

Signal Tower
Type : LCE / LCS
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

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 LCE-A

LCE-□□□□□-□□

Tier
1~5 Tiers

Rated Voltage
02 : 24V AC/DC
M2 : 90V~250V AC

Lighting
Blank : Continuous Lighting
FB : Continuous Lighting or flashing, with Buzzer

Installation
P : Pole mount
W : Direct mount

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

Lens Color
Blank : Color lens
-Z : Clear lens

Type LCS-A

LCS-□02-□□□

Tier
1~5 Tiers

Rated Voltage
02 : 24V AC/DC

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

Lens Color
Blank : Color lens
-Z : Clear lens

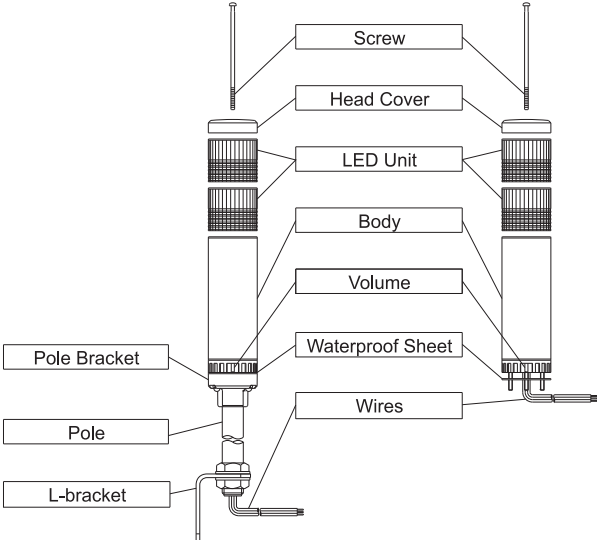
3 Part Names and Outer Appearance

Parts Names

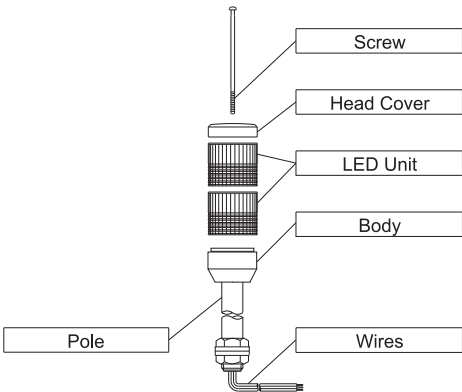
■ Type LCE

(Pole mount type)

(Direct mount type)



■ Type LCS

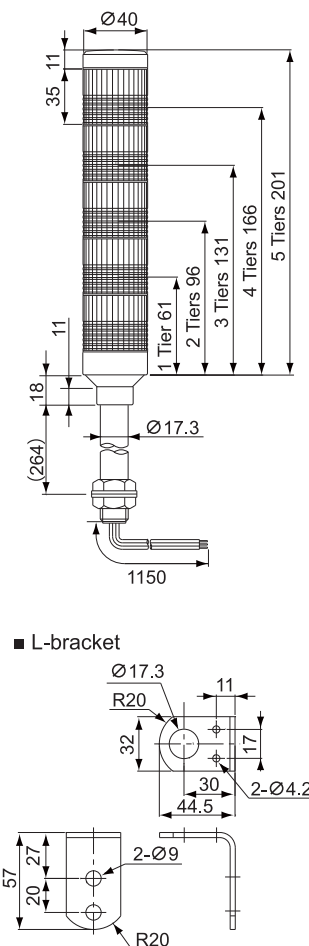
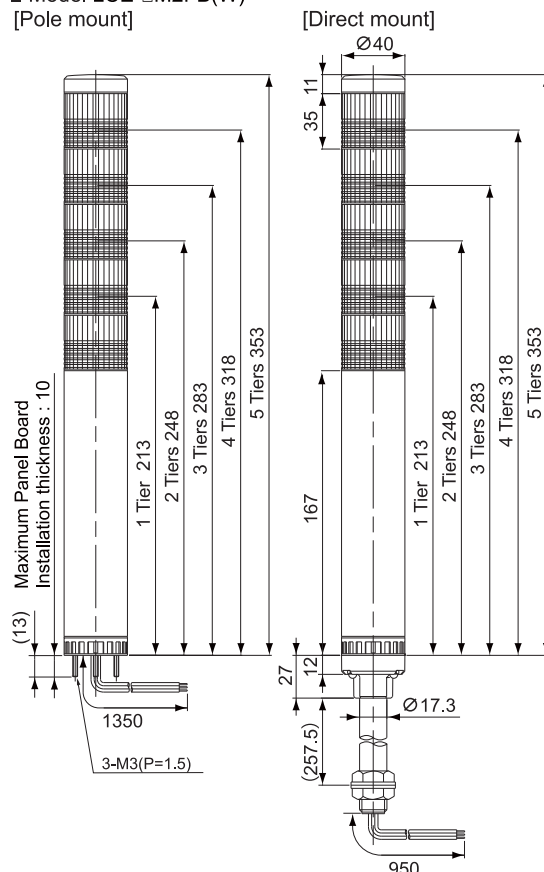
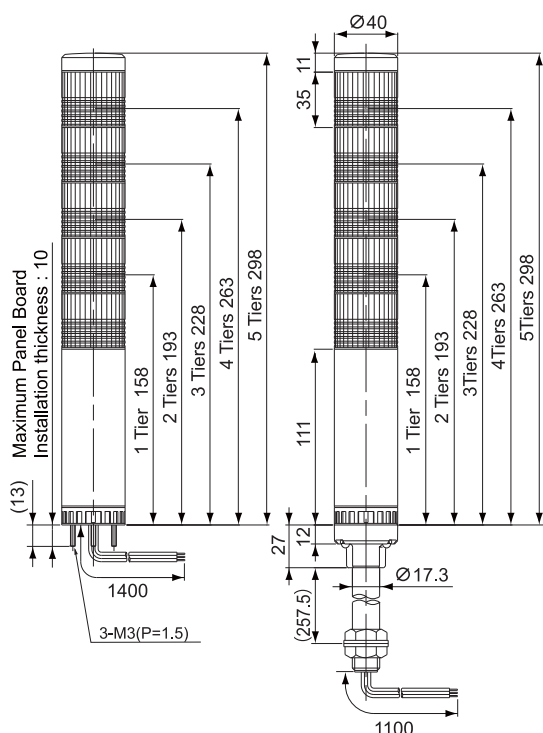


Dimensions

■ Model LCE-□□(FB)(W), LCE-□□M2(W)
[Pole mount]

■ Model LCE-□□M2FB(W)
[Pole mount]

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Production end
Model LCS-□□02 (Unit: mm)



4 Installation

CAUTION

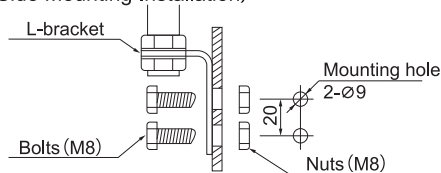
- The following requirements are necessary for proper installation.
 - Install where no excessive vibration is present.
 - Install on a strong surface.
 - Install in an upright position. (Do not install the Signal Tower sideways or inverted.)
- This product can only be used indoors. (Do not use it outdoors.)
- Use a soft cloth moistened with water when the LED Unit or Body must be cleaned up. (Do not use thinner, benzene, 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 direct mount installation.
 - Secure the L-bracket with hex bolts and hex nuts (not supplied), or the accessory 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.

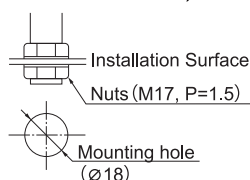
■ Model LCE-□□□FB, LCS-□□02

(Side Mounting Installation)



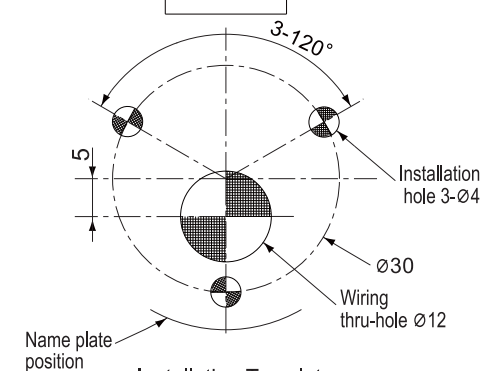
※ The nuts and bolts needed for installation are not included.

(Flat Surface Installation)



■ Model LCE-□□□(FB)W

Buzzer Sound Direction



Installation Template

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

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 brake 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.
- 【90V~250V AC 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 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 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 90V~250V AC Type, connect the green/yellow lead wire to ground.

Wire Color Table

■ LED Unit

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

[Model LCE-□02(FB)(W), LCS-□02]

Voltage Specifications		24V AC/DC
LED Unit (Per Light)	Current Consumption	Red・Amber:28mA Green・Blue・White:23mA
	Contact Capacity	Is ≥ 100mA, Vs ≥ 35V DC
Buzzer	Current Consumption	40mA
	Inrush Current	250mA
	Contact Capacity	Is ≥ 300mA, Vs ≥ 35V DC
Power Supply	Current Consumption	360mA
	Contact Capacity	Is ≥ 500mA, Vs ≥ 35V DC
Leakage Current		IL ≤ 0.1mA

[Model LCE-□M2(FB)(W)]

Voltage Specifications		90V~250V AC
LED Unit (Per Light)	Current Consumption	Red・Amber:28mA Green・Blue・White:23mA
	Contact Capacity	Is ≥ 100mA, Vs ≥ 35V DC
Buzzer	Current Consumption	4.5mA
	Contact Capacity	Is ≥ 10mA, Vs ≥ 35V DC
Power Supply	Inrush Current	100V:10A, 250V:25A (20μsec)
	Contact Capacity	Is ≥ Inrush Current, Vs ≥ 250V AC
Leakage Current		IL ≤ 0.1mA

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

■ External Fuse

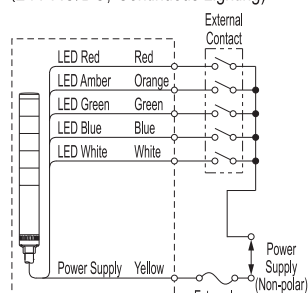
Voltage	Fuse Rating
All Model	250V 1A

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

Wiring Example

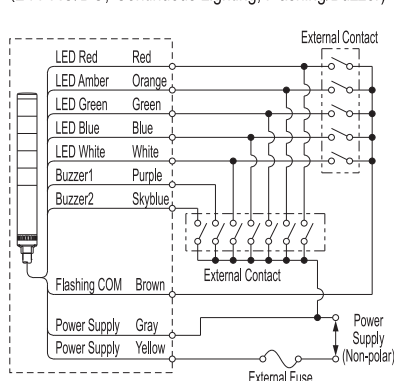
■ Model LCE-□02(W), LCS-□02

(24V AC/DC, Continuous Lighting)



■ Model LCE-□02FB(W)

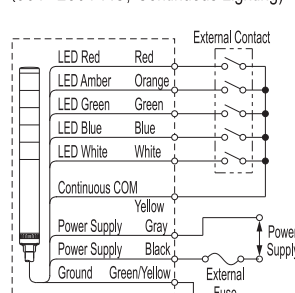
(24V AC/DC, Continuous Lighting, Flashing/Buzzer)



⚠ CAUTION Do not apply voltage to the Flashing COM (Brown) wire.

■ Model LCE-□M2(W)

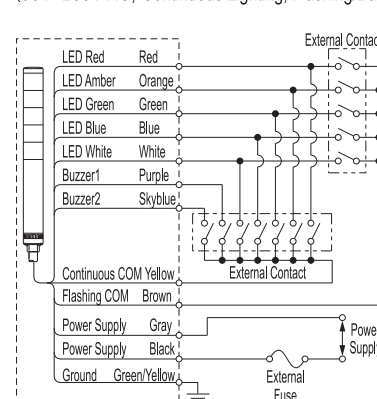
(90V~250V AC, Continuous Lighting)



⚠ CAUTION Only apply voltage to the Power Supply Wire.

■ Model LCE-□M2FB(W)

(90V~250V AC, Continuous Lighting, Flashing/Buzzer)

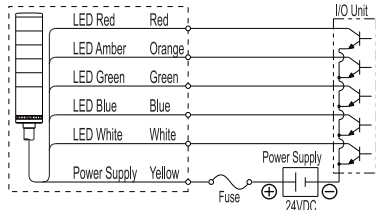


⚠ CAUTION Only apply voltage to the Power Supply Wire.

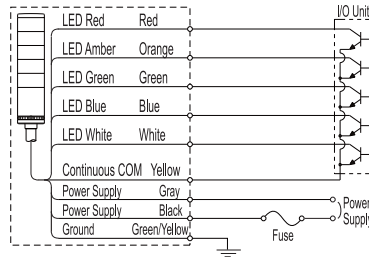
Wiring Example (NPN/PNP Transistor drive)

■ Model LCE-□□□(W), LCS-□02 (Continuous Lighting)

NPN Transistor (24V Type)

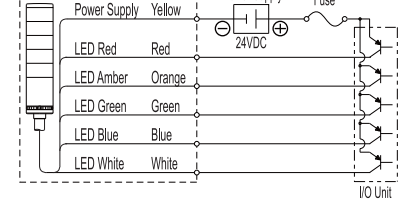


NPN Transistor (90V~250V AC Type)



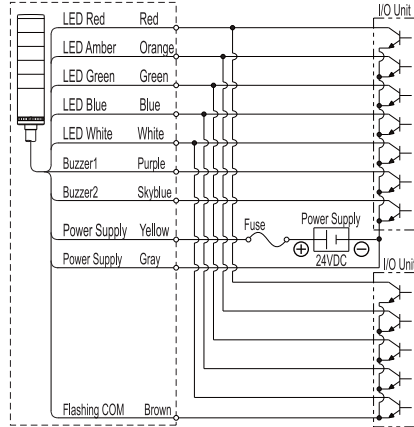
CAUTION Only apply voltage to the Power Supply Wire.

PNP Transistor (24V Type)



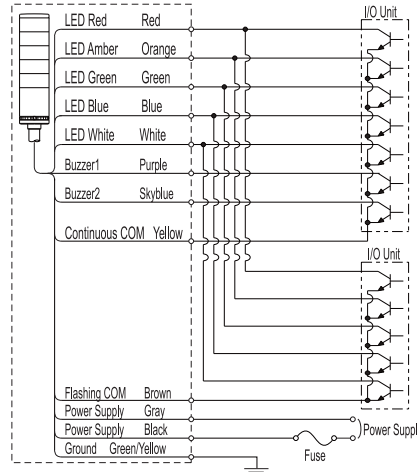
■ Model LCE-□□□FB(W) (Continuous Lighting, Flashing/Buzzer) *When using the FB type, use a separate I/O unit for flashing.

NPN Transistor (24V Type)



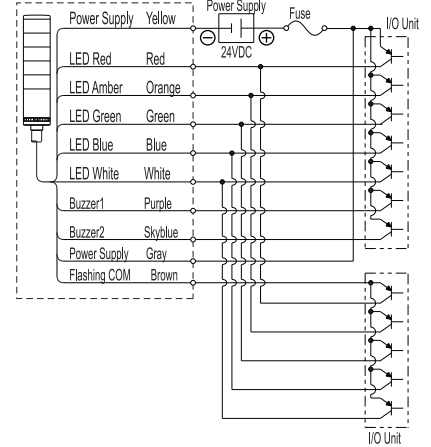
CAUTION Do not apply voltage to the Flashing COM (Brown) wire.

NPN Transistor (90V~250V AC Type)



CAUTION Only apply voltage to the Power Supply Wire.

PNP Transistor (24V Type)



CAUTION Do not apply voltage to the Flashing COM (Brown) wire.

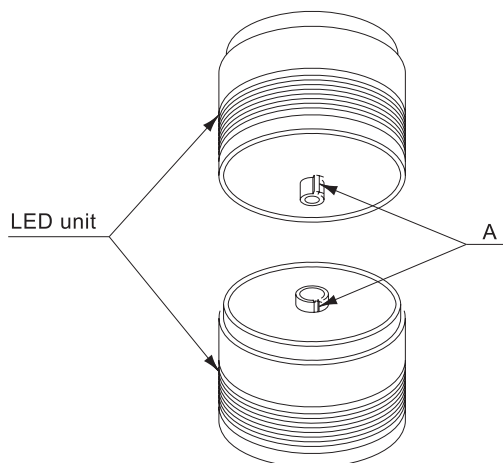
6 Changing LED Unit positions

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 0.39N·m.

Changing LED Unit positions

- Turn the power off before changing LED unit positions.
 - Unscrew the head cover and remove the LED units.
 - Positions of both top and bottom LED units are fixed by the central parts(A part).
- Therefore please put the 'A' parts of both sides together to connect the top and bottom LED units.
- ※When changing the number of modules, install a center screw to match the number of tiers.



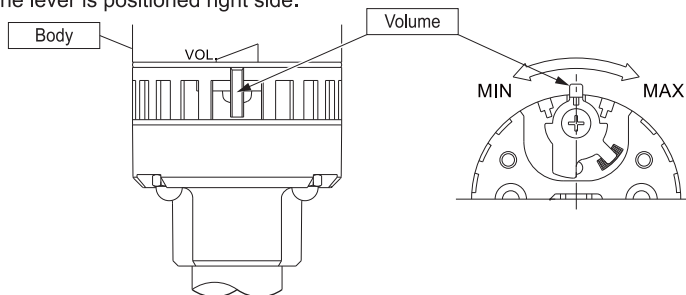
7 Volume Adjustment

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 right side.



8 Specifications

Model LCE-□02A(FB)(W)

Tiers	Model	UL Registration Model	Rated voltage	Mass ※	Flashing Cycle (fpm) and sound level	Wire type/Dia
1 Tier	-102(T)(W)	LCE-_02(T)(W)	24V AC/DC (50/60Hz)	0.52kg(0.16kg)	FB Type 60 Flashes per minute Sound level 70~85dB(at1m)	Power source and lead wire UL1007/AWG22
	-102(T)FB(W)	LCE-_02(T)FB(W)		0.58kg(0.22kg)		
2 Tiers	-202(T)(W)	LCE-_02(T)(W)		0.55kg(0.19kg)		
	-202(T)FB(W)	LCE-_02(T)FB(W)		0.61kg(0.25kg)		
3 Tiers	-302(T)(W)	LCE-_02(T)(W)		0.58kg(0.22kg)		
	-302(T)FB(W)	LCE-_02(T)FB(W)		0.64kg(0.28kg)		
4 Tiers	-402(T)(W)	LCE-_02(T)(W)		0.61kg(0.25kg)		
	-402(T)FB(W)	LCE-_02(T)FB(W)		0.67kg(0.31kg)		
5 Tiers	-502(T)(W)	LCE-_02(T)(W)		0.64kg(0.28kg)		
	-502(T)FB(W)	LCE-_02(T)FB(W)		0.70kg(0.34kg)		

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

Model LCE-□M2A(FB)(W)

Tiers	Model	UL Registration Model	Rated voltage	Power consumption	Mass ※	Flashing Cycle (fpm) and sound level	Wire type/Dia
1 Tier	-1M2(W)	LCE-_M2(W)	90~250V AC (50/60Hz)	At 120V AC LED Unit : 1.3W (Per Light) Buzzer : 1.2W Standby : 0.6W	0.60kg(0.24kg)	FB Type 60 Flashes per minute Sound level 70~85dB(at1m)	Power source wire UL1015/AWG18 Lead wire UL1007/AWG22
	-1M2FB(W)	LCE-_M2FB(W)			0.65kg(0.29kg)		
2 Tiers	-2M2(W)	LCE-_M2(W)			0.63kg(0.27kg)		
	-2M2FB(W)	LCE-_M2FB(W)			0.68kg(0.32kg)		
3 Tiers	-3M2(W)	LCE-_M2(W)		At 240V AC LED Unit : 1.6W (Per Light) Buzzer : 1.6W Standby : 1.0W	0.66kg(0.30kg)		
	-3M2FB(W)	LCE-_M2FB(W)			0.71kg(0.35kg)		
4 Tiers	-4M2(W)	LCE-_M2(W)			0.69kg(0.33kg)		
	-4M2FB(W)	LCE-_M2FB(W)			0.74kg(0.38kg)		
5 Tiers	-5M2(W)	LCE-_M2(W)			0.72kg(0.36kg)		
	-5M2FB(W)	LCE-_M2FB(W)			0.77kg(0.41kg)		

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

Model LCS-□02A

Tiers	Model	UL Registration Model	Rated voltage	Mass	Wire type/Dia
1 Tier	-102	LCS-_02A	24V AC/DC (50/60Hz)	0.42kg	Lead wire UL1007/AWG22
2 Tiers	-202			0.45kg	
3 Tiers	-302			0.48kg	
4 Tiers	-402			0.51kg	
5 Tiers	-502			0.54kg	

- 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 40°C. (Model LCE-□02(FB)(W))
- Maximum surrounding air temperature is at 60°C. (Model LCE-□M2(FB)(W), LCS-□02)
- 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

- 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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