

Signal Tower  
Type : LU5

# INSTALLATION MANUAL

Notice to Customer

Notice to Contractor


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.
- 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 categories and explains the level of harm inflicted when caution is disregarded while using this product.

 **WARNING**


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

 **CAUTION**


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

1 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

Base Unit

LED Unit

LU5-02□

Rated Voltage  
02 : 24V DC

Lighting  
Blank : Continuous Lighting  
FB : Continuous Lighting with Flashing/Buzzer

LU5-E-□

Luminous Color  
R:Red  
Y:Amber  
G:Green  
B:Blue  
C:White

3 Part Names and Outer Appearance

Part Names

Dimensions

<LED Unit>

<Base unit>

Head Cover

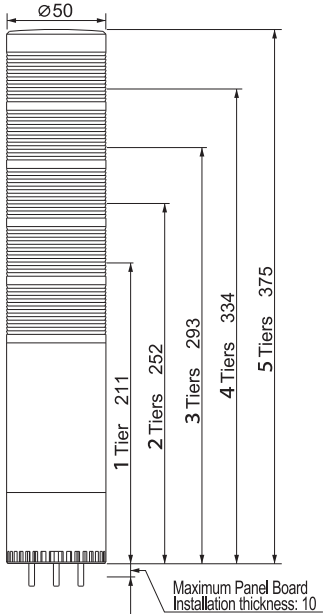
Body

Terminal Block

Waterproof Sheet

Mounting Screw

※Refer to "6. Assembling LED Unit" to assemble LED Unit.



(Unit:mm)

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## 4 Installation

### CAUTION

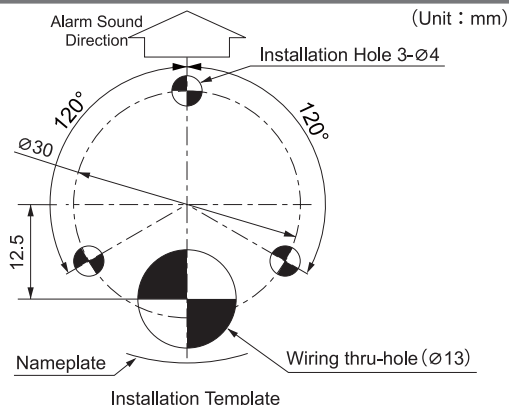
- The following requirements are necessary for proper installation.
  - Install where no excessive vibration is present.
  - Install on a strong surface.
  - Install in an upright position. (Do not install the Signal Tower sideways or inverted.)
- This product is for indoor use only. (Do not use it outdoors.)
- 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.

### 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.
  - Drill the holes in the installation surface.
- ※ Check the direction of the nameplate and the wiring route before drilling holes.



## 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.
- Do not apply voltage directly to the terminal [9.Flash COM], or damage to the product may occur. (FB type)
- Do not connect terminal [8.COM] and [9.Flash COM] together, 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 shock or short circuiting, which are extremely dangerous.
- While wiring this product, 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

- Turn the power OFF.
- 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.

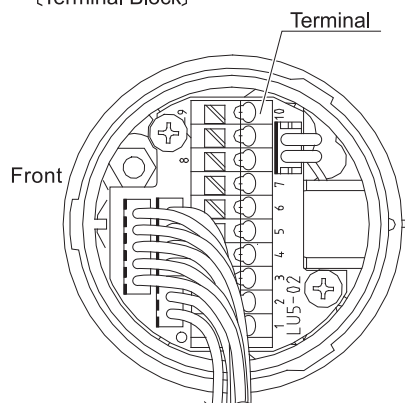
[To be recognized as a UL standard.]

- 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)

### Wiring to Base Unit (Terminal Block)

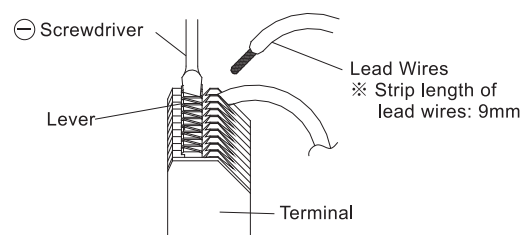
Remove the body from the base unit. ( Refer to "6. Assembling LED Unit.")

[Terminal Block]



Terminal No.	Terminal Color	Description 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

※Recommended Wire Type/Diameter  
 UL1007 Single Wire :  $\phi 0.8 \sim \phi 1.2\text{mm}^2$   
 Twisted Wire :  $0.3 \sim 1.25\text{mm}^2$  (AWG22~18)  
 UL1430 Single Wire :  $\phi 0.8 \sim \phi 1.2\text{mm}^2$   
 Twisted Wire :  $0.3 \sim 1.25\text{mm}^2$  (AWG22~18)  
 ※Use 75°C CU Wire only.



- Press the lever with a screw driver, etc.
- Insert the stripped portion of the lead wire all the way into the terminal block.
- Release the lever to complete the wiring.



## External Contact Capacity

### External Contact (Transistor) Capacity

Voltage Specifications		24V DC
LED Unit (Per Unit)	Current Consumption	Red/Amber : 44mA, Green/Blue/White : 17mA
	Contact Capacity	$I_s \geq 100\text{mA}$ , $V_s \geq 35\text{V DC}$
Buzzer	Current Consumption	50mA
	Inrush Current	100mA
	Contact Capacity	$I_s \geq 100\text{mA}$ , $V_s \geq 35\text{V DC}$
Power Supply	Current Consumption	300mA
	Contact Capacity	$I_s \geq 500\text{mA}$ , $V_s \geq 35\text{V DC}$
Leakage Current		$I_L \leq 0.1\text{mA}$

※ $I_s$  : Current Capacity,  $V_s$  : Withstand Voltage,  $I_L$  : Leakage Current

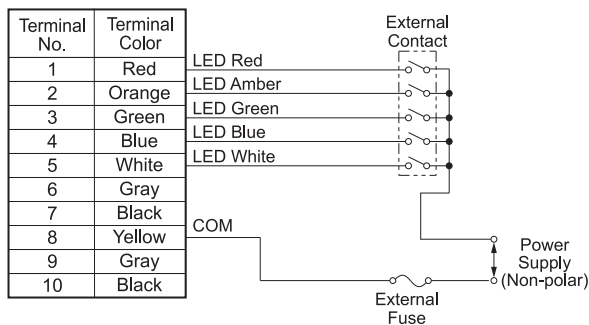
### External Fuse

Voltage	Fuse Rating
All Model	250V 1A

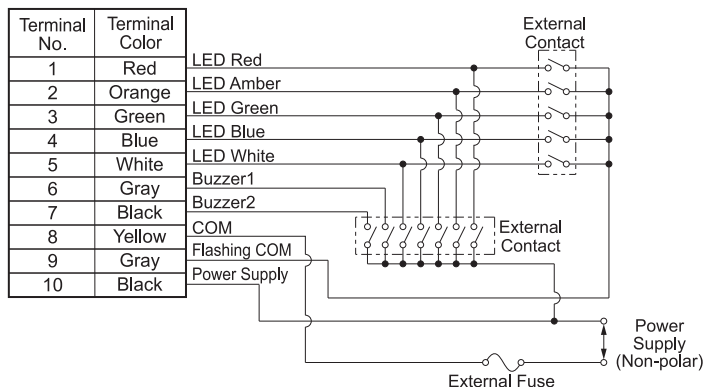
※Use the fuse conforming to the rated current of the machine which the product was installed in. (Example : Class J type fuse)

## Wiring Example

### Model LU5 [Continuous Lighting Type]



### Model LU5-FB [Continuous Lighting, Flashing/Buzzer Type]

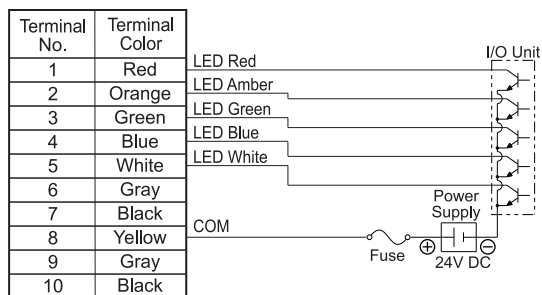


**CAUTION** Do not apply voltage to [9.Flashing COM]

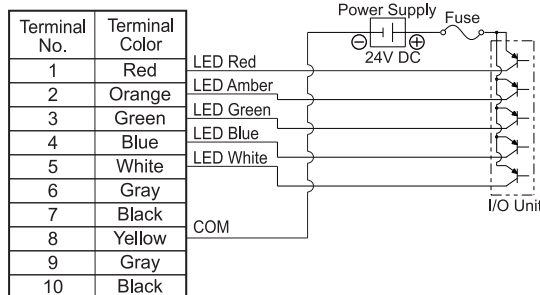
## Wiring Example (NPN/PNP)

### Model LU5 [Continuous Lighting Type]

#### NPN Transistor

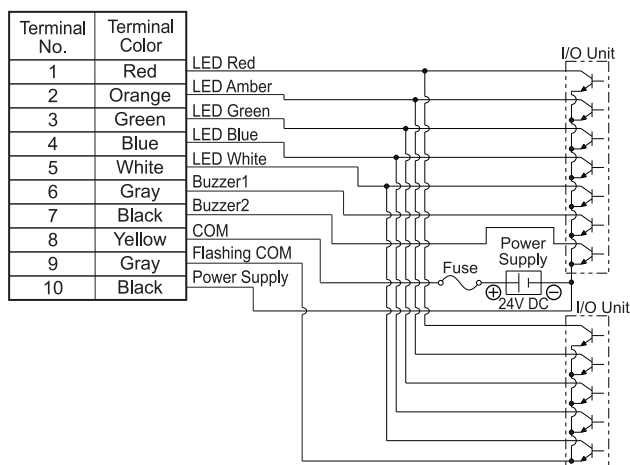


#### PNP Transistor



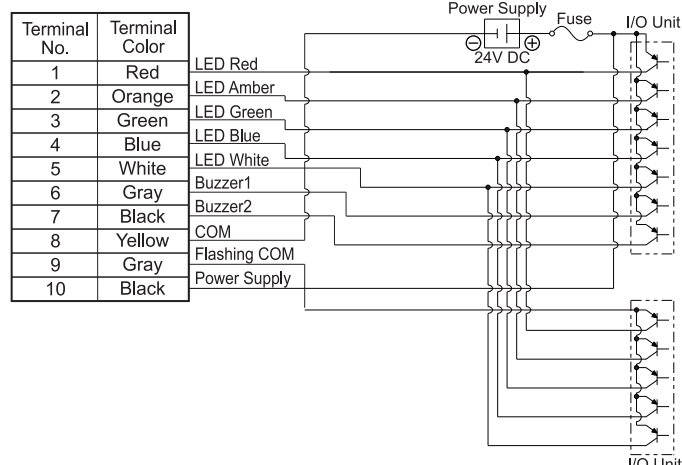
### Model LU5-FB [Continuous Lighting, Flashing/Buzzer (FB) Type] (When using the FB type, use a separate I/O unit for flashing)

#### NPN Transistor



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

#### PNP Transistor



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



## 6 Assembling LED Unit

### ⚠ CAUTION

- Make sure the power is off before assembling, wiring, repairing, or replacing parts to avoid a short-circuit, electric shock, or burns.
- 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.
- Make sure the O-ring is mounted in position first on the lower unit as shown in Fig.1, before placing the upper unit onto the lower unit.

### Assembling LED Unit

- Turn the power off before assembling LED units.
- 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 in the direction of the arrow(②) to lock it into place. (Refer to Fig.2)

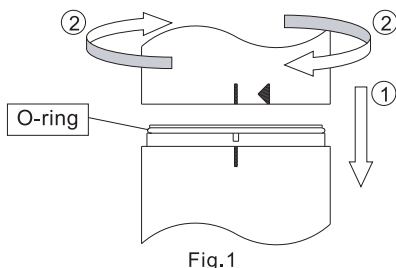


Fig.1

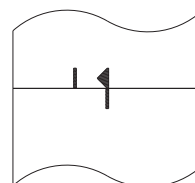


Fig.2

## 7 Specifications

### [Base Unit]

Model	Rated Voltage	Power Consumption	Mass	Flash Cycle (fpm) and Sound Level
LU5-02	24V DC	—	182g	FB Type Flashing Cycle: 60 Flashes per minute
LU5-02FB		1.2W	200g	FB Type Sound level: 85 dB (1m)

### [LED Unit]

Model	Rated Voltage	Power Consumption	Mass
LU5-E-R	24V DC	1.06W	44g
LU5-E-Y			
LU5-E-G		0.41W	
LU5-E-B			
LU5-E-C			

- This product is recognized as a UL standard.  
For recognition as a UL standard;  
- Use on a flat surface with a Type 1 Enclosure.  
- Maximum surrounding air temperature is at 60°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 device, pursuant to EMC DIRECTIVE.  
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.

### Caution

- In the event that the Signal Tower is subject to continuous or excessive shaking, the vibration may be too strong and cause damage. Immediately stop using the Signal Tower and consult a PATLITE Sales Representative.
- 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.







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