

# TL-90 signal Tower Lamp 90mm Siemens APT

## Selection principles for tl-90 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-90 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)

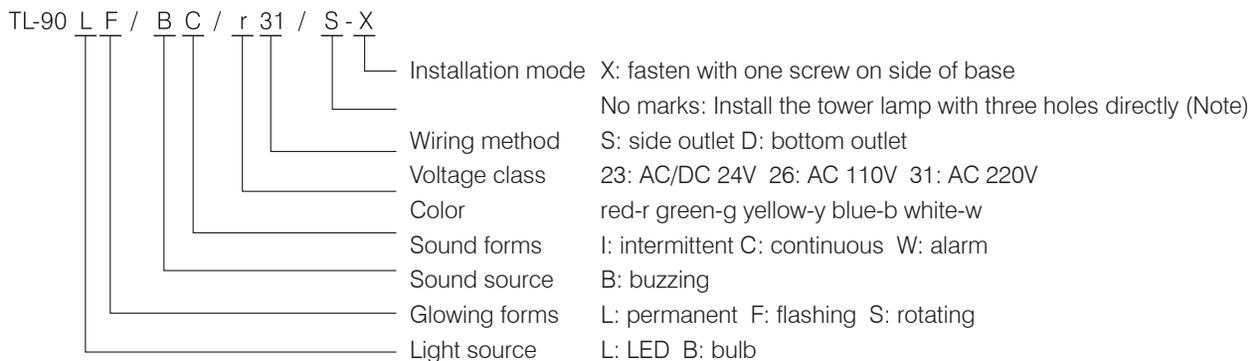


### Product Specifications

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

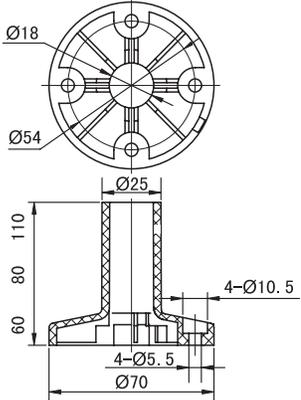


(Note): TL-90 tower lamp has the following two installation methods:

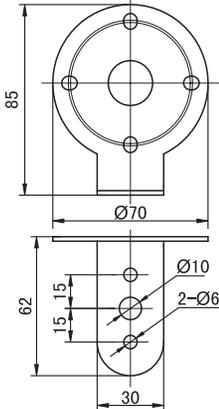
1. Install the base with one bolt on the side, and mark -X at the end of the model.
2. Install the tower lamp with three holes directly, without marks.

## Accessories

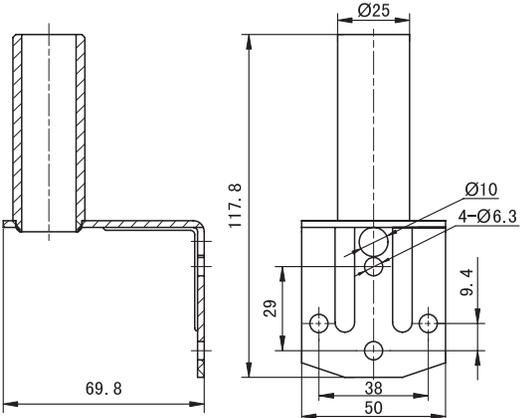
### Vertical mounted base TL-SZ-1, TL-SZ-2, TL-SZ-3 (mark -X at the end of tower lamp model)

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)

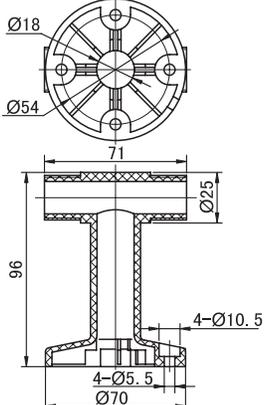
Appearance	Appearance Dimension
 <p>For side installation, it can be used alone or with TL-SZ-1, TL-SZ-2, TL-SZ-3, TL-SZ-4.</p>	

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

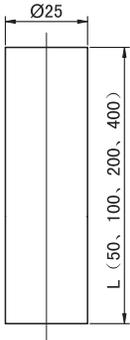
Appearance	Appearance Dimension
	

# TL-90 tower lamp

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

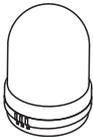
Appearance	Appearance Dimension
 <p data-bbox="267 800 669 829">Used with TL-G-□ for side installation.</p>	

## Side mounted base TL-G-□

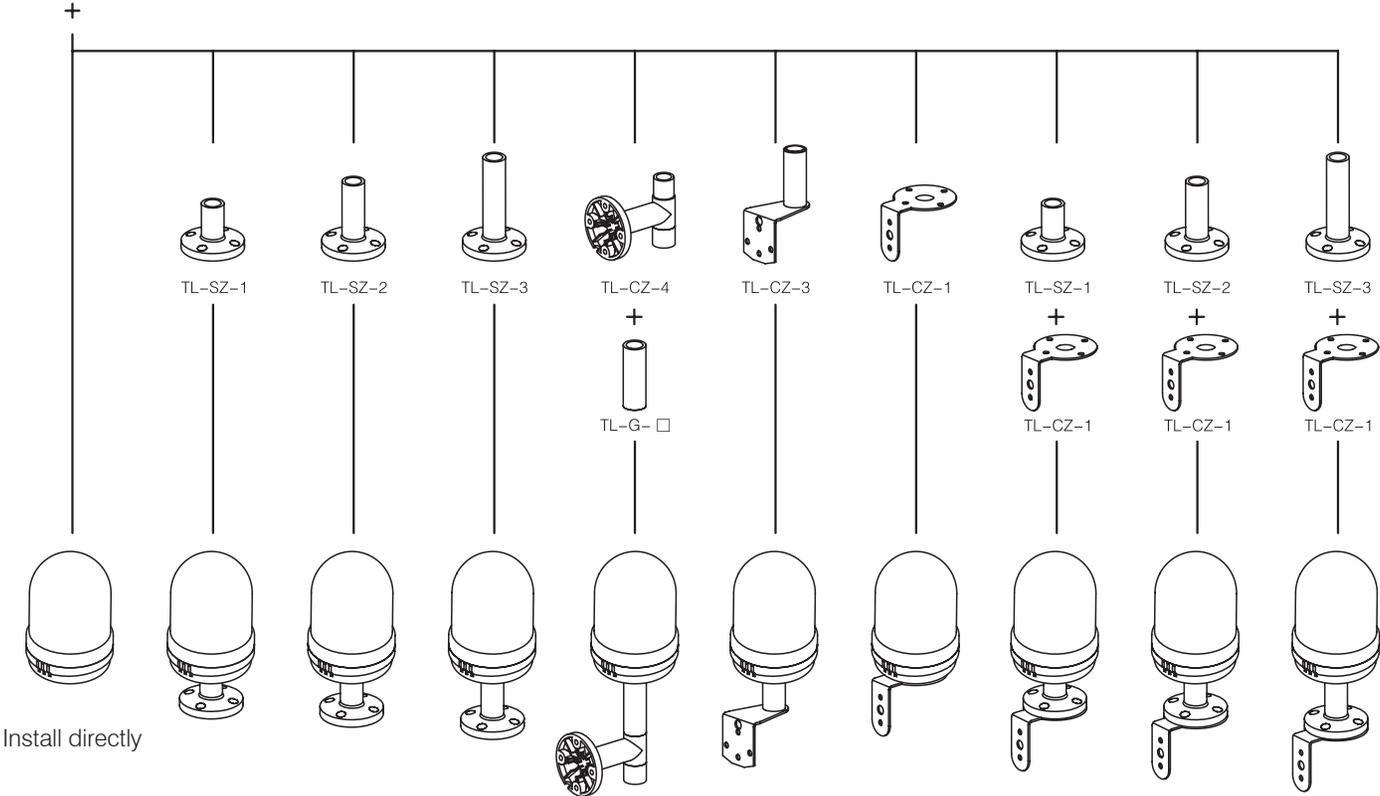
Appearance	Appearance Dimension
 <p data-bbox="279 1373 677 1402">Used with TL-CZ-4 for side installation.</p>	

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

Schematic diagram for accessory

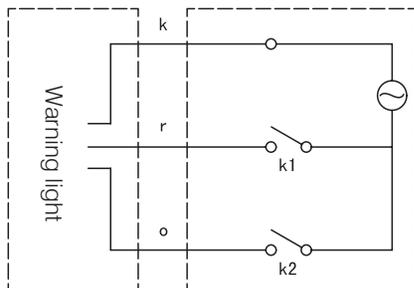


TL-90 □□ / □□

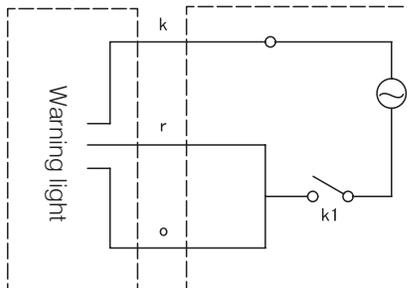


# TL-90 tower lamp

## Wiring diagram



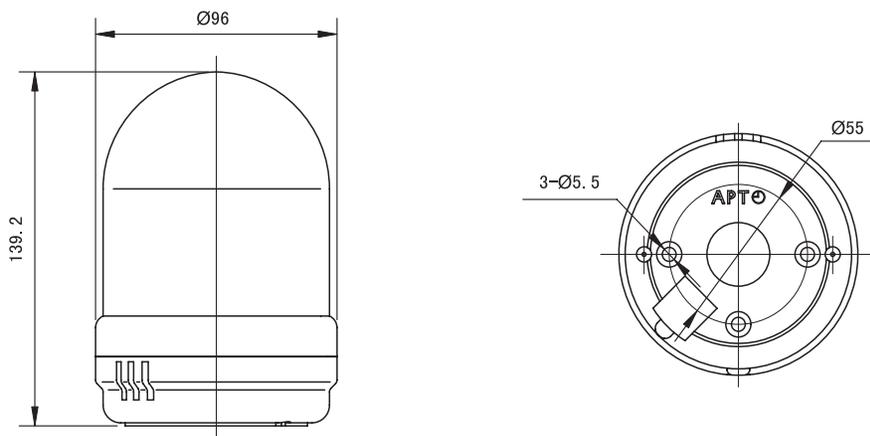
Wiring diagram for acousto-optical combination



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.

## Installation size



## Hole size

