

TL-50(70) (90)

Tower Lamp





TL Tower Lamp

Introduction

APT, established in 1993, has been specialized in the manufacturing of low voltage products such as pushbuttons and indicator and is one of the leading low voltage control device manufacturers in China. Through years of promotion and application, APT Series products have been widely serving dozens of industrial fields in China, including power, machinery, steel, metallurgy, petrochemical, transportation, water treatment, food, packaging, textile, harbor and construction etc. They have been successively chosen and used by the national key projects such as Qinshan Nuclear Power Plant, the Three Gorges Project, the Qinghai-Tibet Railway locomotives, Shenzhou V Spacecraft, Shanghai Pudong International Airport, National Stadium ("Bird's Nest")

In August, 2008, according to the asset purchase agreement between Shanghai APT Co., Ltd. (hereinafter referred to as "APT") and Siemens Electrical Apparatus Ltd. Suzhou (hereinafter referred to as "Siemens"), both parties have completed the business transaction. APT brand and related products will be under the operation of "Siemens" Group. As a new member of Siemens Group, APT will succeed and promote the business operation philosophy of the former "APT", i.e. customer orientation. With the quality management and R&D resources of Siemens, APT will focus on the manufacture of pushbuttons, indicator components and other important low voltage products such as the signal lighting, cam switch, relay, current transformer and limit switch etc. Furthermore, Siemens will develop its international business operation experience to strengthen the management and business development of APT and better serve Chinese and global market demands through its advanced technology.



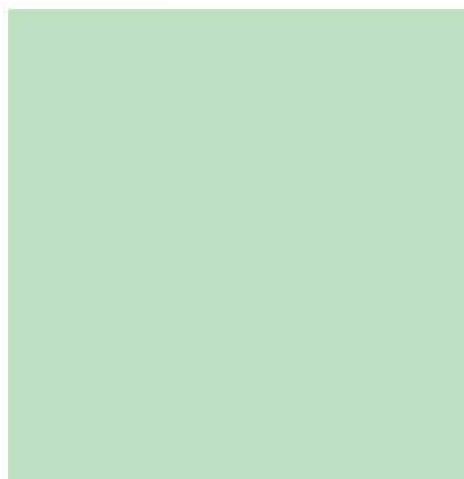
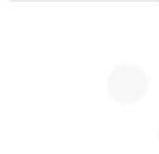
We will do better!

TL Tower lamp



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TL tower lamp

Selection principles for tower lamp

Based on the usage and working environment, etc., the tower lamps shall be selected according to the following factors:

- Surrounding brightness
- Distance from the observation point
- Service life and use cost of the light source
- Noise level and pollution level of the service environment; if there are violent vibrations or shocks
- Influence on the safety caused by the emergent problems, such as light source damage
- Convenience in usage and maintenance

Therefore, different products are selected based on the operating requirements and the environmental characteristics, while the maintenance convenience and economy shall be considered in any case.

Light source

1. Lamp bulb

The lamp bulb glows by heating the resistance wire during current flows.

The helical tungsten filament is normally used and the inert gas is injected into the bulb.

In general, the lamp bulb is featured by:

(1) If the voltage is 10% lower than the rated voltage of the lamp bulb, the service life can be increased by four times, the consumption power reduces to 85% and the brightness drops to around 30%.

(2) If the voltage is 10% higher than the rated voltage, the service life can be shortened by 30%, the consumption power increases around 16% and the brightness rises around 40%. Normally, the standard service life of the lamp bulb is 1,000 – 1,500 hours.

2. LED

Light-emitting diode (LED) is a solid light-emitting device by use of the semi-conductor electroluminescent effect, mainly made of semi-conductor materials such as GaAs and GaP.

Like the normal semi-conductors, the service life of LED is affected by various factors such as overvoltage and surrounding temperature, etc. However, unlike the lamp bulb whose filament will be thinner caused by volatilization and which will be subject to mechanical wear, it is shock and vibration resistance and longer service life without special aseismic structure. Furthermore, LED has higher photoelectric conversion efficiency, which shall be deemed as an energy-saving clean light source with longer service life.

Normally, the standard service life of LED is 100,000 hours.

3. Xenon lamp

The xenon lamp glows by the gas excited by instantaneous high-energy, with higher brightness.

Compared with the common lamp bulb, xenon lamp requires bringing in extremely high electric energy instantly and letting out enormous light intensity. As the low voltage for exciting xenon and the available accessory materials, Xe gas is used by this light source, hence the name.

The bulb of xenon lamp can be fixed by seismic restraint method, with good seismic resistance. The spectrum of xenon lamp is similar to that of natural light. Its working mode is explosion flashing, which is same with the camera's flash lamp. Therefore, it has extremely strong visuality.

Human perceptive volume

Human perceptive volume is different from the physical intensity of sound pressure (dB).

Under the same sound intensity (dB), if the tone (audio frequency, amplitude) is different, the perceptive volume is different. Generally, the higher the audio frequency is, the more fidget people will get. Therefore, the stronger the sound intensity (dB) is and the higher the tone (vibration and frequency) is, the louder the sound will be. That is, the higher the sound wave frequency is and the larger the amplitude is, the louder the human perceptive volume will be.

The company also provides the products with sound intensity of 115dB. The warning tone with higher frequency is louder, and vice versa.

TL-70 combined tower lamp



Performance features

- Protection class: IP65
- It shall combine different glowing forms and light sources as necessary (max. five optical elements or four optical elements plus one acoustic element)
- Glowing forms include permanent, flashing or blinking, rotating
- The lampshade is made of panlite which is heat-resisting and anti-knock
- Buzzer volume > 100dB (10cm from the sound source in the horizontal direction)

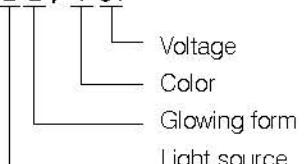
Specifications of optical elements

Appearance	Model	Specification	Rated voltage/current	Color
	TL-70LL	LED permanent	24V/40mA、110V/18mA、220V/18mA	Red Yellow Green Blue White
	TL-70LF	LED flashing	24V/40mA、110V/30mA、220V/40mA	
	TL-70LS	LED rotating	24V/30mA、110V/30mA、220V/30mA	
	TL-70SF	Xenon lamp explosion-flashing	24V/140mA、110V/40mA、220V/40mA	

Note: 24V and 110V are available for AC and DC; while 220V is only available for AC.

Model

TL-70 L L / r 31



23: AC/DC 24V 26: AC/DC 110V 31: AC 220V
Red: r green: g yellow: y blue: b white: w
L: permanent F: flashing or blinking S: rotating
L: LED S: Xenon lamp

TL tower lamp

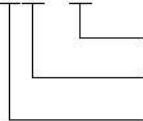
Specifications of acoustic elements

Pattern	Model	Specification	Rated voltage/current	Color
	TL-70BI	Buzzing (intermittent)	24V/30mA、110V/30mA、220V/30mA	Black
	TL-70BC	Buzzing (continuous)	24V/30mA、110V/30mA、220V/30mA	

Note: 24V and 110V are available for AC and DC; while 220V is only available for AC.

Model

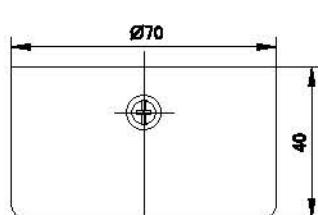
TL-70 B I / 31



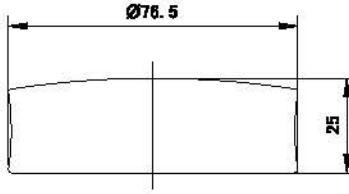
Voltage 23: AC/DC 24V 26: AC/DC 110V 31: AC 220V
Sound type I: Intermittent C: continuous
Sound source B: buzzing

Accessories

Terminal element TL-70L

Appearance	Appearance Dimension
	

Cover cap TL-70C

Appearance	Appearance Dimension
	 Used with the optical elements for protection

Vertical mounted base TL-SZ-1, TL-SZ-2, TL-SZ-3

Appearance	Model	Height	Appearance Dimension
	TL-SZ-1	60	
	TL-SZ-2	80	
	TL-SZ-3	110	

Folding mounted base TL-SZ-4

Appearance	Appearance Dimension

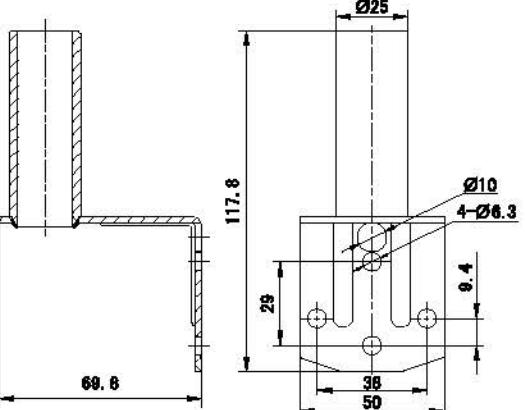
Side mounted base TL-CZ-1

Appearance	Appearance Dimension

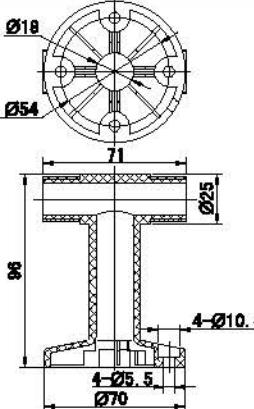
Used with TL-SZ-1, TL-SZ-3 or TL-SZ-4 for side installation

TL tower lamp

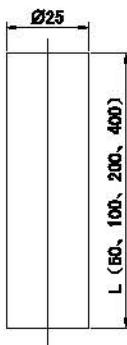
Side mounted base TL-CZ-3

Appearance	Appearance Dimension
	

Side mounted base TL-CZ-4

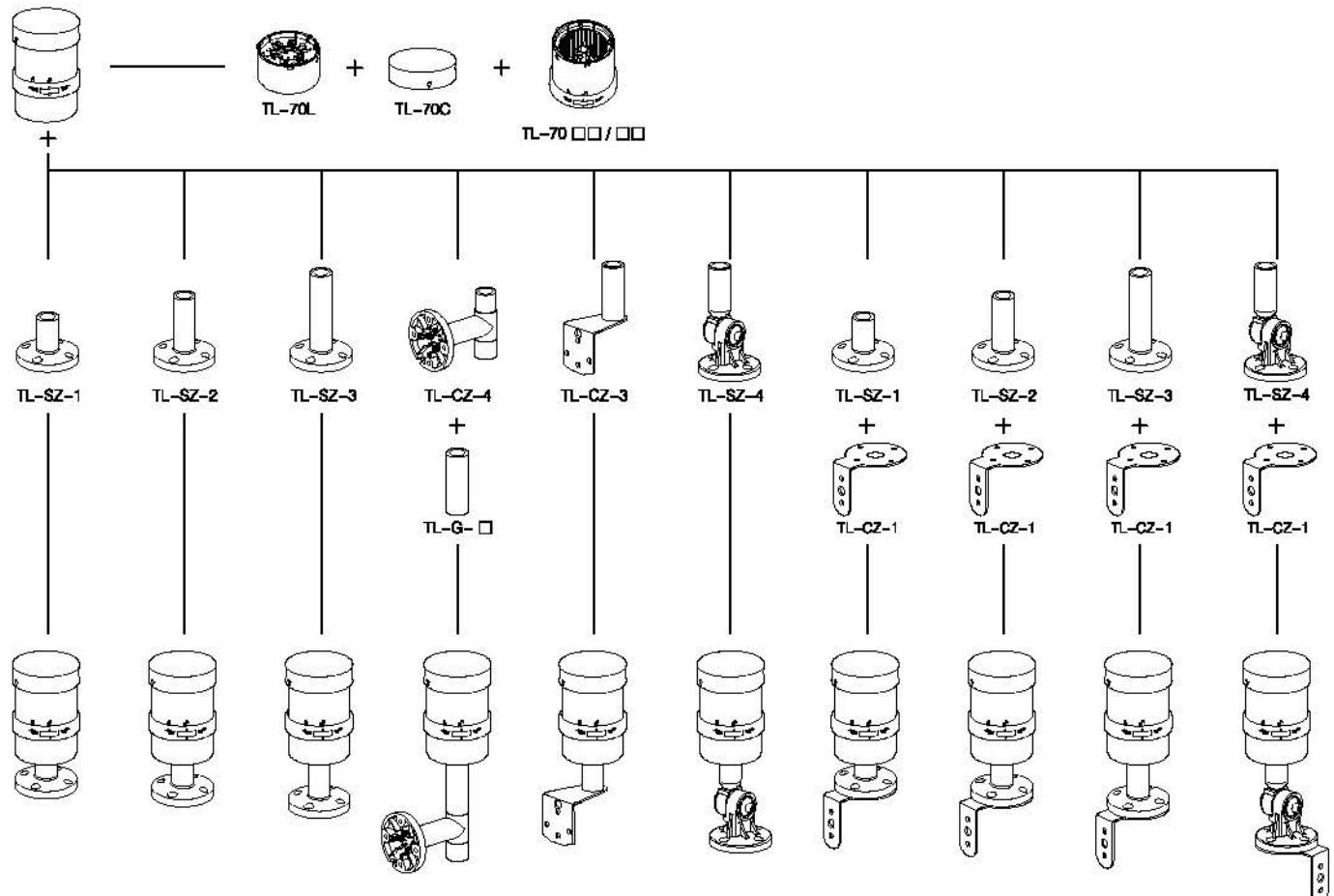
Appearance	Appearance Dimension
 Used with TL-G-□ for side installation	

Side mounted base TL-G-□

Appearance	Appearance Dimension
 Used with TL-CZ-4 for side installation	

Note: Provide the height of the product in the blank " □ "

Schematic diagram for accessory

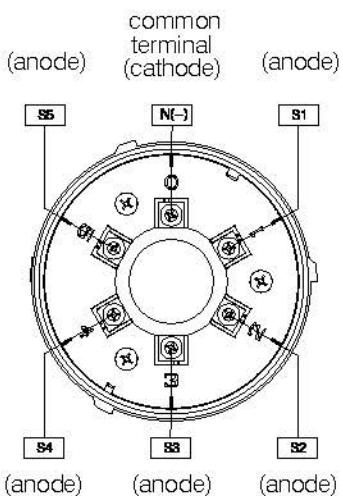


TL tower lamp

Installation instructions

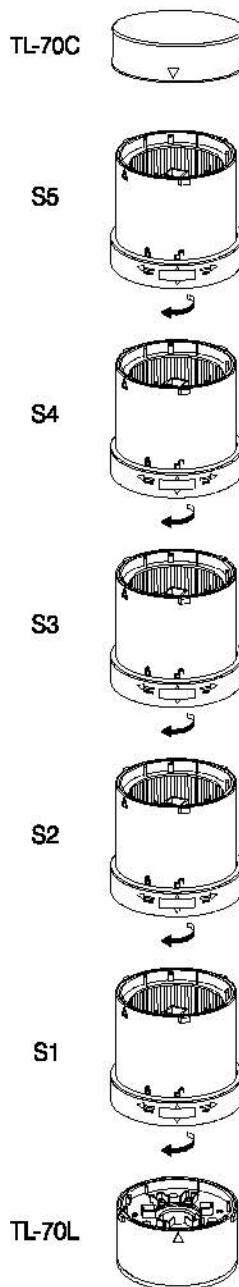
- The optical element combination with the same voltage class and different colors, light sources and glowing forms can be selected
- One tower lamp shall have five combined units in maximum, that is, five optical elements or four elements and one acoustic element
- Different mounting methods are available for different accessories

Wiring diagram

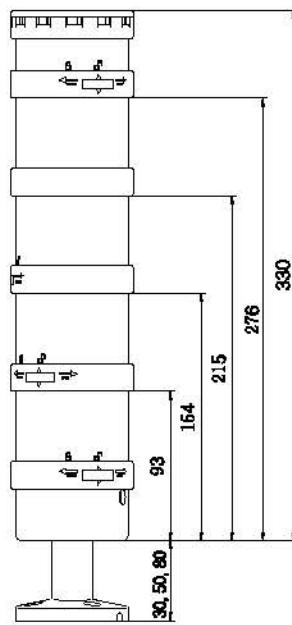


※ Cathode of common terminal, other anode terminal wiring must be through S1-S5

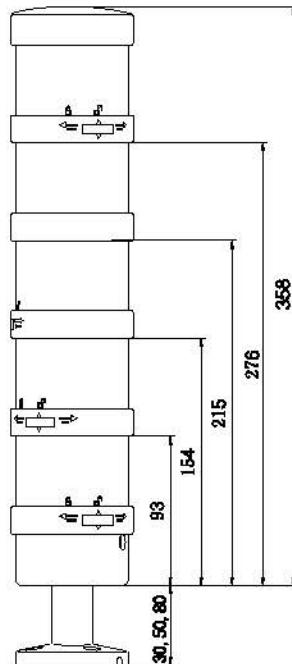
Installation diagram



Dimension



Dimension (4 optical elements + 1 acoustic element)



Dimension (5 optical elements)

TL-703 combined tower lamp



Performance features

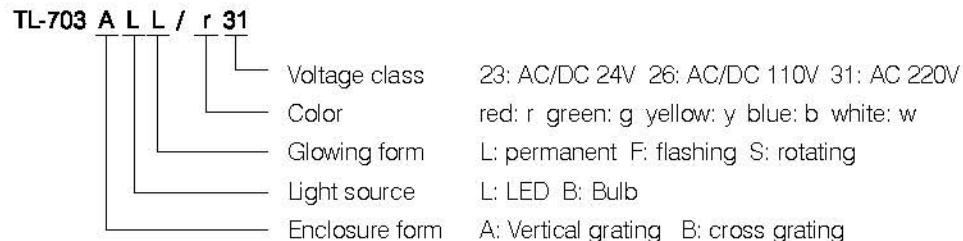
- Protection class: IP54
- It shall combine different glowing forms and light sources as necessary (max. five optical elements)
- Glowing forms include permanent, flashing and rotating.
- The lampshade is made of panlite which is heat-resisting and anti-knock
- Buzzer volume > 90dB (10cm from the sound source in the horizontal direction)

Specifications of optical elements

Appearance	Model	Specification	Rated voltage/current	Color
	TL-703A (B) LL	LED permanent	24V/60mA, 110V/17mA, 220V/17mA	Red Yellow Green Blue White
	TL-703A (B) LF	LED flashing	24V/60mA, 110V/24mA, 220V/32mA	
	TL-703A (B) LS	LED rotating	24V/28mA, 110V/26mA, 220V/32mA	
	TL-703A (B) BL	Bulb permanent	24V/300mA, 110V/70mA, 220V/40mA	
	TL-703A (B) BF	Bulb flashing	24V/300mA, 110V/70mA, 220V/40mA	

Note: 24V is available for DC; while 110V and 220V are only available for AC.

Model



TL tower lamp

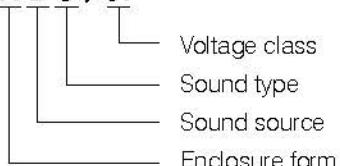
Specifications of acoustic elements

Picture	Model	Specification	Rated voltage/current	Color
	TL-703A (B) BI	Intermittent sound	24V/30mA, 110V/30mA, 220V/30mA	Black
	TL-703A (B) BC	Continuous sound		

Note: 24V is available for DC; while 110V and 220V are only available for AC.

Model

TL-703 A B C / 31



23: AC/DC 24V 26: AC/DC 110V 31: AC 220V

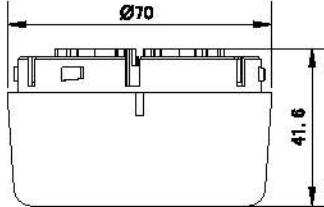
I: Intermittent C: Continuous

B: Buzzing

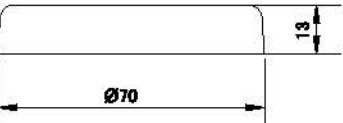
A: Vertical grating B: cross grating

Accessories

Terminal element TL-703L

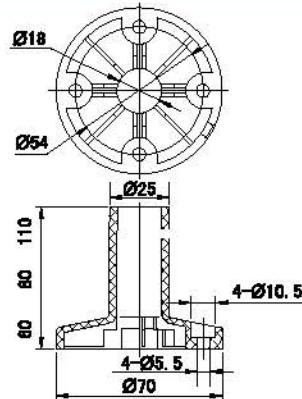
Appearance	Appearance Dimension
	

Cover cap TL-703C

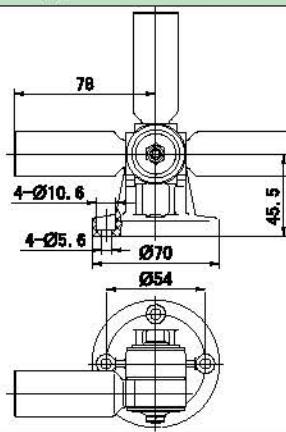
Appearance	Appearance Dimension
	

Used with the optical elements for protection

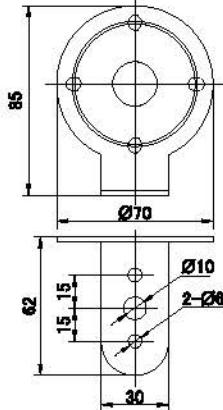
Vertical mounted base TL-SZ-1, TL-SZ-2, TL-SZ-3

Appearance	Model	Height	Appearance Dimension
	TL-SZ-1	60	
	TL-SZ-2	80	
	TL-SZ-3	110	

Folding mounted base TL-SZ-4

Appearance	Appearance Dimension
	

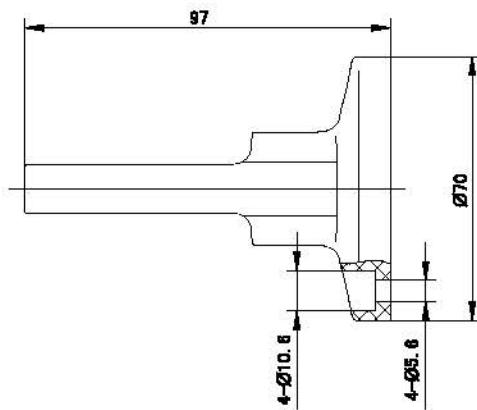
Side mounted base TL-CZ-1

Appearance	Appearance Dimension
	

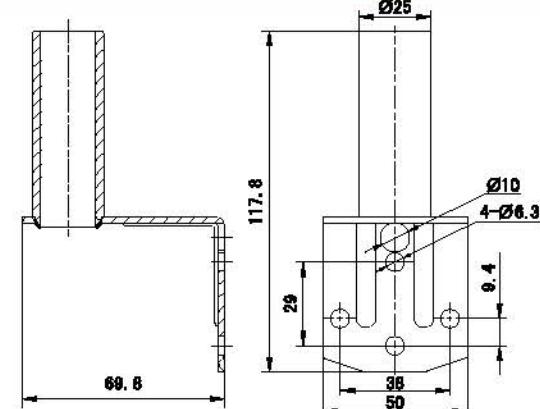
Used with TL-SZ-1, TL-SZ-2, TL-SZ-3 or TL-SZ-4 for side installation

TL tower lamp

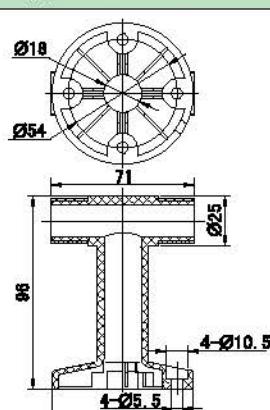
Side mounted base TL-CZ-2

Appearance	Appearance Dimension
	

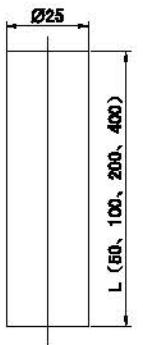
Side mounted base TL-CZ-3

Appearance	Appearance Dimension
	

Side mounted base TL-CZ-4

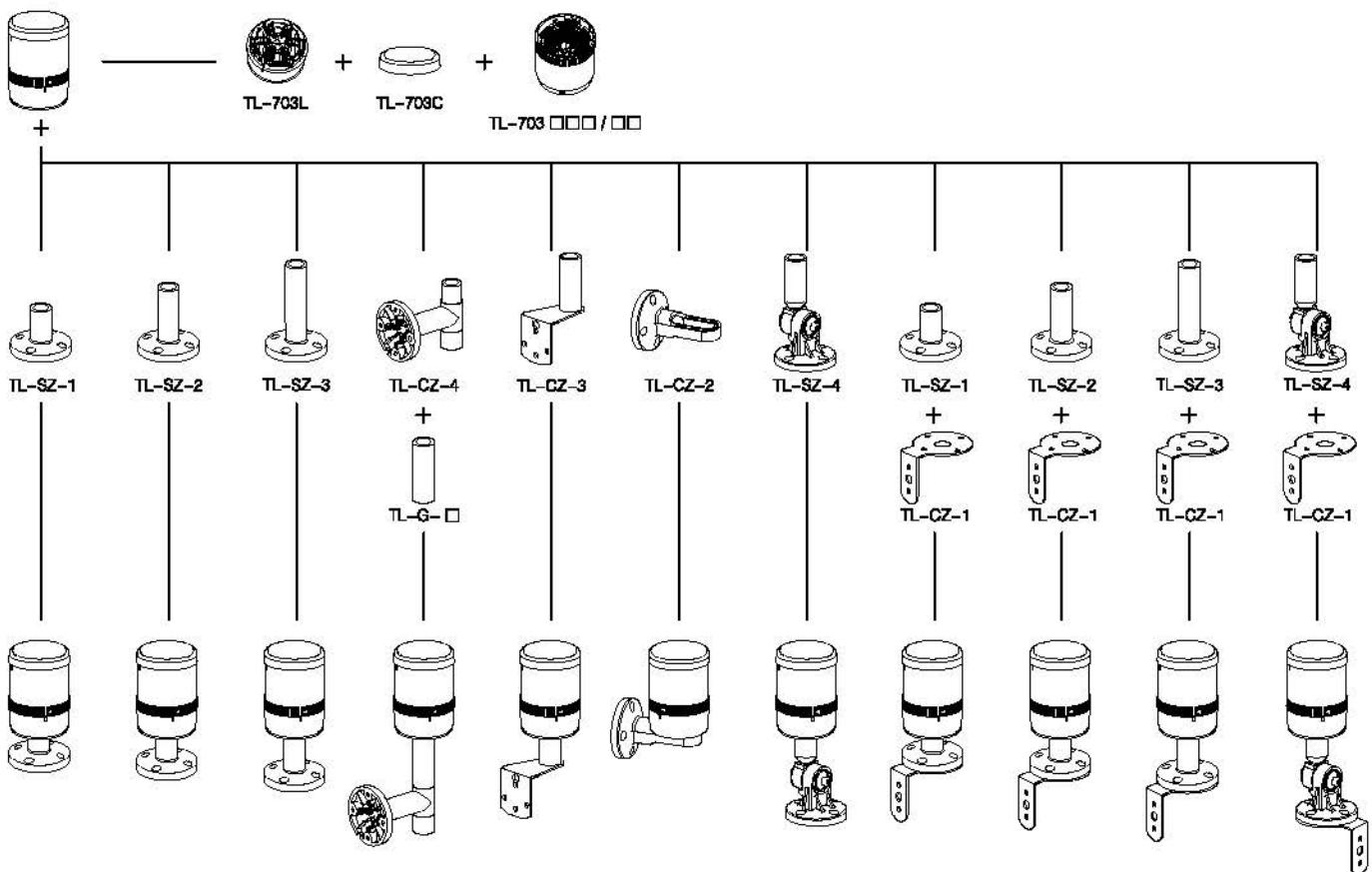
Appearance	Appearance Dimension
	 <p>Used with TL-G-□ for side installation</p>

Side mounted base TL-G-□

Appearance	Appearance Dimension
 <p>Used with TL-CZ-4 for side installation</p>	 <p>Ø25 L (50, 100, 200, 400)</p>

Note: Provide the height of the product in the blank " □ ".

Schematic diagram for accessory

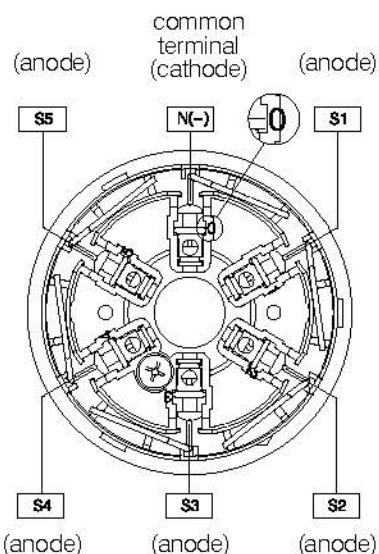


TL tower lamp

Installation instructions

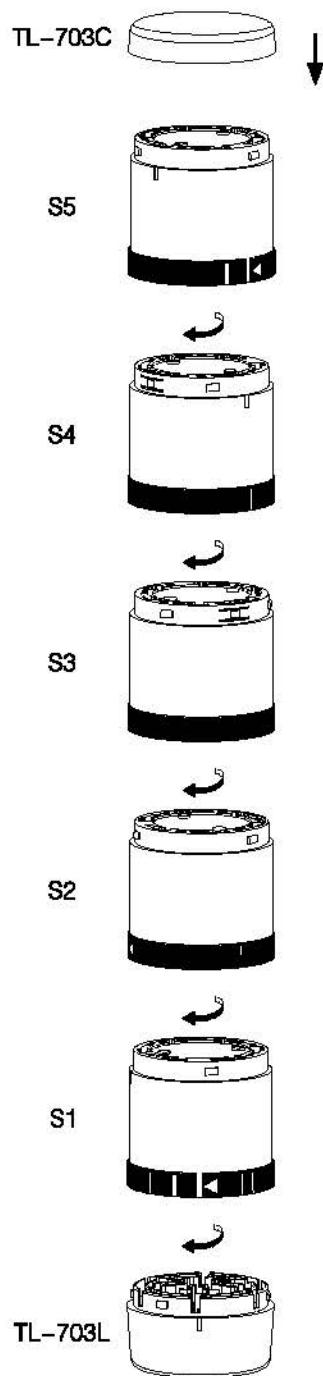
- The optical element combination with the same voltage class and different colors, light sources and glowing forms can be selected
- One tower lamp shall have five combined units in maximum, that is, five optical elements or four elements and one acoustic element
- Different mounting methods are available for different accessories

Wiring

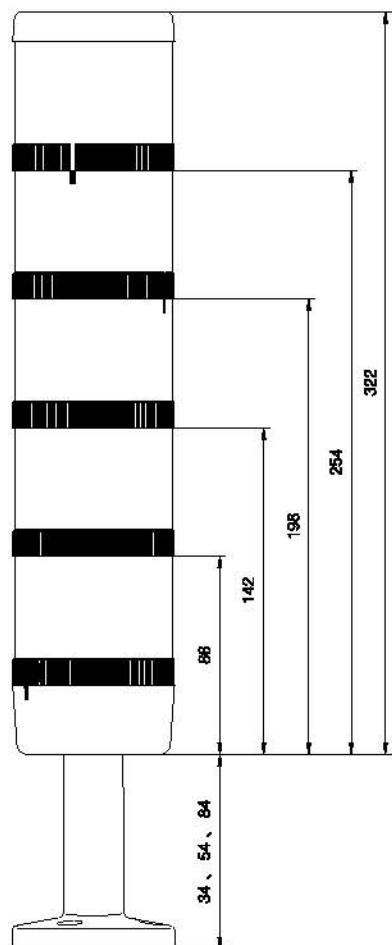


※ Cathode of common terminal, other anodes terminal wiring must be through S1-S5

Installation diagram



Dimension



TL-701 single tower lamp



Performance features

- Protection class: IP65
- Glowing forms include permanent, flashing or blinking, rotating
- The lampshade is made of panlite which is heat-resisting and anti-knock

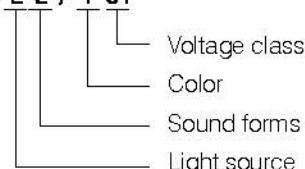
Product specifications

Appearance	Model	Specification	Rated voltage/current	Color
	TL-701LL	LED permanent	24V/40mA, 110V/18mA, 220V/18mA	Red Yellow Green Blue White
	TL-701LF	LED flashing	24V/40mA, 110V/30mA, 220V/40mA	
	TL-701LS	LED rotating	24V/30mA, 110V/30mA, 220V/30mA	
	TL-701SF	Xenon lamp blinking	24V/140mA, 110V/40mA, 220V/40mA	

Note: 24V and 110V are available for AC and DC; while 220V is only available for AC.

Model designations

TL-701 L L / r 31

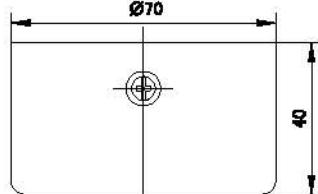


23: AC/DC 24V 26: AC/DC 110V 31: AC 220V
red: r green: g yellow: y blue: b white: w
L: permanent F: flashing or blinking S: rotating
L: LED S: Xenon lamp

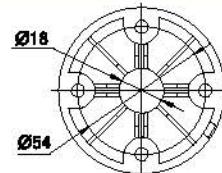
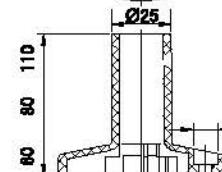
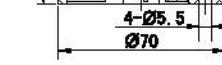
TL tower lamp

Accessories

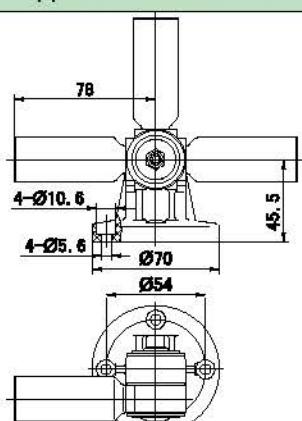
Terminal element TL-70L

Appearance	Appearance Dimension
	

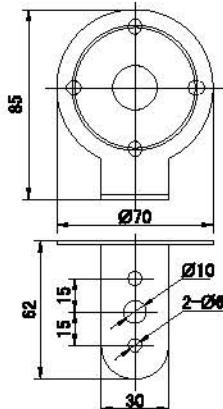
Vertical mounted base TL-SZ-1、TL-SZ-2、TL-SZ-3

Appearance	Model	Height	Appearance Dimension
	TL-SZ-1	60	
	TL-SZ-2	80	
	TL-SZ-3	110	

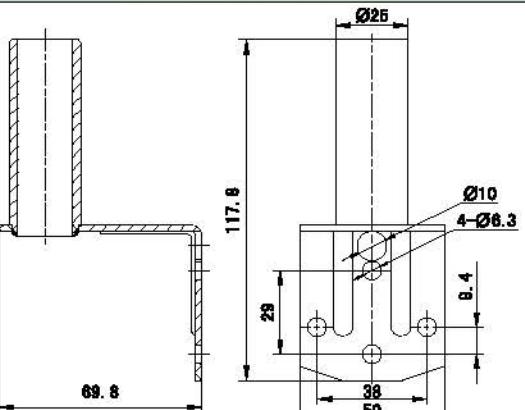
Folding mounted base TL-SZ-4

Appearance	Appearance Dimension
	

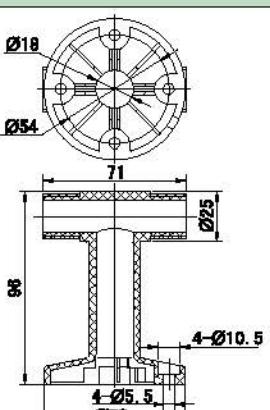
Side mounted base TL-CZ-1

Appearance	Appearance Dimension
 <p>Used with TL-SZ-1, TL-SZ-2, TL-SZ-3 or TL-SZ-4 for side installation</p>	

Side mounted base TL-CZ-3

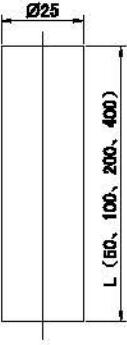
Appearance	Appearance Dimension
	

Side mounted base TL-CZ-4

Appearance	Appearance Dimension
 <p>Used with TL-G-□ for side installation</p>	

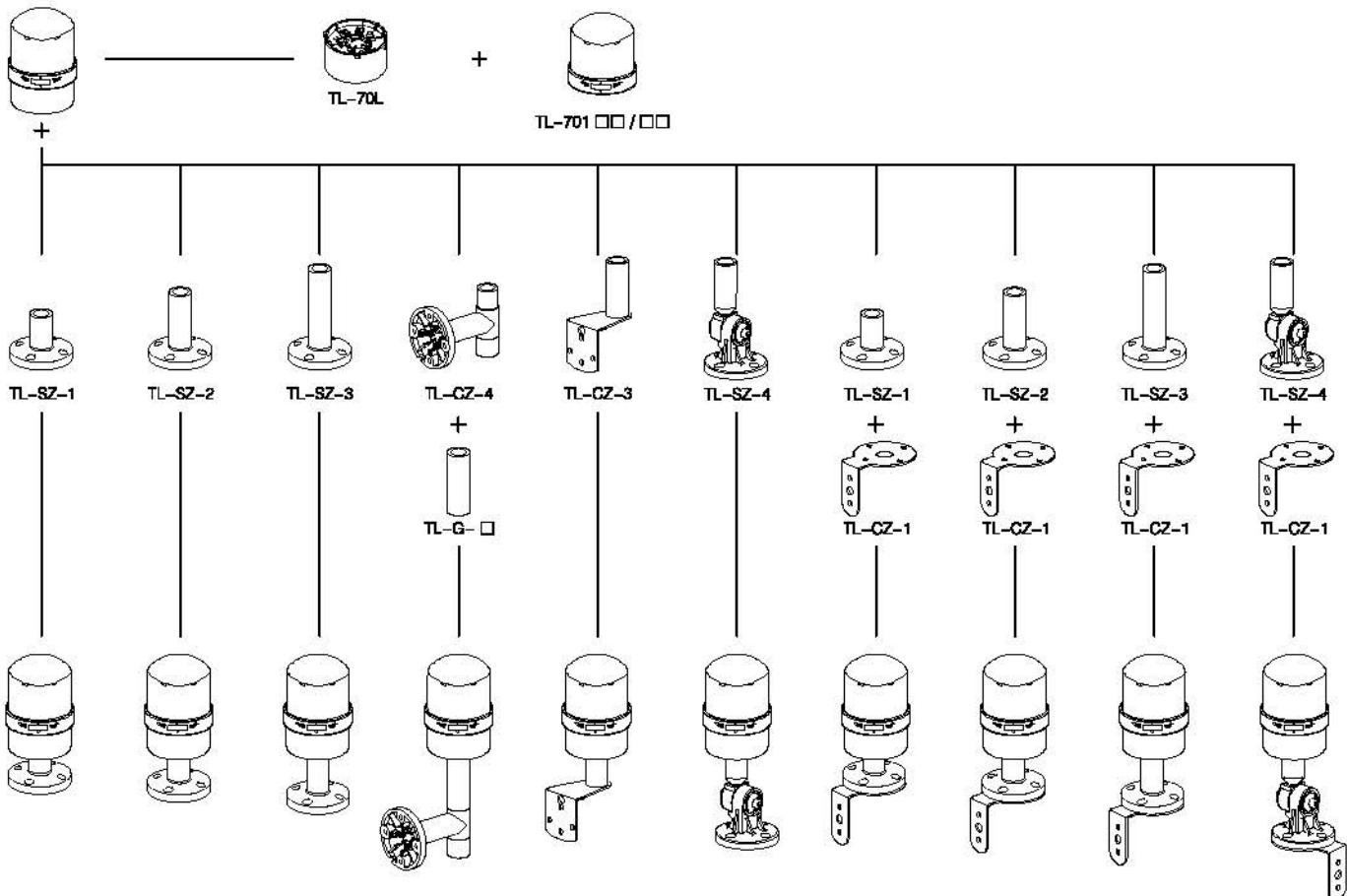
TL tower lamp

Side mounted base TL-G-□

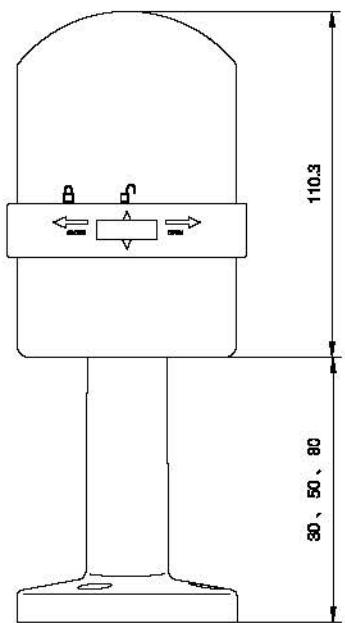
Appearance	Appearance Dimension
 <p>Used with TL-CZ-4 for side installation</p>	

Note: Provide the height of the product in the blank " □ "

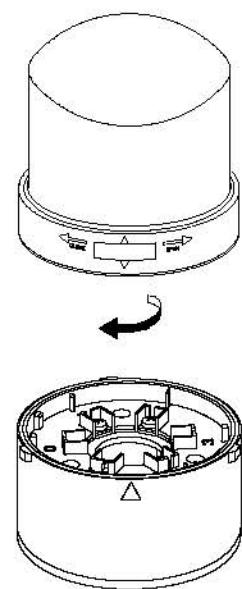
Schematic diagram for accessory



Dimensions



Installation Diagram



TL tower lamp

TL-702 Acousto-optical single tower lamp



Performance features

- Acousto-optical combination
- Glowing forms include permanent, flashing, rotating
- The lampshade is made of panlite which is heat-resisting and anti-knock

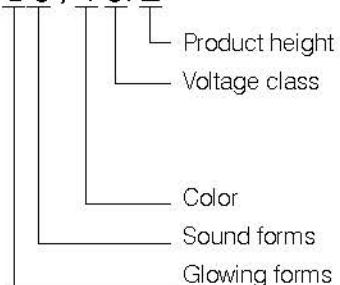
Product Specifications

Appearance	Model	Specification	Rated voltage/current	Color
	TL-702L	permanent	24V/40mA、110V/40mA、220V/40mA	Red Yellow Green Blue White
	TL-702F	Flashing		
	TL-702S	rotating		
	TL-702LI(C)	permanent, intermittent (continuous) sound		
	TL-702FI(C)	flashing, intermittent (continuous) sound		
	TL-702SI(C)	rotating, intermittent (continuous) sound		

Note: 24V and 110V are available for AC and DC; while 220V is only available for AC.

Model

TL-702 L C / r 31 □



Product height no marks: 137mm H1: 157mm H2: 187mm

23: AC/DC 24V

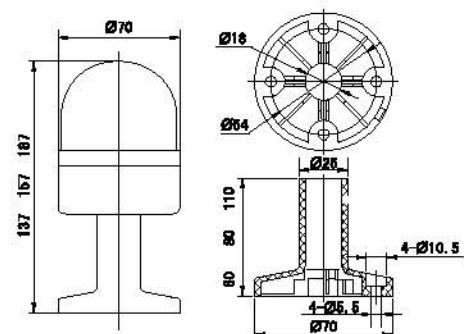
26: AC/DC 110V

31: AC 220V

red: r green: g yellow: y blue: b white: w

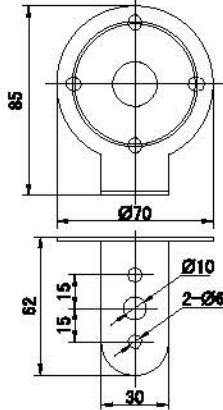
No marks: silent I: intermittent C: continuous

L: permanent F: flashing S: rotating



Three heights are available.
Please specify when ordering

Side mounted base TL-CZ-1

Appearance	Appearance Dimension
 <p data-bbox="351 750 562 778">For side installation</p>	 <p data-bbox="1013 383 1247 793">85 Ø70 62 15 15 Ø10 2-Ø6 30</p>

TL tower lamp

TL-90 Acousto-optical single tower lamp



Performance features

- Protection class: IP65 (single light or alarm acousto-optical combination); IP40 (continuous/intermittent acousto-optical combination)
- Glowing forms include permanent, flashing, rotating
- The lampshade is made of panlite which is heat-resisting and anti-knock
- Volume: Alarm > 110dB; continuous/intermittent sound > 90dB (10cm from the sound source in the horizontal direction)



Product Specifications

Model	Specification	Rated voltage/current	Color
TL-90LL	LED permanent	24V/110mA, 110V/18mA, 220V/18mA	
TL-90LF	LED flashing	24V/110mA, 110V/30mA, 220V/47mA	
TL-90LS	LED rotating	24V/40mA, 110V/25mA, 220V/30mA	Red
TL-90BL	Bulb permanent	24V/210mA, 110V/47mA, 220V/25mA	Yellow
TL-90BF	Bulb flashing	24V/220mA, 110V/55mA, 220V/35mA	Green
TL-90LL/B(I, C, W)	LED permanent (intermittent, continuous, alarm)	24V/230mA, 110V/40mA, 220V/50mA	Blue
TL-90LF/B(I, C, W)	LED flashing (intermittent, continuous, alarm)	24V/230mA, 110V/50mA, 220V/57mA	White
TL-90LS/B(I, C, W)	LED rotating (intermittent, continuous, alarm)	24V/160mA, 110V/50mA, 220V/45mA	
TL-90BL/B(I, C, W)	Bulb permanent (intermittent, continuous, alarm)	24V/330mA, 110V/70mA, 220V/35mA	
TL-90BF/B(I, C, W)	Bulb flashing (intermittent, continuous, alarm)	24V/330mA, 110V/70mA, 220V/35mA	

Note: 24V is available for DC; while 110V and 220V are only available for AC.

Model designations

TL-90 L F / B C / r 31 / S-X

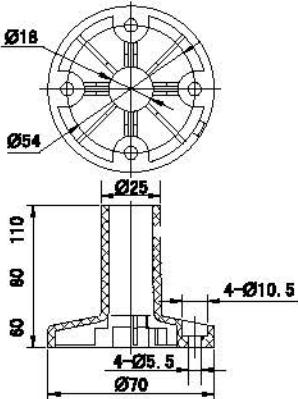
- Installation mode X: fasten with one screw on side of base
No marks: Install the tower lamp with three holes directly (Note)
- Wiring method S: side outlet D: bottom outlet
- Voltage class 23: AC/DC 24V 26: AC 110V 31: AC 220V
- Color red-r green-g yellow-y blue-b white-w
- Sound forms I: intermittent C: continuous W: alarm
- Sound source B: buzzing
- Glowing forms L: permanent F: flashing S: rotating
- Light source L: LED B: bulb

(Note): TL-90 tower lamp has the following two installation methods:

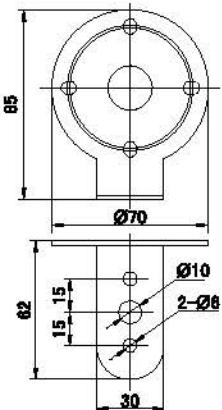
1. Install the base with one bolt on the side, and mark -X at the end of the model.
2. Install the tower lamp with three holes directly, without marks.

Accessories

Vertical mounted base TL-SZ-1, TL-SZ-2, TL-SZ-3 (mark –X at the end of tower lamp model)

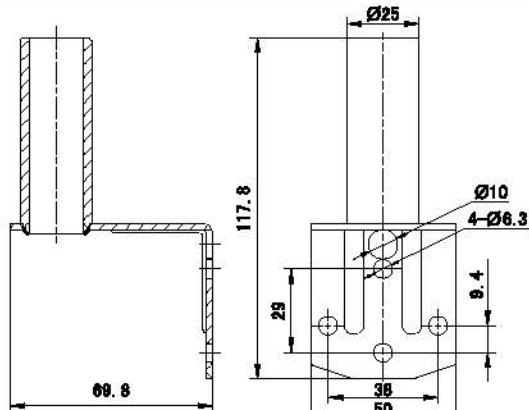
Appearance	Model	Height	Appearance Dimension
	TL-SZ-1	60	
	TL-SZ-2	80	
	TL-SZ-3	110	

Side mounted base TL-CZ-1 (when used alone, no marks is required at the end of the model; when used with bases TL-SZ-1, TL-SZ-2, TL-SZ-3, TL-SZ-4, mark –X at the end of tower lamp model)

Appearance	Appearance Dimension
	

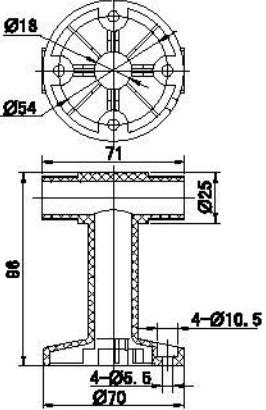
For side installation, it can be used alone or with TL-SZ-1, TL-SZ-2, TL-SZ-3, TL-SZ-4.

Side mounted base TL-CZ-3 (mark –X at the end of tower lamp model)

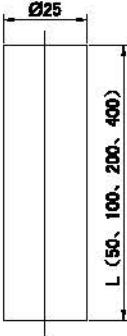
Appearance	Appearance Dimension
	

TL tower lamp

Side mounted base TL-CZ-4 (mark -X at the end of tower lamp model)

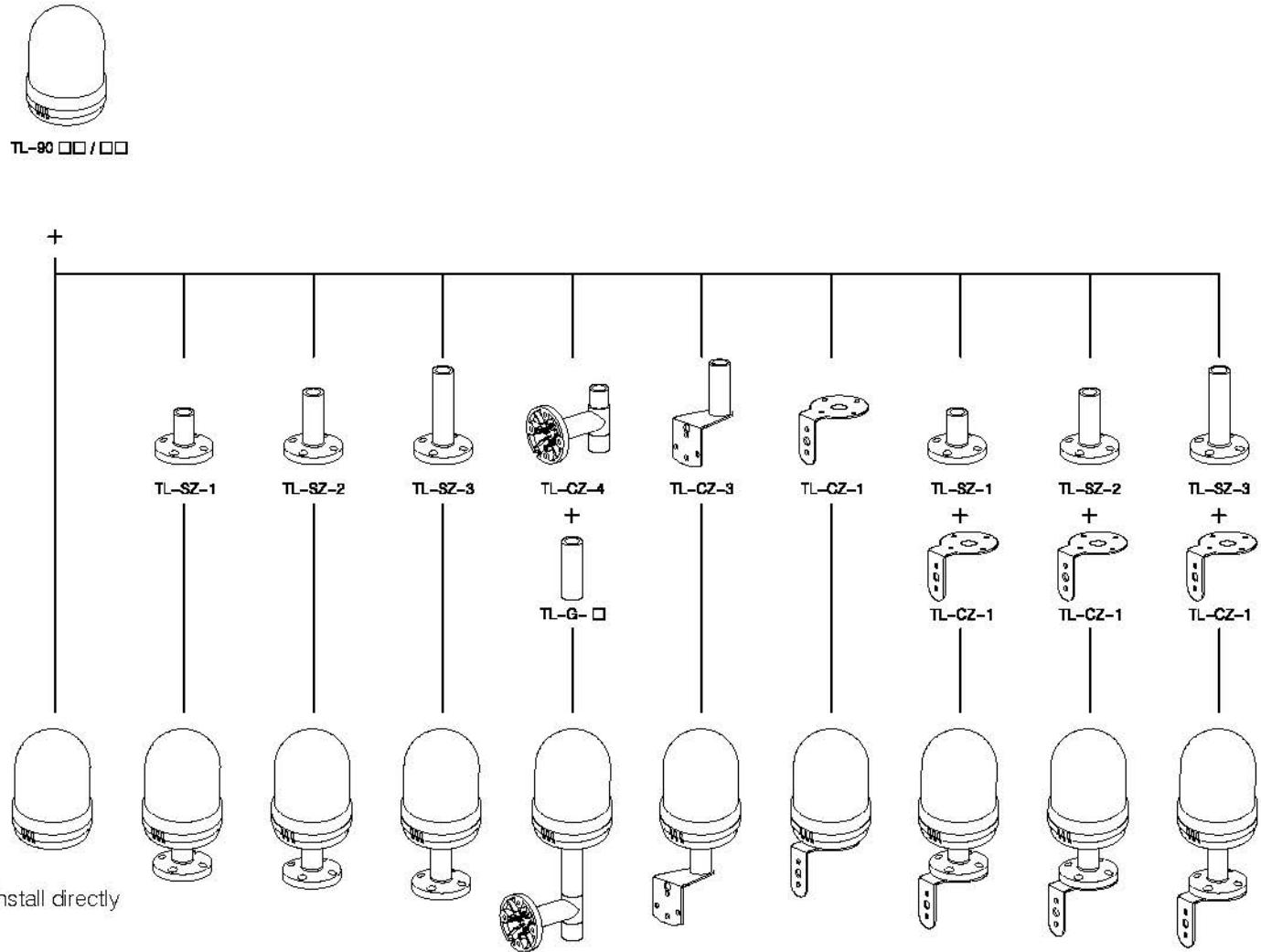
Appearance	Appearance Dimension
 <p>Used with TL-G-□ for side installation.</p>	

Side mounted base TL-G-□

Appearance	Appearance Dimension
 <p>Used with TL-CZ-4 for side installation.</p>	

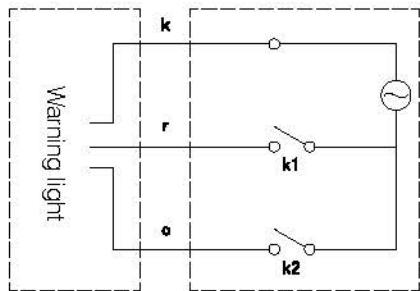
Note: Provide the height of the product in the blank " □ ".

Schematic diagram for accessory

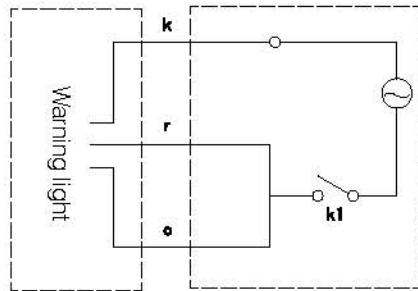


TL tower lamp

Wiring diagram



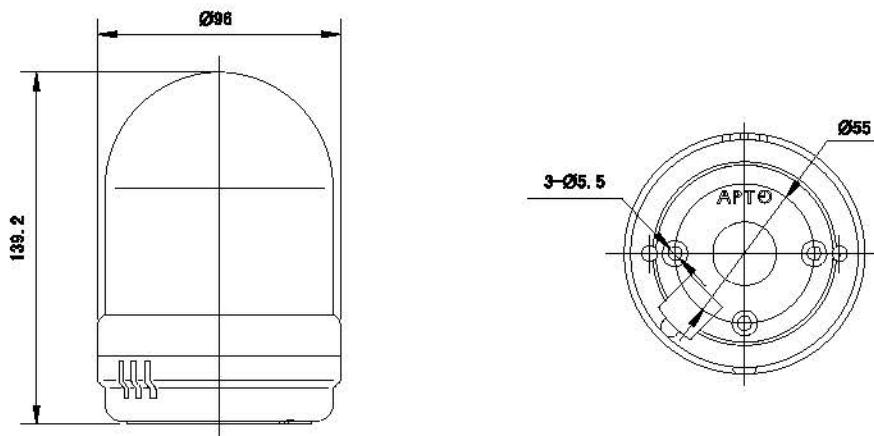
Wiring diagram for acousto-optical combination



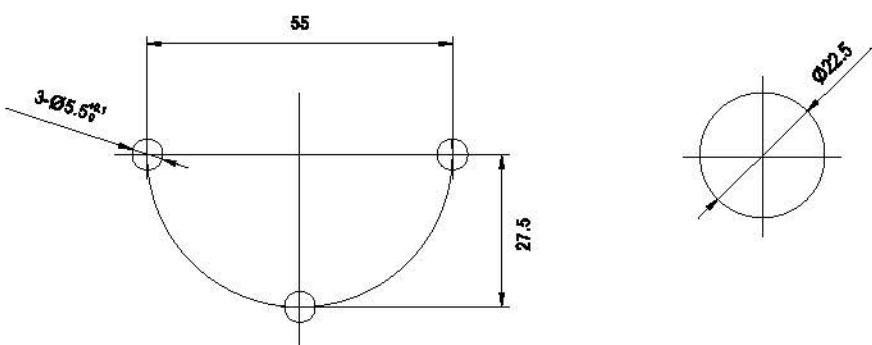
Wiring diagram for single light

Notes: r-red wire (power line for LED); o-orange wire (power line for buzzer)
k-black wire (public power line), 1m long.

Dimensions



Hole size



TL-50 tower lamp



Performance features:

- Pass the signal effectively even in a larger work space
- Glowing forms include permanent, flashing
- The lampshade is made of panlite which is heat-resisting and anti-knock
- Volume of buzzer > 90dB (10cm from the sound source in the horizontal direction)

Hole size

Standard	L-type	C-type
C1-type	C2-type	Z-type

Note: If another installation method is taken, please specify when ordering.

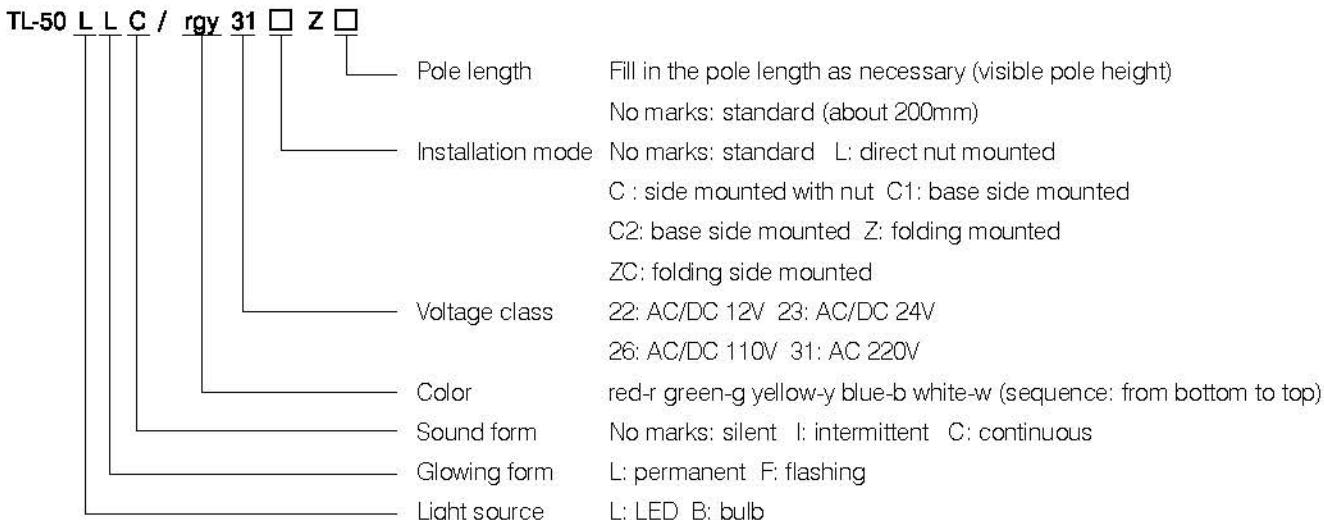
TL tower lamp

Product specifications

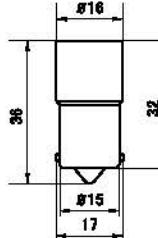
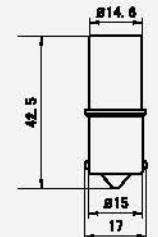
Model	Specification	Rated voltage/current (LED)	Rated voltage/current (buzzer)	Color
TL-50LL	LED permanent	12V/40mA, 24V/40mA, 110V/40mA, 220V/40mA		
TL-50LF	LED flashing	12V/40mA, 24V/40mA, 110V/40mA, 220V/40mA		
TL-50BL	Bulb permanent	12V/260mA, 24V/140mA, 110V/30mA, 220V/17mA		
TL-50BF	Bulb flashing	12V/270mA, 24V/150mA, 110V/37mA, 220V/24mA		
TL-50LLI(C)	LED permanent (intermittent or continuous sound)	12V/80mA, 24V/80mA, 110V/40mA, 220V/40mA		Red Yellow Green Blue White
TL-50LFI(C)	LED flashing (intermittent or continuous sound)	12V/80mA, 24V/80mA, 110V/40mA, 220V/40mA		
TL-50BLI(C)	Bulb permanent (intermittent or continuous sound)	12V/270mA, 24V/150mA, 110V/45mA, 220V/35mA	15~35 mA	
TL-50BFI (C)	Bulb flashing (intermittent or continuous sound)	12V/290mA, 24V/160mA, 110V/50mA, 220V/35mA		

Note: 12V, 24V, 110V are available for DC and AC, while 220V is only available for AC. The unit for rated current is layer.

Model designations



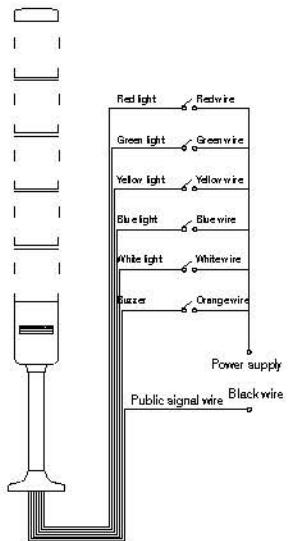
Accessories

Name		Model	Voltage class	Color	Function	Dimension drawing
Bulb		TL-50B1/ <input type="text"/>	22: AC/DC12V		As TL-50 AC/DC12V series light source	
			23: AC/DC24V		As TL-50 AC/DC24V series light source	
			26: AC/DC110V		As TL-50 AC/DC110V series light source	
			31: AC220V		As TL-50 AC220V series light source	
LED		TL-50L1/ <input type="text"/> <input type="text"/>	22: AC/DC12V	r: red g: green y: yellow b: blue w: white	As TL-50 AC/DC12V series light source	
			23: AC/DC24V		As TL-50 AC/DC24V series light source	
			25: AC/DC48V		As TL-50 AC/DC110V series light source As TL-50 AC220V series light source	

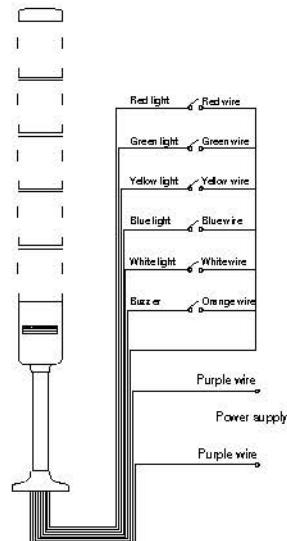
Note: Fill the color in the blank " ". Remark the voltage class code in " "

TL tower lamp

Wiring diagram

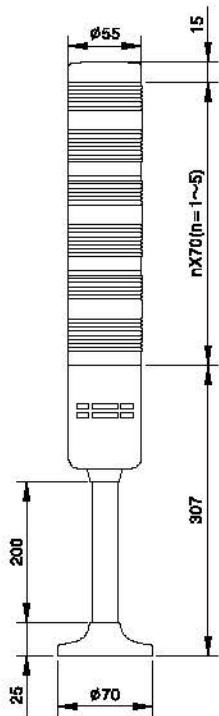


Permanent



Flashing

Dimension



TL-501 tower lamp

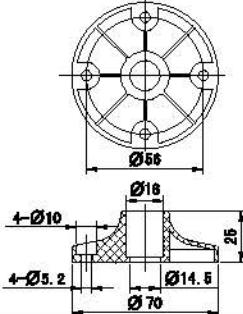
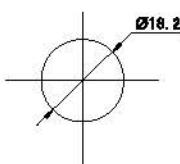
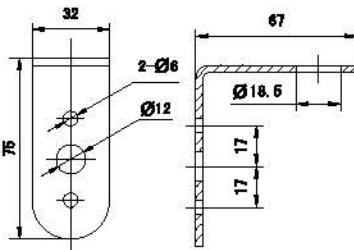
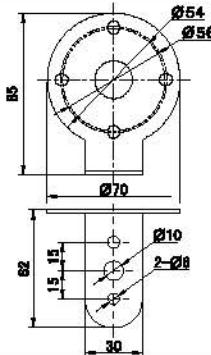
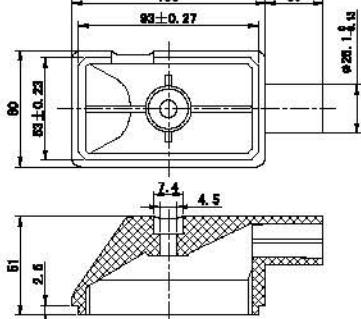
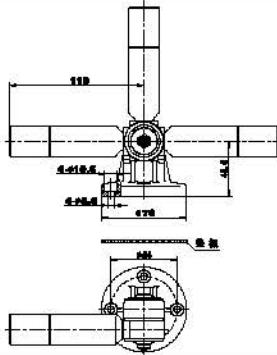
ø 55  



Performance features:

- Pass the signal effectively even in a larger work space
- Glowing forms include permanent, flashing
- The lampshade is made of panlite which is heat-resisting and anti-knock
- Volume of buzzer > 90dB (10cm from the sound source in the horizontal direction)

Hole size

Standard	L-type	C-type
		
C1-type ZC-type	C2-type	Z-type
		

Note: If another installation method is taken, please specify when ordering.

TL tower lamp

Product specifications

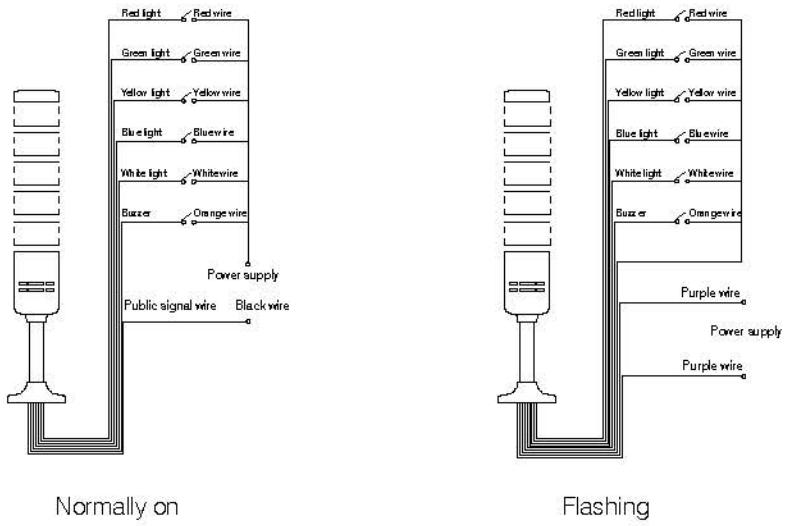
Model	Specification	Rated voltage/current (LED)	Rated voltage/current (buzzer)	Color
TL-501LL	LED permanent	12V/50mA, 24V/20 mA, 110V/20mA, 220V/20 mA		
TL-501LF	LED flashing	12V/50mA, 24V/20 mA, 110V/20mA, 220V/20 mA		Red Yellow
TL-501LLI(C)	LED permanent, intermittent or continuous sound	12V/50mA, 24V/20 mA, 110V/20mA, 220V/20 mA		Green Blue
TL-501LF I(C)	LED flashing, intermittent or continuous sound	12V/50mA, 24V/20 mA, 110V/20mA, 220V/20 mA	15~35 mA	White

Note: 12V, 24V, 110V are available for DC and AC, while 220V is only available for AC. The unit for rated current is layer.

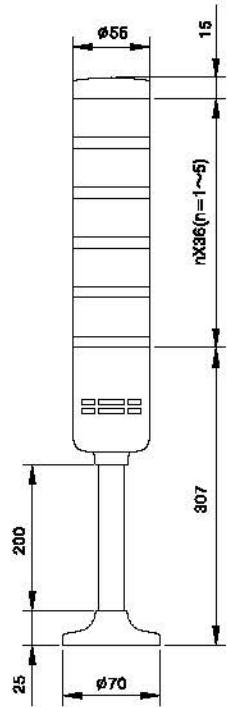
Model designations



Wiring diagram



Dimension





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