# Signal Tower Type: LU7

# **INSTALLATION MANUAL**

**Notice** to Customer Thank you very much for purchasing our PATLITE product.

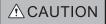
- Request the installation and wiring be performed by a professional contractor if construction work is involved.
- Prior to installation, read this manual thoroughly before using this product to ensure correct use.
- After reviewing this manual, if there are any questions regarding this product, please contact the nearest PATLITE office listed on the back cover of this manual.
- Notice to Contractor
- Read this manual carefully prior to installation. • Be sure to return this manual to the customer.

## Safety Precautions

In order to prevent any damage to the user and other personnel or to assets, note the following:
The following symbols classifies the following precautions into two catagories and explains the level of harm inflicted when caution is disregarded while using this product.



Indicates an immediately dangerous condition: failure to follow the instructions may lead to death or serious injury.



Indicates a potentially dangerous condition: failure to follow the instructions may lead to slight injury or property damage.

# | Safety Precautions

#### Safety Precautions

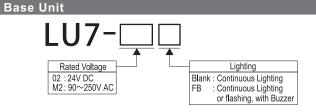
#### **▲** WARNING

- Make sure the power is off before wiring, repairing, or replacing parts to avoid a short-circuit, electric shock, or burns.
  Use this product in a properly maintained condition.
- - (If parts such as the Body or LED Unit are damaged, they should be repaired.)
- Do not use this product with the lens damaged or removed, or without the Head Cover in order to avoid an electric shock.
- If installing this product requires construction work, please ask a specialist in order to avoid electric shock, fire, or personal injury.
- When this product is used for security purposes, it should be inspected daily. In case a malfunction should occur, it is recommended that you use this product together with other security products.
- Do not use this product to support your weight while climbing onto a machine. Mount the product so that it is clear of any moving parts such as a machine cover.

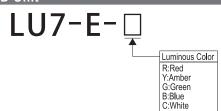
#### CAUTION

- When replacing parts, such as LED unit, bulb or fuse, be sure to use those specified in this manual.
- For safety measures, make sure to connect an external fuse to the power source as shown in the wiring example.
- Do not substitute parts from other products as this may cause a malfunction.

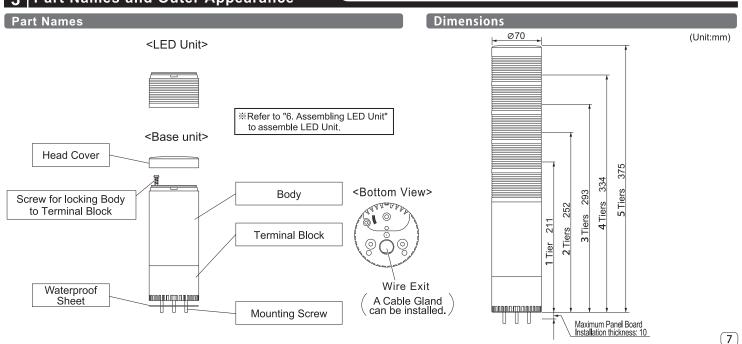
# 2 | Model Number Configuration



#### LED Unit



# Part Names and Outer Appearance



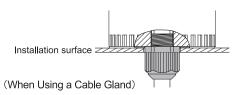
## 4 Installation

# **⚠** CAUTION

- The following requirements are necessary for proper installation.
  - Install where no excessive vibration is present.
  - Install on a strong surface,
- Install in an upright position. (Do not install the Signal Tower sideways or inverted.)
- This product is for indoor use only. (Do not use it outdoors.)
- Use a soft cloth moistened with water when the LED Unit or Body must be cleaned up. (Do not use thinner, benzine, gasoline or oil.)
- When installing this product, do not use excessive torque, or the product may be damaged.
- During installation, do not remove the waterproof sheet, it will increase possible water penetration and may cause a malfunction.
- This product also has a 1mm thick waterproof packing at the bottom of the pole bracket. However, because installation surface unevenness may cause a lack of waterproofing protection, it is recommended to apply waterproof sealant between the unit and the installation surface to maintain waterproof conditions.
- When the cable gland is used, the hole must be a dimension so that it can pass through. A compatible cable gland dimension should be as followed: Screw Size: M16×P1.5. Screw Length: Maximum 11mm, Outer Diameter: Maximum 21mm, Material: Plastic,

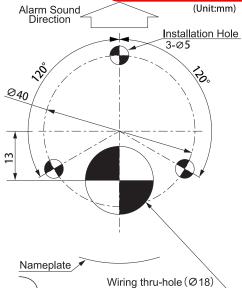
#### How to Install

- Drill mounting holes in the panel.
- Secure the product with the accessory nuts (supplied).
   With FB models, the alarm can be heard best from the front direction. Therefore, make sure the Signal Tower is facing the correct direction before installation.



#### Using this template

- Verify the hole positions on the product.
- Secure the template onto the installation surface using adhesive tape.
- Mark the installation holes using a nail punch, etc.
- 4. Drill the holes in the installation surface.
- \* Check the direction of the nameplate and the wiring route before drilling holes.



※When cable gland is used (∅23)

Installation Template

# 5 Wiring

#### CAUTION

- Make sure the power is OFF before wiring. A short circuit may damage internal circuits or cause an electric shock.
- Ensure proper wiring to avoid any mistakes in wiring, or short circuiting may occur. Install the external contact fuse on the power supply side as shown in the wiring example in order to prevent damage in case of a wiring error. [90V~250VAC Type] Do not apply voltage directly to signal wires and common wires. It may damage the circuit.
- Do not apply voltage directly to the terminal [9.Flashing COM], or damage to the product may occur. (FB type)
- Do not pull lead wires out, or push them into the pole or the body.
- Observe the lead wire strip length. An excessively short strip length will cause connection failure and an excessively long strip length may cause electric which are extremely dangerous.

  While wiring this product, take care to avoid short-circuits from loose wire strands or similar conditions.

  Do not use excessive force to separate the terminal block from the Body. Inside wiring may become damaged and may cause failure. When removing the lead wire, be sure to release the terminal lever first, before pulling the wire out.

#### Caution

- Simultaneously turning on the external contact for both constant lighting and flashing for the same light (color), may cause another light (color) to light up. To avoid this, isolate the circuits by providing separate switches for the continuous lighting and flashing/buzzer functions.
- When turning on the same function simultaneously (such as flashing or alarms) for more than one product, be sure to use separate external contacts for each product and function.
- When using both alarm sounds on one product, use separate contacts for the alarms and the lights.

#### How to perform wiring

- Make wiring connections according to the wiring example.
  - When wiring 5 tiers or less, make wiring connections by increasing or decreasing external contacts in each layer according to the wiring example.
- When using LED units of the same color, calculate the contact current capacity so that it is equal to the number of the LED units multiplied by the contact capacity for 1 light. (This is because current passes through the same signal line when using LED units of the same color.)
  When wiring is completed, insulate the end of each unused lead wire with insulation tape, or equivalent.
- Any questions regarding multiple unit applications, or other special operations, contact your nearest PATLITE Sales Representative before wiring.

#### [To be recognized as a UL standard.]

- Fuse for protection of external contact should be installed within 305mm from the connected point of the power source wire.
- Use a "Class 2 Circuit" for the power supply source (Type: 24V DC) and be sure to use the fuse and fuseholders authorized by UL, Inc.
- Use the fuse conforming to the rated current of the machine which the product was installed on. (Example : Class J type fuse)
   For the 90V~250V AC Type, connect the earth wire to ground.

- [24V DC Type] Remove the Body from the Base Unit. (Refer to "6. Assembling LED Unit".)
- [90~250V AC Type] Loosen the screw near the Terminal Block before removing the Body from the Base Uni (Terminal Block)

Front (H) 0 **(** )LU7\_ 02 |

CN2: Power Supply and Signal Terminal (24V DC) Recommended wire type/dia

UL1007 Solid wire Ø0.8~Ø1.2mm

Stranded wire 0.3~1.25mm² (AWG22~18) UL1430 Solid wire  $\emptyset$ 0.8~ $\emptyset$ 1.2mm

Stranded wire 0.3~1.25mm² (AWG22~18)

※ Use 75°C copper wire only

※ Strip length of wire: 9mm

CN5: Earth Terminal

※ Recommended wire type / dia

UL1015 Solid wire Ø0.6~Ø1.7mm

Stranded wire 0.3~2.5mm<sup>2</sup> (AWG22~14) \* Use the Green or Green/yellow colored wire.

※ Tightening torque : 1.2N⋅m

CN4 : Power Supply Terminal (90~250V AC)

\*\* Recommended wire type/dia UL1015 Solid wire Ø0.6~Ø1.7mm, Stranded wire 0.3~2.5mm² (AWG22~14)

- \* Strip length of wire: 10mm
- ※ Tightening torque : 0.6N⋅m

Terminal	Terminal	Description	
No.	Color	or operation	
1	Red	LED Unit Red	
2	Orange	LED Unit Amber	
3	Green	LED Unit Green	
4	Blue	LED Unit Blue	
5	White	LED Unit White	
6	Gray	Buzzer1: Continuous	
7	Black	Buzzer2: Intermittent	
8	Yellow	COM	
9	Gray	Flashing COM	
10 Black		Power Supply for Flashing	

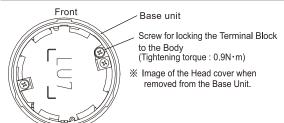
# Wiring to Terminal [CN2] Screw driver Lead Wires ※ Strip length of lead wires: 9mm Lever

- 1) Press the lever with a screw driver, etc.
- 2 Insert the stripped portion of the lead wire all the way into the Terminal Block.
- 3 Release the lever to complete the wiring.

#### Caution

• When removing the lead wire, be sure to press the lever before pulling the wire out.

#### Wiring for 90~250V Type



- 1) Loosen the screw that locks the Terminal Block to the Body.
  - Make sure the screw that locks the Terminal Block to the Body raises up 5mm or more.
- ② Remove the Unit from the Body. (Refer to "6.Assembling LED Unit".)
  ③ Wire each lead wire. (Refer to "Wiring to Base Unit (Terminal Block)".)
- 4 Assemble the Body and Terminal Block.
- 5 Tighten the screw that locks the Terminal Block to the Body to complete the wiring.

# **External Contact Capacity**

#### ■ External Contact/Transistor Capacity

Voltage Specifications		24V DC	90~250V AC	
LED Unit	Current Consumption	Red/Amber : 52mA, Green/Blue/White : 30mA		
(Per Unit)	Contact Capacity	Is≧100mA, Vs≧35V DC		
Buzzer	Current Consumption	50mA		
Duzzei	Inrush Current	100mA		
	Contact Capacity	Is≧100mA, V	s≧35V DC	
Power	Current Consumption	360mA	50mA	
Supply	Contact Capacity	Is≧500mA, Vs≧35V DC	Is≧100mA, Vs≧250V AC	
Leakage Current		I∟≦0.1mA		

※Is: Current Capacity, Vs: Withstand Voltage, IL: Leakage Current

#### ■ External Fuse

Voltage	Fuse Rating
All Model	250V 1A

 $\ensuremath{\mathrm{\%}}\xspace$  Use the fuse conforming to the rated current of the machine which the product was installed in. (Example: Class J type fuse)

Production end

X Make sure the

screw locking the Terminal Block raises

5mm or more

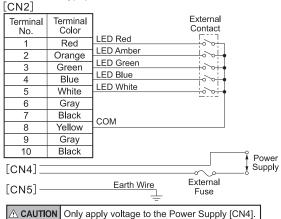
#### Wiring Example

#### ■ Model LU7 [Continuous Lighting Type]

#### (24V DC Type) [CN2]

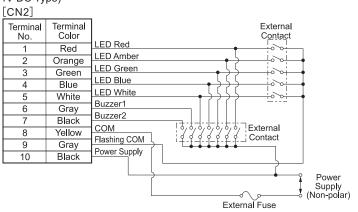
Terminal No.	Terminal Color	External Contact
1	Red	LED Red
2	Orange	LED Amber
3	Green	LED Green
4	Blue	LED Blue
5	White	LED White
6	Gray	
7	Black	COM
8	Yellow	Power
9	Gray	I Supply
10	Black	\( \sqrt{\con-polar} \) \( \sqrt{\con-polar} \)
		External Fuse

## (90~250V AC Type)



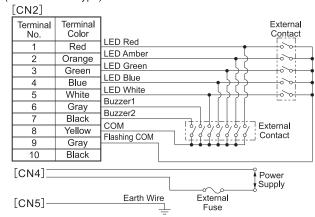
#### ■ Model LU7-FB [Continuous Lighting, Flashing/Buzzer Type]

## (24V DC Type)



⚠ CAUTION Do not apply voltage to [9.Flashing COM]

# (90~250V AC Type)

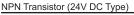


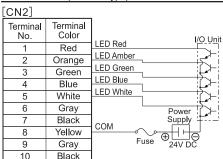
⚠ CAUTION Only apply voltage to the Power Supply [CN4].

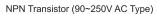
# Wiring Example (NPN/PNP Transistor)

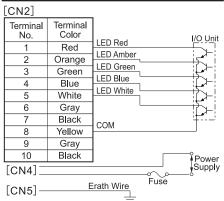
上连校 J Production end

■ Model LU7 [Continuous Lighting]

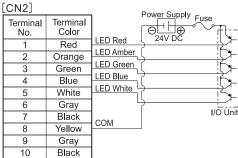








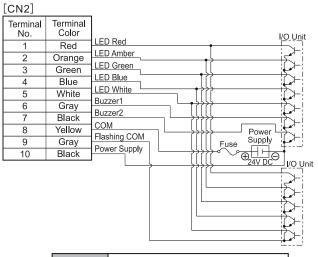
PNP Transistor (24V DC Typ



⚠ CAUTION Only apply voltage to the Power Supply [CN4].

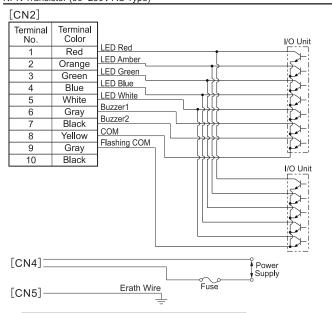
■ Model LU7-FB [Continuous Lighting, Flashing/Buzzer] (When using the Flashing/Buzzer (FB) type, use a separate I/O unit for flashing)

#### NPN Transistor (24V DC Type)



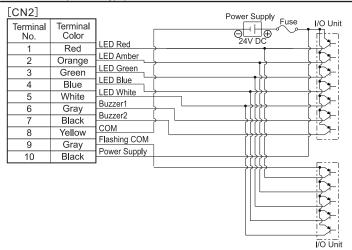
⚠ CAUTION Do not apply voltage to [9.Flashing COM]

#### NPN Transistor (90~250V AC Type)



⚠ CAUTION Only apply voltage to the Power Supply [CN4].

#### PNP Transistor (24V DC Type)



**↑ CAUTION** Do not apply voltage to [9.Flashing COM]

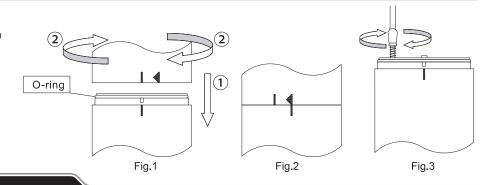
# 6 Assembling LED Unit

# **A** CAUTION

- Make sure the power is off before asemmbling, wiring, repairing, or replacing parts to avoid a short-circuit, electric shock, or burn.
- Do not remove the LED unit forcibly as it may damage the unit.
- Handle the LED units carefully to avoid warping or damage when changing their positions on the tower.
- Do not turn the Body without loosing screw. And tighten screw after rotating the Body to the position shown in Fig.2. (For Base Unit of 90V~250V AC Type)
- Make sure the O-ring is first mounted in position on the Terminal block as shown in Fig.1, then place the Body on the O-ring.

## Asemmbling LED Unit (Bady)

- Turn the power off before assembling LED unit positions.
- First make sure the O-ring is mounted as shown in Fig.1, then align the locating mark of each unit, and place the units together in the direction of the arrow (①) as shown.
- Rotate the upper unit (body) in the direction of the arrow(②). (Refer to Fig.2)
- Tighten the Screw. (Refer to Fig.3)



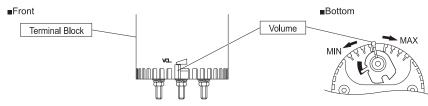
# 7 | Volume Adjustment

## **⚠** CAUTION

• Do not move the lever forcibly as it may damage the volume control.

#### Volume Adjustment

• The volume can be adjusted by moving the lever near the bottom of the base to the left or right.



# 8 Specifications

### [Base Unit]

[Bass still]					
Model	Rated Voltage	Power consumption	Mass	Flash Cycle (fpm) and sound level	
LU7-02	041/100		250g	FB Type	
LU7-02FB	24V DC	1.2W	275g	60 Flashes per minute	
LU7-M2	90~250V AC	Buzzer: 2.2W	350g	Sound level	
LU7-M2FB	(50/60Hz)	Standby: 1.0W	375g	70~90dB (1m) (Range Adjustment)	

## [LED Unit]

Model	Rated Voltage	Power consumption	Mass
LU7-E-R		1.25W	60g
LU7-E-Y		1.2300	
LU7-E-G	24V DC		
LU7-E-B		0.72W	
LU7-E-C			

This product is recognized as a UL standard.
 For recognition as a UL standard;

device, pursuant to EMC DIRECTIVE.

- Use on a flat surface with a Type 1 Enclosure.
- For the model LU7-02(FB), maximum surrounding air temperature is at 60°C.
- For the model LU7-M2(FB), maximum surrounding air temperature is at 55°C.
- This product conforms to EN standard and shows the CE Marking.
   This product has been tested and found to comply with the limits for a Class A

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This product must not be used in residential areas.

## [Vibration Resistance]

1						
Number of LED Unit	1	2	3	4	,	5
Model LU7-02(FB)	44.1m/s <sup>2</sup>	34.2m/s <sup>2</sup>	19.6m/s <sup>2</sup>	12.7m/s <sup>2</sup>	6.8m/s <sup>2</sup>	18.6m/s <sup>2</sup>
Model LU7-M2(FB)	44.1m/s <sup>2</sup>	44.1m/s <sup>2</sup>	18.6m/s <sup>2</sup>	18.6m/s <sup>2</sup>	9.8m/s <sup>2</sup>	18.6m/s <sup>2</sup>
Allowable Vibration Frequency	10~150Hz			40~150Hz		

### Caution

- In the event that the tower is subject to continuous, excessiv shaking, vibration may be too strong and there is a danger of breakage. Immediately stop using the tower and consult PATLITE Customer Service.
- PATLITE Corporation disclaims all liability for any malfunction or damage occurring as a result of handling contrary to the instructions, cautions and warnings mentioned in this manual.
- Specifications may change without notice due to continual product improvement.

#### PATLITE Corporation G2G PATLITE Corporation \*Head office ■http://www.patlite.com/ 4-1-3, Kyutaromachi, Chuo-ku, Osaka 541-0056 Japan PATLITE (U.S.A.) Corporation ■http://www.patlite.com/ PATLITE Europe GmbH \*\*Germany ■http://www.patlite.eu/ PATLITE (SINGAPORE) PTE LTD #http://www.patlite.com/ PATLITE (CHINA) Corporation ■http://www.patlite.cn/ PATLITE KOREA CO., LTD. ■http://www.patlite.co.kr/ PATLITE TAIWAN CO., LTD. ■http://www.patlite.tw/ PATLITE (THAILAND) CO., LTD. ■http://www.patlite.co.th/