PATLITE

Signal Tower
INSTALLATION MANUAL

[Type : LU7]

Thank you for specifying the PATLITE Signal Tower for your application. Please read these instructions carefully before you perform installation, maintenance and repair. Store this manual carefully for easy reference. If you have any questions about this product, please contact PATLITE Corporation.

1. To operate this product safely, please observe the following

NOTES TO BE OBSERVED FOR SAFE OPERATION

Notes to be followed to prevent any damage to the user and other personnel or to assets are as follows:

■The indications for warning are divided into the following classes according to the degree of danger or damage incurred when the warning is not taken into consideration and the product is not correctly used.

⚠Warning	Indicates an imminently 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.

⚠ Warning

- Make sure the power is OFF before wiring. Wrong wiring may result in a cause of short circuit or electric shock.
- Make sure the power is OFF to avoid an electric shock or burn when repair or replace the parts.
- Do not use this product with damaged lens or leave it without the lens or head cover. That may cause an electric shock.
- If installing this product requires a construction work, please ask to a specialistin order to avoid a risk of an electric shock, fire or fall.
- 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.
- Be careful not to hold the product to climb any machines attached the product to also be careful not to catch the cover of machine on this product when you remove the cover, as it may cause of falling down or drop.

⚠ Caution

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

2. Model No. configuration

〔Base unit〕

LU7-□□FB

■Rated voltage
02 : 24V DC
M2:90～250V AC

■Light method
FB:Continuous light or flashing, with buzzer
Nothing:Continuous light

〔LED unit〕

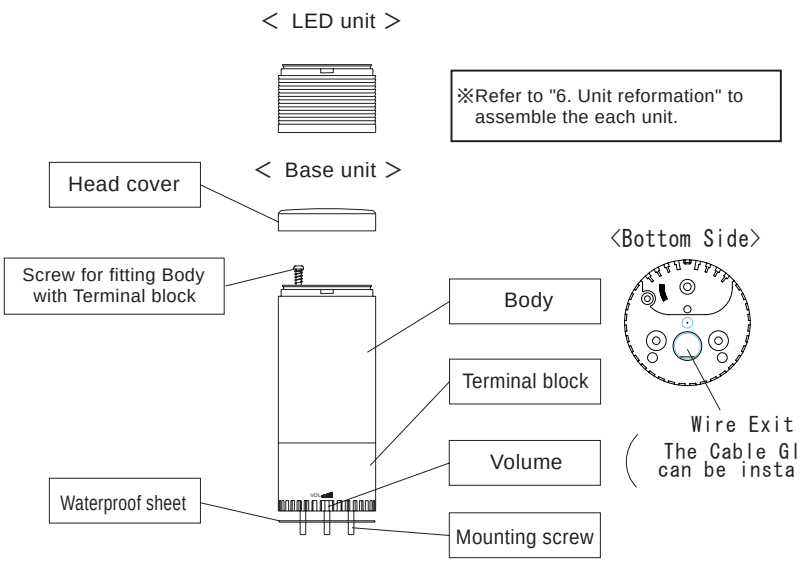
LU7-E-□

■LED unit

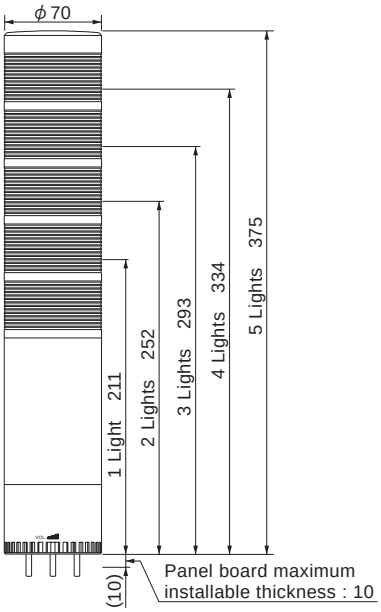
■LED color
R:Red
A:Amber
G:Green
B:Blue
C:White

3. Parts name and Dimensions

■Parts name



■Dimension

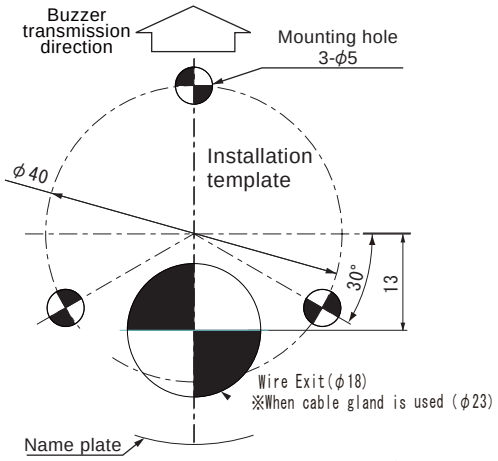


(Unit:mm)

4. Installation

■ Mounting

- Drill mounting holes in the wall. (See the following installation diagram.)
- Secure the mounting bracket with the hex bolts and hex nuts.
- Install the Signal Tower vertically at a location that has sufficient strength and minimal vibration.
- The alarm of buzzer models can be heard best from the front direction. Therefore make sure the Signal Tower is facing the correct direction before install it.

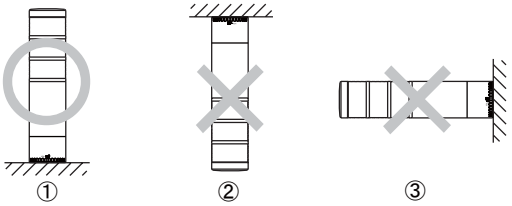


Unit：mm

Caution

- This product can be used only indoors. (Do not use it outdoors.)
- Do not install the Signal Tower horizontally or inverted. (See the following "Mounting side" .)
- Make sure of the specified operating voltage and current before use.
- Do not use or keep without LED unit or Head cover installed.
- Use the soft cloth with moisture when the LED unit or Bse unit must be cleaned up. (Do not use thinner, benzine, gasoline or oil.)
- During installation, do not remove the waterproof sheet. It may cause a malfunction of water proof structure.
- This product has 1mm thick waterproof packing at the bottom of the pole bracket. However, when complete waterproofing is not provided due to the unevenness of the installation surface, apply waterproof sealant between the unit and the installation surface to maintain waterproof conditions.
- When the cable gland is used, the hole must be the dimension that it can go through. The cable which it can be used for is as follows; Screw Size: M16×P1.5, Screw Length: Maximum 11mm, Outer Diameter: Maximum 25mm, Material: Plastic.

[Mounting side]



① Upright ② Invert ③ Horizontal

Using this template

1. Confirm the hole position on the product.
2. Secure the template to the installation surface using adhesive tape.
3. Mark the installation holes using nail punch, etc.
4. Drill the holes in the installation surface.

※ Confirm the direction of the name plate and the wiring route before you drill the holes.

5. Wiring Procedure

■ Wiring procedure (Concerning the mark ※, the conditions about the product corresponding to UL are mentioned.)

- Please make wiring connection according to wiring example.
- For wiring of 5 layers or less, please make wiring connection by increasing or decreasing external contacts in each layer according to wiring example.
- When using multiple LED units of the same color, make the contact capacity equal to the number of same color LED units multiplied by the contact capacity for 1 light. (This is because LED units of the same color light up for one signal line.)

※ Fuse for protection of external contact should be installed within 305mm from the connected point of the power source wire.

- When wiring is completed, insulate the end of each unused lead wire by using insulation tape.

※ Use "Class Ⅱ Circuit" for the power supply source. Concerning fuse and fuse-holder, be sure to use the products authorized by UL Inc.

※ Use the fuse conforming to the rated current of the machine. (Example : Class J type fuse)

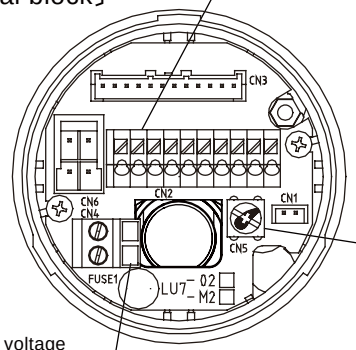
※ For the 90～250V AC model, connect the green/yellow lead wire to the ground.

- If you have any questions about simultaneous use of multiple units or other special operations, contact PATLITE Customer Service before wiring.

5-1. Wiring example for Base unit [Terminal block]

- Remove Body from Base unit.(In case of 24V type, refer to "6. Unit reformation" .)
- In case of 90-250V type, refer to "5-1-2. Wiring procedure for 90-250V type," Be sure to disengage the Screw before removing the Body from Terminal block.

〔Terminal block〕



CN2 : For signal and low voltage (24V type)
※ Strip length of lead wires: 9mm

※Recommendable wire type / dia
UL1007AWG22～16
UL1430AWG22～16
※Use 75℃ CU Wire only.

Terminal No.	Terminal color	Corresponding unit 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 : Pi…(Continuous)
7	Black	Buzzer2 : Pi・Pi…
8	Yellow	Power supply(Continuous COM)
9	Gray	Flashing COM
10	Black	Power supply

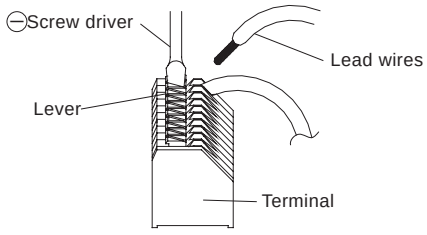
CN5 : For Earth (Tighten torque : 1.2N·m)
※ Recommendable wire type / dia : UL1015AWG18～14
※ Use the lead wire with the color of green or green/yellow for the earth wire.

CN4 : For high voltage (90-250V type) Tighten torque 0.6N·m
※ Recommendable wire type / dia : UL1015AWG18～14
※ Strip length of lead wires: 10mm

Caution

- Never fail to observe the strip length of lead wire. Excessively short strip length causes connection failure and excessively long strip length gives rise to electric shock or short circuit, which are extremely dangerous.
- While wiring this product, take care to avoid short-circuits from loose wire strands or similar conditions.
- Do not use unnecessarily strong force to separate the Terminal block and the Body. Inside wiring may be damaged and may cause failure.
- Connect high-voltage power supply cable to the specified terminals in the Terminal block. Failure to connect this cable correctly will burn out the internal circuit.

5-1-1. Wiring procedure for a terminal[CN2]

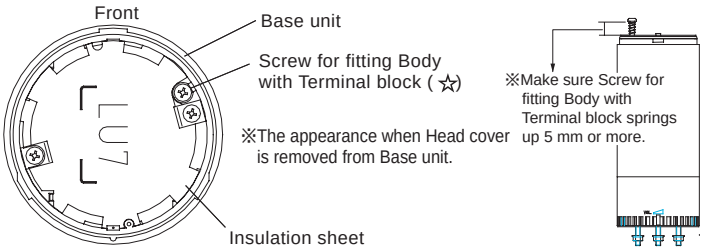


① Press the lever with screw driver etc.
② Insert the stripped portion of the lead wire all the way into Terminal block.
③ Release the lever and wiring is completed.

Caution

- When removing the lead wire, be sure to operate the lever first, before pulling the wire out.

5-1-2. Wiring procedure for 90-250V type



① Disengage Screw for fitting Body with Terminal block (☆).
※Make sure Screw for fitting Body with Terminal block springs up 5 mm or more.
② Remove Body from Terminal block.
(Refer to "6. Unit reformation" .)
③ Wire each lead wire.
(Refer to "5-1. Wiring example for Base unit" .)
④ Assemble Body with Terminal block.
⑤ Tighten the screw(☆) and wiring is completed.

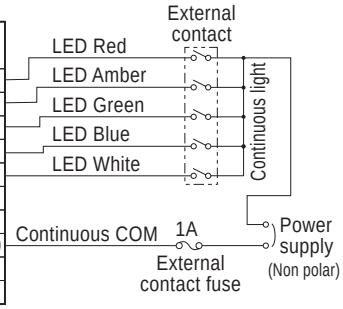
5-2. Wiring example

LU7 [Continuous light type]?

■24V DC

[CN2]

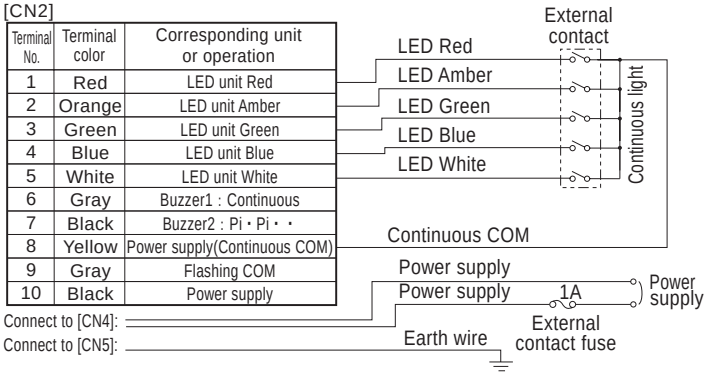
Terminal No.	Terminal color	Corresponding unit or operation
1	Red	LED unit Red
2	Orange	LED unit Amber
3	Green	LED unit Green
4	Blue	LED unit Blue
5	White	LED unit White
6	Gray	Buzzer1 : Continuous
7	Black	Buzzer2 : Pi・Pi・・
8	Yellow	Power supply(Continuous COM)
9	Gray	Flashing COM
10	Black	Power supply



■90～250V AC

[CN2]

Terminal No.	Terminal color	Corresponding unit 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 : Pi・Pi・・
8	Yellow	Power supply(Continuous COM)
9	Gray	Flashing COM
10	Black	Power supply

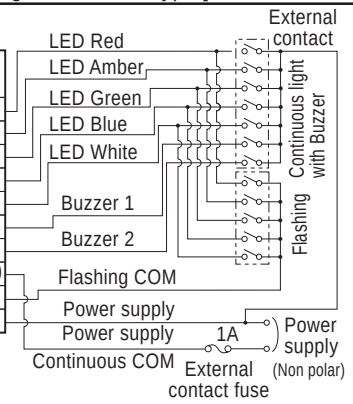


LU7-FB [Continuous light or Flashing, with Buzzer type]

■24V DC

[CN2]

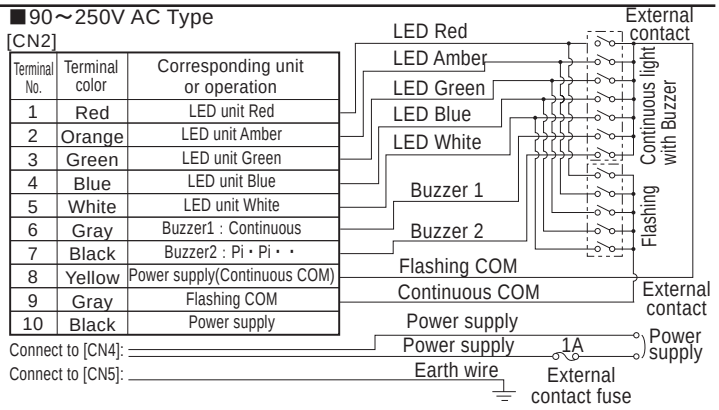
Terminal No.	Terminal color	Corresponding unit or operation
1	Red	LED unit Red
2	Orange	LED unit Amber
3	Green	LED unit Green
4	Blue	LED unit Blue
5	White	LED unit White
6	Gray	Buzzer1 : Continuous
7	Black	Buzzer2 : Pi・Pi・・
8	Yellow	Power supply(Continuous COM)
9	Gray	Flashing COM
10	Black	Power supply



■90～250V AC Type

[CN2]

Terminal No.	Terminal color	Corresponding unit 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 : Pi・Pi・・
8	Yellow	Power supply(Continuous COM)
9	Gray	Flashing COM
10	Black	Power supply



【External contact capacity】

Voltage specs.		24V DC	90～250V AC
LED unit 〔1-Light〕	Current consumption	Red・Amber : 52mA	Green・Blue・White : 42mA
	Contact capacity	Is≧100mA, Vs≧35V AC	
Buzzer	Current consumption	50mA	
	Inrush current	100mA	
	Contact capacity	Is≧100mA, Vs≧35V AC	
Power supply	Current consumption	360mA	50mA
	Contact capacity	Is≧500mA Vs≧35V AC	Is≧100mA Vs≧250V AC

【External contact fuse】

Voltage	Ampere rating of fuse
All model	250V 1A

※Use the fuse conforming to the rated current of the machine which you install product.
(Example : UL Class J type fuse)?
※Since a maximum of 10A inrush current flows through the power supply wires, select contacts with enough capacity to handle the inrush current.

※Is : Current capacity
Vs : Withstand voltage

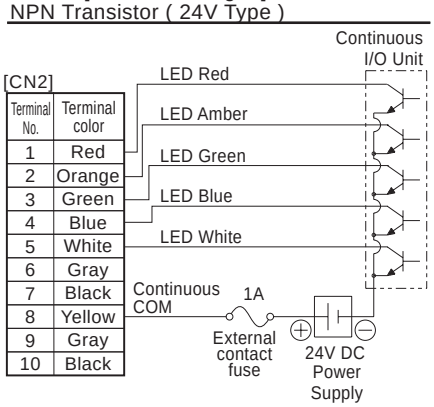
Caution

- Make sure the power is OFF before wiring. A short circuit may damage internal circuits or cause an electric shock.
- Do not apply voltage directly to signal wires and common wires. It may damage the circuit. (90～250V AC)
- Do not pull out the lead wire or push it into the pole or the body.
- Install the external contact fuse on the power supply side as shown in the wiring example in order to prevent burn in case of a wiring error.
- Failure to follow wiring instructions may cause damege to product or product may not operate properly.
- Do not apply voltage directly to Flashing common wire. It may cause a breakdown. (FB type)
- Do not connect Continuous common wire and Flashing common wire. It may damage the internal circuit.
- If using both flashing and continuous circuits, do not apply power at the same time as this may cause second color indicator to light. This also applies to both alarm circuits.
- If you use the product with both alarms, please use external contacts for lighting and for alarms.

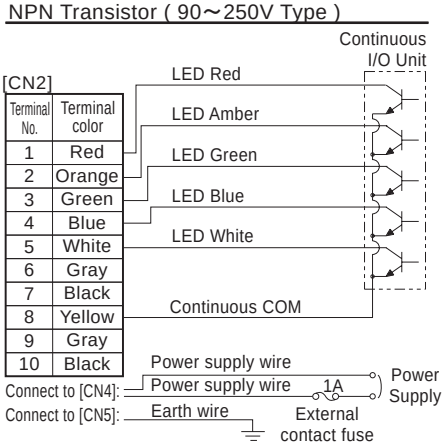
5-3. NPN (PNP) Transistor drive example

■LU7 [Continuous light]

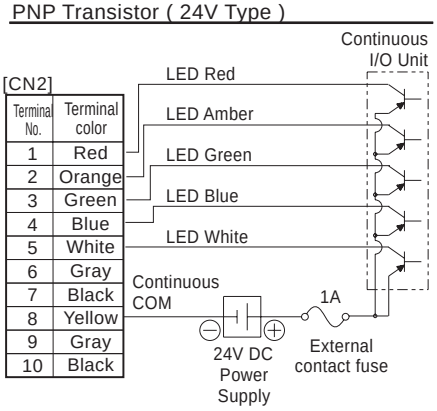
NPN Transistor (24V Type)



NPN Transistor (90～250V Type)



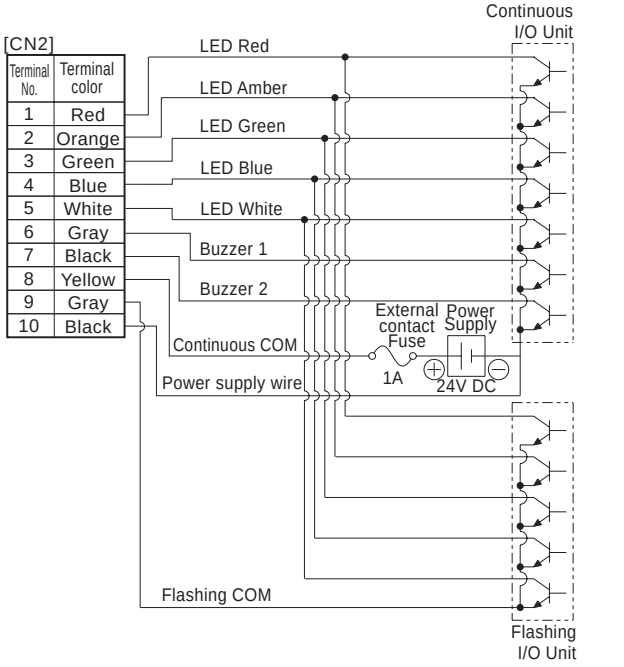
PNP Transistor (24V Type)



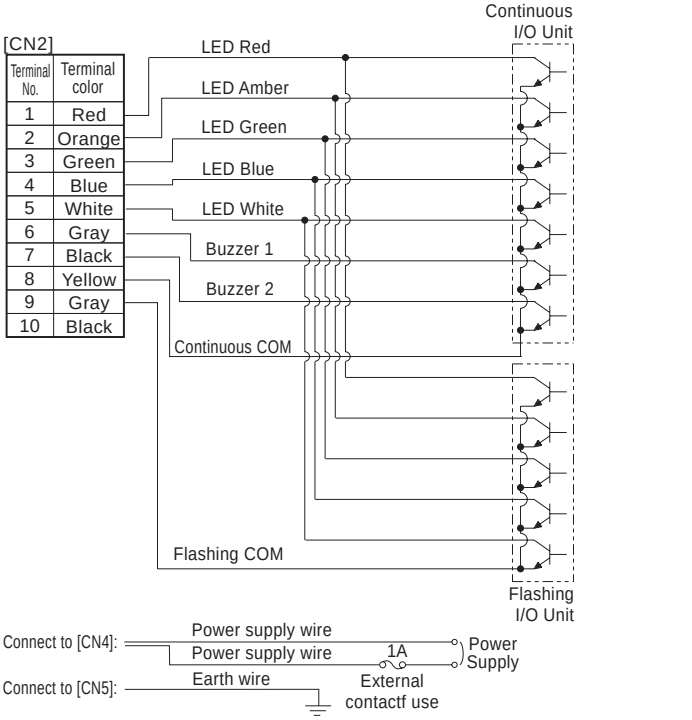
■LU7- FB [Continuous light or Flashing, with Buzzer type]

● When you use FB (Continuous light or Flashing, with Buzzer) type, you need the I/O unit respectively.

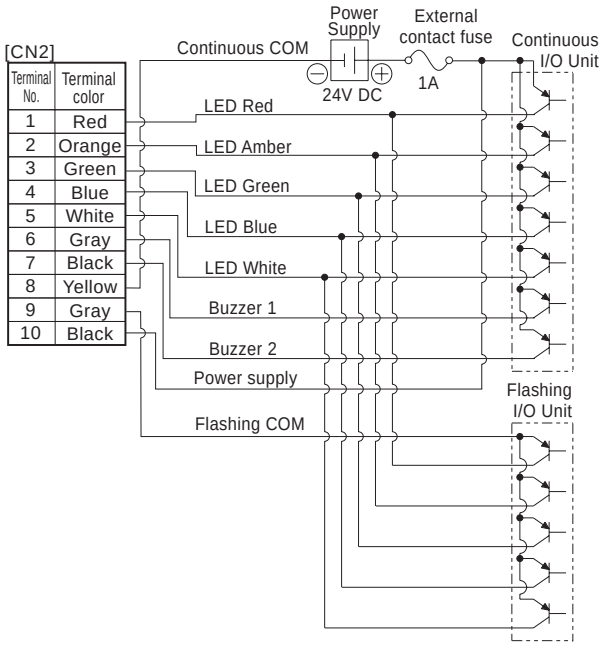
NPN Transistor (24V Type)



NPN Transistor (90～250V Type)



PNP Transistor (24V Type)

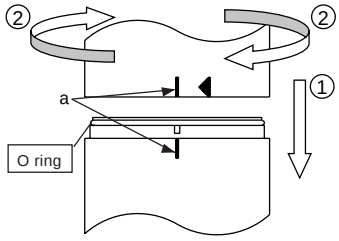


Recommendation transistor

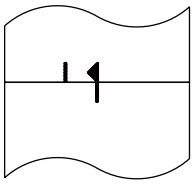
Current capacity	Ic≧100mA （LED unit） （Buzzer）
Dielectric break down strength	Vc≧35V
Leak current	IL≦0.1mA

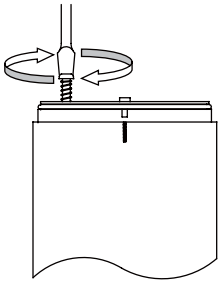
6. Unit reformation

- Turn the power OFF before performing unit reformation.
- First make sure the O-ring is mounted as shown in Drawing 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).(Refer to Drawing.2)
- For 90-250V type Base Unit, tighten the Screw that secures the Body to the Terminal block.



Drawing.1


Drawing.2

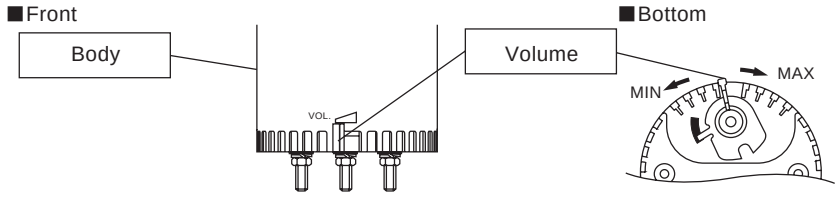

Drawing.3

Caution

- Do not remove a LED unit forcibly. It may damage the unit.
- Do not warp or damage the LED unit to a lower unit.
- Make sure the O-ring is first mounted in position on the Terminal block as shown in Drawing 1, then place the Body on the O-ring.
- If the Body is mounted to the Terminal block, do not attempt to rotate either part with the Screw pushed in or engaged.
- Never attempt to tighten the Screw until the locating mark is aligned with the arrow as shown in Drawing 2.

7. Volume adjustment

- You can adjust the volume by turning the volume control at the bottom to the left or right.



Caution

- Do not turn the volume control forcibly. It might damage the volume control.

8. To use this product in accordance with the CE marking, please observe the followings

- Please use a fuse specified by IEC 127.
- When lead wires are exposed outside the body during pole installation, etc. always provide double insulation using insulation tape and vinyl tubing, etc.
- For the 90-250V type, use shielded cable for the power supply cable and be sure to connect the shield to ground (CN5).

9. Specifications

[Base unit]

Model	Rated voltage	Power consumption	Mass	Flashing cycle and Peak sound level
LU7-02	24V DC	————	250g	FB Type 60 Flashes per minute Sound level 70～90dB/m ※FB type only
LU7-02FB		1.2W	275g	
LU7-M2	90～250V AC (50/60Hz)	Buzzer：2.2W Standby power consumption：1.0W	350g	
LU7-M2FB			375g	

[LED unit]

Model	Rated voltage	Power consumption	Mass
LU7-E-R	24V DC	1.3W	60g
LU7-E-A			
LU7-E-G		1.0W	60g
LU7-E-B			
LU7-E-C			

[Vibretion resistance]

Number of LED units	1-Lights	2-Lights	3-Lights	4-Lights	5-Lights	5-Lights
LU7-02	4.5G 44.1m/s²	3.5G 34.2m/s²	2.0G 19.6m/s²	1.3G 12.7m/s²	0.7G 6.8m/s²	1.9G 18.6m/s²
LU7-M2	4.5G 44.1m/s²	4.5G 44.1m/s²	1.9G 18.6m/s²	1.9G 18.6m/s²	1.0G 9.8m/s²	1.9G 18.6m/s²
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.