

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.
 ● Visit our homepage (<http://www.patlite.com/>) and download the "Complete Operation Manual:LR" to find more about the operating method and features.
 ● If there are any questions concerning this product, refer to the contact information at the end of this document and contact your nearest PATLITE Sales Representative.

Notice to Contractor ● Read this manual carefully prior to installation. ● Be sure to return this manual to the customer.

1 Read this First (Safety Precautions)

Warning Failure to observe the following may result in death or serious injury.

- To prevent from short-circuits, electric shock or damage, observe the following:
 -Be sure the power is disconnected before replacement or repair, including the replacement of the fuse.
 -Use this product in a properly maintained condition. (Replace or repair if the body, LED unit, etc. are damaged.)
 ● Request the installation and wiring be performed by a professional contractor if construction work is involved. Failure to comply may result in fire, electric shock or falling from high places may occur.

Caution Failure to comply with the following points may result in injury, physical loss or damage.

- Avoid long exposure to the Buzzer sound from a close distance. Failure to observe this may lead from irritation to permanent damage to the ears.
 (B) With Flashing/Buzzer
- In order to maintain protection of this product against dust and waterproofing performance, be sure to use the head cover, LED unit and buzzer unit in the condition that it was originally attached.
- Do not operate this product without the O-ring or the waterproof packing material. Failure to comply will result in lower waterproofing performance. Possible cause of failure may occur.
- Do not apply voltage to the Flashing Common line (01, 02). Apply voltage to the power source line (M2) only. Product failure will occur.
- When removing covers or packing from the equipment, which is attached to this product, be careful not to snag the product. Failure to comply may result in damage to the product.

Notice ● To ensure proper safety while using the signal tower, observe the following:
 -Perform periodic pre-maintenance. -As a precaution against problems occurring, use this product together with other equipment.
 ● Be sure to discharge any static electricity from the body before handling static sensitive parts of this product.
 (To prevent damage from static electricity, touch hands or other body parts to metals or an earth ground to discharge the body from static charge.)
 ● 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.)
 ● To ensure safety when this product is installed onto equipment, observe the following:
 -Do not remove parts beyond those designed to be removed from this product. -Do not modify or disassemble this product.
 -Use only the specified replacement parts listed in the "Complete Operation Manual:LR".

2 Model Number Configuration

Model	Tiers	Rated Voltage	Mounting/Wiring	Flashing/Buzzer	Body Color	LED Unit Color	Globe Color
Assembly Model	LR	-	-	-	-	RYGBC	-
Unit Model (Body Unit)	LR	-	-	-	-	-	-

Model Number Example LR4-502PJBU-RYGBC

- 040 ● LED 5 Tiers ● 24 V DC ● Pole Mount with/Circular Bracket/Cable
- With Flashing/Buzzer ● Silver ● (From top) Red · Amber · Green · Blue · White

3 Part Names

The name of each part is indicated as an example for the specific model.

■ LR4-502WJN ■ LR6-5M2WJWB ■ [LJ] ■ [PJ] ■ [QJ] ■ LR5-02WTN

Accessory

LR4-5-WJ LR5-WT	LR6-7-WJ LR7-WT	LR5-KT Hexagon Bolt (M3x20)
Flanged nut (M3)	Flanged nut (M4)	Flanged nut (M3)
3pcs.	3pcs.	6pcs.
LR4-5-6-PJ Pan Screw (M4x20)	LR4-6-QJ Bind Screw (M5x25)	LR7-KT Hexagon Bolt (M4x20)
Flanged nut (M4)	Flanged nut (M5)	Flanged nut (M4)
3pcs.	4pcs.	3pcs.
3pcs.	3pcs.	6pcs.

Wiring Example

The following is a basic wiring example. If there are any special applications that require asking questions concerning this product, feel free to contact your PATLITE Sales Representative. Accidental wiring will result in product failure.
 <Note> When lighting and flashing are used together, it is necessary to prepare an external contact for each lighting or flashing.

Product Specifications 01 12V DC 02 24V DC

External Contact Classification

Do not Apply Voltage!

Flashing/Buzzer

Lighting/Buzzer

Product Specifications M2 100 - 240V AC

Only apply voltage to Power Supply Lines.

External Contact Classification

Flashing/Buzzer

Lighting/Buzzer

WT · KT Terminal Block Connector Array

9	Black	Power Wire (Signal Line Side)
8	Gray	Flashing Common
7	Yellow	Power Wire (Common)
6	Gray	Buzzer
5	White	LED-C
4	Blue	LED-B
3	Green	LED-G
2	Orange	LED-Y
1	Red	LED-R

WT · KT Terminal Block wiring method

- 1 A minus driver etc. is used to pry the lever slot of the Terminal Block open, by pushing straight onto the lever slot.
- 2 The striped side of the lead wire is inserted in the slot.
- 3 The driver is removed to release the lever. (Check to make sure the lead wire has been locked in place.)

6 Buzzer Pattern Set-up

The B Flashing/Buzzer type includes a set up for four different patterns and sound reduction.

Caution ● Do not use excessive force to set up the switches. Possible damage or malfunction may occur.
 ● Do not adjust switches with a sharp object. Possible damage to switches may cause it to be impossible to operate or cause partial movement of the contacts.

Buzzer Unit Underside

Setup Table

Buzzer Sound	DIP Switch	Sound Pattern	DIP Switch	Volume
No.1	OFF	Rapid Intermittent Beep	OFF	Normal
No.2	ON	Continuous Beep Sound	ON	Sound Reduction
No.3	OFF	Rapid Hi-Lo	(Note) Do not use DIP Switch 4. It is set to "OFF" at all times after factory shipments.	
No.4	ON	Sweep Sound		

7 How to use the Folding Bracket

The [QJ] folding bracket is a retractable type, which can be pushed down while a product is still attached when transporting equipment. (Adjustable Angle: 90 degrees to the right and 45 degrees to the right and left from an upright position)

< When moving 90 degrees to the right from an upright position. >

- 1 Depressing a locking lever on the left side of the Pole releases the bracket to be lowered. (Depressing the lock allows the Pole to swivel freely)
- 2 The Pole can then be pulled forward and pushed down in a clockwise direction. (From a level plane up to about a 15 degree angle)
- 3 The Pole is pushed down to the right (clockwise). (The Pole is turned until it is latched in place by the locking lever)

4 Installation

- Notice** ● The following requirements are necessary for proper installation: -Install the signal tower where excessive vibration is not present.
 -Install the signal tower on a sturdy surface. -Install the signal tower on a level surface.
 ● Only install the signal tower in an upright position.
 ● When the installation location is unavoidably irregular and waterproof performance is required, use a sealant between the product and the installation surface.
 ● If the pole type requires an IP65 rating, apply sealant to the screws, nuts and wire distribution hole when installing the compatible bracket onto the installation surface. ([PJ] · [QJ])
 ● Although the LR4-[WJ] mounting bolt moves prior to assembly, it is not a quality issue. Be sure to mount the product in the manner indicated below.

Basic Mounting Instructions

- 1 Make holes for the mounting and wire-distribution for the product. (Check the Model and refer to the suitable attachment or mounting dimension figure.) ([KT] Select among the two mounting options.)
- 2 Run the wiring through the distribution hole.
- 3 Secure the product with the bolts, nuts and screws. ([LJ] required nuts and screws are not included.)

■ [KT] Select between "Direct" or "Pole" mounting (Unit: mm)

Direct Mount (Using accessory) Recommended Torque 0.8 N m

- 1 Place the Mounting Bracket on an even surface.
- 2 Be sure to remove the waterproof packing from the Mounting Bracket.
- 3 Knock out the three knock-out holes with a steel punch, etc.
- 4 Insert the hexagon bolt into the knockout holes and affix with the flanged nuts.
- 5 Insert the waterproof packing.

Pole Installation (Not using accessory) Recommended Torque 1.4 N m

Visit our homepage (<http://www.patlite.com/>) to download the LR Series Complete Operation Manual for Pole Installation.

■ [LJ] Installation Figure (Unit: mm)

2 3 Feed the wiring through the hole and set the pole in place to install.

Recommended Torque 30 N m

Point When not using an L-bracket attachment, make a φ 22-23mm fitting hole.

Recommended Screw Torque 12.2 N m

For M8 screw and nut size

For M10 screw and nut size

■ [WJ] · [PJ] · [WT] · [KT] Mounting Dimensional Drawing (Unit: mm)

Mounting Hole (3 places)	Screw Nut
LR4-5-WJ LR5-WT-KT	φ 4 M3
LR4-5-6-PJ LR6-7-WJ LR7-WT-KT	φ 5 M4
LR4-5-WJ LR5-WT-KT	φ 30
LR4-5-6-PJ LR6-7-WJ LR7-WT-KT	φ 40

Recommended Torque 0.6 N m

■ [QJ] Mounting Dimensional Drawing 90° (Unit: mm)

Wire Distribution Hole (φ 15)
 Bracket Outer Dimension 18.5
 Mounting Hole (φ 6 x 4 places)
 Mounting Hole (φ 6 x 4 places)
 Screw · Nut M5 x 4 pcs
 φ 54 ~ φ 56
 φ 73
 Nameplate Position
 Recommended Torque 1.4 N m

5 Wiring

- Warning** ● Be sure the power is disconnected before wiring and changing fuses. Possible cause of short-circuiting may occur.
 ● Ensure the proper working voltage is used and that direct current or alternating current is properly applied.
 Possible cause of combustion may occur.

- Caution** ● Do not apply voltage to the Flashing Common line (01, 02). Apply voltage to the power source line (M2) only. Product failure will occur.
 ● Do not control the flashing display by switching the power source ON and OFF for M2. Product failure will occur.
 ● It is not necessary to connect to an external lead for tiers not used. When an extra lead is not connected, it should be individually insulated with electrical tape or something similar. Failure to comply will result in damage due to short circuiting.
 ● Do not pull the lead wire or push it inside the body. Product failure may occur.

Notice ● 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 tier. (This is because LED units of the same color light up for one signal line.)
 ● To protect the power supply and other internal circuitry, be sure to install an external fuse.
 ● If wiring is extended beyond its factory length, a relevance in the length of the wire and wire gauge will cause a voltage drop.

External Contact Capacity

Is : Current Capacity Vs : Withstand Voltage IL : Leakage Current Ta : Ambient Temperature

Rated Load Voltage	01 12V DC	02 24V DC	M2 100 - 240V AC
LED Unit (1 Tier)	Signal Wire Current 90 mA	40 mA	40 mA
Contact Capacity	Is ≥ 100 mA Vs ≥ 35 V DC	Is ≥ 100 mA Vs ≥ 35 V DC	Is ≥ 100 mA Vs ≥ 35 V DC
Buzzer	Signal Wire Current 90 mA	40 mA	40 mA
Contact Capacity	Is ≥ 300 mA Vs ≥ 35 V DC (※1)	Is ≥ 300 mA Vs ≥ 35 V DC (※1)	Is ≥ 300 mA Vs ≥ 35 V DC
Power Supply	Current Consumption 500mA	250 mA	150mA
Contact Capacity	Is ≥ 700 mA Vs ≥ 35 V DC	Is ≥ 700 mA Vs ≥ 35 V DC	Inrush current or more contacts
Inrush Current	Signal Wire LED None [Buzzer] None (※1)	LED None [Buzzer] None (※1)	None
Power Supply Wire	0.7A, 15ms or less	0.7A, 0.5ms or less	25A (Ta=25°C), 50A (Ta=50°C), 2ms or less
Leakage Current		IL ≤ 0.1 mA	

※1 ... When Gray / 9 Black power supply wire is not connected, inrush current or 0.7A will flow through the signal wires (Buzzer Purple / 6 and Gray). Be sure to select the appropriate ratings for an external contact.

Recommended Fuse

Fuse Ampere Ratings 250 V / 1 A (5x20mm Fast-Acting Glass Body Cartridge Fuse)

8 Unit Detachment Method

- Warning** ● Be sure the power is disconnected before working on it.
- Caution** ● Do not apply excessive strength with each unit or body. Failure to comply may damage the unit.
 ● Do not touch the connector area or the inside of the body and LED unit. Failure to comply may damage the unit.
 ● Be sure to lock each unit securely when attaching. Failure to comply may damage the unit.
 ● Detach the unit in the following manner. Any other method may result in damaging the product.
 Attachment : Attach one unit at a time to the body.
 Removal : Firmly hold the bottom section while removing the upper section.

Notice ● The maximum number of attachment units per product are five LED units, plus one buzzer unit.

■ Removal <LED/Buzzer Unit> Turn the body or LED unit counterclockwise to unlock, then raise upwards to remove it.

■ Attachment <LED/Buzzer Unit> Align the Positioning Mark after insertion, then turn the unit clockwise to lock it.

■ Positioning Mark <Locked> <Unlocked>

9 Specifications

Model	UL Registered Model	Body Unit	LED Unit (Max. 5 Units)	Buzzer Unit	Rated Voltage	Rated Power Consumption
LR4-02WJ	LR4-02WJB, LR4-02WJN, LR4-02WJBA, LR4-02WJNA	LR4-02WJN, LR4-02WJNA	LR4-E-R, LR4-E-R-A, LR4-E-RZ, LR4-E-RZ-A	LR4-B, LR4-BA	24V DC	Max. 6.6W
LR4-02LJ	LR4-02LJB, LR4-02LJN, LR4-02LJBA, LR4-02LJNA	LR4-02LJN, LR4-02LJNA	LR4-E-Y, LR4-E-Y-A, LR4-E-YZ, LR4-E-YZ-A		100-240V AC (50/60Hz)	Max. 7.0W
LR4-02PJ	LR4-02PJB, LR4-02PJN, LR4-02PJBA, LR4-02PJNA	LR4-02PJN, LR4-02PJNA	LR4-E-G, LR4-E-G-A, LR4-E-GZ, LR4-E-GZ-A		100-240V AC (50/60Hz)	Max. 7.0W
LR4-02QJ	LR4-02QJB, LR4-02QJN, LR4-02QJBA, LR4-02QJNA	LR4-02QJN, LR4-02QJNA	LR4-E-B, LR4-E-B-A, LR4-E-BZ, LR4-E-BZ-A		100-240V AC (50/60Hz)	Max. 7.0W
LR4-02M2WJ	LR4-02M2WJB, LR4-02M2WJN, LR4-02M2WJBA, LR4-02M2WJNA	LR4-02M2WJN, LR4-02M2WJNA	LR4-E-C, LR4-E-C-A		100-240V AC (50/60Hz)	Max. 7.0W
LR4-02M2PJ	LR4-02M2PJB, LR4-02M2PJN, LR4-02M2PJBA, LR4-02M2PJNA	LR4-02M2PJN, LR4-02M2PJNA			100-240V AC (50/60Hz)	Max. 7.0W
LR4-02M2LJ	LR4-02M2LJB, LR4-02M2LJN, LR4-02M2LJBA, LR4-02M2LJNA	LR4-02M2LJN, LR4-02M2LJNA			100-240V AC (50/60Hz)	Max. 7.0W
LR5-01WJ	LR5-01WJB, LR5-01WJN, LR5-01WJBA, LR5-01WJNA	LR5-01WJN, LR5-01WJNA	LR5-E-R, LR5-E-RZ, LR5-E-Y, LR5-E-YZ	LR5-B	24V DC	Max. 6.6W
LR5-01PJ	LR5-01PJB, LR5-01PJN, LR5-01PJBA, LR5-01PJNA	LR5-01PJN, LR5-01PJNA	LR5-E-G, LR5-E-GZ, LR5-E-B, LR5-E-BZ		24V DC	Max. 6.6W
LR5-02WJ	LR5-02WJB, LR5-02WJN, LR5-02WJBA, LR5-02WJNA	LR5-02WJN, LR5-02WJNA			24V DC	Max. 6.6W
LR5-02LJ	LR5-02LJB, LR5-02LJN, LR5-02LJBA, LR5-02LJNA	LR5-02LJN, LR5-02LJNA			24V DC	Max. 6.6W
LR5-02PJ	LR5-02PJB, LR5-02PJN, LR5-02PJBA, LR5-02PJNA	LR5-02PJN, LR5-02PJNA			24V DC	Max. 6.6W
LR5-02QJ	LR5-02QJB, LR5-02QJN, LR5-02QJBA, LR5-02QJNA	LR5-02QJN, LR5-02QJNA			24V DC	Max. 6.6W
LR5-02M2WJ	LR5-02M2WJB, LR5-02M2WJN, LR5-02M2WJBA, LR5-02M2WJNA	LR5-02M2WJN, LR5-02M2WJNA			24V DC	Max. 6.6W
LR5-02M2PJ	LR5-02M2PJB, LR5-02M2PJN, LR5-02M2PJBA, LR5-02M2PJNA	LR5-02M2PJN, LR5-02M2PJNA			24V DC	Max. 6.6W
LR5-02M2LJ	LR5-02M2LJB, LR5-02M2LJN, LR5-02M2LJBA, LR5-02M2LJNA	LR5-02M2LJN, LR5-02M2LJNA			24V DC	Max. 6.6W
LR7-02WJ	LR7-02WJB, LR7-02WJN, LR7-02WJBA, LR7-02WJNA	LR7-02WJN, LR7-02WJNA	LR7-E-R, LR7-E-Y, LR7-E-G, LR7-E-B, LR7-E-C	LR7-B	24V DC	Max. 6.6W

※ Visit our homepage (<http://www.patlite.com/>) to download the LR Series "Complete Operation Manual:LR" for LED and Buzzer Unit Model Number Configuration.

- (Conformity Standards)
 ● UL 508, CSA-C22.2 No. 14 ● EMC Directive (EN 61000-6-4, EN 61000-6-2) ● RoHS Directive (EN 50581) ● FCC Part 15 Subpart B Class A
 ● KC (KN 61000-6-4, KN 61000-6-2) (Except [M2] - [LJ], [KT], [Assembly Model] - [WT]) ● Low Voltage Directive (IEC/EN 60947-5-1, IEC62471) ([M2] - [WJ] - [PJ])

- When a regulated power supply is not being used, select a fuse that meets class CC or more. ([M2])
 ● Conformity requirements for the UL Standard:
 - Maximum surrounding air temperature rating of 50 °C ([LR] - [M2] - [A] 45 °C)
 - Use a fuse holder with UL standard certification. ([M2])
 - This product is designed for use on a flat surface for a Type 1 Enclosure.
 - Use a "class 2" power supply specified in the guidelines under UL1310. ([01], [02])
 - For use in Pollution Degree 2 Environment.
 ● Conformity requirements for the CE Marking: (Except [M2] - [LJ])
 This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These restrictions are limited to cases where this equipment is operated in a business district, and it is designed to take the relevant protective measures against electromagnetic noise hindrance. This product must not be used in residential areas.

(Note) ● Dimensions and specifications may change without notice due to continual product improvement.
 ● PATLITE and the PATLITE logo is a trademark, or registered trademark of the PATLITE Corporation of Japan and each country.

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