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SPECIFICATIONS

1.General Specifications

Product Name			Signal Tower			
Model			LR□-□02□□□□			
Rated Voltage			24V DC			
Operating Voltage Range			Rated Voltage ±10%			
Signal Wire Current (Per Unit)		Typ.	LED Unit : 40mA			
			Buzzer Unit : 40mA (※1)			
		Max.	LED Unit : 45mA			
			Buzzer Unit : 250mA (※1)			
Inrush Current	Power Supply Wire		none (Signal Wire Current Maximum not exceeding the sum total)			
	Signal Wire		LED Unit : none			
			Buzzer Unit : none (Not exceeding Maximum Signal Wire Current Ratings)			
Rated Power Consumption (Per Unit)		Typ.	LED Unit : 1W			
			Buzzer Unit : 1W (※1)			
		Max.	LED Unit : 1.3W			
			Buzzer Unit : 1.3W (※1)			
Standby Power Consumption			LED Unit : none			
			Buzzer Unit : 0.1W			
			Body Unit : none			
Operating Ambient Temperature			-20℃ ~ +50℃			
Operating Ambient Humidity			Less than 90% (No condensation)			
Storage Ambient Temperature			-30℃ ~ +60℃			
Storage Ambient Humidity			Less than 90% (No condensation)			
Mounting Location			Indoor Only			
Mounting Direction			Upright			
Protection Rating			IP65(IEC 60529) / NEMA TYPE 4X,13			
			LJ	IP54(IEC 60529) / NEMA TYPE 4X,13		
			KT	IP65(IEC 60529) / NEMA TYPE 4X,13 When using POLE22-□□□□AT : IP54(IEC 60529) / NEMA TYPE 4X,13		
	Environmental Condition		Upright			
Insulation Resistance			More than 1MΩ at 500VDC between live part and non-current carrying metallic part			
Withstand Voltage			500VAC applied for 1min between live part and non-current carrying metallic part without breaking insulation			
Flashing Rate			60±2 Flashes Per Minute			
Outer Dimensions			Refer to 3.Outer Dimensions			
Conformity Standards			UL 508, CSA-C22.2 No. 14 EMC Directive (EN 61000-6-4, EN 61000-6-2) RoHS Directive (EN IEC 63000) FCC Part 15 Subpart B Class A KC (KN 61000-6-4, KN 61000-6-2)(※2)			
Remarks			(※1)Environmental Condition : Buzzer sound No.2 Continuous beep sound			
			(※2)Except KT,Assembly Model WT			
			Due to the characteristics of the LED elements, a variation in difference of the color tone and brightness of every product may occur			
			UL Recognized Component (File No.E215660)			

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Mass (Tolerance ±10%)	LR4	WJ	Body Color	(LED Unit) + [Buzzer Unit]	
			Off-white	0.17kg + (0.035kg)×Tiers + [0.035kg]	
		Silver	0.32kg + (0.035kg)×Tires + [0.035kg]		
		LJ	Off-white	0.46kg + (0.035kg)×Tiers + [0.035kg]	
			Silver	0.61kg + (0.035kg)×Tires + [0.035kg]	
		PJ	Off-white	0.36kg + (0.035kg)×Tiers + [0.035kg]	
			Silver	0.51kg + (0.035kg)×Tires + [0.035kg]	
		QJ	Off-white	0.42kg + (0.035kg)×Tiers + [0.035kg]	
		LR5	WJ	Off-white	0.2kg + (0.04kg)×Tiers + [0.05kg]
			LJ	Off-white	0.49kg + (0.04kg)×Tiers + [0.05kg]
			PJ	Off-white	0.38kg + (0.04kg)×Tiers + [0.05kg]
			WT	Off-white	0.10kg + (0.04kg)×Tiers + [0.05kg]
	Silver			0.10kg	
	Black				
	KT		Off-white	0.10kg	
			Silver		
			Black		
	LR6		WJ	Off-white	0.22kg + (0.06kg)×Tiers + [0.06kg]
		Silver		0.35kg + (0.06kg)×Tires + [0.06kg]	
		LJ	Off-white	0.5kg + (0.06kg)×Tiers + [0.06kg]	
			Silver	0.64kg + (0.06kg)×Tires + [0.06kg]	
		PJ	Off-white	0.4kg + (0.06kg)×Tiers + [0.06kg]	
			Silver	0.53kg + (0.06kg)×Tires + [0.06kg]	
		QJ	Off-white	0.46kg + (0.06kg)×Tiers + [0.06kg]	
		LR7	WJ	Off-white	0.24kg + (0.065kg)×Tiers + [0.07kg]
	WT		Off-white	0.15kg	
			Silver		
			Black		
	KT		Off-white	0.15kg	
			Silver		
		Black			
Buzzer Sound /Typical Frequency		No.1	Rapid intermittent beep / 3378Hz		
		No.2	Continuous beep sound / 3378Hz		
		No.3	Rapid Hi-Lo / 2016Hz&3012Hz		
		No.4	Sweep sound / 1000Hz-4032Hz		
Setting		Depending on DIP Switch Settings Refer to the 6.Buzzer Pattern Set-up			
Sound Pressure Level		LR4	Typ.85dB	Sound Reduction Approx. -10dB Depending on DIP Switch Settings Refer to the 6.Buzzer Pattern Set-up	
		LR5	Typ.85dB		
		LR6	Typ.88dB		
		LR7	Typ.90dB		
Environmental Condition		Buzzer sound No.4 was measured from the total circumference of the Buzzer Unit at 1m			
Compatible Unit (Optional)		LED Unit Model		Buzzer Unit Model	
		LR4	LR4-E-R,Y,G,B,C,RZ,YZ,GZ,BZ	LR4-BW,BU	
		LR5	LR5-E-R,Y,G,B,C,RZ,YZ,GZ,BZ	LR5-BW,BU,BK	
		LR6	LR6-E-R,Y,G,B,C,RZ,YZ,GZ,BZ,MZ	LR6-BW,BU	
		LR7	LR7-E-R,Y,G,B,C	LR7-BW,BU,BK	

2.Model

2.1.1 Model Number Configuration

Model	Tiers	Rated Voltage	Mounting/Wiring	Flashing/Buzzer	Body Color	LED Unit Color	Globe Color
Assembly Model	LR	02					
Size	Tiers	Rated Voltage	Mounting/Wiring	Flashing/Buzzer	Body Color	LED Unit Color	Globe Color
4 Φ40 5 Φ50 6 Φ60 7 Φ70	1 1Tier 2 2Tiers 3 3Tiers 4 4Tiers 5 5Tiers	02 24V DC	WJ Direct Mount/Cable LJ Pole Mount with L-bracket/Cable (LR4・5・6) PJ Pole Mount with Circular Bracket/Cable (LR4・5・6) QJ Pole Mount with Folding Bracket/Cable (LR4・6・W) WT Direct Mount/Terminal (LR5)	B With Flashing/Buzzer N No Flashing/Buzzer	W Off-white U Silver (LR4・6・WJ・LJ・PJ)	R Red Y Amber G Green B Blue C White From top to bottom	None Color Globe
Assembly Model	LR	02			W		Z
Size	Tiers	Rated Voltage	Mounting/Wiring	Flashing/Buzzer	Body Color	LED Unit Color	Globe Color
4 Φ40 6 Φ60	1 1Tier 2 2Tiers 3 3Tiers 4 4Tiers 5 5Tiers	02 24V DC	WJ Direct Mount/Cable LJ Pole Mount with L-bracket/Cable PJ Pole Mount with Circular Bracket/Cable (LR6)	B With Flashing/Buzzer N No Flashing/Buzzer	W Off-white	R Red Y Amber G Green B Blue C White From top to bottom	Z Clear Globe
Unit Model(Body Unit)	LR	02		N			
Size	Rated Voltage	Mounting/Wiring	Flashing/Buzzer	Body Color			
4 Φ40 5 Φ50 6 Φ60 7 Φ70	02 24V DC	WJ Direct Mount/Cable LJ Pole Mount with L-bracket/Cable (LR4・5・6) PJ Pole Mount with Circular Bracket/Cable (LR4・5・6) QJ Pole Mount with Folding Bracket/Cable (LR4・6・W) WT Direct Mount/Terminal(Body Unit) (Unit-LR5・7) KT Mounting Bracket with knock-outs/Terminal(Body Unit) (Unit-LR5・7)	N Without Flashing/Buzzer	W Off-white U Silver (LR4・6・LR5・7・WT・KT) K Black (LR5・7・WT・KT)			

2.1.2 Model Number Example

Assembly Model	LR4-302PJBW-RYGZ ●Φ40 ●LED Unit 3Tiers ●24V DC ●Pole Mount with Circular Bracket/Cable ●With Flashing/Buzzer ●Off-white ●(From top to bottom) Red・Amber・Green ●Clear Globe
Unit Model (Body Unit)	LR4-102LJNU-R ●Φ40 ●LED Unit 1Tier ●24V DC ●Pole Mount with L-bracket/Cable ●No Flashing/Buzzer ●Silver ●(From top to bottom) Red ●Color Globe
	LR5-302QJNW-RYG ●Φ50 ●LED Unit 3Tiers ●24V DC ●Pole Mount with Folding Bracket/Cable ●No Flashing/Buzzer ●Off-white ●(From top to bottom) Red・Amber・Green ●Color Globe
	LR6-02WJNW ●Φ60 ●24V DC ●Direct Mount/Cable ●No Flashing/Buzzer ●Off-white
	LR7-02WTNK ●Φ70 ●24V DC ●Direct Mount/Terminal ●No Flashing/Buzzer ●Black

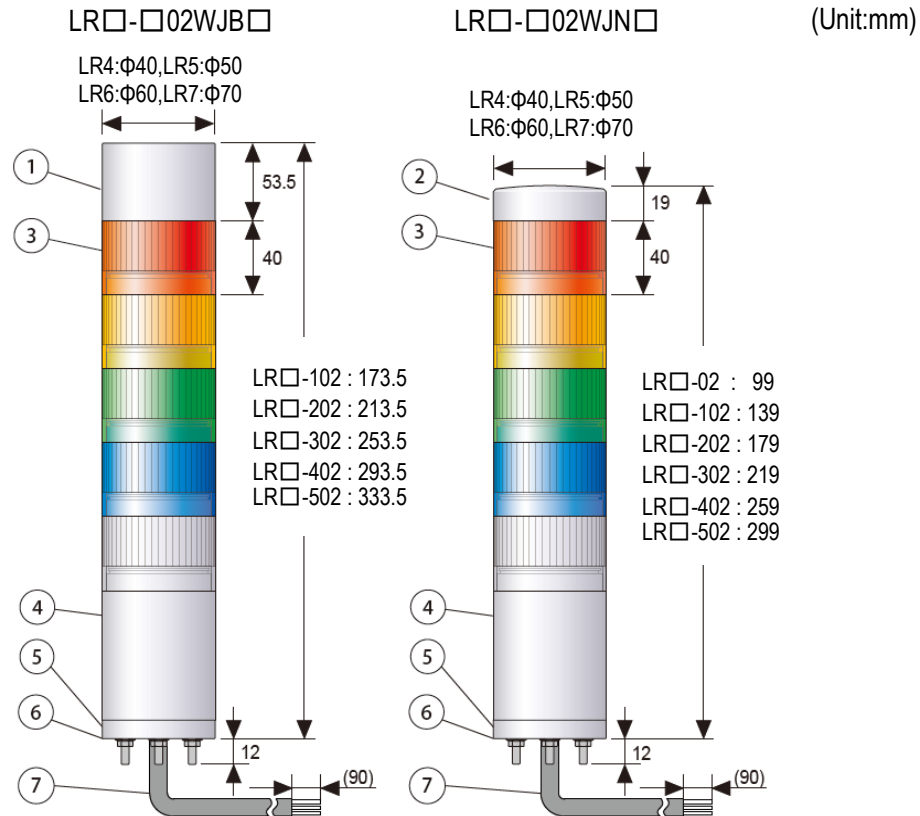
2.2. UL Registered Model

LR4	LR4-02WJB, LR4-02WJN, LR4-02WJN, LR4-02LJB, LR4-02LJN, LR4-02LJN, LR4-02PJB, LR4-02PJB, LR4-02PJB, LR4-02QJB, LR4-02QJN, LR4-02QJN
LR5	LR5-02WJB, LR5-02WJN, LR5-02WJN, LR5-02LJB, LR5-02LJN, LR5-02LJN, LR5-02PJB, LR5-02PJB, LR5-02PJB, LR5-02WTB, LR5-02WTN, LR5-02KTN
LR6	LR6-02WJB, LR6-02WJN, LR6-02WJN, LR6-02LJB, LR6-02LJN, LR6-02LJN, LR6-02PJB, LR6-02PJB, LR6-02PJB, LR6-02QJB, LR6-02QJN, LR6-02QJN
LR7	LR7-02WJB, LR7-02WJN, LR7-02WJN, LR7-02WTN, LR7-02KTN

3.Outer Dimensions

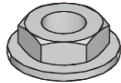
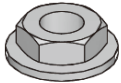
3.1 LR□-□02WJ□□

■ **WJ** Direct Mount with Cable



- Maximum Board Thickness : 7
- Cable : UL2464 (φ7.5)
Signal Wire & Power Supply Wire : AWG24
Cable Length : Off-white(1300)
Silver(3300)

Number	Name	Material	UL Flammability
1	Buzzer Case	PC	V-2
2	Head Cover	PC	V-2
3	Globe	PC	V-2
4	Body	PC	V-2
5	Direct Mount Bracket	PC	V-2
6	Waterproof Packing	Silicone Rubber	-
7	Cable	PVC	VW-1

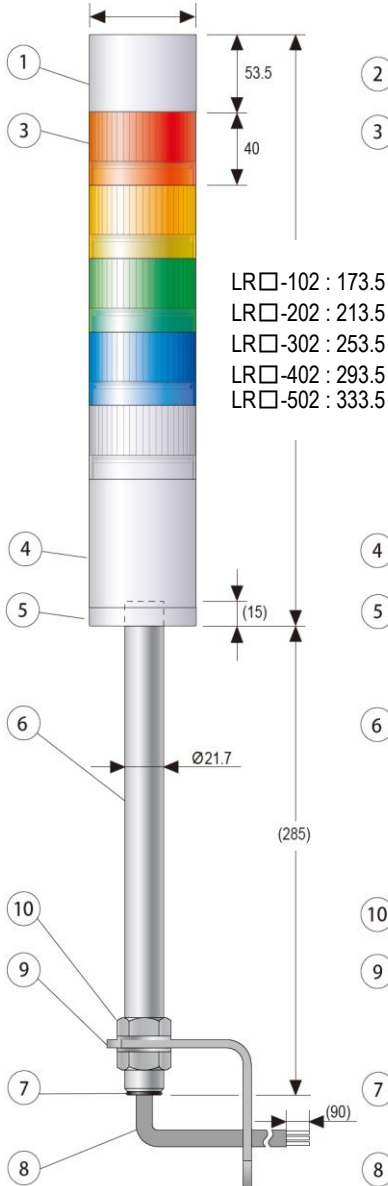
Accessory	
LR4.5 - WJ Hexagon Nut with Flange (M3)  3pcs.	LR6.7 - WJ Hexagon Nut with Flange (M4)  3pcs.

3.2 LR□-□02LJ□□

■ LJ L-bracket and Pole Mount with Cable

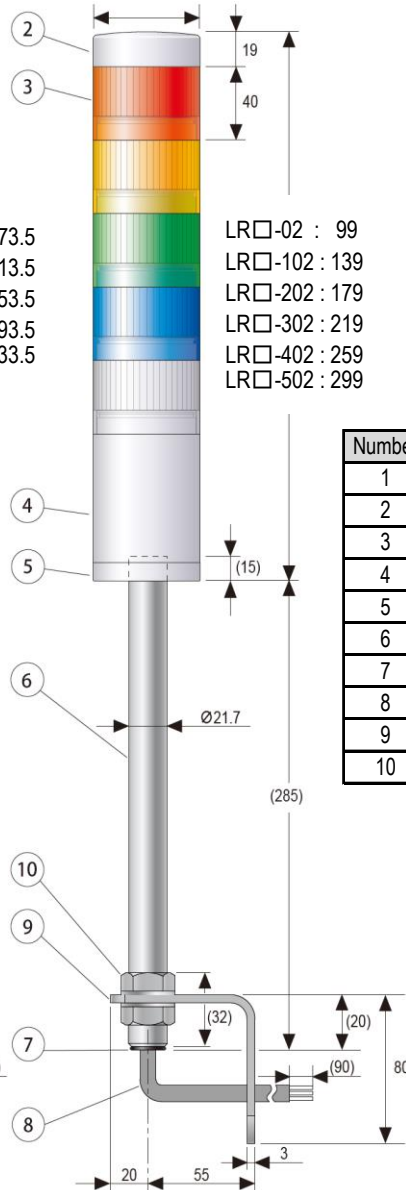
LR□-□02LJB□

LR4:Φ40,LR5:Φ50
LR6:Φ60,LR7:Φ70



LR□-□02LJN□

LR4:Φ40,LR5:Φ50
LR6:Φ60,LR7:Φ70



(Unit:mm)

Number	Name	Material	UL Flammability
1	Buzzer Case	PC	V-2
2	Head Cover	PC	V-2
3	Globe	PC	V-2
4	Body	PC	V-2
5	Pole Bracket	PC	V-1
6	Pole	AL	-
7	Rubber Bushing	EPR	-
8	Cable	PVC	VW-1
9	L-bracket	Steel	-
10	Hexagon Nut M22	SUM	-

- Cable : UL2464 (Φ7.5)
- Signal Wire & Power Supply Wire : AWG24
- Cable Length : Off-white(1000)
- Silver(3000)

3.3 LR□-□02PJ□□

■ PJ Circular Bracket and Pole Mount with Cable

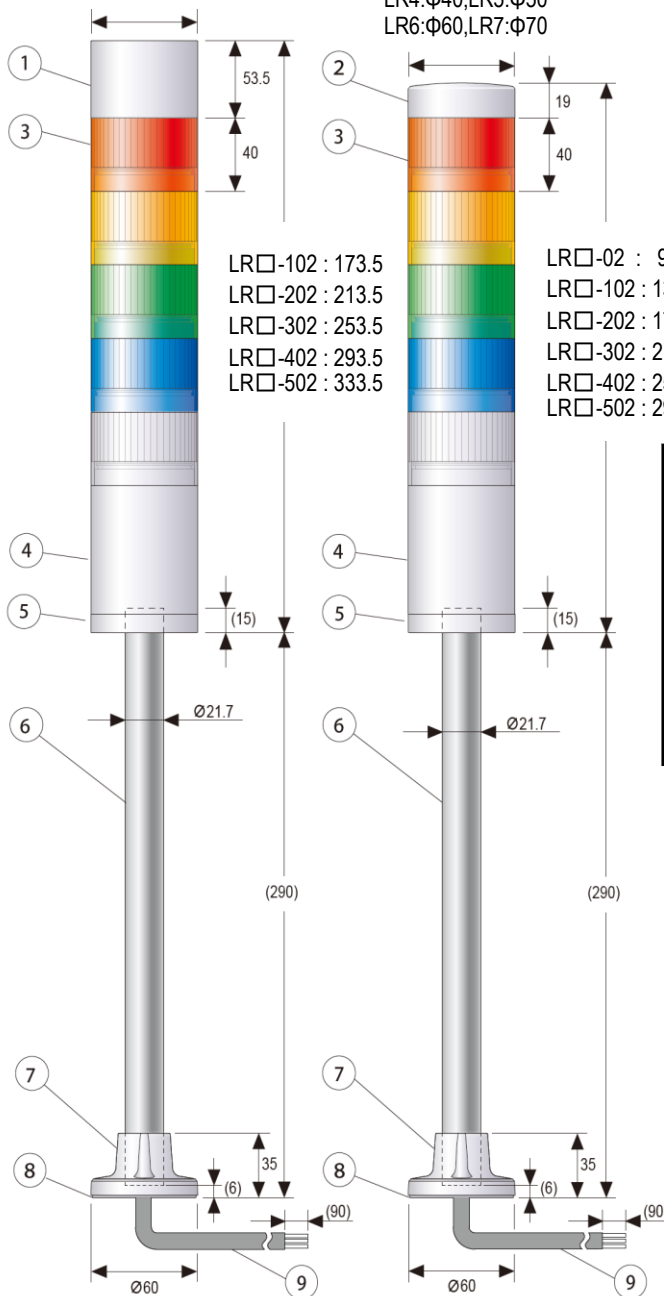
LR□-□02PJB□

LR4:Φ40,LR5:Φ50
LR6:Φ60,LR7:Φ70

LR□-□02PJN□

LR4:Φ40,LR5:Φ50
LR6:Φ60,LR7:Φ70

(Unit:mm)

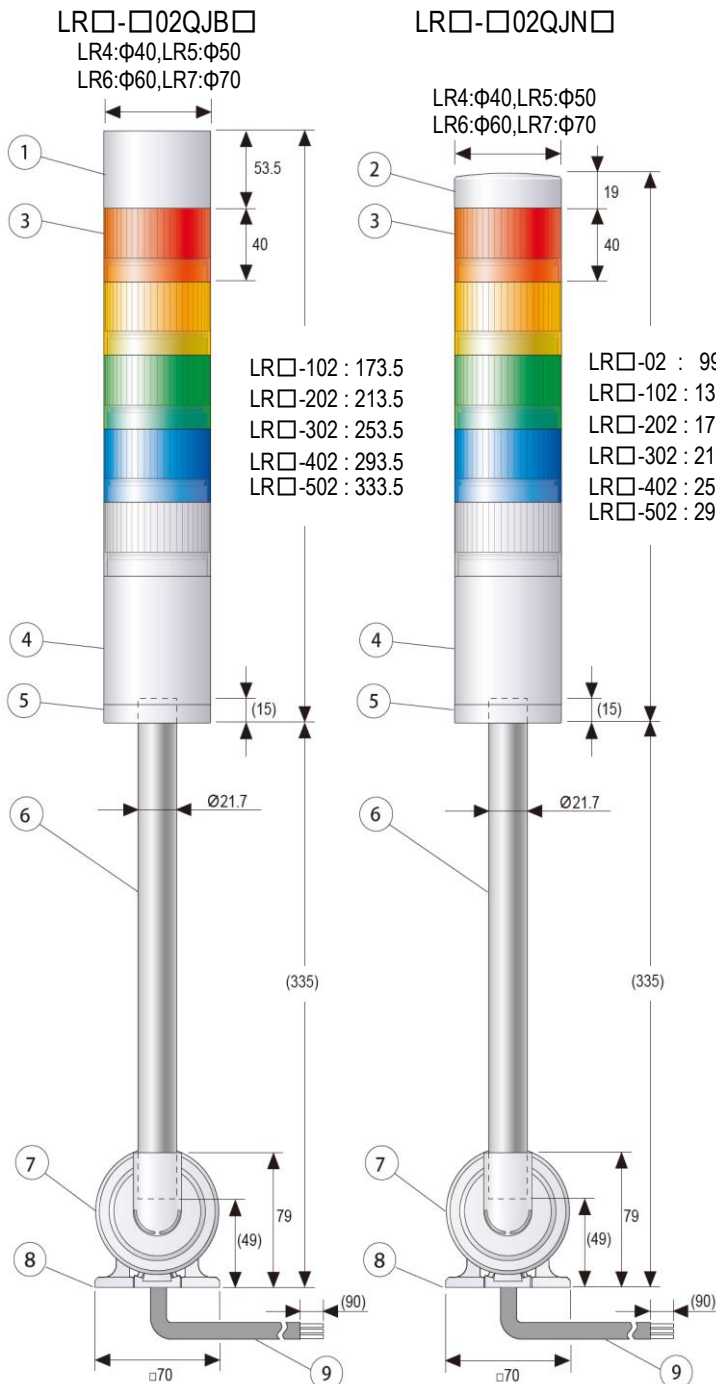


- Cable : UL2464 (Φ7.5)
- Signal Wire & Power Supply Wire : AWG24
- Cable Length : Off-white(1000)
- Silver(3000)

3.4 LR□-□02QJ□□

■ QJ Folding Bracket and Pole Mount with Cable

(Unit:mm)

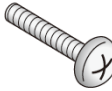


Number	Name	Material	UL Flammability
1	Buzzer Case	PC	V-2
2	Head Cover	PC	V-2
3	Globe	PC	V-2
4	Body	PC	V-2
5	Pole Bracket	PC	V-1
6	Pole	AL	-
7	Folding Bracket	PC	V-2
8	Waterproof Packing	CR	-
9	Cable	PVC	VW-1

Accessory

LR4-6 - QJ

Cross Recessed Binding Head Screw (M5x25)

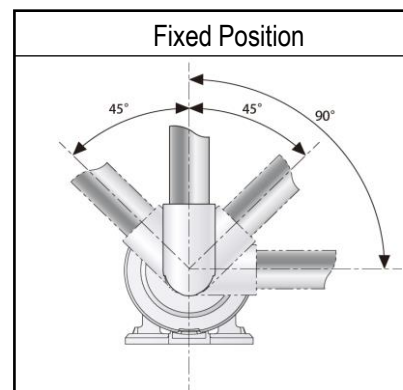


4pcs.

Hexagon Nut with Flange (M5)



4pcs.



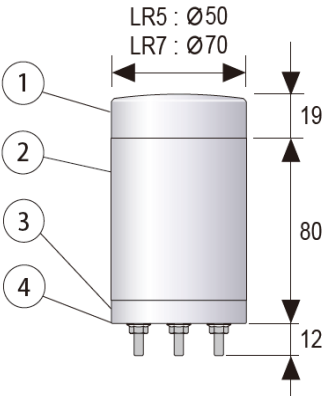
- Cable : UL2464 (Φ7.5)
- Signal Wire & Power Supply Wire : AWG24
- Cable Length : Off-white(1000)

3.5 LR□-02WTN□

■ Unit Model(Body Unit)

WT Direct Mount with Terminal Block

(Unit:mm)



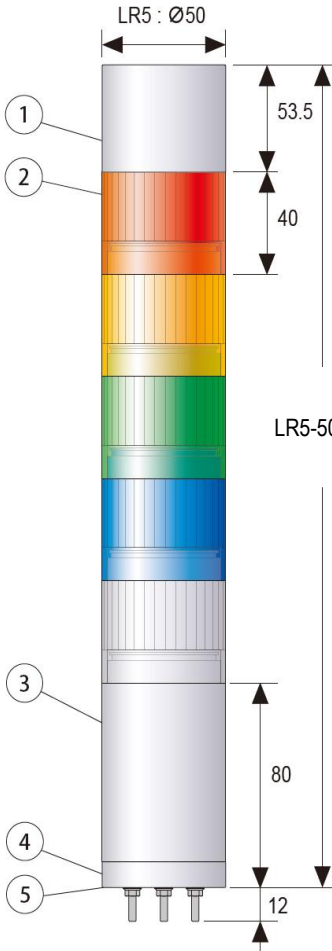
• Maximum Board Thickness : 7

Number	Name	Material	UL Flammability
1	Head Cover	PC	V-2
2	Body	PC	V-2
3	Direct Mount Bracket	PC	V-2
4	Waterproof Packing	Silicone Rubber	-

Accessory	
LR5 - WT Hexagon Nut with Flange (M3)  3pcs.	LR7 - WT Hexagon Nut with Flange (M4)  3pcs.

3.6 LR5-502WTBW

■ Assembly Model



• Maximum Board Thickness : 7

Number	Name	Material	UL Flammability
1	Buzzer Case	PC	V-2
2	Globe	PC	V-2
3	Body	PC	V-2
4	Direct Mount Bracket	PC	V-2
5	Waterproof Packing	Silicone Rubber	-

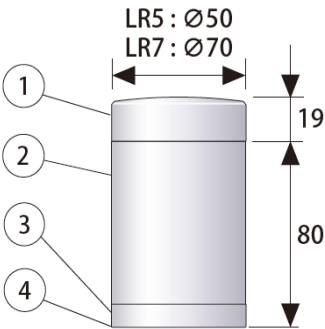
Accessory	
LR5 - WT Hexagon Nut with Flange (M3)  3pcs.	

3.7 LR□-02KTN□

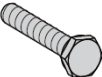
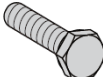
■ Unit Model(Body Unit)

KT Mounting Bracket with knock-outs and Terminal Block

(Unit:mm)

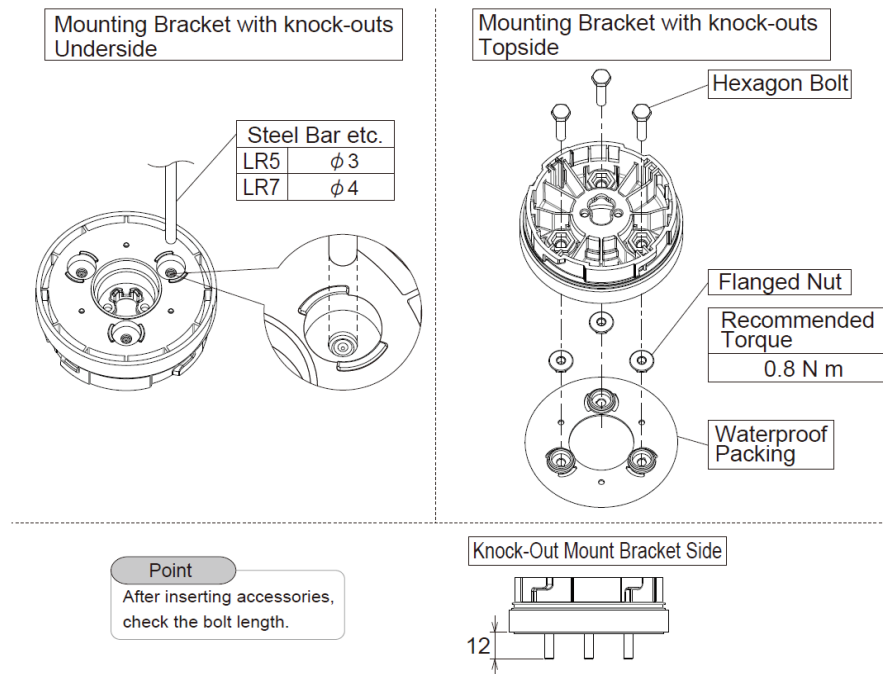


Number	Name	Material	UL Flammability
1	Head Cover	PC	V-2
2	Body	PC	V-2
3	Mounting Bracket with Knock-outs	PC	V-2
4	Waterproof Packing	Silicone Rubber	-

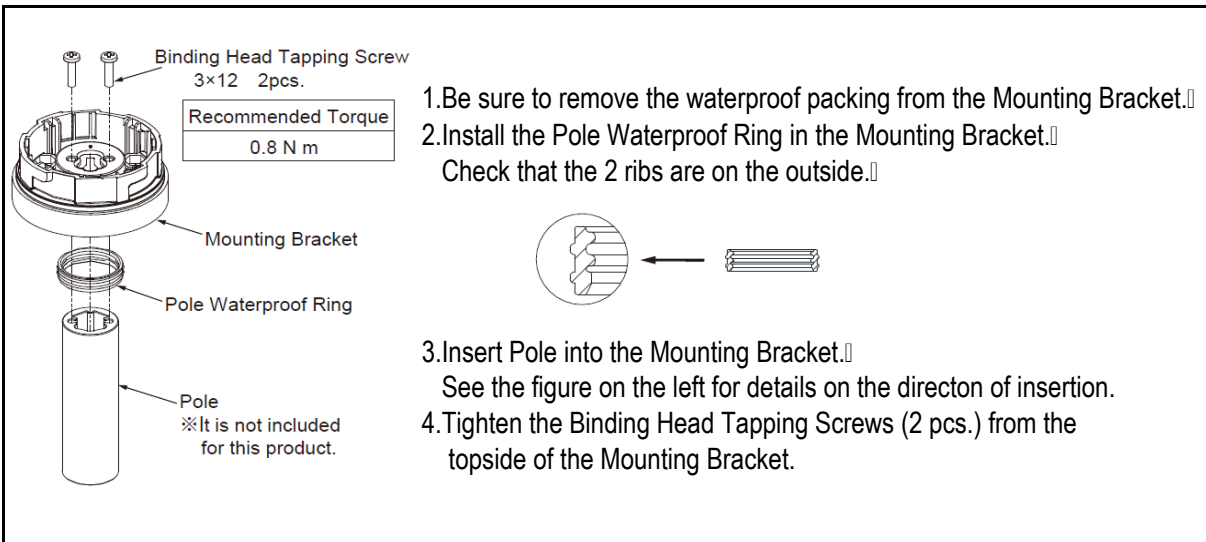
Accessory	
LR5 - KT Hexagon Bolt (M3 x 20)  3 pcs. Hexagon Nut with Flange (M3)  6 pcs. Pole Waterproof Ring  1 pc.	LR7 - KT Hexagon Bolt (M4 x 20)  3 pcs. Hexagon Nut with Flange (M4)  6 pcs. Pole Waterproof Ring  1 pc.

KT Direct Mount

1. Place the Mounting Bracket on the even surface. (Unit:mm)
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.

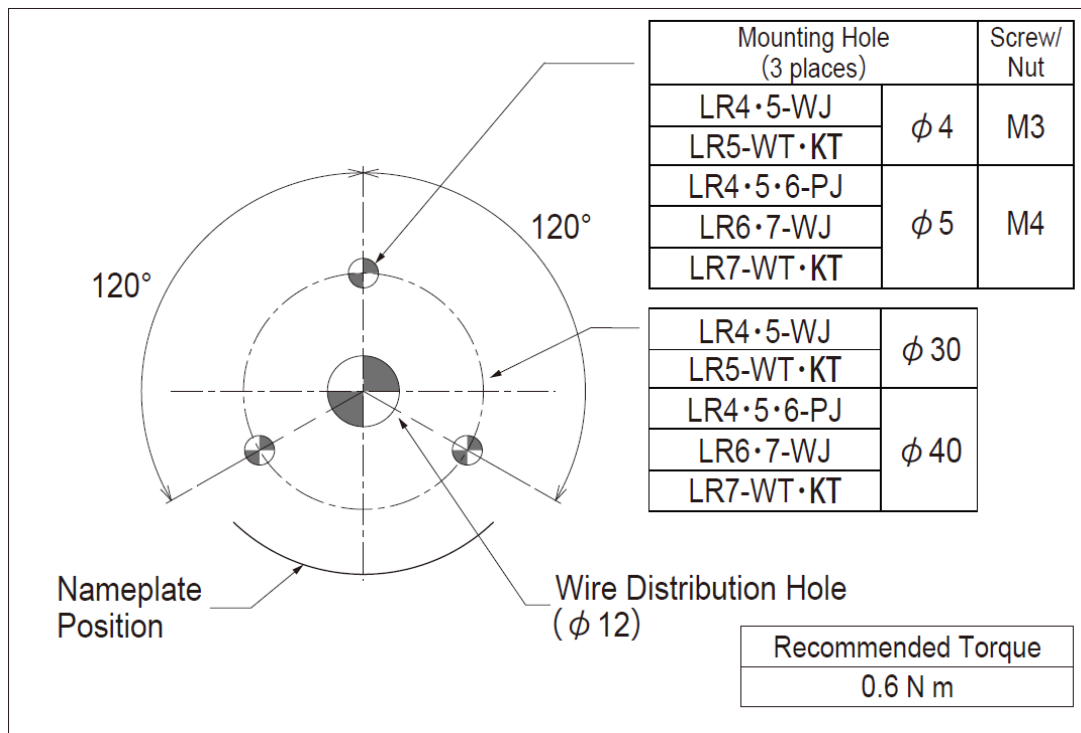


KT Pole Installation

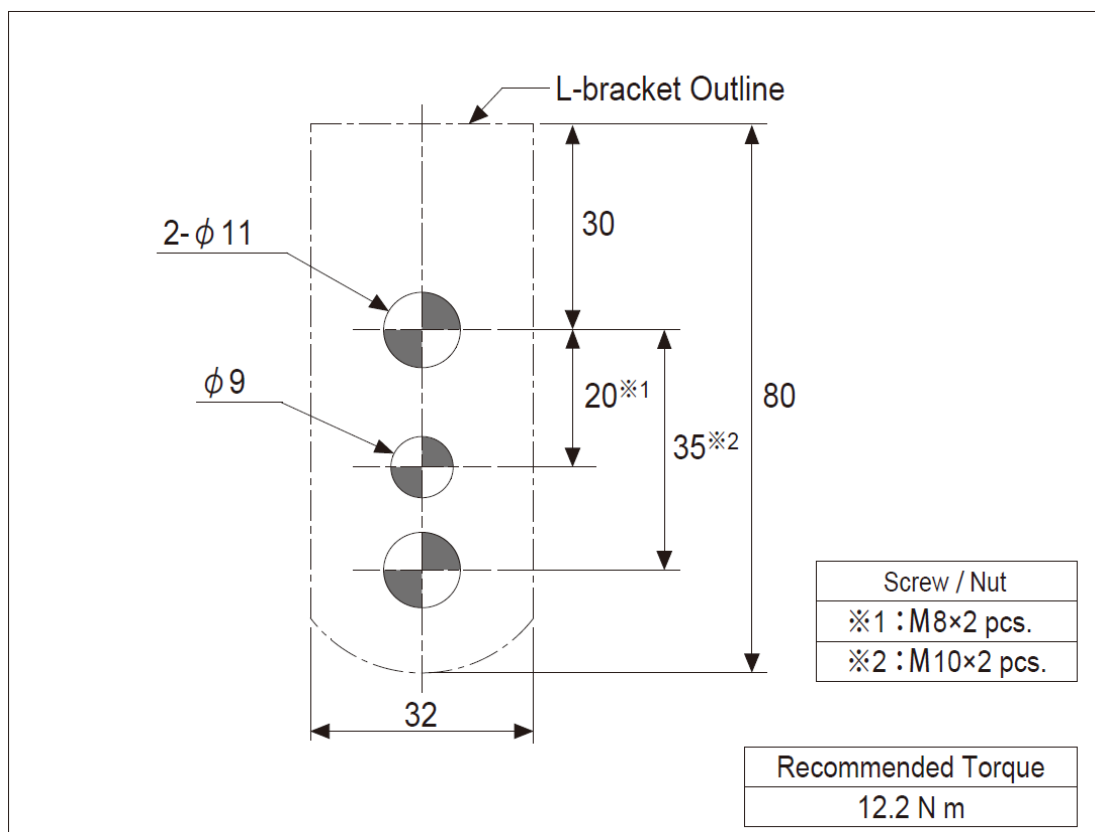


4. Mounting Dimensional Drawing

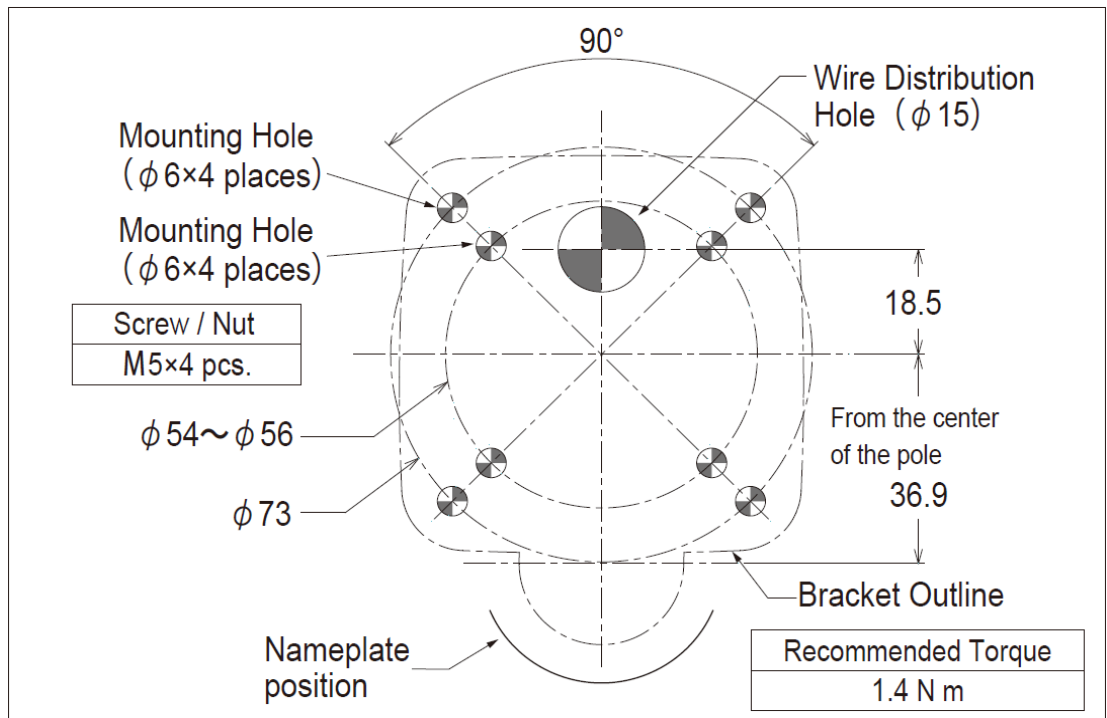
4.1 [WJ] · [PJ] · [WT] · [KT] Mounting Dimensional Drawing (Unit: mm)



4.2 [LJ] Mounting Dimensional Drawing (Unit: mm)

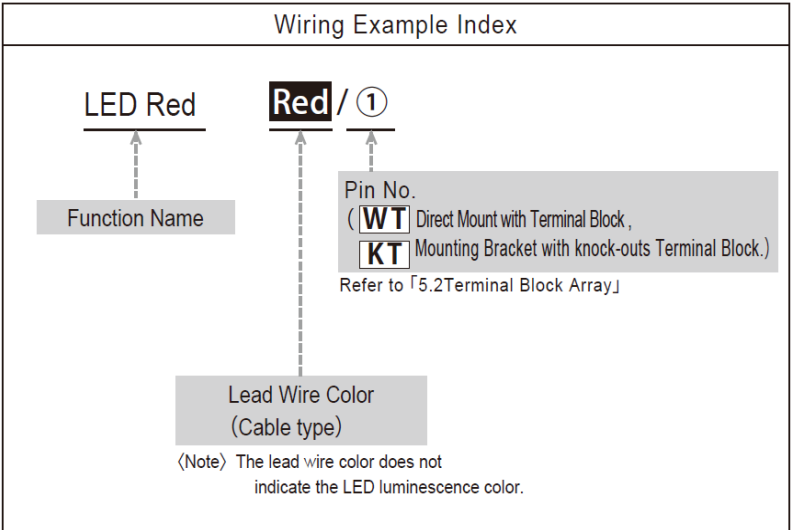


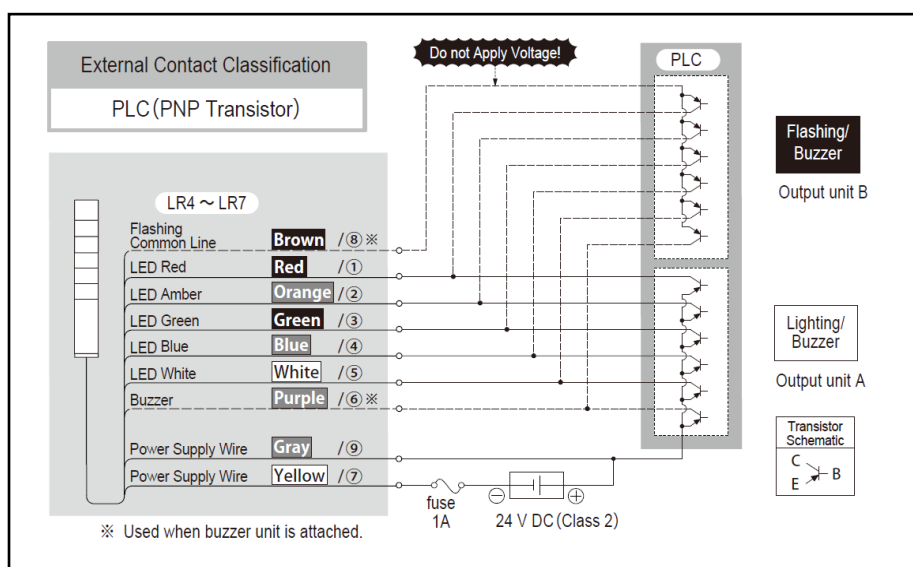
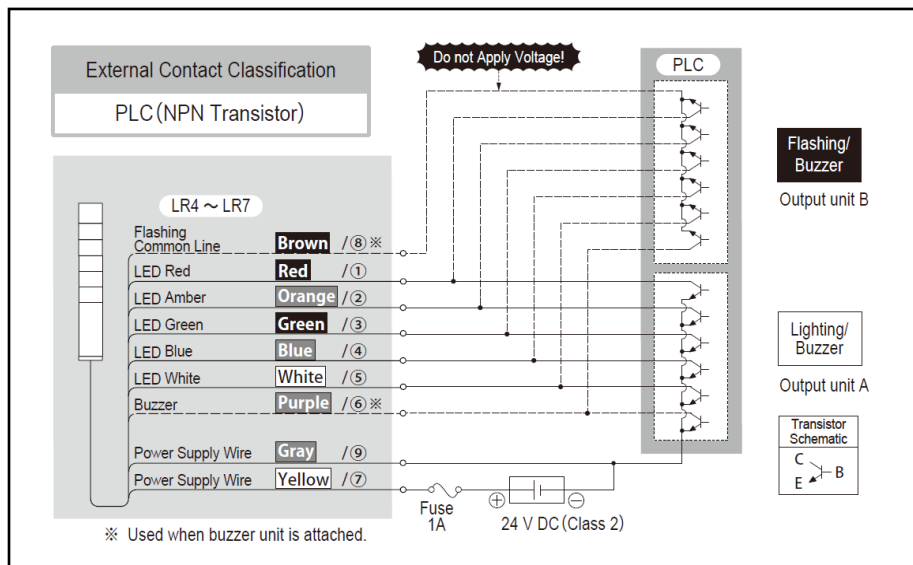
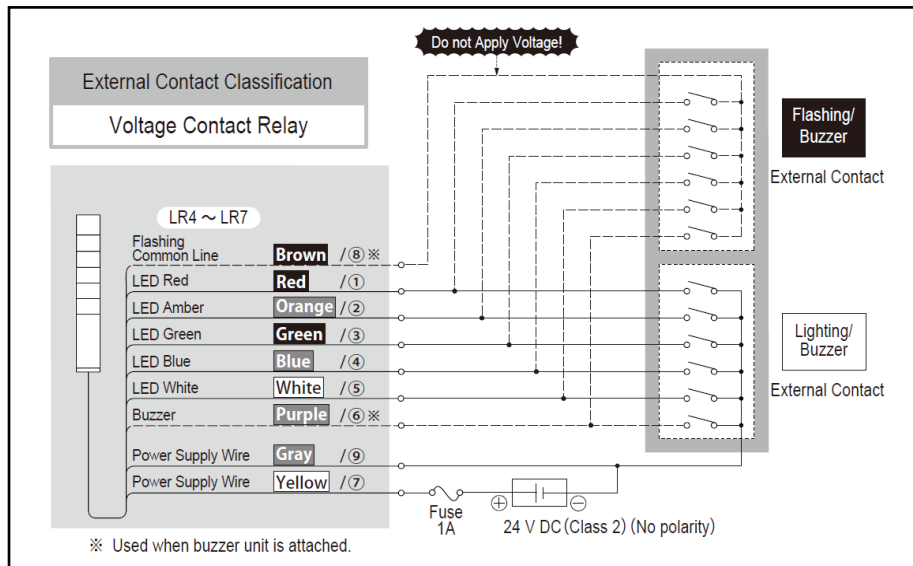
4.3 **QJ** Mounting Dimensional Drawing (Unit: mm)



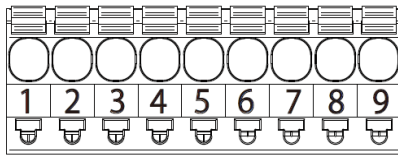
5. Wiring Diagram

5.1 Wiring Example





5.2 Terminal Block Array



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

Wire Type	Wire Gauge (Solid Wire)	Wire Gauge (Frayed Wire)
UL1007 / UL1430	0.14~1.5mm ²	AWG30~14

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

5.3 External Contact Capacity

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

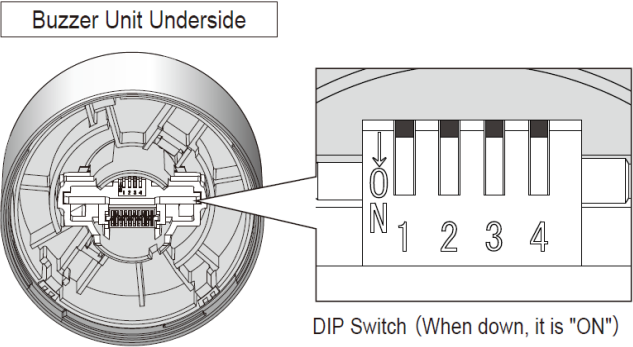
	Recommended contact capacity
LED Unit (1 Tier)	Is ≥ 100mA Vs ≥ 35V DC
Buzzer	Is ≥ 300mA Vs ≥ 35V DC
Power Supply	Is ≥ 500mA Vs ≥ 35V DC
Leakage Current	IL ≤ 0.1mA

■ Recommended Fuse

Fuse Rated Current	250 V / 1 A (5x20mm Fast-Acting Glass Body Cartridge Fuse)
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6.Buzzer Pattern Set-up

The **B** Flashing/Buzzer type includes a set up for four different patterns and sound reduction. Set up the preferred pattern, using the DIP Switch after removing the buzzer unit.



■ Setup Table

Buzzer Sound	DIP Switch		Sound Pattern
	1	2	
No.1	OFF	OFF	Rapid Intermittent Beep
No.2	ON	OFF	Continuous Beep Sound
No.3	OFF	ON	Rapid Hi-Lo
No.4	ON	ON	Sweep Sound

DIP Switch	Volume
3	
OFF	Normal
ON	Sound Reduction

〈Note〉 Do not use DIP Switch 4.
It is set to "OFF" at all times after factory shipments.