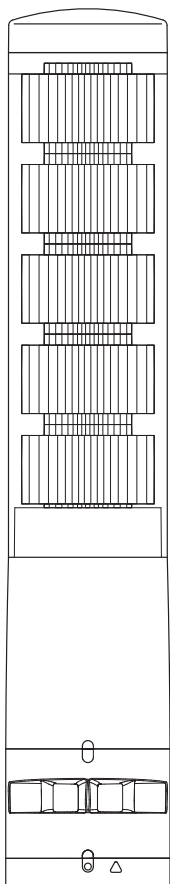


PATLITE®



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.
- To find out more about operation method, visit our company's homepage (<http://www.patlite.com>) for further details.
- 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.

REVOLITE™

Signal Tower

TYPE L A 6

INSTRUCTION MANUAL

[Maintenance Version]

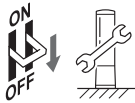
Installation **Operation** **Maintenance**

	Page
1 Safety Precautions	16
2 Model Number Configuration	17
3 Part Names and Outer Appearance	18
4 How to Install	20
5 Wiring	22
6 Setup Data Transmission Method	24
7 How to use the "Setup Button"	25
8 Troubleshooting	25
9 Specifications	26
10 Replacement Parts	27

1 Safety Precautions

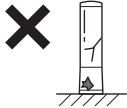
Safety Precautions

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



To prevent from **short-circuits or damage**, observe the following:

- Be sure the signal tower is disconnected from the power supply before wiring or performing repair work.
- Use the signal tower in a **properly maintained condition**. (If parts such as the base or outer cover lens are cracked, they should be repaired.)



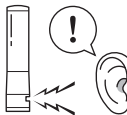
To ensure safety when this product is installed onto equipment, observe the following.

- Do not Use the signal tower as leverage when climbing up onto the equipment. Failure to comply will result in **falling from a high place, or damage to the product**.
- When performing tasks such as opening the covers of the equipment, be careful not to snag anything on the signal tower. Failure to comply will result in **product damage**.

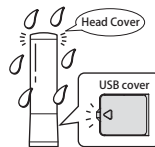


Request the installation and wiring be performed by a **professional contractor** if construction work is involved. Failure to comply may result in **fire, electric shock or falling** from high places may occur.

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



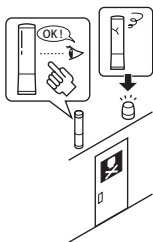
Avoid long exposure to the alarm sound from a close distance. Failure to observe this may lead from irritation to permanent damage to the ears.
(**B** Flashing/Alarm Specifications)



To maintain the dust and waterproof performance for this product, observe the following:

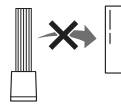
- Keep the head cover attached at all times.
- Ensure the USB cover is closed at all times.

Notice



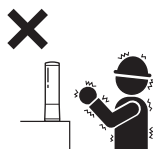
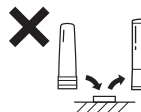
To ensure proper safety while using the signal tower, observe the following:

- Perform periodic pre-maintenance.
- As a precaution against problems occurring, use this product together with other equipment.

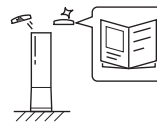


To ensure safety when this product is installed onto equipment, observe the following.

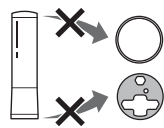
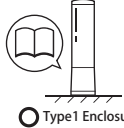


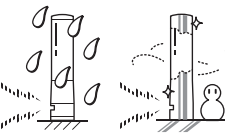
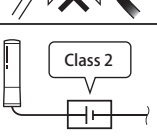
- Do not remove parts beyond those designed to be removed from this product. (Refer to **B** Part Names and Outer Appearance (P. 18) for parts which can be removed)
- Do not modify or disassemble this product.
- Use only the specified replacement parts listed in this manual.



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.)



Notice

 <p>Do not operate this product without the waterproof packing material. Failure to comply will result in lower waterproofing performance.</p>	 <p>This product is designed for use on a flat surface of a Type 1 Enclosure. (For UL Standard)</p>
 <p>The alarm sound is unidirectional, therefore it is most easily audible in the direction from the source. Position the signal tower so that the alarm sound is facing in the desired sound direction. (For [B] Flashing/Alarm Specifications)</p>	 <p>By all means, do not apply voltage to the Flashing/Pulse Enable Common line. Failure to comply may result in malfunction. ([B] Flashing/Alarm Specifications)</p>
 <p>Sound pressure may change in accordance to the surrounding environment.</p>	 <p>Do not connect power to the Flashing/Pulse Enable Common line. Failure to comply may result in malfunction. ([B] Flashing/Alarm Specifications)</p> <p>Use a "class 2" power supply specified in the guidelines under UL1310. (For UL Standard)</p>

Main Unit

This product is a multipurpose signal tower, designed principally for giving notifications of the operating status for FA (Factory Automation) equipment in factories, etc., using LEDs and alarms^{**}. This product operates the same as the conventional Signal Tower in its "Signal Tower mode", in addition to new functions called the "Smart Mode". In its "Smart Mode", a diverse display of a pattern flow is used, and when prepared beforehand, all the LEDs can be used to display a bar graph, etc.

※ [B] Flashing/Alarm Specifications

Instruction Manual Objective

- The images in this manual may vary in comparison to the actual product and are only for the purpose of illustration.
- Store this manual in a location for future reference.

2 Model Number Configuration

	Model	LED Tiers	Rated Voltage	Mounting/Wiring Installation	Body Color	Flashing/Alarm Option	Color
Model Number	LA6-	↓	D	↓	↓	↓	-RYGBC

3 or **5** Tiers

(Common to all models)
Rated voltage is 24VDC.

- WJ** Direct mount with cable connection
- TN** Direct mount with Screwless Terminal Block connection
- LJ** Mounting angle and steel pole with cable

- W** Off-white
- U** Silver^{**}

※ [U] is not available for [LJ].

Color for each tier in Signal Tower Mode (Factory default setting).
R (Red) · Y (Amber) · G (Green) · B (Blue) · C (White)
(The LED light color for each tier can be changed after purchase.)

- B** With flashing/alarm
- N** Without flashing/no alarm

Model Number Example

LA6-3DWJWN-RYG

● LED 3 Tiers ● Direct mount with cable connection ● Off-white ● Without flashing/alarm ● (From top to bottom) Red · Amber · Green

LA6-5DTNUB-RYGBC

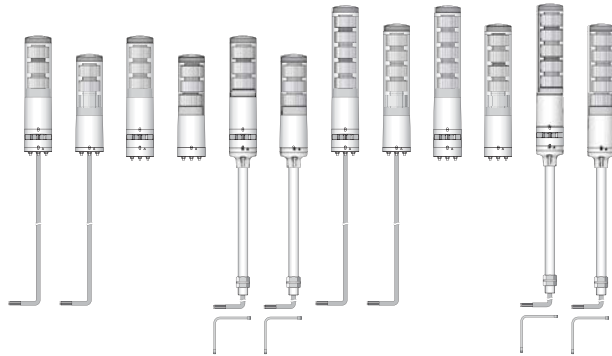
● LED 5 Tiers ● Direct mount with Screwless Terminal Block connection ● Silver ● With flashing/alarm ● (From top to bottom) Red · Amber · Green · Blue · White

3 Part Names and Outer Appearance

Outer Appearance List

The full product appearance is indicated according to its model number. Refer to the model numbers as a reference to its appearance.

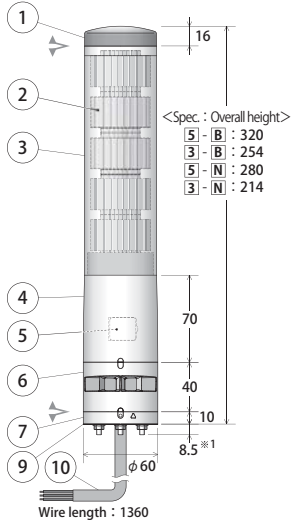
Number of Lens Tiers	3 lens tiers			5 lens tiers		
Mounting/Wiring Installation	WJ	TN	LJ	WJ	TN	LJ
Body Color	W Off-white / U Silver (Not available for the LJ Specification.)					
Flashing/Alarm Option	B	N	B	N	B	N



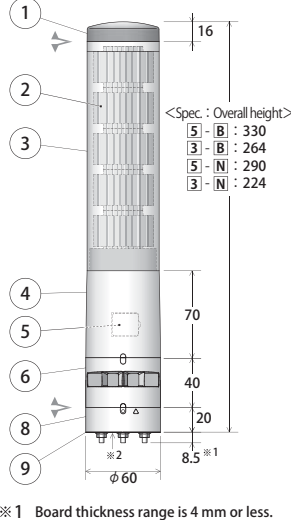
Part Names and Outer Appearance

Each figure contains 5 lens tiers, with B flashing and alarm functions. For 3 lens tiers, the outer lens height will be shorter. Also, for specifications N not including the flashing/alarm functions, the product will not include a buzzer case.

■ **WJ** Direct mount with cable connection



■ **TN** Direct mount with Screwless Terminal Block connection



(Unit : mm)

※ 2 **TN** Spec. Underside View

Threaded bore for cable gland attachment (M16×1.5 Effective screw length 12mm)



Cable gland

<Note> The cable gland is not included with this product.

14 Accessory Assembly **WJ TN**

Screw (M4x20)



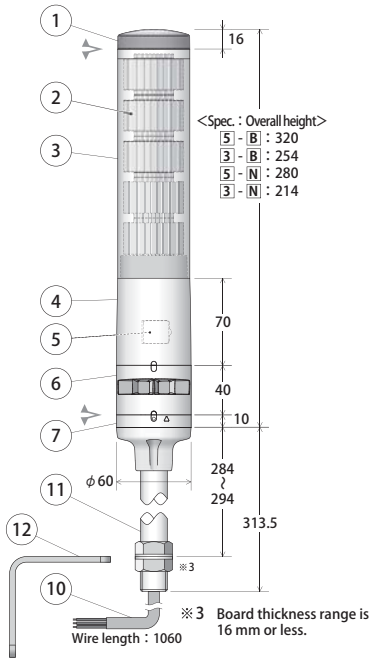
3pcs.

Flanged nut (M4)



3pcs.

■ **LJ** Steel pole with mounting angle and cable

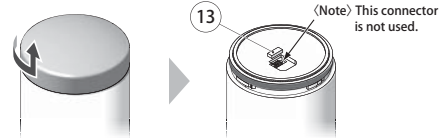


Number	Name	Material	Number	Name	Material
1	Head Cover	ABS	8	Terminal Block Bracket	ABS
2	Lens	PMMA	9	Waterproof Packing	Urethane Foam
3	Outer lens	PC	10	Cable	PVC
4	Body	ABS	11	Pole	Steel Pipe
5	USB cover	ABS	12	Mounting Angle	Steel Plate
6	Buzzer case	ABS	13	Setup Button	ABS
7	Direct-mount Bracket	ABS	14	Accessory Assembly	Steel

〈Note〉 ➤ The arrow mark (stackable mark) shows the part of the Main Unit (upper portion of bracket) which can be removed. Do not disassemble any parts other than the parts indicated above.

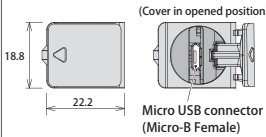
13 Setup Button (Head Cover removal)

Remove the head cover by turning it to the left to release it from the locked position. (Perform in the reverse for removal to re-assemble.)



5 USB cover parts in detail

〈Note〉 - To open the USB cover, insert a minus driver (blade-edge width of 3 mm, thickness of 0.5 mm or less) in the indented part and lightly pry it open. (If there is concern with scratching or damaging the Main Unit, it is recommended to use an object made of ceramics.)
 - Ensure the USB cover is closed at all times. If not securely closed, its waterproof performance will decrease.

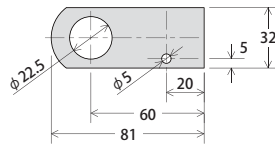
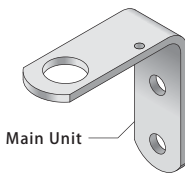


Part Names and Outer Appearance(Mounting Angle)

L The following are the names and dimensions for each part of the mounting angle and steel pole attachments.

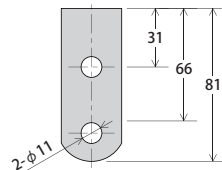
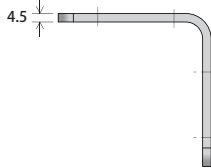
Top View

(Unit : mm)







Side view

Rear view

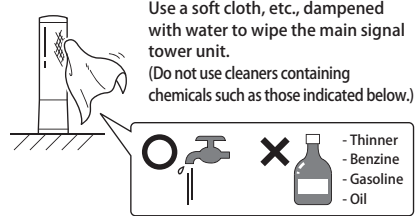


4 How to Install

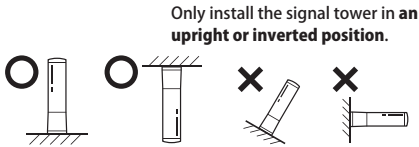
⚠ Caution


- ✗  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**.

Use a soft cloth, etc., dampened with water to wipe the main signal tower unit.
(Do not use cleaners containing chemicals such as those indicated below.)

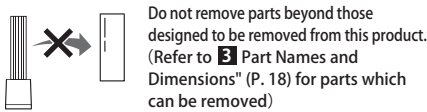


- ✗ Thinner
- ✗ Benzine
- ✗ Gasoline
- ✗ Oil

- Only install the signal tower in an **upright or inverted position**.
- 

 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 limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

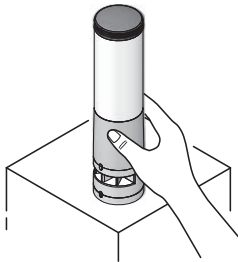
Do not remove parts beyond those designed to be removed from this product. (Refer to **E** Part Names and Dimensions" (P. 18) for parts which can be removed)



This product must not be used in residential areas.
(Conformity requirements for CE Marking.)

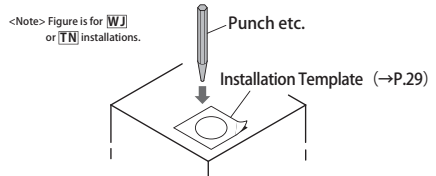
General Installation

1 Verify the signal tower installation position.



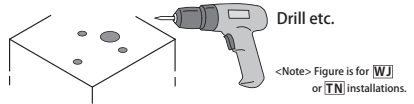
- Point**
- Use the following tips to check the following:
- Will it obstruct other equipment?
 - Can the wiring be routed properly?
 - Is there space available to open and close the USB cover?
 - Where is the alarm direction (**B**) Flashing/Alarm Specifications) facing?

2 Marking holes for wiring and installation.



Use the installation template located on P.29 and a punch, etc. to mark the places to make the holes.

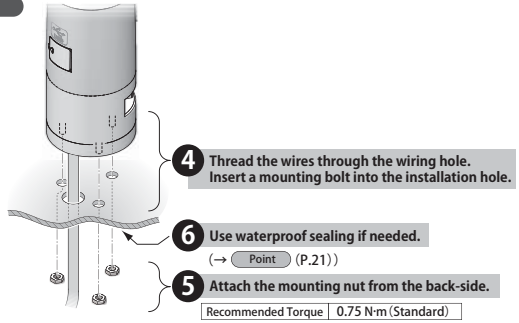
3 Making holes for wiring and installation



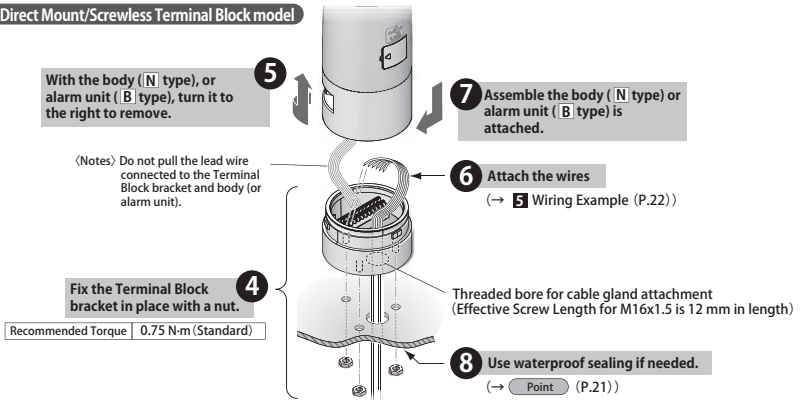
Use a drill, etc., to make holes for installation and wiring.

After Procedure **4** refer to "Mounting/Wiring Installation" for their installation method.

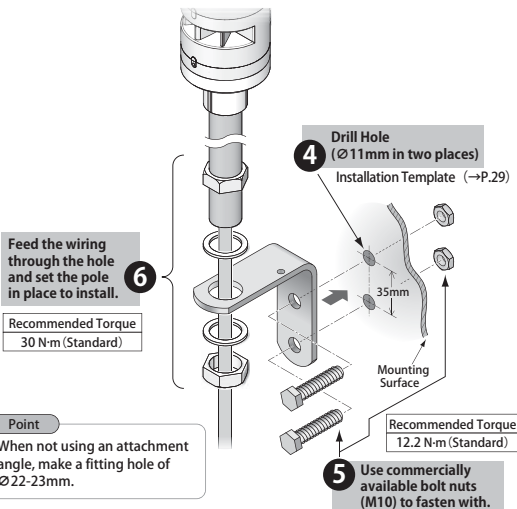
For **WJ** Direct mount and cable model



For **TN** Direct Mount/Screwless Terminal Block model

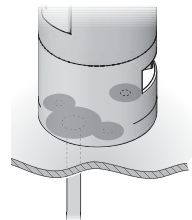


For **LJ** Steel pole and the Mount angle with the cable model



Point

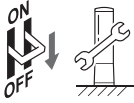
If the installed environment exposes water, etc., to the back-side of the mounting surface, be sure to Use sealing on the mounting and distribution holes.



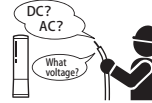
Use sealing to prevent water intrusion. (from the mounting back-side)

5 Wiring

Warning

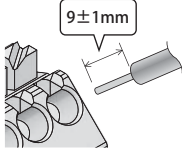


Be sure the **power is disconnected** before replacement or repair. Failure to comply will result in damage due to **short-circuiting**.

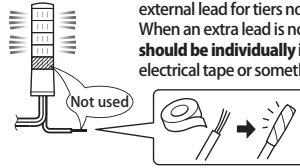


Ensure the **proper working voltage** is used and that **direct current or alternating current** is properly applied. Failure to comply may result in combustion.

Caution



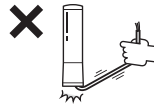
Strip 9 ± 1mm of wire insulation from the wire to insert it in the Screwless Terminal Block. If the wire is shorter than 9mm, a poor connection may occur, and if the wire is too long, there is a possibility of electric shock or short-circuiting.
(**TN** Direct Mount/ Screwless Terminal Block Specifications)



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.



Wire the product so that the **lead wire does not protrude from the Screwless Terminal Block**. Failure to comply may result in short-circuiting.
(**TN** Direct Mount/ Screwless Terminal Block Specifications)



Do not **pull** the lead wire or **push** it inside the body.



Caution



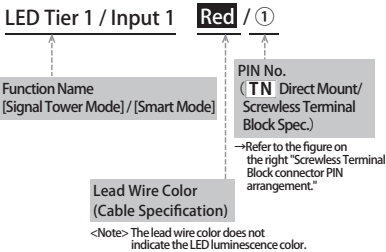
If wiring is extended beyond its factory length, a relevance in the length of the wire and wire gauge that will cause a voltage drop.

Wiring Example

The wiring example indicates how to connect to external contacts for every classification.

If there are any special applications that require asking questions concerning this product, feel free to contact your PATLITE Sales Representative.

Wiring Example Index



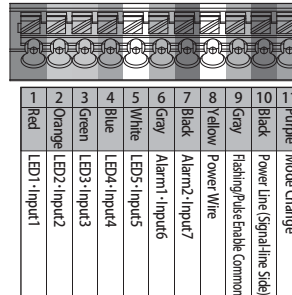
Alarm Sound Pattern (Factory Default)

Alarm1	Alarm Sound No.1
Alarm2	Alarm Sound No.2
Alarm 1 and Alarm 2 Entered Simultaneously	Alarm Sound No.9

About Mode Switch-over

When entering the "Mode Change", the operating mode can be changed to the "Smart Mode". In the "Smart Mode", various lighting and alarm patterns can be arranged. Visit our company's homepage (<http://www.patlite.com>) for further details.

Screwless Terminal Block Connector PIN Arrangement (**TN** Direct Mount/ Screwless Terminal Block Specifications)

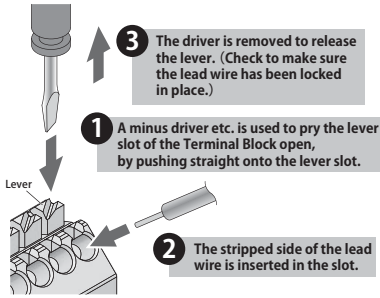


Recommended lead wire specifications

Wire Type	Wire Gauge (Solid Wire)	Wire Gauge (Frayed Wire)
UL1007 / UL1430	0.5~1.5mm ²	AWG20~16

* Temperature rating should be above 75°C, and the conductor material should be of copper wire.

Screwless Terminal Block wiring method (TN Direct Mount/ Screwless Terminal Block Type)



point

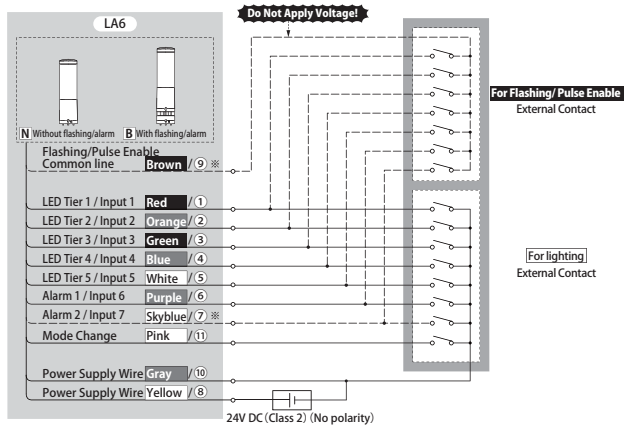
- The minus driver blade should be at least 2.5mm by 0.4mm in size.
- Do not forcibly push the lever more than necessary with the driver. Failure to comply may damage the unit.
- Strip 9mm (plus or minus 1mm) of wire insulation from the wire to insert it in the Terminal Block.
- When removing the lead wire, do not just pull to remove. (Be sure to operate the lever to release the lock.)

⚠ Caution When an extra lead wire is not connected, it should be individually insulated with electrical tape or something similar.

(Note) When lighting and flashing are used together in the Signal Tower mode with a PLC, it is necessary to separate the flashing and non-flashing circuit outputs on the PLC side.

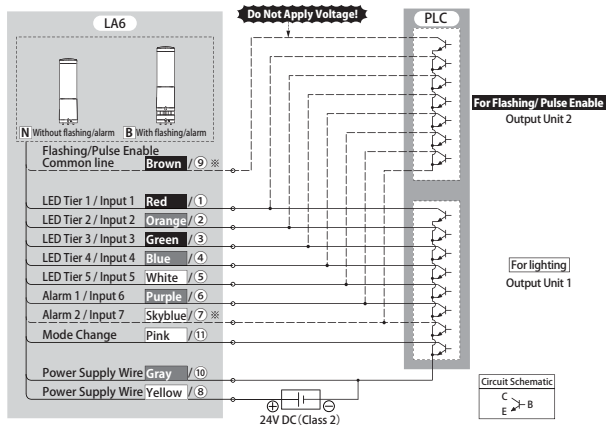
External Contact Classification

Voltage Contact Relay



External Contact Classification

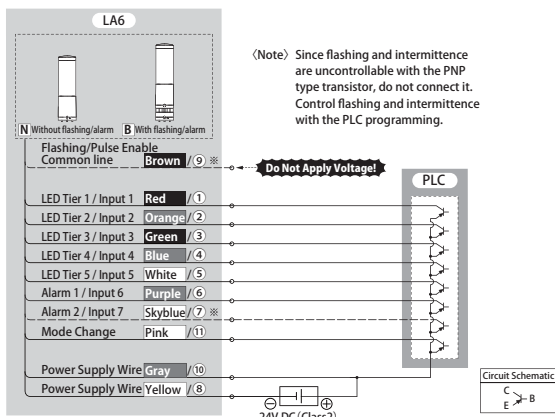
PLC (NPN Transistor)



Continue to next page...

External Contact Classification

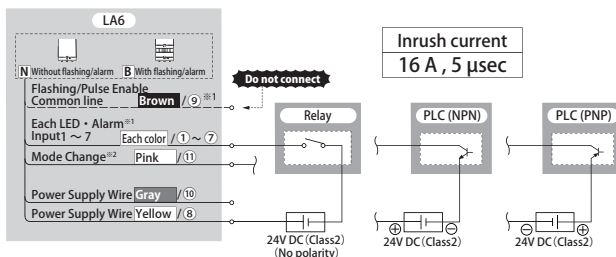
PLC(PNP Transistor)



Caution When Gray /10 power supply wire is not connected, the inrush current flow.

External Contact Classification

Voltage Contact Relay or PLC



6 Setup Data Transmission Method

This chapter explains the application of the "Smart Mode".

It is necessary to create a set pattern data beforehand.

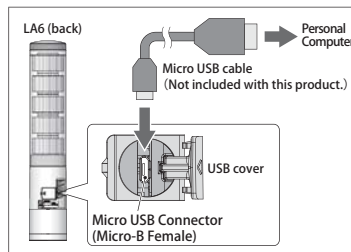
For more detailed explanation on the creation and setup data for patterns, refer to the help section in the software for creation of setup data

■ Preparation

- This product
 - Personal Computer with the software for creation of setup data installed (Windows®7 / 8 / 8.1)
 - Micro USB Cable (USB A-Male to USB Micro-B Male)
- Note > The micro USB cable should be able to charge batteries and transmit data.
(The MicroUSB cable is not included with this product.)

■ Transfer Procedure

- 1 Change the product to the standby mode (all signal inputs are off).
(The power supply input can either be ON or OFF, whichever is easier.)
- 2 Open the USB cover on the product. (Right figure)
- 3 A micro USB cable is connected to a personal computer and the product. (Right figure)
- 4 Click the "Transfer" button in the software for creation of setup data.
- 5 When data transfer is completed, a "Transfer was completed" message will be displayed.
- 6 Remove the micro USB cable and close the USB cover on the product.
(Ensure the USB cover is closed.)



Point

If the power supply input to the product is set to ON, the "Settings" button in the software for creation of setup data can be clicked to test the setup data operation.

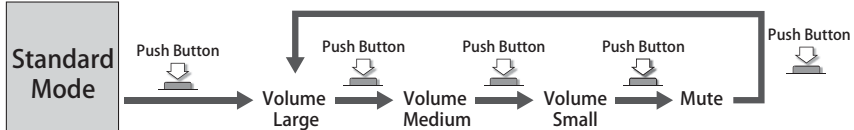
※To find out about the software for creation of setup data, visit our company's homepage (<http://www.patlite.com>) for further details.

7 How to use the "Setup Button"

The product contains a hidden push button (Refer to **3** Part Names and Outer Appearance (P. 18)) in the upper section, which can be operated as follows:

- Alarm Sound Control Adjustable up to four steps.
- LED Color Change The luminescence color of each tier can be changed.
- Version Confirmation The current version of the product can be checked.
- Product Initialization The memory contents of the product can be cleared and returned to factory default values.
(Returns to the Signal Tower setup mode. The alarm sound pattern and the "Smart Mode" setup data have not changed.)

■ Setup Button Operation Method (Alarm Sound Control)



To find out more about operation methods other than "Alarm Sound Control", visit our company's homepage (<http://www.patlite.com>) for further details.

8 Troubleshooting

If a problem occurs, check the following table to remedy the problem before calling for service.




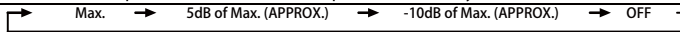
No.	Problem	Where to Check	Inspection Repair
1	The LED does not light up.	Is the electric wiring connected correctly?	Refer to 5 Wiring (->P.22, 23). to verify wiring is correct.
		Is the power properly supplying the correct voltage?	Be sure to use 24VDC.
2	A different LED tier from what I thought lights up when I make it turn on.	Is the electric wiring connected correctly?	Refer to 5 Wiring (->P.22, 23). to verify wiring is correct.
		Is the setup data correct?	Check that the contents of the setup data is correct.
3	The alarm does not sound.	Is the electric wiring connected correctly?	Refer to 5 Wiring (->P.22, 23). to verify wiring is correct.
		Is the power properly supplying the correct voltage?	Be sure to use 24VDC.
		Check that the product type has a alarm included or not.	Only products with B added to the part number include the alarm function.
		Is the setup data correct?	Check that the contents of the setup data is correct.
4	The alarm volume is too low.	Is the alarm volume set to minimum?	Refer to 7 Setup Button Method (->P.25) on how to adjust the volume.
		Is the setup data correct?	Check that the contents of the setup data is correct.
5	The LED does not flash.	Is the electric wiring connected correctly?	Refer to 5 Wiring (->P.22, 23). to verify wiring is correct.
		Are the external contacts for lighting turning on?	Priority is given to the lighting input over the flashing input when simultaneous signals are applied.
		Check that the product type has a alarm included or not.	Only products with B added to the part number include the alarm function.
		Is the setup data correct?	Check that the contents of the setup data is correct.

Even after the above-mentioned symptoms were checked, but the problem is not solved, refer to the back of this book to fill out the "Product Specification Details for Inquiry" before contacting your nearest Patlite Sales Representative or our Technical Support.

<Product Specification details for Inquiry>	Product Name	Signal Tower	Purchase Date	Year/Month/Day
	Model	(→ 2 Model Number Configuration" (P. 17))	Symptoms of Problem	With as much detail as possible.

9 Specifications

Specifications

Model		LA6-□□D□□□□□□ (Refer to "2. Model Number Configuration")			
Rated Voltage		24V DC			
Operating Voltage Range		± 10% of Rated Voltage			
Rated Power Consumption	Typ.	LA6-5D□□□□N-RYGBC	5W	LA6-5D□□□□B-RYGBC	6.5W
		LA6-3D□□□□N-RYG	3.5W	LA6-3D□□□□B-RYG	4.5W
	Max.	LA6-5D□□□□N-YYYY	7W	LA6-5D□□□□B-YYYY	8W
		LA6-3D□□□□N-YYY	4.5W	LA6-3D□□□□B-YYY	5.5W
Environmental Condition		Alarm Sound No.1 at Maximum Volume			
Signal Wire Current		Max. 70mA			
Standby Current		Max. 15mA			
Operating Ambient Temperature		- 25°C ~ + 60°C			
Operating Ambient Humidity		Less than 90% (No Dew or Condensation)			
Storage Ambient Temperature		- 25°C ~ + 60°C			
Storage Ambient Humidity		Less than 90% (No Dew or Condensation)			
Mounting Location		Indoor Only			
Mounting Direction		Upright	Horizontal	Inverted	
					
		IP65(Alarm specification: IP54) IEC 60529			
Protection Rating		IP65(Alarm specification: IP54) IEC 60529			
Environmental Condition		Upright Installation			
Vibration Resistance		LA6-□□□□□□	Sweep : Amplitude 0.30mm p-p(10~57.5Hz), Acceleration 20m/s ² (57.5~150Hz)		
		LA6-□□□□□□	Spot : Acceleration 20m/s ² (57.5~150Hz)		
		LA6-□□□□□□	Sweep : Amplitude 0.30mm p-p(10~57.5Hz), Acceleration 20m/s ² (57.5~150Hz)		
Environmental Condition		JIS C 60068-2-6 : 2010			
Insulation Resistance		Upright Installation			
Withstand Voltage		More than 1MΩ at 500VDC between the terminals and the chassis			
Display Color		500VAC applied for 1 min between terminals and chassis without breaking insulation			
(Typical Luminous Intensity)		Red(1000mcd) Amber(1700mcd) Green(2600mcd) Blue(1000mcd) White(1250mcd)			
Flashing Rate		Purple(800mcd) Pink(850mcd) Lemon Yellow(2150mcd) Cyan(2150mcd)			
Alarm Sound (Typical Frequency)		60±2 Flashes Per Minute			
Sound Level		No.1	2400Hz, Continuous beep sound	No.2	2400Hz, Intermittent at 0.05sec
		No.3	2400Hz, Intermittent at 1.5 sec	No.4	2400Hz, Intermittent at 0.5sec
		No.5	3600Hz, Continuous beep sound	No.6	3600Hz, Intermittent at 0.05sec
		No.7	3600Hz, Intermittent at 1.5 sec	No.8	3600Hz, Intermittent at 0.5sec
		No.9	2400Hz&3375Hz, 0.25sec/0.25sec	No.10	2400Hz&3600Hz, 0.25sec/0.25sec
		No.11	4000Hz&4800Hz, 0.5sec/0.5sec		
Environmental Condition		Max. 85dB			
Volume Control		Alarm Sound No.1 measured from the front direction of the alarm opening at 1m			
Data Transmission Interface		4 steps in volume selection from Setup Pushbutton (Factory Default: Max.)			
					
Main Unit		USB micro-B Female			
Transfer cable		Interface : USB2.0/1.1, Transmission speed : USB2.0/1.1/1.0			
Data Programming Application Software		Micro USB cable (Not included), Data transfer/Chage cable			
		Connector type : USB Male (Type-A) - USB Male (Type.MicroB)			
Mass (± 10%)		Exclusive Application Software (Downloadable from Home Page)			
		LA6-3DTN□□B	480g	LA6-5DTN□□B	590g
		LA6-3DTN□□N	420g	LA6-5DTN□□N	530g
		LA6-3DWJ□□B	450g	LA6-5DWJ□□B	560g
		LA6-3DWJ□□N	400g	LA6-5DWJ□□N	510g
		LA6-3DLJ□□B	980g	LA6-5DLJ□□B	1090g
		LA6-3DLJ□□N	930g	LA6-5DLJ□□N	1040g
Conformity Standards		UL508, CSA-C22.2 No. 14		EMC Directive (EN 61000-6-4, EN 61000-6-2)	
		FCC Part15 SubpartB Class A		RoHS Directive (EN 50581)	
		KC (KN 61000-6-4, KN 61000-6-2)			
Operating Mode		Signal Tower Mode / Smart Mode			
Remarks		CE Marking Compliant			
		UL Recognized Component (File No.E215660), Maximum Surrounding Temperature Rating 60°C			

10 Replacement Parts

The following replacement parts for this product are available.

Head Cover



The Head Cover is a single article.

USB Cover



The USB Cover is a single article.

Waterproof Ring B



Waterproof Ring B are 2pcs.

Pole Bracket




Set of Pole Bracket, Pole Waterproof Ring and Screw(2pcs.).

Direct-mount Bracket



The Direct-mount Bracket is a single article.

Terminal Block Bracket

( For with flashing/alarm type)



The Terminal Block Bracket is a single article.

Pole Waterproof Ring

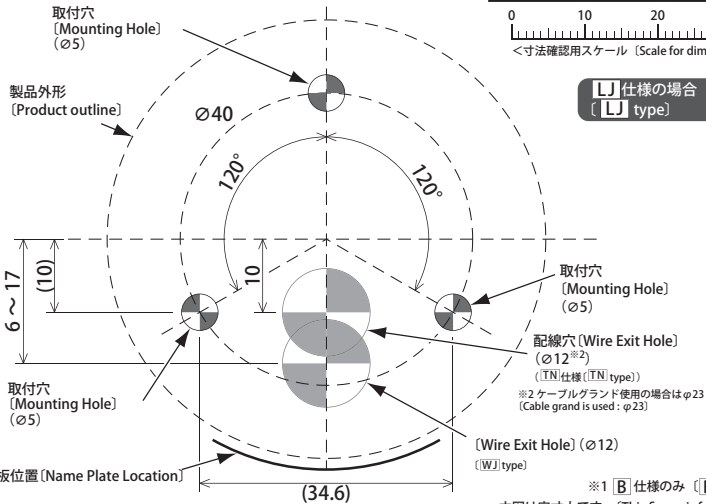


The Pole Waterproof Ring is a single article.

LA6 取付型紙 [Installation Template]

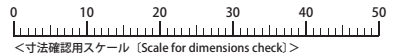
TN 仕様の場合
[For **WJ** **TN** type]

製品正面 [Front of product]
(ブザー開口部 [Alarm output] ※1)

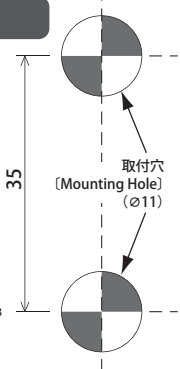


△注意 [CAUTION]

コピーして使用する場合は、データからプリントアウトした場合は、製品の取付ボルトや取付アングルと位置合わせするか、寸法確認用スケールを計測し、実寸になっていることを確認してください！
[If using a copier machine, Ensure that it is actual size.]



L 仕様の場合
[**L** type]



※1 **B** 仕様のみ [**B** type only]

本図は実寸です。[This figure is full scale] (単位 [Units] : mm)

✂️ 切り取ってご使用ください。(Cut-out before use.)

(取付型紙)

書込みなどしないでください。

(Installation template)

Do not write here.