

Think Automation and beyond...



# **IDEC** LD6A LED Signalight Towers

# LD6A Signalight Towers

# Ergonomically designed for instant visual & audible recognition

LD6A SignaLights combine the latest LED technology with IDEC safety technology. With a new concept and innovative design, LD6A light towers are ideal for factory automation and many applications.

Stylish design		and the second
Otynan dealgn		
Lens shape offers visibility in all directions		
Five different mounting styles	-	
Alarm can easily be heard in noisy areas		
Custom arrangement of LED units		注,理
	5	
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# **IEC Standards Color Arrangement**

Indicating towers mounted on machines should have colors in the following order from the top down; RED, YELLOW, BLUE, GREEN, WHITE to meet IEC Standards. (IEC60204-1 Fifth edition Chapter 10.3.2 Colors)

Indicator Light Color Significance (with respect to machine condition) Color Indication Explanation **Operator Action** Immediate action to deal with RFD Emergency Hazardous condition hazardous condition Monitoring and/or intervention Abnormal condition Abnormal (for example by re-establishing Impending critical condition the intended function) BLUE Mandatory Indication of a condition that requires action by the operator Mandatory action GREEN Normal Normal condition Optional Other conditions; may be used whenever doubt exists about WHITE Neutral Monitoring the application of RED, YELLOW, GREEN, BLUE

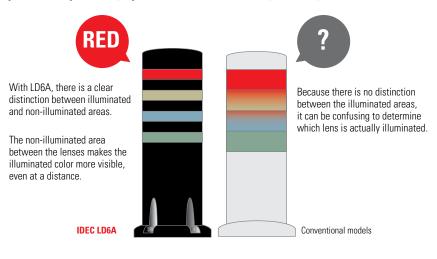
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# Unique design improves brightness and visibility

### Oval shape with striped design provides focused visibility and brightness



#### **IP65** protection



Steady	frame mount, wall mount, direct mount, pole mount with base	IP65
Steady	pole mount with L-shaped bracket	IP23
Flashing/Alarm	frame mount, wall mount, direct mount, pole mount with base	IP54
Flashing/Alarm	pole mount with L-shaped bracket	IP23

**Two housing colors** 



Black and light gray housing available.



# Easy installation and assembly

and easy.

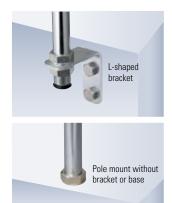
**Easy Assembly** 

The unique, secure terminal-style of

the LED module makes assembly quick

#### **Different mounting styles**

L-shaped bracket available for pole mounting. Can also be mounted directly to equipment.





### **Plug-in Terminals**

Highly reliable plug-in terminals allow for easy expansion of the LED module.





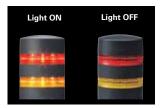
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## Flashing cycle complies with IEC standards: 1.75Hz (approx. 105 times per minute)

IEC60073 Sixth edition 2002 Chapter 4.2.3 "Coding by changing of characteristics over time"





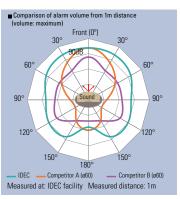
#### Unique design with 360-degree sound. Two alarm styles available.

Alarm is 3.3kHz with a maximum sound level of 90dB. With a unique IDEC resonant design, the SignaLight has a frequency that is audible to the human ear and provides clear sound in 360 degrees. As a result, sound recognition improves as the alarm can be heard in a noisy environment, enhancing safety.





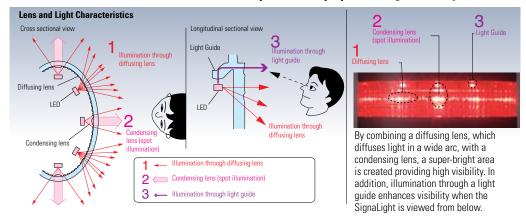
Alarm volume adjustment (adjustable within a range of 70 to 90 dB) Alarm 1: Intermittent short sound Alarm 2: Intermittent long sound



The alarm can be heard from all directions as the sound spreads out evenly.

# Lens shape offers visibility from all directions

Three different illumination methods and a unique lens shape provide high visibility from all directions.





#### Clear lens type available

Because a reflective mirror is not installed in the the LED unit, diffuse reflection does not occur because of external or bright light. Also, when the clear lens type is used, it is very obvious when the light is on or off, even in a bright environment.





Steady/flashing/alarm model shown. Light gray or black housing available.

# LD6A LED SignaLight Towers

# Unique Striped Design Improves Visibility

- The striped design with non-illuminated area between the lenses makes the illuminated color very visible.
- Unique oval lens shape provides high-visibility from different directions.
- Five different mounting styles available: frame mount, wall mount, direct mount and pole mount (round or L-shaped bracket).
- Clear lens models available to clearly distinguish between illuminated and non-illuminated lenses.
- Custom configuration is possible.
- Flashing cycle: 1.75Hz (approx. 105 flashes per minute) conforms to international standard IEC 60073.
- Alarm (3.3kHz, 2 different styles) can be heard in 360° degrees. Adjustable volume (70 to 90dB).
- Degree of protection: IP65 Steady units and IP54 Flashing units (using frame, wall, direct and pole mount with round base), IP23 Steady and Flashing units using pole mount with L-shaped bracket.



# **General Specifications**

Safety Standards	IEC60947-5-1, EN CSA C22.2 No.14	160947-5-1, UL508,		
Operating Temperature	–25 to +55°C (no	freezing)		
Operating Humidity	45 to 85% RH (no	condensation)		
Storage Temperature	-40 to +75°C (no	freezing)		
Overvoltage Category	III (IEC60664-1)			
Impulse Withstand Voltage	800V (IEC60947-1	)		
Insulation Resistance	100 MΩ minimun	n (500V DC megger)		
Dielectric Strength	Between live and	dead parts: 1000V AC, 1 minute		
Pollution Degree	3			
Corrosion Immunity	Atmosphere free from corrosive gases			
Vibration Resistance	Operating extrem	es: 10 to 55Hz, amplitude 0.5 mm		
Shock Resistance	Operating extrem	es: 147 m/s², 6 shocks each in 6 axes		
	Steady	frame mount, wall mount, direct mount, pole mount with base	IP65	
Degree of Protection	Steady	pole mount with L-shaped bracket	IP23	
(IEČ60529)	Flashing/Alarm	frame mount, wall mount, direct mount, pole mount with base	IP54	
	Flashing/Alarm	pole mount with L-shaped bracket	IP23	
Housing Color	Black, Light gray			
Material	Lens: AS i Pole: Stee	resin esin el (nickel-chrome plated) east aluminum		
Wire	22AWG (UL1007)			





# **Functional Specifications**

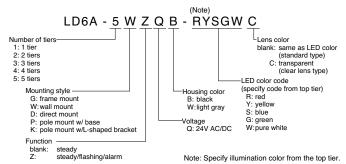
Rated Insulation Voltage		60V			
Operating Voltage		24V AC/DC ±10%			
Ra	ted Voltage (Ue)	24V AC/DC			
LEI	) Color Code	R (red), Y (yellow) G (green), W (pur			
	Illumination Color	R, Y	S, G	W	
LED	Rated Current (per tier)	25mA	30mA	20mA	
	Power Consumption (per tier)	0.6W	0.75W	0.5W	
LED Life (Note)		Approx. 30,000 hours (until brightness is reduced to 50% of the initial value in a 25°C operating environment)			
Fla	shing Cycle (IEC60073)	Approx. 105 flashes per minute (1.75 Hz)			
	Alarm Cycle	Alarm 1: approx. 700 times per minute Alarm 2: approx. 35 times per minute			
ε	Current Draw	110mA max.			
Alarm	Inrush Current	AC: 400mA max. DC: 250mA max.			
	Alarm Volume	70 to 90dB, at 1m	n (volume adjustable	2)	
	Acoustic Frequency	Approx. 3.3kHz			

Note: Life of the LED varies according to operating conditions and environment.

# **External Contact Ratings**

	AC Contact Capacity	Current Capacity	100mA min.
	(per tier)	Dielectric Strength	35V AC min.
LED		Current Capacity	100mA min.
	DC Contact Capacity, Transistor Capacity (per tier)	Dielectric Strength	35V min.
		Leakage Current	0.1mA max.
	AC Contact Capacity	Current Capacity	400mA min.
_	(per alarm)	Dielectric Strength	35V AC min.
Alarm	DC Contact Capacity,	Current Capacity	300mA min.
	Transistor Capacity	Dielectric Strength	35V min.
	(per alarm)	Leakage Current	0.1mA max.

## **Part Number Structure**



## **Assembled Products**

Mounting	Tiers LED Color Code	Steady		Steady/Flashing/A	Steady/Flashing/Alarm	
Style			Part Number	Weight (approx.)	Part Number	Weight (approx.)
	1	R, Y, S, G, W	LD6A-1GQ*-	220g	LD6A-1GZQ*-	310g
	2	RY, RG	LD6A-2GQ*-	260g	LD6A-2GZQ*-	350g
G: Frame Mount	3	RYS, RYG	LD6A-3GQ*-	300g	LD6A-3GZQ*-	390g
Would	4	RYSG	LD6A-4GQ*-	340g	LD6A-4GZQ*-	430g
	5	RYSGW	LD6A-5GQ*-	380g	LD6A-5GZQ*-	470g
	1	R, Y, S, G, W	LD6A-1WQ*-	225g	LD6A-1WZQ*-	315g
	2	RY, RG	LD6A-2WQ*-	265g	LD6A-2WZQ*-	355g
W: Wall Mount	3	RYS, RYG	LD6A-3WQ*-	305g	LD6A-3WZQ*-	395g
Would	4	RYSG	LD6A-4WQ*-	345g	LD6A-4WZQ*-	435g
	5	RYSGW	LD6A-5WQ*-	385g	LD6A-5WZQ*-	475g
	1	R, Y, S, G, W	LD6A-1DQ*-	185g	LD6A-1DZQ*-	275g
	2	RY, RG	LD6A-2DQ*-	225g	LD6A-2DZQ*-	315g
D: Direct Mount	3	RYS, RYG	LD6A-3DQ*-	265g	LD6A-3DZQ*-	355g
Would	4	RYSG	LD6A-4DQ*-	305g	LD6A-4DZQ*-	395g
	5	RYSGW	LD6A-5DQ*-	345g	LD6A-5DZQ*-	435g
	1	R, Y, S, G, W	LD6A-1PQ*-	645g	LD6A-1PZQ*-	735g
	2	RY, RG	LD6A-2PQ*-	685g	LD6A-2PZQ*-	775g
P: Pole Mount (with base)	3	RYS, RYG	LD6A-3PQ*-	725g	LD6A-3PZQ*-	815g
(With babb)	4	RYSG	LD6A-4PQ*-	765g	LD6A-4PZQ*-	855g
	5	RYSGW	LD6A-5PQ*-	805g	LD6A-5PZQ*-	895g
	1	R, Y, S, G, W	LD6A-1KQ*-	640g	LD6A-1KZQ*-	730g
K: Pole Mount (with L-shaped bracket)	2	RY, RG	LD6A-2KQ*-	680g	LD6A-2KZQ*-	770g
	3	RYS, RYG	LD6A-3KQ*-	720g	LD6A-3KZQ*-	810g
	4	RYSG	LD6A-4KQ*-	760g	LD6A-4KZQ*-	850g
	5	RYSGW	LD6A-5KQ*-	800g	LD6A-5KZQ*-	890g



• Specify housing color code in place of \*: B (black), W (light gray)

• Specify illumination color in place of  $\Box$  starting with the top tier. State the LED color code from the left. R (red), Y (yellow), S (blue), G (green), W (pure white)

• Example: When the LED color is RYGSW => LD6A-5GQW-RYGSW

• Clear lens type also available. Specify "C" after the LED color code. Example: LD6A-5GQW-RYSGW => LD6A-5GQW-RYSGWC

## **Combination of LED Color and Lens Color**

LED Color	Color Lens Type	Clear Lens Type
R: Red	Red lens	Clear lens
Y: Yellow	Yellow lens	Clear lens
S: Blue	Blue lens	Clear lens
G: Green	Green lens	Clear lens
W: Pure white	: Pure white Clear le	

For pure white (W) LED, a clear lens is used in both color and clear lens configurations.

# **Mounting Parts Included**

Mounting Style	Supplied Parts
G: Frame mount	M4 screw (4 pcs)*, M4 spring washer (4 pcs)*, M4 plain washer (4 pcs)*, M5 screw (2 pcs), M5 spring washer (2 pcs), M5 plain washer (2 pcs), bracket (1 pc)
W: Wall mount	M4 screw (20 mm) (4 pcs), M4 screw (8 mm) (4 pcs)*, M4 spring washer (8 pcs)* M4 plain washer (8 pcs)*, M4 nut (4 pcs), bracket (1 pc), gasket (1 pc)
D: Direct mount	M5 screw (4 pcs)*, M5 spring washer (4 pcs)*, M5 plain washer (4 pcs)*, M5 nut (4 pcs)*, 0-ring (4 pcs), gasket (1 pc)
P: Pole mount (with base)	M5 screw (4 pcs), M5 spring washer (4 pcs), M5 plain washer (4 pcs), M5 nut (4 pcs), 0-ring (4 pcs), gasket (1 pc)
K: Pole mount (with L-shaped bracket)	M22 plain washer 2 (pcs), M22 nut (2 pcs), bracket (1 pc)

\*For black housing, black screws and washers are supplied. For light gray housing, silver screws and washers are supplied.

# **Sub-component Parts**

#### Base Module

ltem	Maunting Stula	Part Number		Notes
item	Mounting Style	Steady	Steady/Flashing/Alarm	Notes
$\bigcirc$	Frame Mount	LD6A-0GQ*	LD6A-0GZQ*	
	Wall Mount	LD6A-0WQ*	LD6A-0WZQ*	
	Direct Mount	LD6A-0DQ*	LD6A-0DZQ*	A top cap is supplied.
	Pole Mount (with base)	LD6A-0PQ*	LD6A-0PZQ*	
	Pole Mount (with L-shaped bracket)	LD6A-0KQ*	LD6A-0KZQ*	

• Specify a housing color code in place of \*: B (black), W (light gray)

• Do not supply power to the base module without connecting LED modules.

#### LED Module

Item		Lens	Part Number	LED Color Code
	Black	Color lens	LD9Z-6ALB-	R, Y, S, G, W
	DIdUK	Clear lens	LD9Z-6ALB- C	R, Y, S, G
	Light gray	Color lens	LD9Z-6ALW-	R, Y, S, G, W
	Light gray	Clear lens	LD9Z-6ALW- 🗆 C	R, Y, S, G

• Specify an LED color code in place of 🗆: R (red), Y (yellow), S (blue), G (green), W (pure white)

• When using pure white (W) with a clear lens, order LD9Z-6ALB-W (black housing) or LD9Z-6ALW-W (light gray housing).

#### **Center Screw Set**

Item		Part Number	Notes
6	1 tier	LD9Z-6AC1	
	2 tiers	LD9Z-6AC2	
	3 tiers	LD9Z-6AC3	A plain washer and spring washer are supplied.
00	4 tiers	LD9Z-6AC4	
	5 tiers	LD9Z-6AC5	

### **Ordering Examples**

[Ex. 1] When ordering LD6A-3PQW-RYG as sub-component parts, specify the following:

Pole mount (with base), steady, light gray housing, 3 tiers, color lens LED modules with Red, Yellow, and Green LED

Base module (pole mount with base, steady, light gray housing)	LD6A-0PQW	1 piece
LED module (red LED with color lens, light gray housing)	LD9Z-6ALW-R	1 piece
LED module (yellow LED with color lens, light gray housing)	LD9Z-6ALW-Y	1 piece
LED module (green LED with color lens, light gray housing)	LD9Z-6ALW-G	1 piece
Center screw set (3 tiers)	LD9Z-6AC3	1 piece

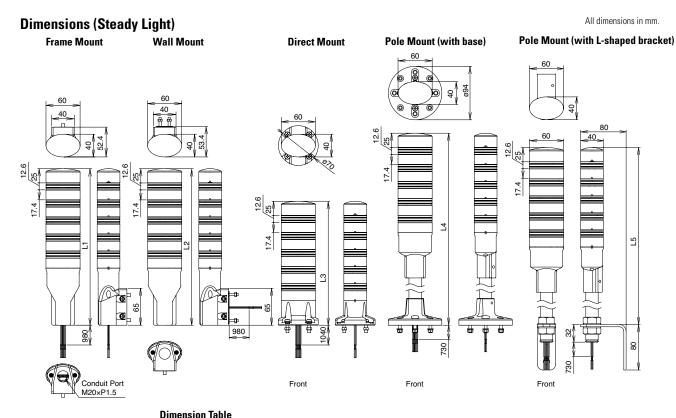
[Ex. 2] When ordering LD6A-5WZQB-RYSGWC as sub-component parts, specify the following:

Wall mount, steady/flashing/alarm, black housing, 5 tiers, clear lens LED modules with Red, Yellow, Blue, Green, and Pure white LED

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Base module (wall mount, steady/flashing/alarm, black housing	LD6A-0WZQB	1 piece
LED module (red LED with clear lens, black housing)	LD9Z-6ALB-RC	1 piece
LED module (yellow LED with clear lens, black housing)	LD9Z-6ALB-YC	1 piece
LED module (blue LED with clear lens, black housing)	LD9Z-6ALB-SC	1 piece
LED module (green LED with clear lens, black housing)	LD9Z-6ALB-GC	1 piece
LED module (pure white LED with clear lens, black housing)	LD9Z-6ALB-W	1 piece
Center screw set (5 tiers)	LD9Z-6AC5	1 piece

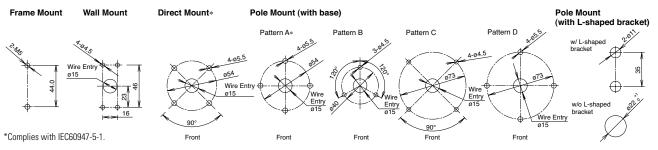
# **Replacement Parts**

ltem	Description		Part Number	Notes
Тор Сар		Black	LD9Z-6ATB	
		Light gray	LD9Z-6ATW	A top cap is supplied with a base module.
300	L-shaped Bracket	Metal (chrome-plated)	LD9Z-6AK	Two plain washers and two nuts are supplied.



Dimension Table						
Tiers	Frame Mount	Wall Mount	Mount Direct Mount		Pole Mount	
ners	(L1)	(L2)	(L3)	w/ base (L4)	w/ L-shaped bracket (L5)	
1	156	156	98	408	372	
2	186	186	128	438	402	
3	216	216	158	468	432	
4	246	246	188	498	462	
5	276	276	218	528	492	

# **Panel Cut-Out**



LED Red: Red

LED Blue: Blue

LED Green: Green

LED Pure White: Whit

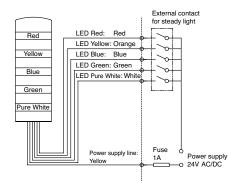
Power supply line:

Yellow

Fuse 1A

LED Yellow: Orange

# Wiring Example (Steady Light) **Mechanical Contacts**



### **NPN Transistors**

Red

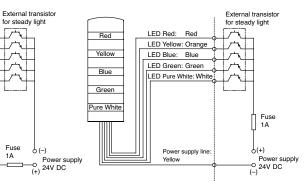
Yellow

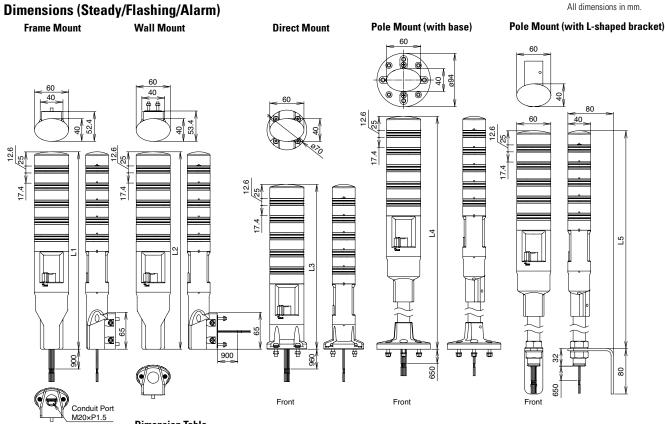
Blue

Green

Pure White

#### **PNP** Transistors

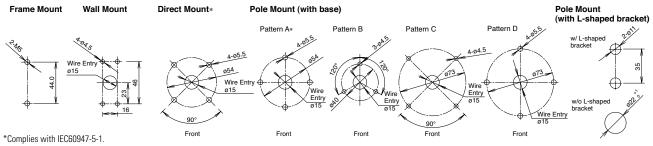




**Dimension Table** 

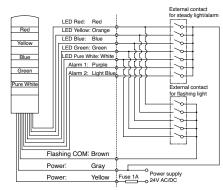
Tiers	Frame Mount	Wall Mount	Direct Mount	Pole Mount	
ners	(L1)	(L2)	(L3)	w/ base (L4)	w/ L-shaped bracket (L5)
1	228	228	170	480	444
2	258	258	200	510	474
3	288	288	230	540	504
4	318	318	260	570	534
5	348	348	290	600	564

### **Panel Cut-Out**

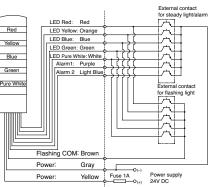


# Wiring Example (Flashing Light and Alarm)

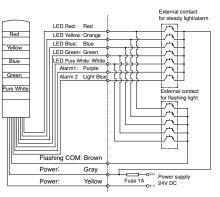
#### **Mechanical Contacts**



**NPN Transistors** 

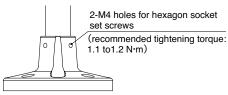


**PNP** Transistors



# **Safety Precautions**

- Turn off the power to the LD6A before mounting, removing, wiring or assembling the LED module. Make sure the wiring is done correctly otherwise electrical shock or fire may result.
- Mount the LD6A on a solid surface not subject to vibrations.
- Do not mount the LD6A upside-down or horizontally.
- Do not leave the LD6A without a cap or unassembled.
- Install the supplied gasket, otherwise the waterproof seal will be compromised.
- Do not apply any chemicals that may corrode the plastic materials.
- If the LD6A is subjected to strong vibrations, the hexagon socket screw may become loose. Take measures to prevent loosening. (See the figure below.)



• Do not loosen any screws if the tightening torque is not specified.

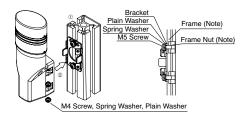
#### Instructions

#### Mounting

- See drawing below regarding the mounting of the LD6A.
- For panel cut-out dimensions, see pages 9 and 10.
- Postion the LD6A to make sure the alarm sound is the loudest. (Steady/ flashing/alarm type)

#### Frame Mounting

- Insert two nuts in the frame, and attach the bracket using two M5 screws. Recommended tightening torque: 2.6 to 2.7 N·m
- 2. Mount the LD6A to the bracket using four M4 screws. Recommended tightening torque: 1.6 to 1.7 N·m



Note: See table below for typical examples of frames and nuts. Consult the manufacturer of the frame for the installation method of the frame nut.

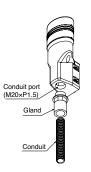
#### Examples of recommended frames and frame nuts

Frame Size	Frame	Frame Nut	Manufacturer	
□ 30 mm*	SFF-302	SFB-001 SFB-4B5 SFB-101	SUS	
□ 40 mm	SFF-402	SFB-008 SFB-4A5 SFB-108	Corporation (Japan)	

\*The mounting bracket for the housing is 40 mm.

When using a frame mount type, be sure to use flexible conduit, otherwise the waterproof seal will be compromised.

Refer to the "Example of Flexible Conduit" shown on the right.

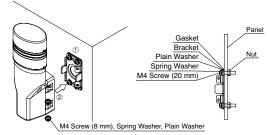


#### **Example of Flexible Conduit**

Conduit Port Size	M20
Gland	AL16/M20/A/BL
Conduit	PAFS16BL
Manufacturer	Adaptaflex

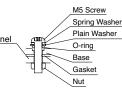
#### Wall Mounting

 Make four tapped holes in the mounting panel and mount the bracket and gasket using four screws (M4 x 20). Recommended tightening torque: 1.6 to 1.7 N·m 2. Mount the LD6A to the bracket using four screws (M4 x 8). Recommended tightening torque: 1.6 to 1.7 N·m



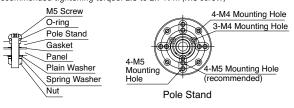
#### Direct Mounting

Recommended tightening torque: 2.6 to 2.7 N·m <u>Panel</u>



#### Pole Mounting (with base)

The pole mount type can be installed in four ways. The recommended mounting method (pattern A from page 9 or 10) is described below. Recommended tightening torque: 2.6 to 2.7 N·m (M5 screw)



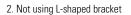
#### Pole Mounting (with L-shaped bracket)

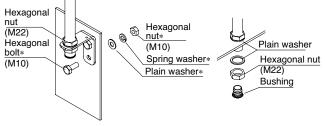
Using L-shaped bracket Recommended tightening torque: 10 to 11 N·m (M10)

- Recommended tightening torque: 25 to 26 N·m (M22) 2. Not using L-shaped bracket
  - Remove the bushing, hexagonal nut (M22), plain washer, and L-shaped bracket from the LD6A and install in the following order: plain washer, hexagonal nut (M22), and bushing. Recommended tightening torque: 25 to 26 N-m (M22)

1. Using L-shaped bracket

1.

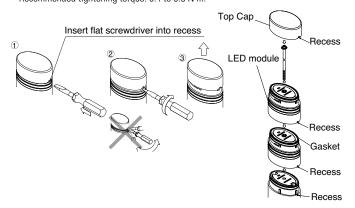




The parts marked with \* are not supplied and should be provided by the user.

# **Replacement and Addition of LED Modules**

- Make sure to turn power off.
- Insert a flat screwdriver into the cap recess as shown below, lift up the cap, and remove with your hands. Use a flat screwdriver with maximum 1-mm thick and 7-mm wide tip.
- Remove the center screw before reassembling the LED modules.
- When assembling the LED modules, make sure to align the recess of the cap with the recess of the LED module. Otherwise, damage may result. Recommended tightening torque: 0.4 to 0.5 N·m.



- Note the correct orientation when assembling the LED modules.
- Tighten the screws to the recommended tightening torque. The LED module may be damaged if the screw is loose during operation.
- Do not touch the metal plug on the LED module. Otherwise, LED elements maybe damaged due to static electricity.
- Use a maximum of 5 tiers.
- · Select the correct screw length depending on the number of tiers.
- Do not remove the gasket from the LED module. Otherwise, the waterproof seal will be compromised.

# Wiring

- For wiring, see the wiring diagrams on pages 9 and 10.
- · Incorrect wiring may damage the internal circuit.
- · Be sure to insulate unused wires.
- . Connect a 1A fuse to the power line as shown in the Wiring Examples on pages 9 and 10.
- Use a UL listed external fuse holder.
- Use a class 2 power supply only.
- When using LED modules of the same color for two or more tiers, determine contact capacity in referencet to the LED current, because only one wire is used to light all tiers of the same color.
- · Do not apply voltage to flashing (brown) lines.
- Do not connect flashing (brown) line to the power lines. The internal circuit may be damaged.
- · Do not turn on steady and flashing circuits simultaneously.
- Do not turn on alarms 1 and 2 simultaneously.

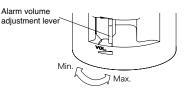
#### Wire Color

Wire Color	Steady	Steady, Flashing, Alarm
Red	LED Module – Red	LED Module – Red
Orange	LED Module – Yellow	LED Module – Yellow
Blue	LED Module – Blue	LED Module – Blue
Green	LED Module – Green	LED Module – Green
White	LED Module – Pure White	LED Module – Pure White
Purple	—	Alarm 1
Light Blue	—	Alarm 2
Brown	—	Flashing COM
Gray	_	Power Line
Yellow	Power Line	Power Line

For information on external contacts, see "External Contact Ratings" on page 6.

#### Alarm Volume Adjustment

- Move the volume adjustment to the right or left to change the volume.
- When the adjustment lever is all the way to the right the volume is at its maximum.
- The adjustment lever may be damaged if forced.



# **High Temperature Limitations**

The external temperature cannot exceed 50°C when all tiers are lit at the same time in the following combinations: 1

- Three tiers Two or more tiers of blue and green (example: Red-Green-Blue, Green-Green-Red)
- 2 Four or five tiers (example: Red-Yellow-Green-Pure White, Red-Yellow-Blue-Green-Pure White)



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