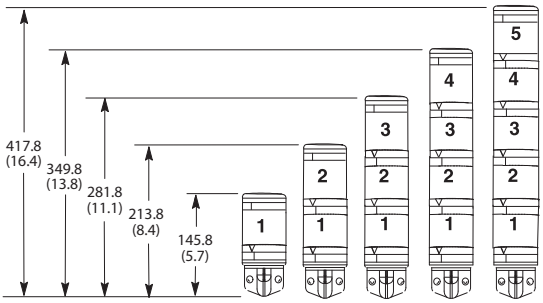
Surface-mount Base (SB and CB)



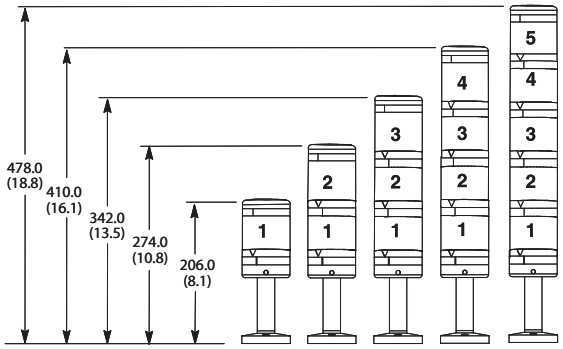
Tube-mount Base (TM)



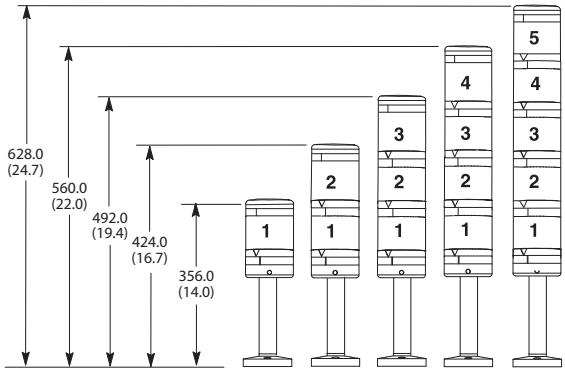
Vertical-mount Base (VM)



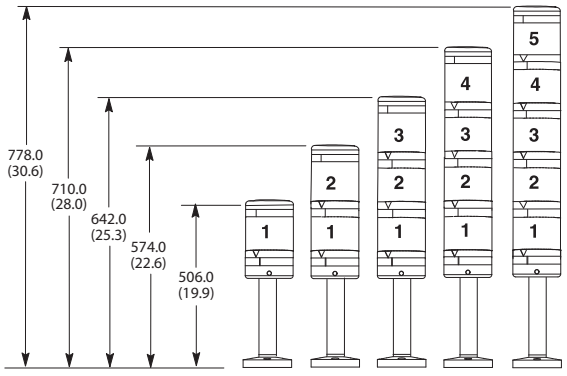
10 cm Pole-mount Base (PM10, SPM25)



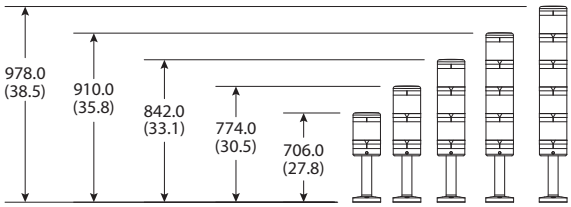
25 cm Pole-mount Base (PM25, SPM25)



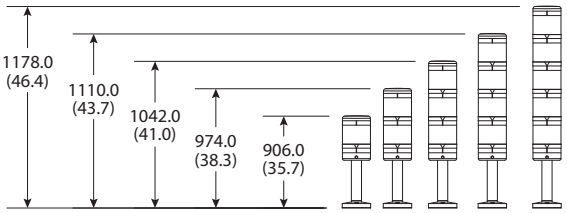
40 cm Pole-mount Base (PM40, SPM40)



60 cm Pole-mount Base (SPM60)



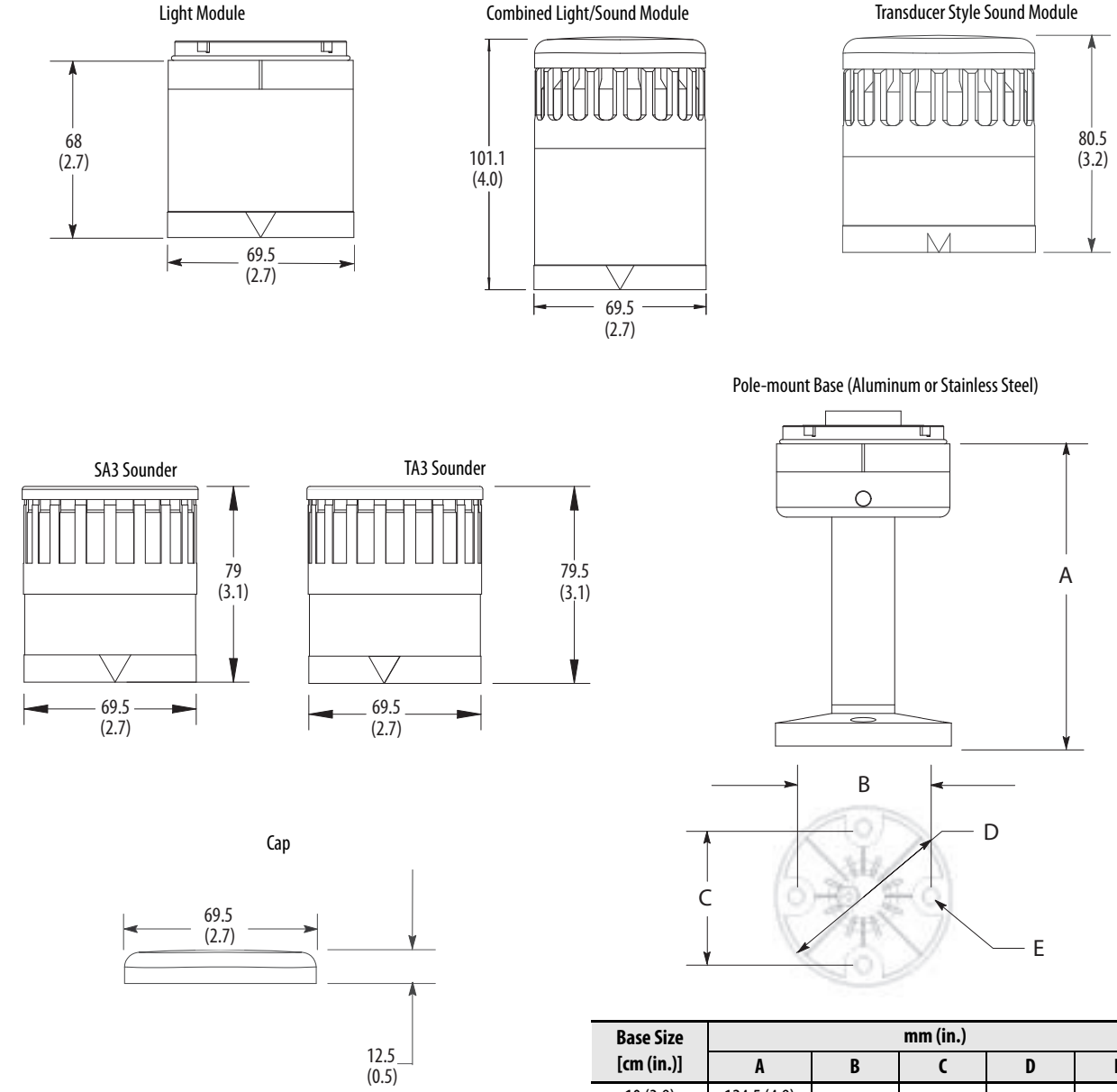
80 cm Pole-mount Base (SPM80)



(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.

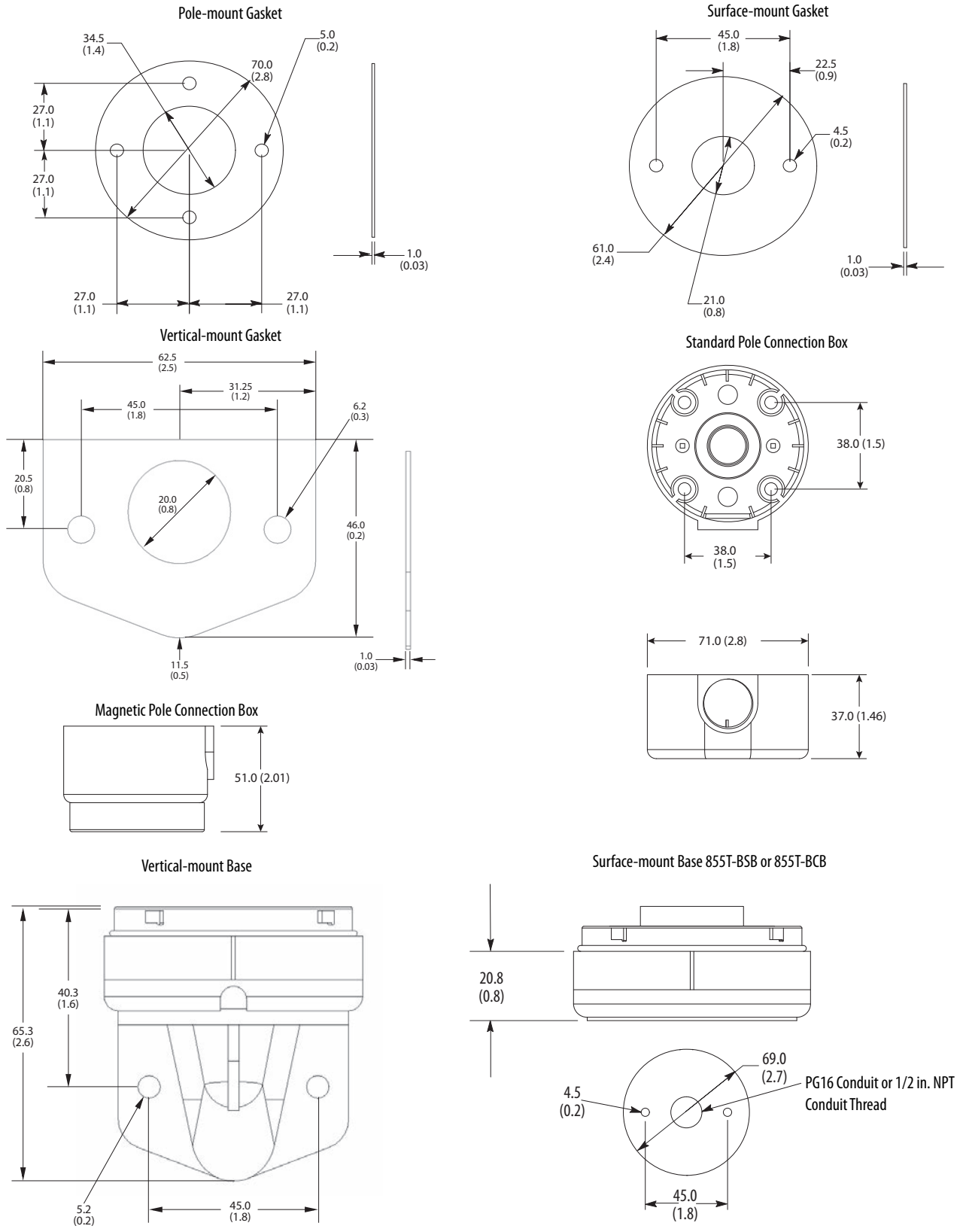
Figure 10 - Component and Accessory Dimensions



Base Size [cm (in.)]	mm (in.)				
	A	B	C	D	E
10 (3.9)	124.5 (4.9)	54.0 (2.1)	54.0 (2.1)	70.0 (2.8)	5.0 (0.2)
25 (9.8)	274.5 (10.8)				
40 (15.7)	424.5 (16.7)				
60 (23.6)	624.5 (24.6)				
80 (31.5)	824.5 (32.5)				

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

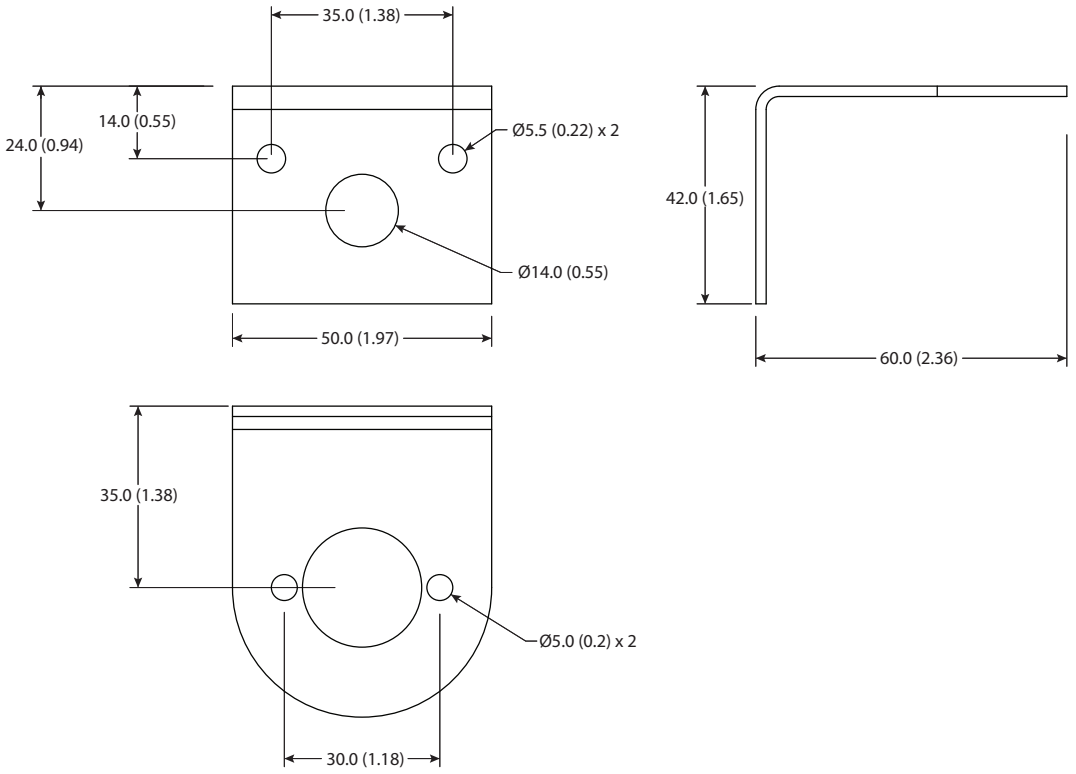
Figure 11 - Component and Accessory Dimensions



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

Figure 12 - Component and Accessory Dimensions

Catalog Number 855E-AVM Vertical-mount Bracket



Catalog Number 855T-AVM Vertical-mount Bracket