

Bulletin 855T — 70 mm Control Tower™ Stack Lights

Light Modules

855T – $\frac{B}{a}$ $\frac{10}{b}$ $\frac{FN}{c}$ $\frac{4}{d}$



Red Flashing Incandescent (Black Housing)

a

Housing Color	
Code	Description
B	Black
G	Grey

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

Module Type	
Code	Description
XN	Steady no-lamp‡
DN	Steady incandescent
FN	Flashing incandescent
TL	Steady LED
GL	Flashing LED
RL	Rotating LED, simulated with fixed LEDs§
BR	Strobe

d

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

‡ Use only with Voltage Code 00. Accepts LED module or incandescent lamp.

§ Only available with Voltage Codes 10 or 24, and Color Codes 3, 4, or 5.

Single-Circuit Combined Light Module with Piezo Sounder ★

All modules contain a selected light option with a sound device that operates simultaneously. The Piezo-style sound module 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.

Two-Circuit Combined Light Module with Piezo Sounder ♣

All modules contain two circuits enabling separate operation of light or sound. The Piezo style sounder can be switched to pulsing or continuous, 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 – $\frac{B}{a}$ $\frac{10}{b}$ $\frac{DC}{c}$ $\frac{3}{d}$

a

Housing Color	
Code	Description
B	Black
G	Grey

b

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

c

Combined Module Type	
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

★ 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.

♣ 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
- Adjustable volume @ from 85...103 dB @ 1 meter
- Up to 15 tones
- Adjustable frequency and speed tone

855T – $\frac{B}{a}$ $\frac{10}{b}$ $\frac{SA1}{c}$



Sound Module

a

Housing Color	
Code	Description
B	Black
G	Grey

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★
TA1	Dual-tone sound module with 15 sets of dual-tone combinations‡

★ 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.

‡ 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	Grey

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 or 85 dB @ 1 m
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 or 85 dB @ 1 m
SA3	• Single-circuit piezo-style module with continuous or pulsing tones modified by a DIP switch • Type 4/4X/13 • Volume 107 or 92 dB @ 1 m
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 or 92 dB @ 1 m

Standard and DeviceNet Stack Light Bases



Surface-Mount Base with Cap



Vertical-Mount Base with Cap



10 cm Aluminum 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 d

a

Network Connection Type	
Code	Description
Blank	No network connection
DM1	DeviceNet micro-connect with 1 m cable★
DS2	DeviceNet stranded wire connect with 2 m cable★
DL1	DeviceNet mini-connect with 1 m cable★

b

Housing Color	
Code	Description
B	Black
G	Grey

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 aluminum pole mount
PM25	25 cm aluminum pole mount
PM40	40 cm aluminum pole mount
SPM10	10 cm stainless steel pole mount‡
SPM25	25 cm stainless steel pole mount‡
SPM40	40 cm stainless steel pole mount‡
SPM60	60 cm stainless steel pole mount‡
SPM80	80 cm stainless steel pole mount‡
MM10	10 cm quick release base
MM25	25 cm quick release base
MM40	40 cm quick release base

d

Cap Option	
Code	Description
Blank	No cap
C	Cap included

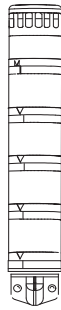
★ DeviceNet bases DL1, DM1, or DS2 can only be used with 24V AC/DC and they are only available with Base Types CB, SB, VM, TM, PM10, or PM25.

‡ Stainless Steel tube is powder-coated in black.

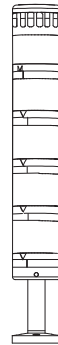
Pre-Configured Control Tower Lights, One to Five Modules



Surface Mount



Vertical Mount



10 cm Pole Mount



25 cm Pole Mount

Level 5
Level 4
Level 3
Level 2
Level 1

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 e f
 (Level 1) (Level 2) (Level 3) (Level 4) (Level 5)
 e+f e+f e+f e+f 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 pole mount
TE	25 cm pole mount
TM	25 mm diameter tube mount

d

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

f

Lens Color	
Code	Description
1	Sound module§
3	Green
4	Red
5	Amber
6	Blue
7	Clear
8	Yellow

b

Network Options	
Code	Description
Blank	Standard
DL1	DeviceNet mini-connect with 1 m cable★
DM1	DeviceNet micro-connect with 1 m cable★
DS2	DeviceNet stranded wire connect with 2 m cable★

e

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

c

Housing Color	
Code	Description
B	Black
G	Grey

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

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

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

Mechanical Ratings					
Shock and Vibration		Based on the weight and style of mounting; tower lights are subject to damage from shock and vibration. Listed below are reference guidelines for maximum acceptable conditions.			
		1 Module Stack	3 Module Stack	5 Module Stack	
Standard Bases	Surface Mount Base or 10 cm Aluminum Pole Base	150 G Shock 5 G Vibration	45 G Shock 1.5 G Vibration	35 G Shock 0.75 G Vibration	
	Vertical Base or 25 cm Aluminum Pole Base	95 G Shock 3.5 G Vibration	30 G Shock 1.25 G Vibration	20 G Shock 0.5 G Vibration	
DeviceNet Bases	Surface Mount Base or 10 cm Aluminum Pole Base	50 G Shock 5 G Vibration	45 G Shock 1.5 G Vibration	35 G Shock 0.75 G Vibration	
	Vertical Base or 25 cm Aluminum Pole Base	50 G Shock 3.5 G Vibration	30 G Shock 1.25 G Vibration	20 G Shock 0.5 G Vibration	
Recommended Wire Sizes		0.5...2.5 mm ² (22...14 AWG)			
Recommended Terminal Torque		0.8 N•m (7 lb•in)			
Environmental Ratings					
Ingress Ratings	Light Modules with Cap and combined Light/Sound Modules	IP65/UL Type 4/4X/13			
	Sound Modules (SA1, SA2, TA1, TA2)	IP54/UL Type 12			
	Sound Modules (SA3, TA3)	IP65/UL Type 4/4X/13			
	Surface, Vertical, Tube Mount and On-Machine Bases	IP65/UL Type 4/4X/13			
	Pole Mount Bases (Aluminum)	IP65/UL Type 4/13			
	Pole Mount Bases (Stainless Steel)	IP65/UL Type 4/4X/13			
Temperature Ratings — All Products	Operating Temperature	-25...+70 °C (-13...+158 °F)			
	Storage Temperature	-40...+85 °C (-40...+185 °F)			
Materials					
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 pole 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			
Performance Ratings					
Description		12V AC/DC	24V AC/DC	120V AC	240V AC
Light Output	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	0.5 MSCP 6.3 Lumens	2.5 MSCP 31.4 Lumens	3.0 MSCP 37.7 Lumens	0.49 MSCP 6.2 Lumens
	Strobe	3 Joules per lamp			
	Steady, Flashing Socket Mount LED Red	900...2240 mcd			
	Steady, Flashing Socket Mount LED Green	900...1800 mcd			
	Steady, Flashing Socket Mount LED Amber	1400...3550 mcd			
	Steady, Flashing Socket Mount LED Blue	224...560 mcd			
	Steady, Flashing Socket Mount LED White and Yellow	900...1800 mcd			
Operating Voltage					
Description		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 50Hz (± 10%) 120V AC 60Hz (± 10%)	230V AC 50 Hz (± 10%) 240V AC 60 Hz (± 10%)
Lamp Life Ratings (Design Life) Average Life Under Static, No Vibration, Conditions					
Description		12V AC/DC	24V AC/DC	120V AC	240V AC
Incandescent Modules†§		8,000 hrs	7,000 hrs	3,000 hrs	1,600 hrs
LED Modules		100 000 hrs			
Strobe Modules		15 000 hrs			
Sound Modules		20 000 hrs			

† First failures at about 35% of average life. Severe vibration may reduce life to 44% of average life.

§ Flashing applications may reduce life to 50% of average life.

Current Consumption					
Description		12V AC/DC	24V AC/DC	120V AC	240V AC
Light Only Modules	Steady Incandescent	208 mA	271 mA	58 mA	23 mA
	Steady or Flashing LED	42 mA	29 mA	21 mA	20 mA
	Strobe	240 mA	170 mA	50 mA	35 mA
Light Modules/with Sound	Steady Incandescent/with Sound	218 mA	281 mA	78 mA	43 mA
	Flashing Incandescent/with Sound	218 mA	281 mA	78 mA	43 mA
	Steady or Flashing LED/with Sound (Red, Amber, Yellow)	100 mA	62 mA	22.5 mA	20 mA
	Steady or Flashing LED/with Sound (Green, Blue, White)	250 mA	180 mA	70 mA	55 mA
	Strobe/with Sound	250 mA	180 mA	70 mA	55 mA
Transducer Style Sound Modules	Single and Two Circuit Modules	30 mA	65 mA	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 mA	45 mA	43 mA	40 mA
DeviceNet Bases		—	70 mA	—	—
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		Flashing frequency approximately 1.5 Hz Time ON/Time OFF = 1:1			
Strobe Modules		Flashing frequency approximately 2 Hz (flash duration 1/50,000 second)			
Flashing and Tone Frequency (Light Modules/with Sound Set at Continuous Tone)					
Tone Frequency		Tone frequency is 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		Tone frequency is 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			
LED Steady/with Sound		Sound Pulsing Frequency — 1.5 Hz			
LED Flashing/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			
dB Rating (Sound Modules)					
All dB(A) ratings determined at a distance of 1 meter from sound module					
Selectable Tone Sound Module (SA1, TA1)		Maximum volume ranges from 64...103 dB(A) (volume adjustable) Based on tone 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			
Leakage Current Impact					
All light modules, sound modules, and light/sound modules are capable of absorbing 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 which emit leakage current. Listed below are modules that were affected by an output module emitting a maximum of 3 mA. A dry contact can be used to eliminate the effect of leakage current.					
12V AC/DC, 24V AC/DC, 120V AC, 240V AC		All light/sound combination modules			
DeviceNet Bases					
Baud Rate Options		125 K, 250 K, 500 K, Autobaud			

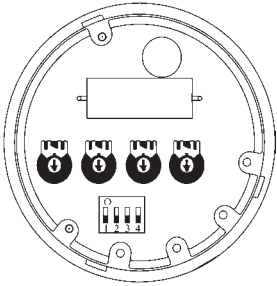
Standards Compliance

UL 508
 CSA C22.2 No. 14
 EN/IEC 60947-1
 EN/IEC 60947-5-1

Certifications

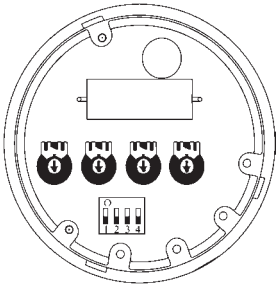
cULus Listed (File No. E14840,
 Guides NKCR, NKCR7)
 CE Marked

Transducer Style Single Circuit Sound Module (SA1)

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

★ Set to maximum (+).

Transducer Style Dual Circuit Sound Module (TA1)

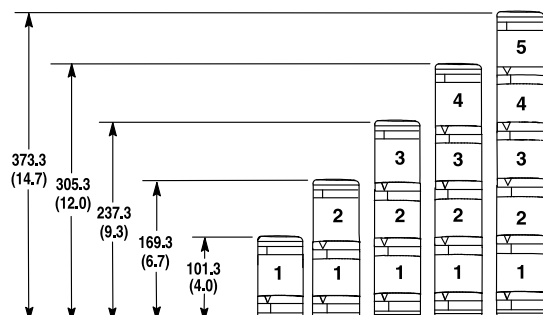
	DIP Switch Position	Tone A		Tone B	
 Adjustable Sound Settings		Triangle Tone		Continuous Tone	
		Continuous Tone		Changing Tone	
		Continuous Tone		Interrupted Tone	
		Interrupted Tone		Three-Tone Gong	
		Interrupted Tone		Siren (Non-Repeating)	
		Changing Tone		DIN-Emergency Signal	DIN 33404
 Volume 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

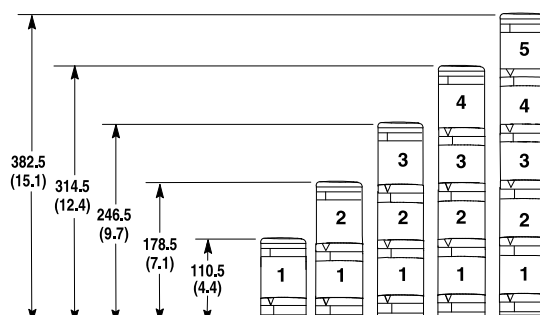
Dimensions in millimeters (inches). Dimensions are not intended to be used for manufacturing purposes.

Assembled Control Tower Lights — Light Modules Only or Light Modules with Sound Module located on top position★

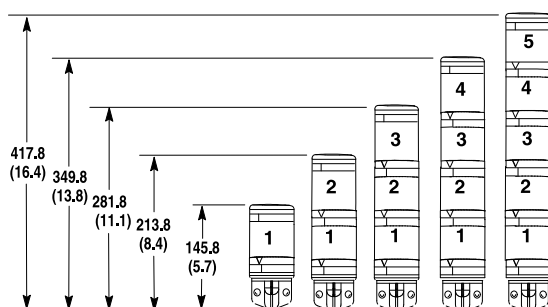
Surface Mount Base (SB and CB)



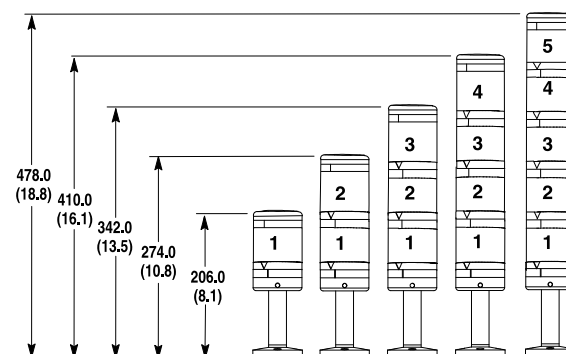
Tube Mount Base (TM)



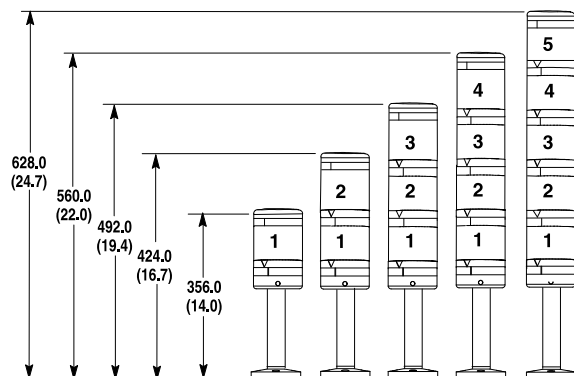
Vertical Mount Base (VM)



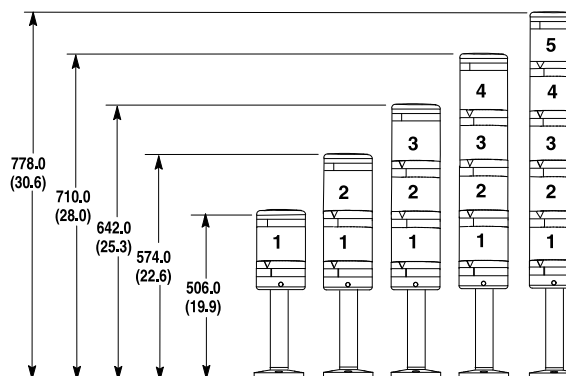
10 cm Pole Mount Base (PM10, SPM25)



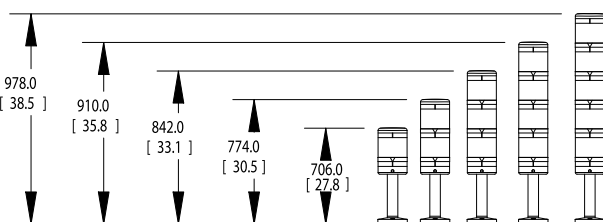
25 cm Pole Mount Base (PM25, SPM25)



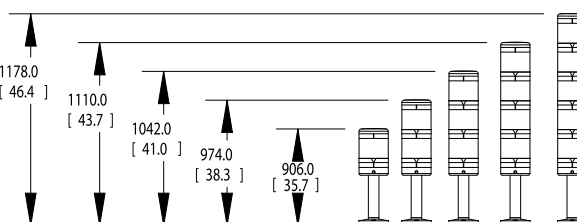
40 cm Pole Mount Base (PM40, SPM40)



60 cm Pole Mount Base (SPM60)



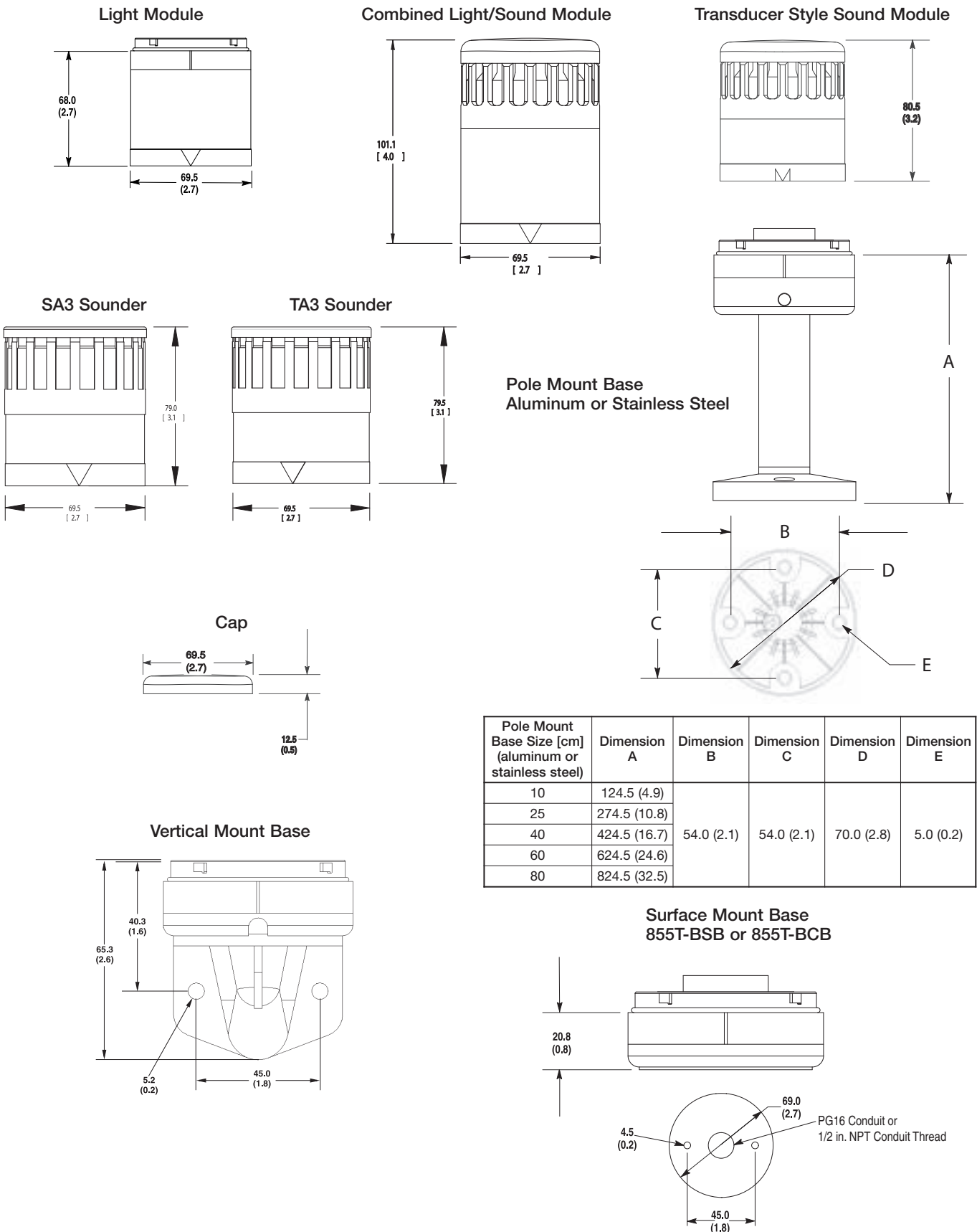
80 cm Pole Mount Base (SPM80)



★ If a combined Light/Sound module is used, add 21.5 mm (0.8 in.) to vertical dimensions.

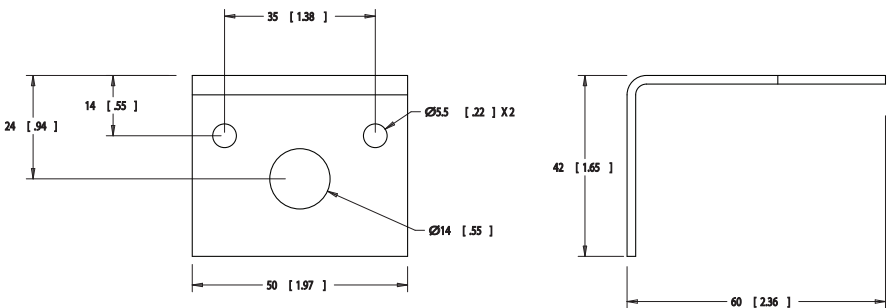
Dimensions in millimeters (inches). Dimensions are not intended to be used for manufacturing purposes.

Component and Accessory Dimensions

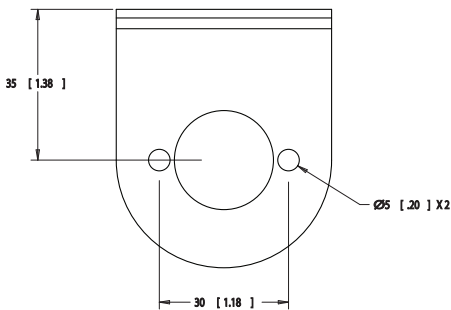
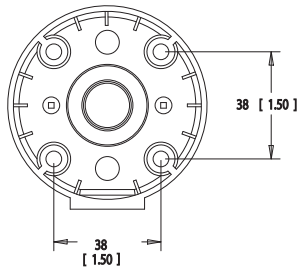


Dimensions in millimeters (inches). Dimensions are not intended to be used for manufacturing purposes.

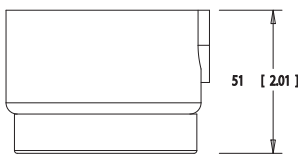
855E-AVM Vertical Mount Bracket



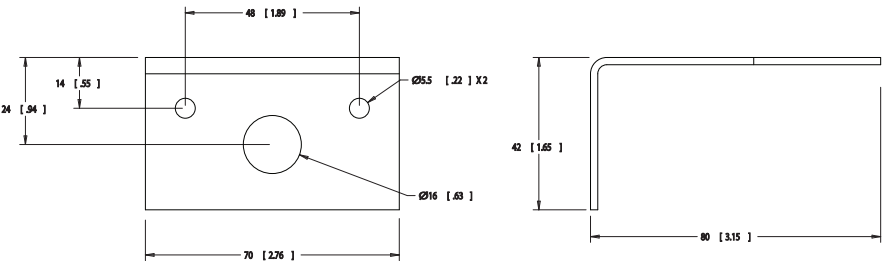
Standard Pole Connection Box



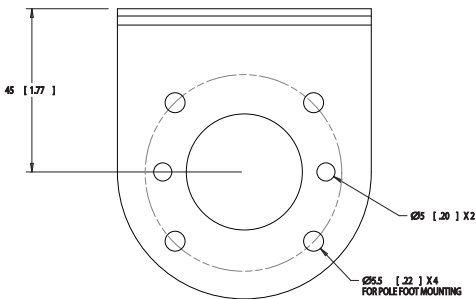
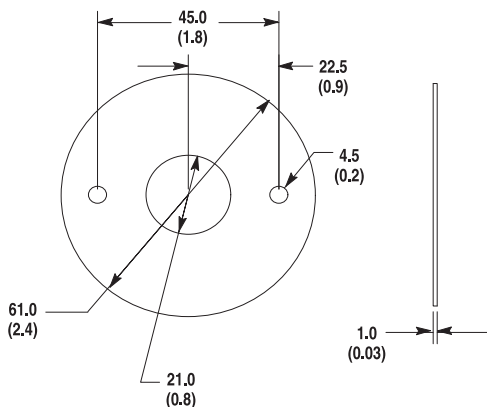
Magnetic Pole Connection Box



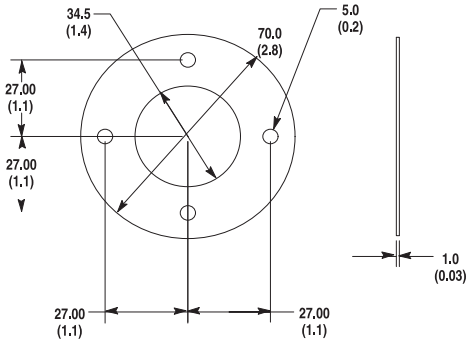
855T-AVM Vertical Mount Bracket



Surface Mount Gasket



Pole Mount Gasket



Vertical Mount Gasket

