

Signal Tower

Type : LME/LMS

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 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 burn.
- Please 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

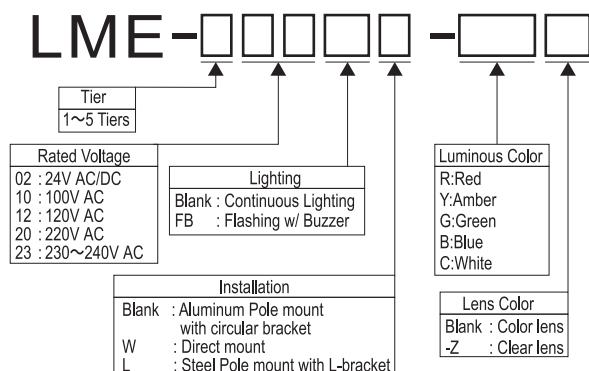
- Concerning replacement parts, such as LED unit, bulb or fuse, be sure to use those specified in this manual.
- For safety, make sure to connect an external fuse to the power source as shown in the wiring example.
- Do not substitute parts from other products as this may cause a breakdown.

2 Model Number Configuration

Type LME

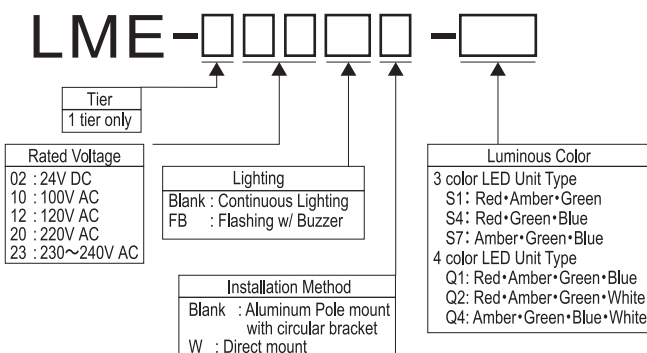
■ Single Color LED Unit Type

The Single Color LED Unit has a set color for each light.
The combination can be adapted from 1 color (1 tier) to 5 colors (5 tiers).

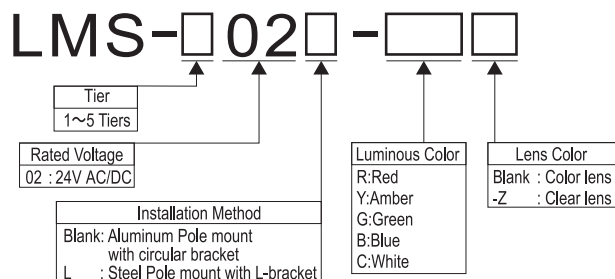


■ Multi Color LED Unit Type

The Multi Color LED Unit can display 3 colors (or 4 colors) for one light, and a Single Color LED Unit (separate cost) can be added to the Multi Color LED Unit.



Type LMS



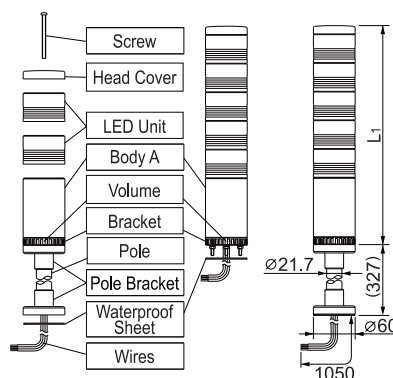
3 Part Names and Outer Appearance

LME Type

■ 24V AC/DC

(Part Names)

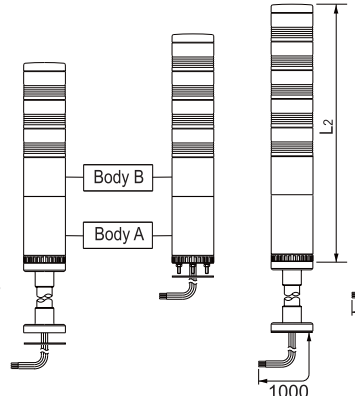
(Dimensions)



■ 100/120/220/230~240V AC

(Part Names)

(Dimensions)



	5 Tiers	4 Tiers	3 Tiers	2 Tiers	1 Tier
L1(mm)	314.8	273.6	232.4	191.2	150.0
L2(mm)	370.8	329.6	288.4	247.2	206.0

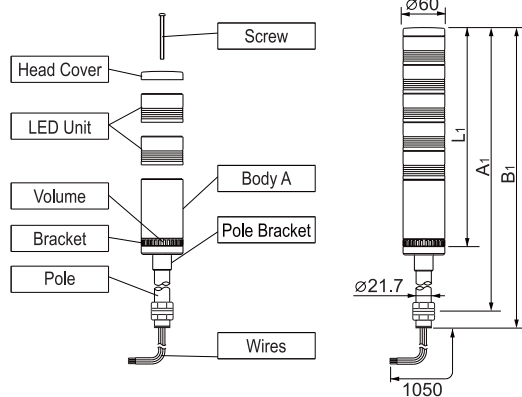
Maximum Panel Board
Installation thickness: 5

LME-L Type

■ 24V AC/DC

(Part Names)

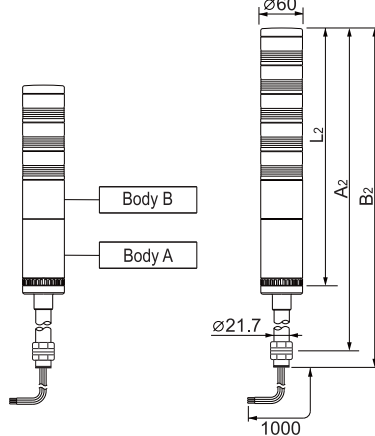
(Dimensions)



■ 100/220V AC

(Part Names)

(Dimensions)



	5 Tiers	4 Tiers	3 Tiers	2 Tiers	1 Tier
L1(mm)	314.8	273.6	232.4	191.2	150.0
A1(mm)	601.3 ~611.3	560.1 ~570.1	518.9 ~528.9	477.7 ~487.7	436.5 ~446.5
B1(mm)	630.8	589.6	548.4	507.2	466.0
L2(mm)	370.8	329.6	288.4	247.2	206.0
A2(mm)	657.3 ~667.3	616.1 ~626.1	574.9 ~584.9	533.7 ~543.7	492.5 ~502.5
B2(mm)	686.8	645.6	604.4	563.2	522.0

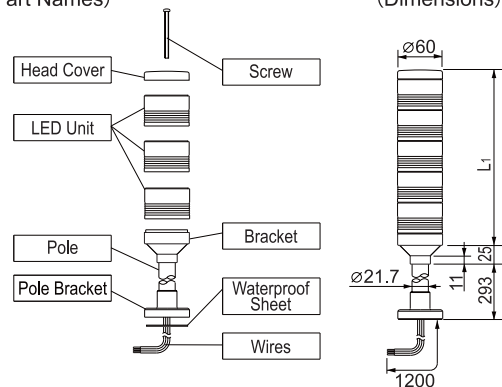
LMS Type

(Part Names)

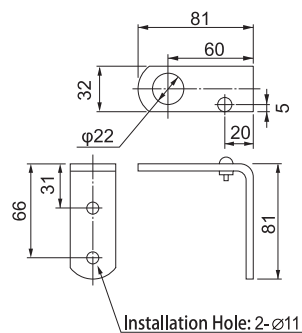
(Dimensions)

[Accessory : L-bracket]

※For LME-L / LMS-L only



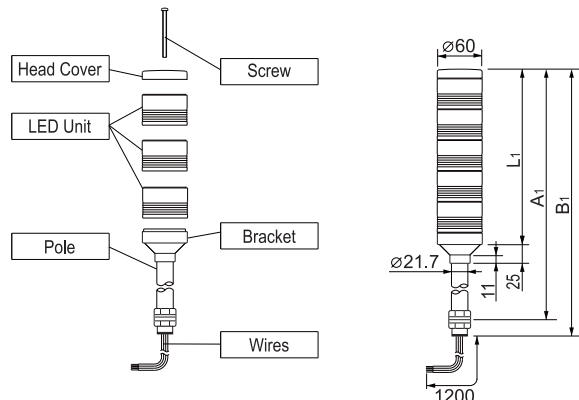
	5 Tiers	4 Tiers	3 Tiers	2 Tiers	1 Tier
L1(mm)	69.2	110.4	151.6	192.8	234.0



LMS-L Type

(Part Names)

(Dimensions)



	5 Tiers	4 Tiers	3 Tiers	2 Tiers	1 Tier
L1(mm)	234.0	192.8	151.6	110.4	69.2
A1(mm)	509.8 ~519.8	468.6 ~478.6	427.4 ~437.4	386.2 ~396.2	345.0 ~355.0
B1(mm)	539.5	498.3	457.1	415.9	374.7

4 Installation

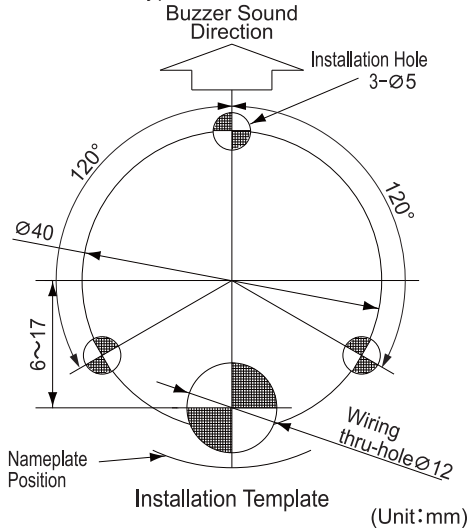
CAUTION

- 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.)
- Models recognized as a UL standard can only be used indoors. (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 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

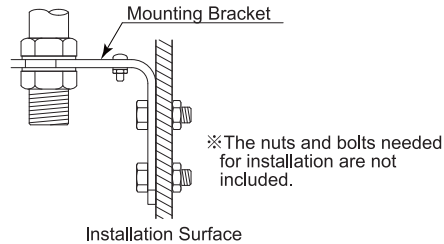
- Drill mounting holes in the wall for L-bracket installation, or in the panel for circular bracket and direct mount installation.
 - Secure the L-bracket with hex bolts and hex nuts (not supplied), or the circular bracket with the accessory screws and nuts (supplied).
- ※ With buzzer models, the alarm can be heard best from the front direction. Therefore, make sure the Signal Tower is facing the correct direction before installation.

■LME/LMS Type

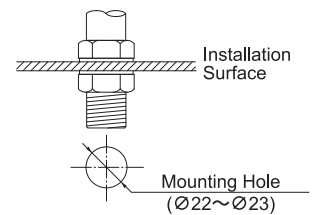


■LME-L/LMS-L Type

(Side Mounting Installation)

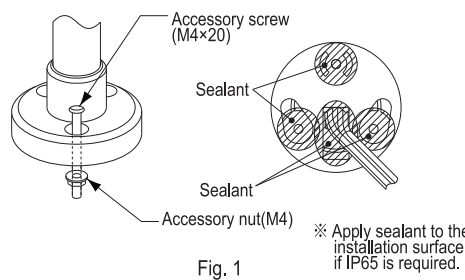


(Flat Surface Installation)

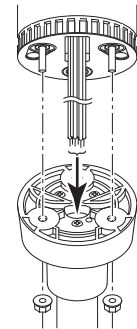


Caution

- If IP65 is required for the pole type, apply sealant to the screws and nuts (3 locations) and the lead wire exit (as shown in Fig.1) when you install the pole bracket to the installation surface.



- If changing the pole bracket (option) installation to the direct mount (W) type later, beware of the pole bracket direction to avoid pinching the lead wires. (See Fig. 2) Recommended tightening torque: 0.59N·m.



5 Wiring

CAUTION

- Make sure the power is OFF before wiring. A short circuit may damage internal circuits or cause an electric shock.
- Enough attention shall be paid for wiring because if there is any mistakes in wiring a circuit may break down.
- 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.
- 【100V/120V/220V/230~240VAC Type】 Do not apply voltage directly to signal wires and common wires. It may damage the circuit.
- Do not apply voltage directly to the brown wire. It may cause a breakdown.(FB type)
- Do not pull out the lead wire or push it into the pole or the body.

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, provide separate switches for flashing or continuous lighting.
- When turning on the same function, such as flashing or alarms, for more than one product simultaneously, 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.

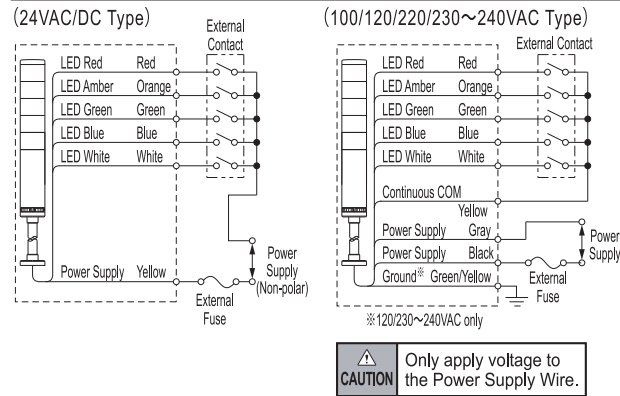
How to perform wiring

- Turn the power OFF.
 - Make wiring connection according to wiring example.

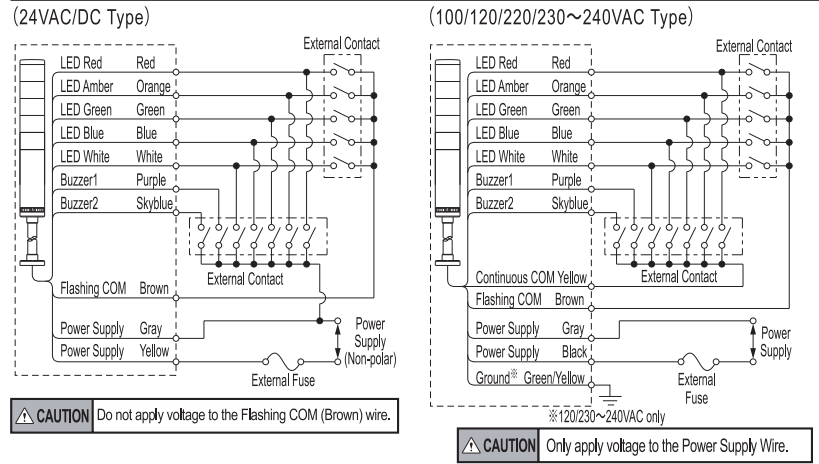
When wiring 5 layers or less, please make wiring connection by increasing or decreasing external contacts in each layer according to wiring example.
 - When using multiple LED units of the same color, calculate the contact current capacity to be equal to the number of the LED units multiplied by the contact capacity for 1 light. (This is because current passes through one signal line for the multiple LED units of the same color.)
 - When wiring is completed, insulate the end of each unused lead wire with insulation tape.
 - Any questions regarding applications for multiple units, 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 120V AC and 230-240V AC models, connect the green/yellow lead wire to ground.

Wiring Example (Single Color LED Unit Type)

■ LME/LMS [Continuous Lighting] Type

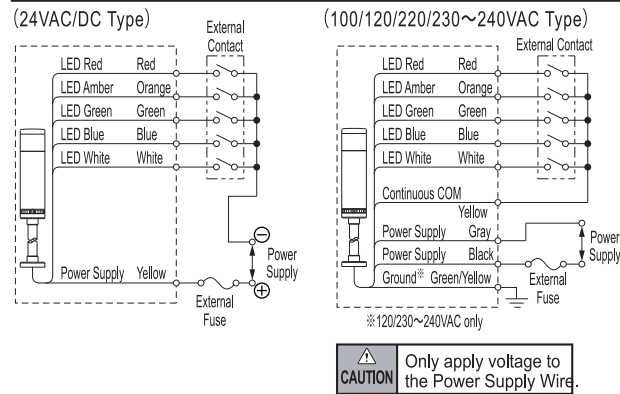


■ LME-FB [Continuous Lighting, Flashing/Buzzer] Type

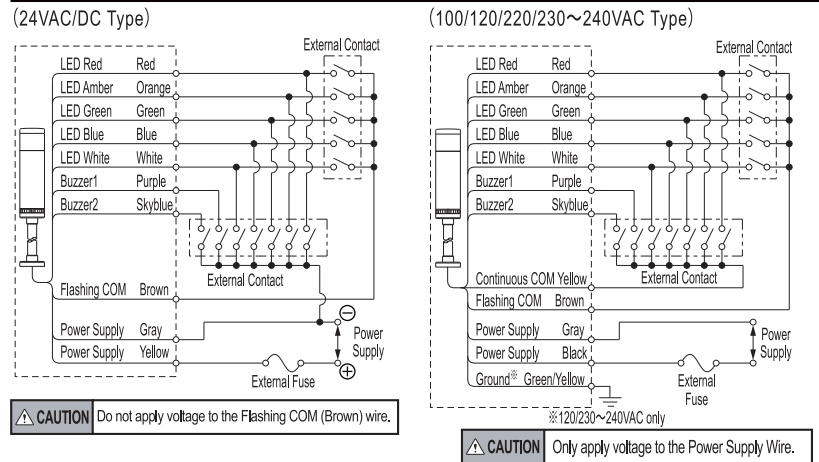


Wiring Example (Multi Color LED Unit Type)

■ LME/LMS [Continuous Lighting] Type



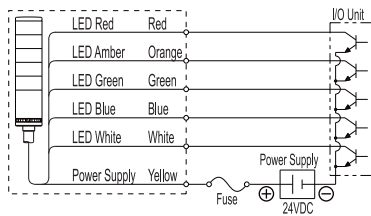
■ LME-FB [Continuous Lighting, Flashing/Buzzer] Type



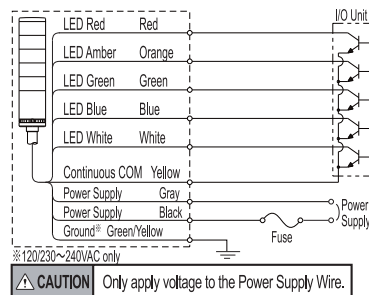
Wiring Example (NPN/PNP Transistor drive)

■ Continuous Lighting

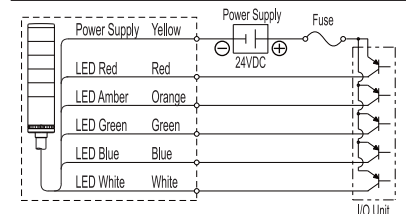
NPN Transistor (24V Type)



NPN Transistor (100/120/220/230~240VAC Type)

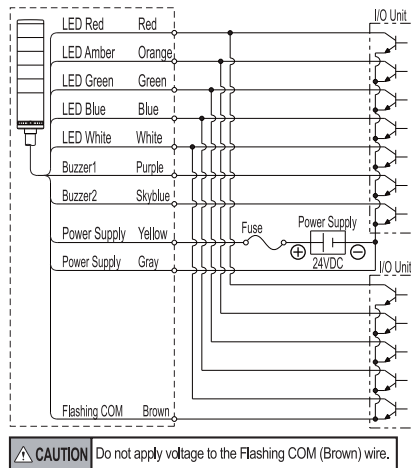


PNP Transistor (24V Type) : Single Color LED Type only

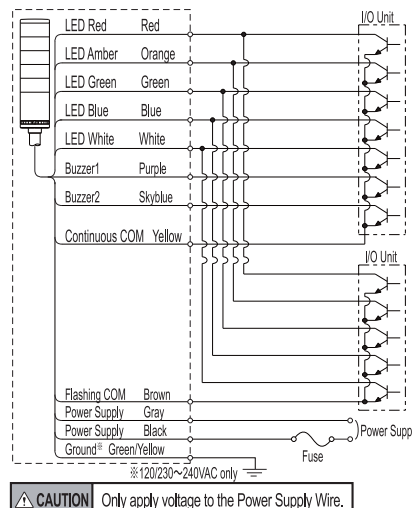


■ Continuous Lighting, Flashing/Buzzer (FB Type) (When using the FB type, use a separate I/O unit for flashing)

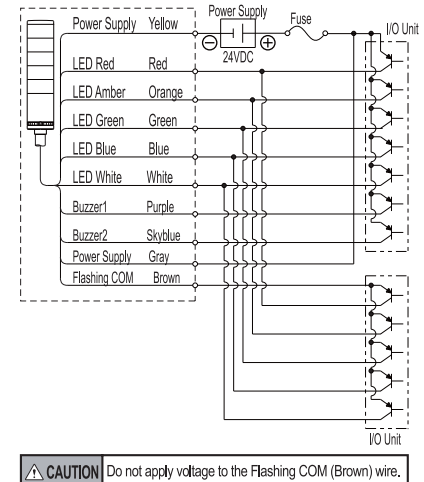
NPN Transistor (24V Type)



NPN Transistor (100/120/220/230~240VAC Type)



PNP Transistor (24V Type) : Single Color LED Type only



Wire Color Table

Single Color LED Unit Type

Luminous Color	Wire Color
Red	Red
Amber	Orange
Green	Green
Blue	Blue
White	White

Multi Color LED Unit Type

LED Unit	Luminous Color	Wire Color
S1	Red・Amber・Green	Red・Orange・Green
S4	Red・Green・Blue	Red・Green・Blue
S7	Amber・Green・Blue	Orange・Green・Blue
Q1	Red・Amber・Green・Blue	Red・Orange・Green・Blue
Q2	Red・Amber・Green・White	Red・Orange・Green・White
Q4	Amber・Green・Blue・White	Orange・Green・Blue・White

Buzzer (FB) Type

Buzzer	Wire color
Buzzer1: Continuous	Purple
Buzzer2: Intermittent	Skyblue

※ Lead wires are only included with the flashing/buzzer option.
 ※ Buzzer 1 is priority when connected simultaneously to common with buzzer 2.

External Contact Capacity

External Contact (Transistor) Capacity

Voltage Specifications		Single Color LED Unit Type			Multi Color LED Unit Type		
		24V AC/DC	100V AC, 120V AC	220V AC, 230~240V AC	24V DC	100V AC, 120V AC	220V AC, 230~240V AC
LED Unit (Per Light)	Current Consumption	Red・Amber: 18mA, Green・Blue・White: 14mA			S Red・Amber: 50mA, Green・Blue: 31.5mA, Q Red・Amber: 30mA, Green・Blue・White: 31.3mA		
	Contact Capacity	Is ≥ 100mA, Vs ≥ 35V DC			Is ≥ 100mA, Vs ≥ 35V DC		
Buzzer	Current Consumption	40mA			40mA		
	Inrush Current	250mA			250mA		
	Contact Capacity	Is ≥ 300mA, Vs ≥ 35V DC			Is ≥ 300mA, Vs ≥ 35V DC		
Power Supply	Current Consumption	180mA	100mA	50mA	360mA	100mA	50mA
	Contact Capacity	Is ≥ 500mA Vs ≥ 35V DC	Is ≥ 150mA Vs ≥ 125V AC	Is ≥ 100mA Vs ≥ 250V AC	Is ≥ 500mA Vs ≥ 35V DC	Is ≥ 150mA Vs ≥ 125V AC	Is ≥ 100mA Vs ≥ 250V AC
Leakage Current		IL ≤ 0.1mA					

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

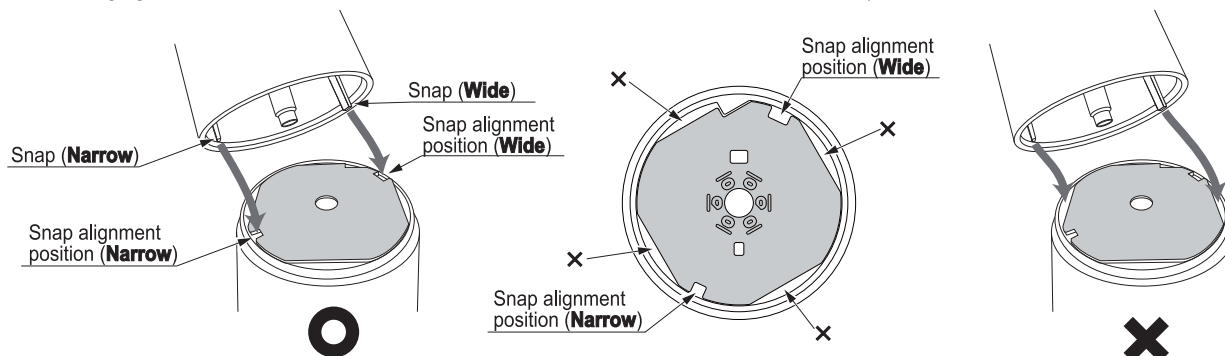
6 Changing LED Unit positions

CAUTION

- Make sure the power is off before 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.
- When the center screw is loosened or removed, the LED units become unstable and may separate. Therefore, handle carefully to avoid damage.
- Handle the LED units carefully to avoid warping or damage when changing their positions on the tower.
- Screwing the head cover too tight may damage it. The recommended torque is about 0.68N・m.

Changing LED Unit positions

- Turn the power off before changing LED unit positions.
 - Unscrew the head cover and remove the lens.
 - Each LED unit is secured by 2 small snaps of different sizes to ensure that the module is assembled correctly.
- ※ When changing the number of modules, install a center screw to match the number of tiers. (Refer to "3. Part Names and Dimensions")



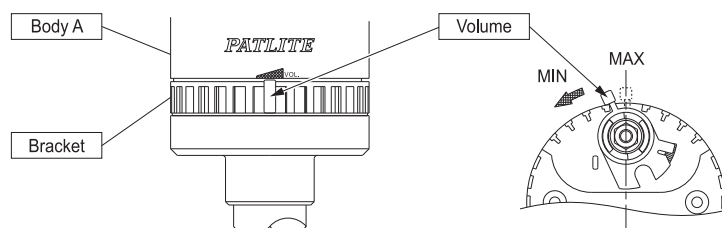
7 Volume Adjustment

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.
- The volume is at maximum when the lever is positioned at front and center.



8 Specifications

■ LME Type

Tiers	Model	UL Registration Model	Rated Voltage	Power Consumption	Mass	Flash Cycle (fpm) and sound level	Wire type/Diameter
1 Tier	-102(FB)(W)	LME-_02(FB)(W)	24V AC/DC	24V Type	0.46(0.30)kg	Flashing cycle FB Type 60 Flashes per minute Sound level FB Type 70~90 dB (1m)	Power source wire (24V Type) UL1007 / AWG22 (100, 220V Type) UL1007 / AWG20 (120, 230V Type) UL1015 / AWG18 Lead wire UL1007 / AWG22 Green / Yellow wire (Connect ground) UL1015 / AWG18
	-110(FB)(W)	x	100V AC		0.71(0.55)kg		
	-112(FB)(W)	LME-_12(FB)(W)	120V AC				
	-120(FB)(W)	x	220V AC				
	-123(FB)(W)	LME-_23(FB)(W)	230 - 240V AC				
2 Tiers	-202(FB)(W)	LME-_02(FB)(W)	24V AC/DC	Red/Amber :0.6W Green/Blue/White :0.5W Buzzer :1.0W	0.51(0.35)kg		
	-210(FB)(W)	x	100V AC	0.76(0.60)kg			
	-212(FB)(W)	LME-_12(FB)(W)	120V AC				
	-220(FB)(W)	x	220V AC				
	-223(FB)(W)	LME-_23(FB)(W)	230 - 240V AC				
3 Tiers	-302(FB)(W)	LME-_02(FB)(W)	24V AC/DC	100, 120, 220, 230-240V Type	0.56(0.40)kg		
	-310(FB)(W)	x	100V AC	0.81(0.65)kg			
	-312(FB)(W)	LME-_12(FB)(W)	120V AC				
	-320(FB)(W)	x	220V AC				
	-323(FB)(W)	LME-_23(FB)(W)	230 - 240V AC				
4 Tiers	-402(FB)(W)	LME-_02(FB)(W)	24V AC/DC	Red/Amber :1.0W Green/Blue/White :0.8W Buzzer :1.4W Standby :1.7W	0.61(0.45)kg		
	-410(FB)(W)	x	100V AC	0.86(0.70)kg			
	-412(FB)(W)	LME-_12(FB)(W)	120V AC				
	-420(FB)(W)	x	220V AC				
	-423(FB)(W)	LME-_23(FB)(W)	230 - 240V AC				
5 Tiers	-502(FB)(W)	LME-_02(FB)(W)	24V AC/DC		0.66(0.50)kg		
	-510(FB)(W)	x	100V AC	0.91(0.75)kg			
	-512(FB)(W)	LME-_12(FB)(W)	120V AC				
	-520(FB)(W)	x	220V AC				
	-523(FB)(W)	LME-_23(FB)(W)	230 - 240V AC				
Multi Color LED Unit (S□)	-102(FB)(W)	LME-_02(FB)(W)S	24V DC	24V Type	0.46(0.30)kg		
	-110(FB)(W)	x	100V AC	Red/Amber : S: 1.3W Q: 0.8W	0.71(0.55)kg		
	-112(FB)(W)	LME-_12(FB)(W)S	120V AC	Green/Blue/White: S: 1.0W Q: 1.1W			
	-120(FB)(W)	x	220V AC	Buzzer :1.0W			
	-123(FB)(W)	LME-_23(FB)(W)S	230 - 240V AC				
Multi Color LED Unit (Q□)	-102(FB)(W)	LME-_02(FB)(W)Q	24V DC	100,120,220,230-240V Type	0.46(0.30)kg		
	-110(FB)(W)	x	100V AC	Red/Amber : S: 2.0W Q: 1.0W	0.71(0.55)kg		
	-112(FB)(W)	LME-_12(FB)(W)Q	120V AC	Green/Blue/White: S: 1.5W Q: 1.5W			
	-120(FB)(W)	x	220V AC	Buzzer :1.4W			
	-123(FB)(W)	LME-_23(FB)(W)Q	230 - 240V AC	Standby: 1.7W			

• () is mass of the direct mount type[W type]

■ LME-L Type

Tiers	Model	UL Registration Model	Rated Voltage	Power Consumption	Mass	Flash Cycle (fpm) and sound level	Wire type/Diameter
1 Tier	-102(FB)L	LME-_02(FB)L	24V AC/DC	24V Type	0.76kg	FB Type: 60 Flashes per minute Volume: 70~90dB (1m) (Range Adjustment)	Power source wire (24V Type) UL1007 / AWG22 (100, 220V Type) UL1007 / AWG20 Lead wire UL1007 / AWG22
	-110(FB)L	x	100V AC		1.01kg		
	-120(FB)L	x	220V AC		0.81kg		
2 Tiers	-202(FB)L	LME-_02(FB)L	24V AC/DC	Red/Amber : 0.6W Green/Blue/White : 0.5W Buzzer : 1.0W	1.06kg		
	-210(FB)L	x	100V AC		0.86kg		
	-220(FB)L	x	220V AC		1.11kg		
3 Tiers	-302(FB)L	LME-_02(FB)L	24V AC/DC	100, 220V Type Red/Amber : 1.0W Green/Blue/White : 0.8W Buzzer : 1.4W Standby : 1.7W	0.91kg		
	-310(FB)L	x	100V AC		1.16kg		
	-320(FB)L	x	220V AC		0.96kg		
4 Tiers	-402(FB)L	LME-_02(FB)L	24V AC/DC	100, 220V Type Red/Amber : 1.0W Green/Blue/White : 0.8W Buzzer : 1.4W Standby : 1.7W	1.21kg		
	-410(FB)L	x	100V AC		0.96kg		
	-420(FB)L	x	220V AC		1.21kg		
5 Tiers	-502(FB)L	LME-_02(FB)L	24V AC/DC	100, 220V Type Red/Amber : 1.0W Green/Blue/White : 0.8W Buzzer : 1.4W Standby : 1.7W	0.96kg		
	-510(FB)L	x	100V AC		1.21kg		
	-520(FB)L	x	220V AC				

■ LMS Type

Tiers	Model	UL Registration Model	Rated Voltage	Power Consumption	Mass	Wire type/Diameter
1 Tier	-102(L)	LMS-_02(L)	24V AC/DC (50/60Hz)	Red・Amber : 0.6W Green・Blue・White : 0.5W	0.29(0.62)kg	Lead Wires UL1007 AWG22
2 Tiers	-202(L)				0.34(0.67)kg	
3 Tiers	-302(L)				0.39(0.72)kg	
4 Tiers	-402(L)				0.44(0.77)kg	
5 Tiers	-502(L)				0.49(0.82)kg	

※ () is mass of LMS-L type

- This product is recognized as a UL standard.
(24V, 120V, 230~240V type)

For recognition as a UL standard;

- Use on a flat surface with a Type 1 Enclosure.
- For the model LME, maximum surrounding air temperature is at 40°C.
- For the model LMS, maximum surrounding air temperature is at 60°C.

- This product conforms to EN standard and shows the CE Marking. (24V type)
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

- 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

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