

Signal Tower
INSTALLATION MANUAL



[Type : LES / LE / LEL]

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.



NOTES TO BE OBSERVED FOR SAFE OPERATION

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

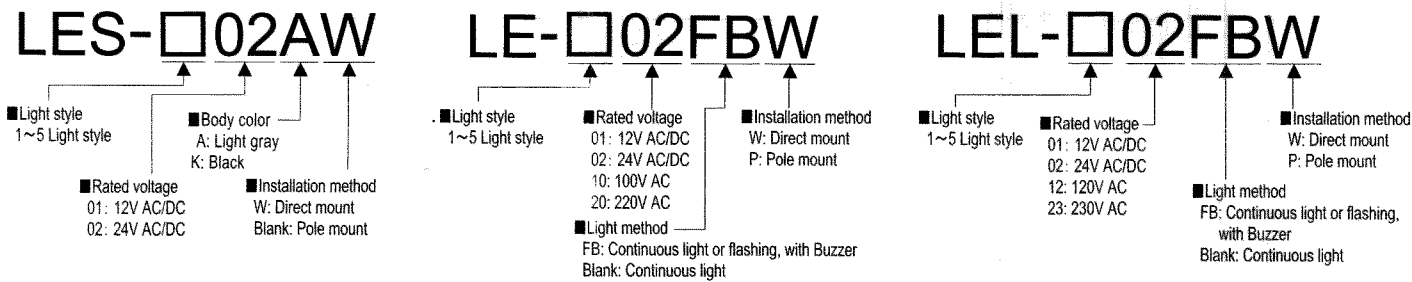
■ The indications for warning are divided into the following classes according to the degree of danger or damage incurred when the warning is not taken into consideration and the product is not correctly used.

 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.

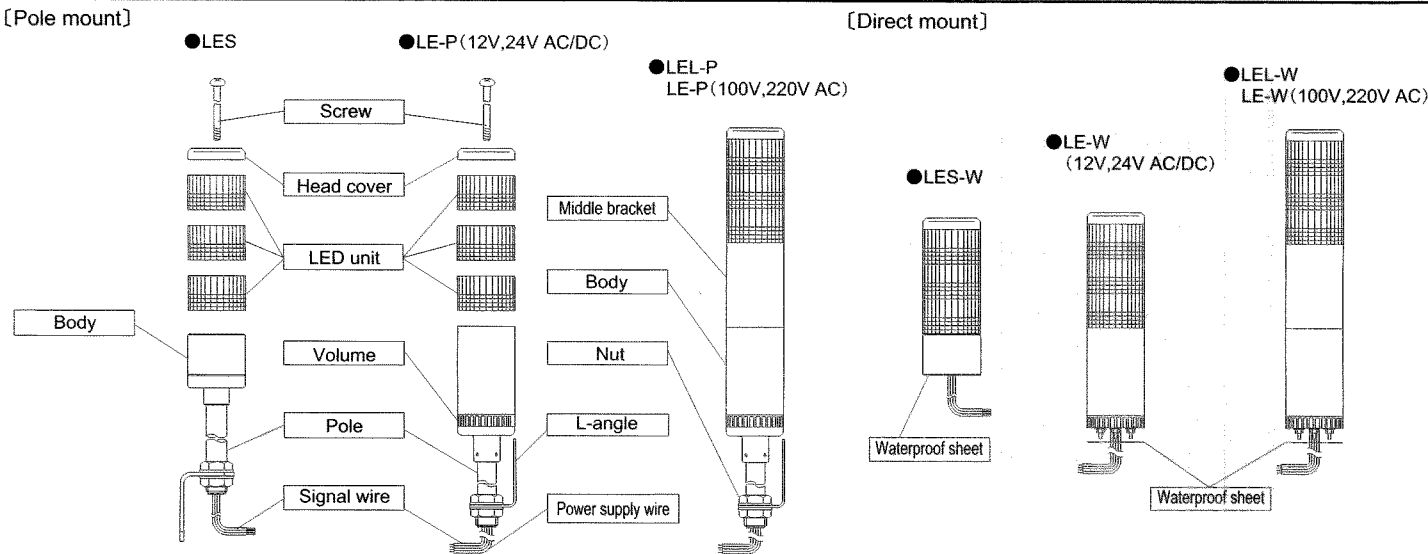
1. To operate this product safely, please observe the following

-  **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 specialist. There is 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 climb by holding this product after attaching it to any machines. 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 ca cause a breakdown.

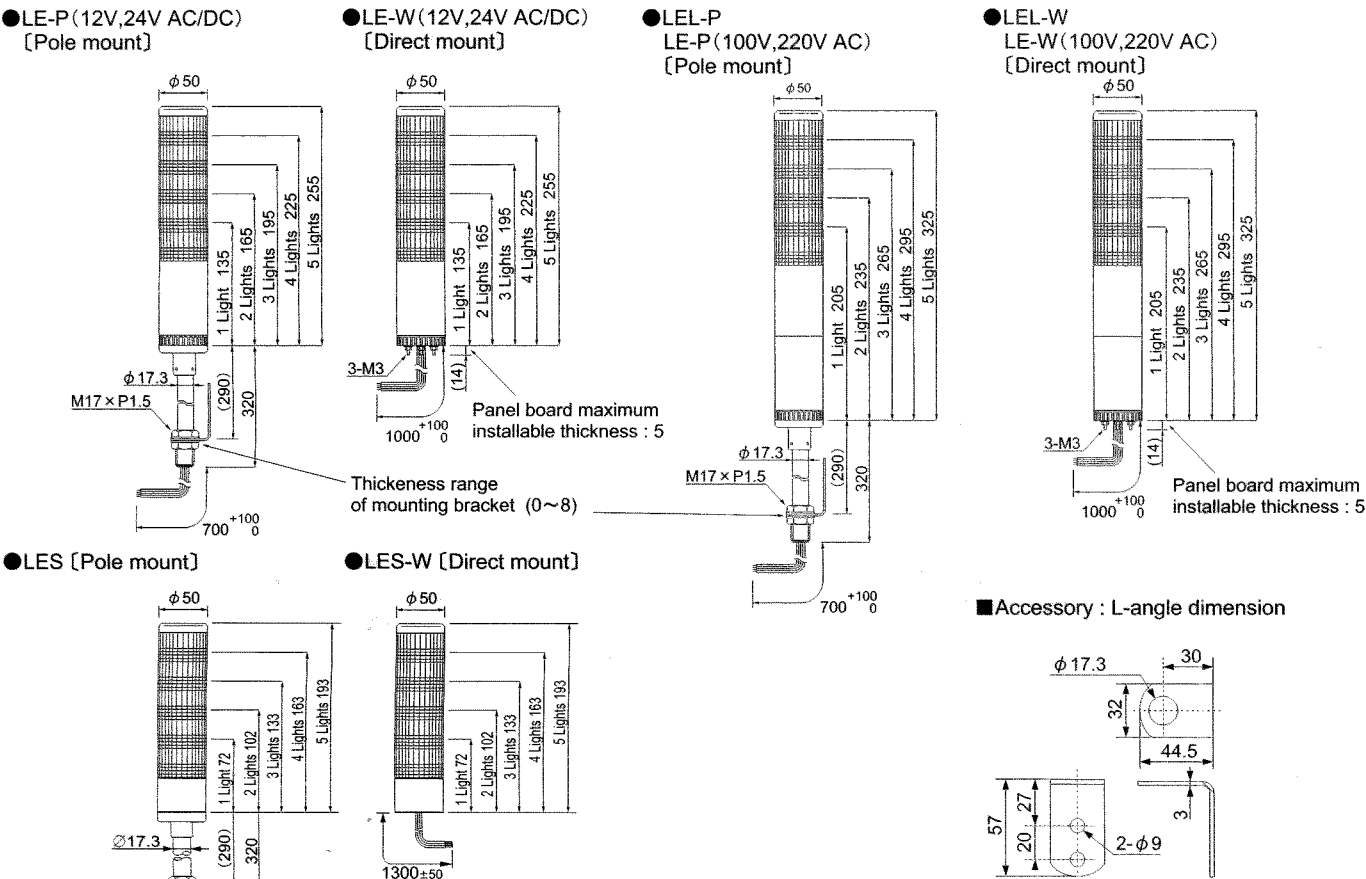
2. Model No. Configuration



3. Parts name



4. Dimension



(Unit : mm)

5. Installation

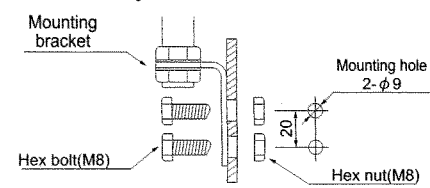
[Mounting]

- 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.
- With buzzer models, the alarm can be heard best from the front direction. Therefore make sure the Signal Tower is facing the correct direction before install it.

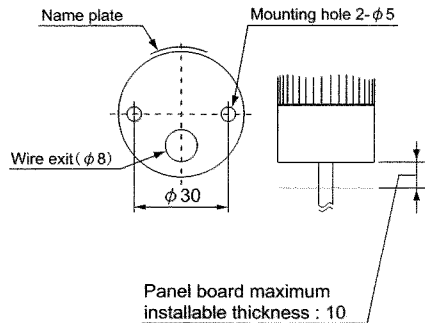
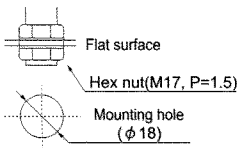
[LE(L)-P Type]

[LES-W Type]

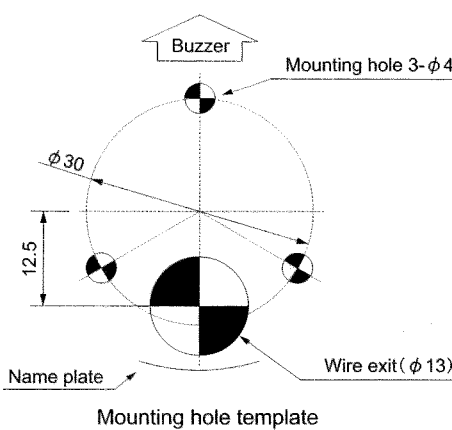
■Side Mounting Installation



■Flat Surface Installation



[LE(L)-W Type]



Caution

- This product can be used only indoors. (Do not use it outdoors.)
- Do not install the Signal Tower sideways or inverted.
- Make sure of the specified operating voltage and current before use.
- Do not leave the product or use it without LED unit installed.
- Use the soft cloth with moisture when the LED unit or bodies must be cleaned up. (Do not use thinner, benzine, gasoline or oil.)
- When you set up, do not twist with the powerful torque, or connector may be damaged.
- During installation, do not remove the waterproof sheet. It may cause a malfunction.
- 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.
- ※ Warranty is not valid for malfunctions that are caused by handling that does not observe the caution instructions, unauthorized modifications or natural calamities. Do not use this product for purposes other than those specified in this manual.

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 a 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.

(Unit : mm)

6. 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 and 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 which you install product. (Example : Class J type fuse)
 - ※ For the 120/230V AC models, connect the green / yellow lead wire to the ground.
 - 100/220V type do not have green/yellow lead wire.
 - If you have any questions about simultaneous use of multiple units or other special operations, contact PATLITE Customer Service before wiring.

[Wire color table]

LED unit color	Wire color
Red Unit	Red Wire
Amber Unit	Orange Wire
Green Unit	Green Wire
Blue Unit	Blue Wire
White Unit	White Wire

※ All 5 wires (Red, Orange, Green, Blue, White) are connected regardless of the number of LED units.

Buzzer	Wire color
Nothing	
Buzzer1: Pi·Pi·Pi	Purple Wire
Buzzer2: Pee·Pee·Pee	Skyblue Wire

※ Non buzzer specs. do not have a lead wire for the buzzer.

[External contact fuse]

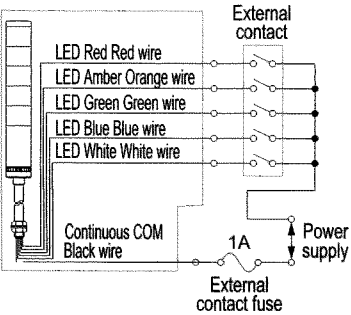
Voltage	Ampere rating of fuse
All model	250V 1A

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

1. Wiring example

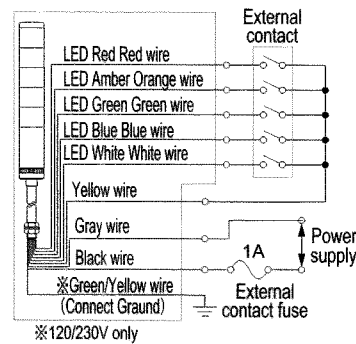
LE(L) / LES: Continuous light

■ 12/24V AC/DC



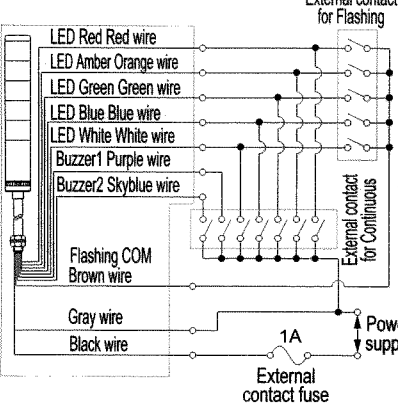
LE(L): Continuous light

■ 100/120/220/230V AC



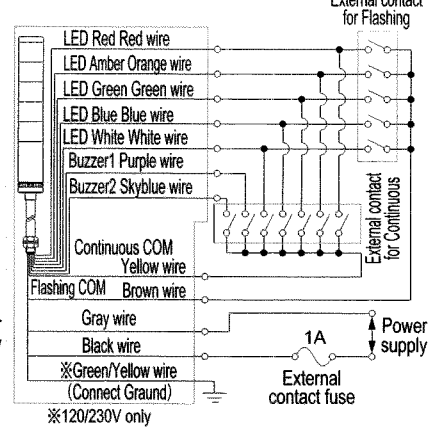
LE(L)-FB: Continuous light or Flashing, with Buzzer

■ 12/24V AC/DC



LE(L)-FB: Continuous light or Flashing, with Buzzer

■ 100/120/220/230V AC



[External contact capacity]

Voltage specs.		12V AC/DC	24V AC/DC	100V AC	120V AC	220V AC	230V AC
LED unit (1 Light)	Current consumption	Red·Amber 50mA Green·White 40mA Blue 44mA	Red·Amber: 25mA Green·White: 20mA Blue: 22mA				
	Contact capacity	Is≥100mA Vs≥30V AC	Is≥50mA, Vs≥50V AC				
Buzzer	Current consumption	40mA					
	Inrush current	150mA					
	Contact capacity	Is≥200mA, Vs≥50V AC					
Power supply	Current consumption	440mA	360mA	40mA (MAX)		20mA (MAX)	
	Contact capacity	Is≥500mA Vs≥30V AC	Is≥500mA Vs≥50V AC	Is≥100mA Vs≥125V AC		Is≥50mA Vs≥250V AC	

※Is : Current capacity Vs : Withstand voltage

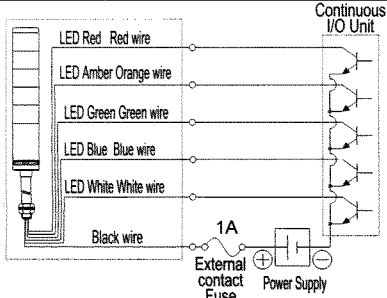
Caution

- Make sure the power is OFF before wiring. A short circuit may damage internal circuits or cause an electric shock.
- Do not 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.
- Enough attention shall be paid for wiring because if there is any mistakes in wiring a circuit may break down.
- Do not apply voltage directly to the brown lead wire. It may cause a breakdown.(FB type)
- Do not connect the yellow lead wire and the brown lead wire. It may damage the internal circuit.
- 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 simultaneous input, provide switching between flashing and continuous lighting.
- When you use the plural products simultaneously for flashing or with both two buzzer sounds, please make the external contact independent for each product.
- If you use the product with both two buzzer sounds, please make the external contacts for lighting and for buzzer independent for each product.

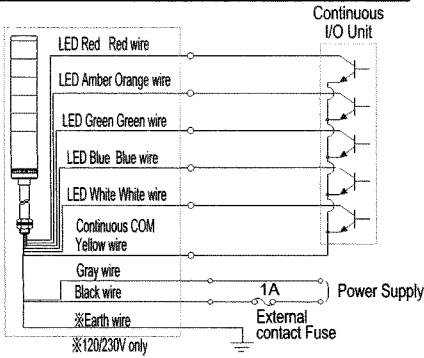
2. NPN(PNP)Transistor drive example

[Continuous light type]

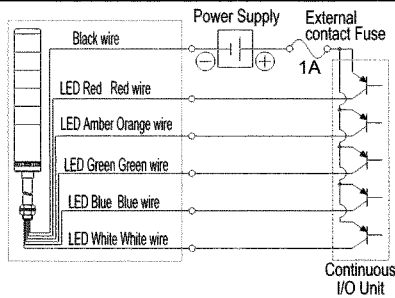
NPN Transistor (12/24V Type)



NPN Transistor (100/120/220/230V Type)



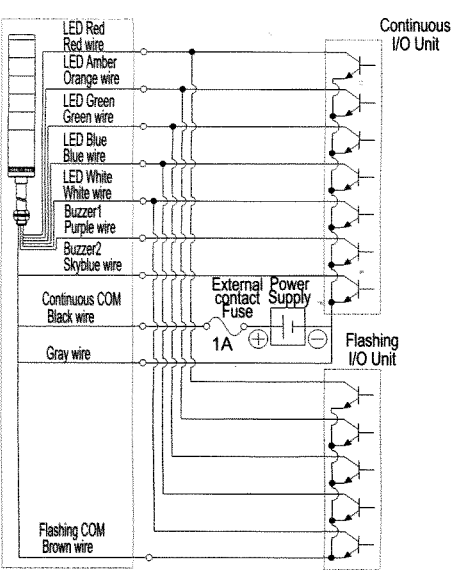
PNP Transistor (12/24V Type)



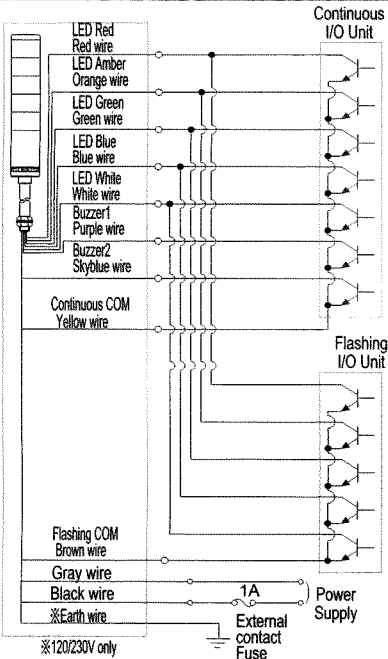
[Continuous light or Flashing, with Buzzer type]

● When you use FB type, you need the I/O unit respectively.

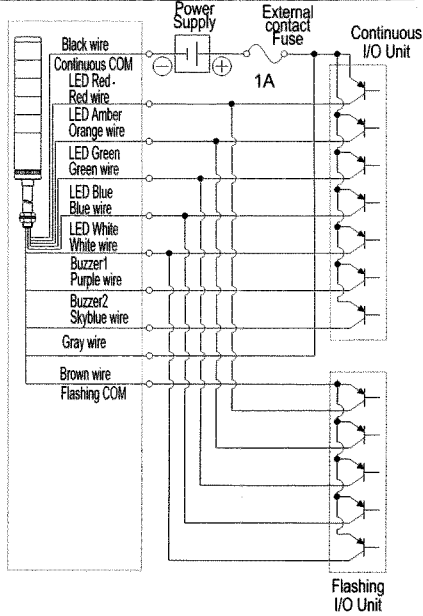
NPN Transistor (12/24V Type)



NPN Transistor (100/120/220/230V Type)



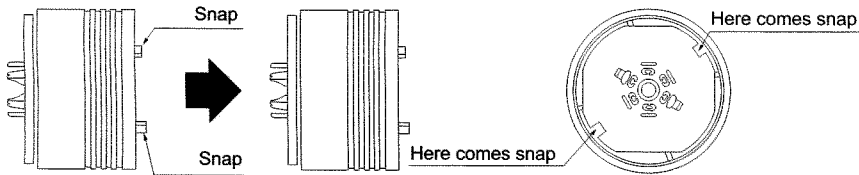
PNP Transistor (12/24V Type)



Model	Transistor (NPN or PNP)	Dielectric break down strength	$V_c \geq 35V$
Current capacity	$I_c \geq 100mA$ (LED unit) $I_c \geq 300mA$ (Buzzer)	Leak current	$I_L \leq 0.1mA$

7. LED unit color reformation

- Turn the power OFF before performing color reformation.
- Unscrew the head cover and remove the lens.
- Each LED module is positioned by 2 small snaps of different sizes. This will ensure that the module will assemble correctly.
- When increase or decrease the number of lights, install a new center screw for each light. (See 3. Part Names)
- In case of LES Type, bottom LED unit can not be removed or interchanged.



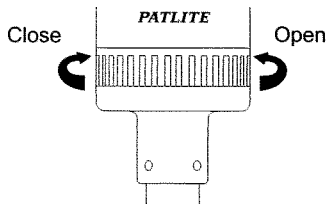
Caution

- Do not remove a LED unit forcibly. It may damage the unit.
- Loose screw makes LED unit and head cover unstable. Therefore handle the body carefully to avoid dropping or damaging when loose the screws.
- Do not warp or damage the LED unit to a lower unit.

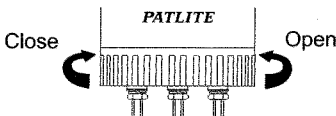
8. Volume adjustment

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

[Pole mount]



[Direct mount]



Caution

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

9. To use this product in accordance with 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.

10. Specifications

[LE Type]

Light style	Model	Rated voltage	UL Standard	Power consumption	Mass	Flashing cycle and Peak sound level Wire type/Dia
1Light	-101(FB)P/W	12V AC/DC	○	(12/24V) Red·Amber·Green Blue·White : 0.6W	0.69kg(P)	FB type 60 Flashes per minute Sound level 70~85dB/m
	-102(FB)P/W	24V AC/DC	○		0.31kg(W)	
	-110(FB)P/W	100V AC	×		0.78kg(P)	
	-120(FB)P/W	220V AC	×		0.40kg(W)	
2Lights	-201(FB)P/W	12V AC/DC	○	Buzzer : 12V / 0.5W 24V / 1.0W	0.74kg(P)	
	-202(FB)P/W	24V AC/DC	○		0.36kg(W)	
	-210(FB)P/W	100V AC	×		0.83kg(P)	
	-220(FB)P/W	220V AC	×		0.45kg(W)	
3Lights	-301(FB)P/W	12V AC/DC	○	(100/220V) Red·Amber : 2.4W Green·Blue·White : 2.2W Buzzer : 3.0W	0.79kg(P)	(12/24V) Power source and lead wire UL1007/AWG22
	-302(FB)P/W	24V AC/DC	○		0.41kg(W)	
	-310(FB)P/W	100V AC	×		0.88kg(P)	
	-320(FB)P/W	220V AC	×		0.50kg(W)	
4Lights	-401(FB)P/W	12V AC/DC	○	Standing by power consumption : 1.5W	0.84kg(P)	
	-402(FB)P/W	24V AC/DC	○		0.46kg(W)	
	-410(FB)P/W	100V AC	×		0.93kg(P)	
	-420(FB)P/W	220V AC	×		0.55kg(W)	
5Lights	-501(FB)P/W	12V AC/DC	○		0.89kg(P)	(100/220V) Power source wire UL1007/AWG20 Lead wire UL1007/AWG22
	-502(FB)P/W	24V AC/DC	○		0.51kg(W)	
	-510(FB)P/W	100V AC	×		0.98kg(P)	
	-520(FB)P/W	220V AC	×		0.60kg(P)	

[LEL Type]

Light style	Model	Rated voltage	Power consumption	Mass	Flashing cycle and Peak sound level Wire type/Dia
1Light	-101(FB)P/W	12V AC/DC	(12/24V) Red·Amber·Green Blue·White : 0.6W	0.69kg(P)	FB type 60 Flashes per minute Sound level 70~85dB/m
	-102(FB)P/W	24V AC/DC		0.31kg(W)	
	-112(FB)P/W	120V AC		0.78kg(P)	
	-123(FB)P/W	230V AC		0.40kg(W)	
2Lights	-201(FB)P/W	12V AC/DC	Buzzer : 12V / 0.5W 24V / 1.0W	0.74kg(P)	
	-202(FB)P/W	24V AC/DC		0.36kg(W)	
	-212(FB)P/W	120V AC		0.83kg(P)	
	-223(FB)P/W	230V AC		0.45kg(W)	
3Lights	-301(FB)P/W	12V AC/DC	(120/230V) Red·Amber : 2.4W Green·Blue·White : 2.2W Buzzer : 3.0W	0.79kg(P)	(12/24V) Power source and lead wire UL1007/AWG22
	-302(FB)P/W	24V AC/DC		0.41kg(W)	
	-312(FB)P/W	120V AC		0.88kg(P)	
	-323(FB)P/W	230V AC		0.50kg(W)	
4Lights	-401(FB)P/W	12V AC/DC	Standing by power consumption : 1.5W	0.84kg(P)	
	-402(FB)P/W	24V AC/DC		0.46kg(W)	
	-412(FB)P/W	120V AC		0.93kg(P)	
	-423(FB)P/W	230V AC		0.55kg(W)	
5Lights	-501(FB)P/W	12V AC/DC		0.89kg(P)	(120/230V) Power source wire UL1015/AWG18 Lead wire UL1007/AWG22 Earth wire UL1015AWG18
	-502(FB)P/W	24V AC/DC		0.51kg(W)	
	-512(FB)P/W	120V AC		0.98kg(P)	
	-523(FB)P/W	230V AC		0.60kg(P)	

※All of these types can respond to UL standard.

[LES Type]

Light style	Model	Rated voltage	Power consumption	Mass	Wire type/Dia
1Light	-101A(W)/K(W)	12V AC/DC	Red·Amber ·Green·Blue ·White : 0.6W	0.50kg	Power source and lead wire UL1007/AWG22
	-102A(W)/K(W)	24V AC/DC		0.07kg(W)	
2Lights	-201A(W)/K(W)	12V AC/DC		0.53kg	
	-202A(W)/K(W)	24V AC/DC		0.10kg(W)	
3Lights	-301A(W)/K(W)	12V AC/DC		0.56kg	
	-302A(W)/K(W)	24V AC/DC		0.13kg(W)	
4Lights	-401A(W)/K(W)	12V AC/DC		0.59kg	
	-402A(W)/K(W)	24V AC/DC		0.16kg(W)	
5Lights	-501A(W)/K(W)	12V AC/DC		0.62kg	
	-502A(W)/K(W)	24V AC/DC		0.19kg(W)	

※All of these types can respond to UL standard.

Caution

- 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.