

INSTRUCTION SHEET

LF2B LED Illumination Unit

Confirm that the delivered product is what you have ordered. Read this instruction sheet to make sure of correct operation. Make sure that the instruction sheet is kept by the end user. The warranty of this product is 1 year after the product is delivered to the designated places.

- Attention** •Read this instruction manual before using the product and use it in a proper way.
- The life of illumination units is limited.
 - Have an inspection on or replace the product. There is some deterioration inside illumination units after 8 to 10 year use even if their appearance has no damage.
 - *ambient temperature: 25°C operation hours: 3,000 hours per year, 10 hours per day
 - Accordance with IEC 60598-1
 - High ambient temperature and long operation hours shorten illumination units' life.
 - We recommend users have some inspection on and clean the product every 6 months.
 - Have an inspection by experts such as electric constructors every 3 years.
 - If the product is used for long time with no inspection, a fume, ignition and electric shock might happen.

Safety Precautions

In this operation instruction sheet, safety precautions are categorized in order of importance to Warning and Caution :

WARNING
Warning notices are used to emphasize that improper operation may cause severe personal injury or death.

CAUTION
Caution notices are used where inattention might cause personal injury or damage to equipment.

WARNING

- Confirm that the usage conditions are not different from this instruction sheet.
- Before designing the final equipment and powering up the LF2B illumination unit, confirm the specifications described on this sheet. If there is any uncertainty in the description, contact IDEC before powering up the LF2B illumination unit.
- Do not disassemble, repair, or modify the LF2B illumination unit, otherwise severe accidents may result, such as electric shocks, damage, fire, or malfunction.
- The LF2B illumination unit is an apparatus for exclusive use of the indoor. Do not use it outdoors. It may cause insulation failure, electric shock or malfunction.
- Turn off the power to the LF2B illumination unit before wiring and installation. Install the product accurately following the instruction manual when installing the product. Incomplete installation can cause falling, fires, and electric shocks. Also, make sure that wiring is done correctly otherwise electric shocks and malfunctions can occur.
- Do not gaze into the LF2B illumination unit while it is lit, and do not project the light to other people, otherwise eyes may be injured.
- Attach to the place that can withstand the weight of the product.
- Do not pull out or push in the cable of the LF2B illumination unit, otherwise damage may result. Give a slack to the cable while wiring.
- The LF2B illumination unit is a general-purpose and industrial electronic device. Do not use the LF2B illumination unit for electronic equipment which may damage a human body or threaten a life in case a malfunction or failure occurs.
- Give waterproofing and dustproofing to the cables and wires of the LF2B illumination unit when using the LF2B illumination unit at the places that have water and dust. Inadequate processing can cause a leak, electric shock, and failure.
- Please be careful not to touch cables with products.

CAUTION

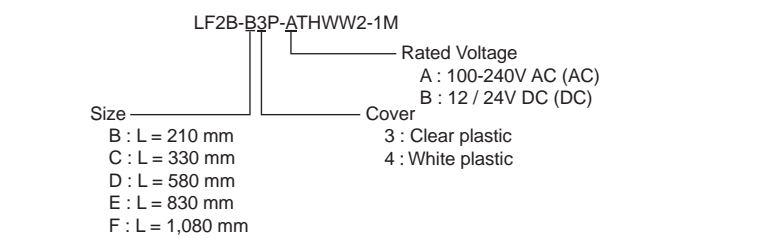
- Apply a voltage within the rated value, otherwise the LED elements may be damaged.
- The LF2B illumination unit is vulnerable to static electricity. Take a sufficient measure for protection against static electricity and surge voltages.
- Do not apply an excessive force to the LF2B illumination unit. Do not leave a damaged LF2B illumination unit unattended or use a damaged the LF2B illumination unit.
- Make sure of the correct operating temperature, which is the temperature around the LF2B illumination unit. Otherwise internal temperature rise may result in damage.
- Do not use or store the LF2B illumination unit in a place subjected to vibrations and shocks.
- Do not use the LF2B illumination unit in the following places:
 - The places having that high pressure water splashes. (The ones beyond the limits of corresponding IPX5, degree of protection, accordance with IEC 60529.)
 - The places having lots of dust. (The ones beyond the limits of corresponding IP6X, degree of protection, accordance with IEC 60529.)
 - Subjected to substances that can cause failure, such as corrosive gas, volatile gas, inflammable gas, and chemicals.
 - Electric fields and magnetic fields.

- The places having inflammable substances.
- Exposed to direct sunlight, near heaters, and at high temperatures.
- The places that the LF2B illumination unit can get splashed with salty water.
- Take some measures to prevent freezing and condensation when using the LF2B illumination unit in freezers and wind outlets.
- Subjected to ozone, radiation, and ultraviolet rays.
- Do not loosen screws, otherwise the protection characteristics will be impaired.
- Work with caution while turning on and off (within 30minutes), the LF2B illumination unit is hot.
- To clean the cover, use a soft cloth with water or neutral detergent. Leaving the LF2B illumination unit with dirt can make the life expectancy shorten.
- Do not use solvents such as thinners, benzene, or alkaline, otherwise discoloration, deterioration, or decrease in strength may occur.
- The edge of the cable sheath is not waterproof construction. Water may invade the LF2B illumination unit in the capillary action when water splashes directly to the edge. Use waterproof relay connectors, waterproof box etc to prevent water from directly splashing onto the cable edge, and perform waterproof processing suitable for the usage environment.
- When there is something wrong on the LF2B illumination unit, turn the power off immediately, and consult the distributor.
- Do not repeat turning on/off the LF2B illumination unit frequently. When turning on after turning off, wait at least 0.5s. Otherwise damage may result.

Operating Precautions

- LED modules and illumination units may vary in illumination colors and illuminance.

1 Types



2 Specifications

Input Specifications

• 100-240V AC Type

Type	LF2B-B*P-ATHWW2-1M	LF2B-C*P-ATHWW2-1M	LF2B-D*P-ATHWW2-1M	LF2B-E*P-ATHWW2-1M	LF2B-F*P-ATHWW2-1M
Rated Voltage	100-240V AC 50/60Hz (Operating Voltage Range: 90-264V AC)				
Input Current (Input 100-240V AC)	Typ. 25-22mA Max. 31-27mA	49-30mA 61-37mA	80-52mA 100-65mA	128-60mA 160-75mA	165-74mA 206-92mA
Input Power (Input 100-240V AC)	Typ. 2.2-2.6W Max. 2.7-3.2W	4.4-4.9W 5.5-6.1W	7.8-8.5W 9.8-10.6W	12.2-11.9W 15.2-14.8W	15.9-15.8W 19.8-19.7W

• 12 / 24V DC Type

Type	LF2B-B*P-BTHWW2-1M	LF2B-C*P-BTHWW2-1M	LF2B-D*P-BTHWW2-1M
Rated Voltage	12 / 24V DC (Operating Voltage Range : 10.8-30V DC)		
Input Current (Input 12V DC)	Typ. 215mA Max. 236mA	409mA 450mA	880mA 970mA
Input Power (Input 12V DC)	Typ. 2.6W Max. 2.9W	4.9W 5.4W	10.6W 11.6W

CAUTION

- Use Class 2 power supply when using the LF2B illumination unit of 12 / 24V DC for electronic equipment to be used North America.

General Specifications

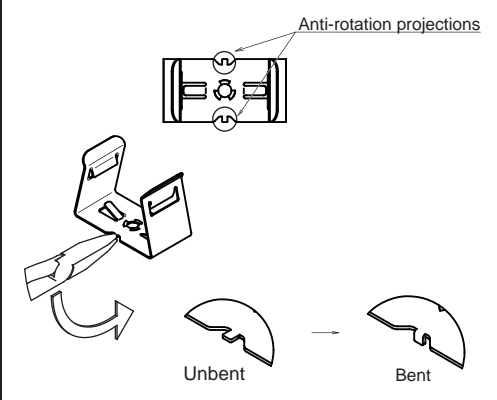
Applicable Standards	UL2108, UL8750, CSA C22.2 No.250.0 (12 / 24V DC only) *1 EN55015, EN61547, EN60598-1, EN62471 FCC Part15 SubpartB/ClassB				
Type No.	LF2B-B*P	LF2B-C*P	LF2B-D*P	LF2B-E*P	LF2B-F*P
Operating Temperature	-30 to +55°C (no freezing)				
Storage Temperature	-35 to +70°C (no freezing)				
Operating Humidity	45 to 85% RH (no condensation)				
Storage Humidity	20 to 90% RH (no condensation)				
Color Temperature	typ. 6,500K				
Reference illuminance at 0.5m	Clear typ. 290 lx	typ. 540 lx	typ. 1,065 lx	typ. 1,385 lx	typ. 1,520 lx
	White typ. 265 lx	typ. 500 lx	typ. 980 lx	typ. 1,275 lx	typ. 1,400 lx
Life of Light source *2	40,000 hours (The illumination duration in which the illuminance maintains a minimum 70% the initial value. Ta=25°C and 45% RH.)				
Insulation Voltage	100M minimum (500V DC megger)				
Dielectric Strength	100-240V AC: 2,000V AC (between live and dead metal parts) 12 / 24V DC: 1,000V AC (between live and dead metal parts)				
Vibration Resistance (damage limits)	5 to 55Hz amplitude 0.17 mm				
Shock Resistance (damage limits)	300m/s ²				
Material	End Cover, Cable Gland: Polyamide Cover: Polycarbonate, Cable: Chloroethene Mounting Bracket: Stainless Steel (LF9Z-1SB21, LF9Z-1SB22)				
Weight(Approx.)	AC 200g	255g	400g	520g	645g
	DC 175g	235g	370g	-	-
Degree of Protection *3	IP65				

*1 Use Class 2 Power supply when using the LF2B illumination unit as UL / c-UL Listed Low-voltage Luminaire (12 / 24V DC only).
*2 It is not a guaranteed value. LED life depends on the operating environment and conditions. We may change LED life without notice. Ta is the ambient temperature of this product.
*3 A degree of protection is guaranteed for conditions specified by IEC 60529 requirements and do not assure protection against all actual operating conditions.

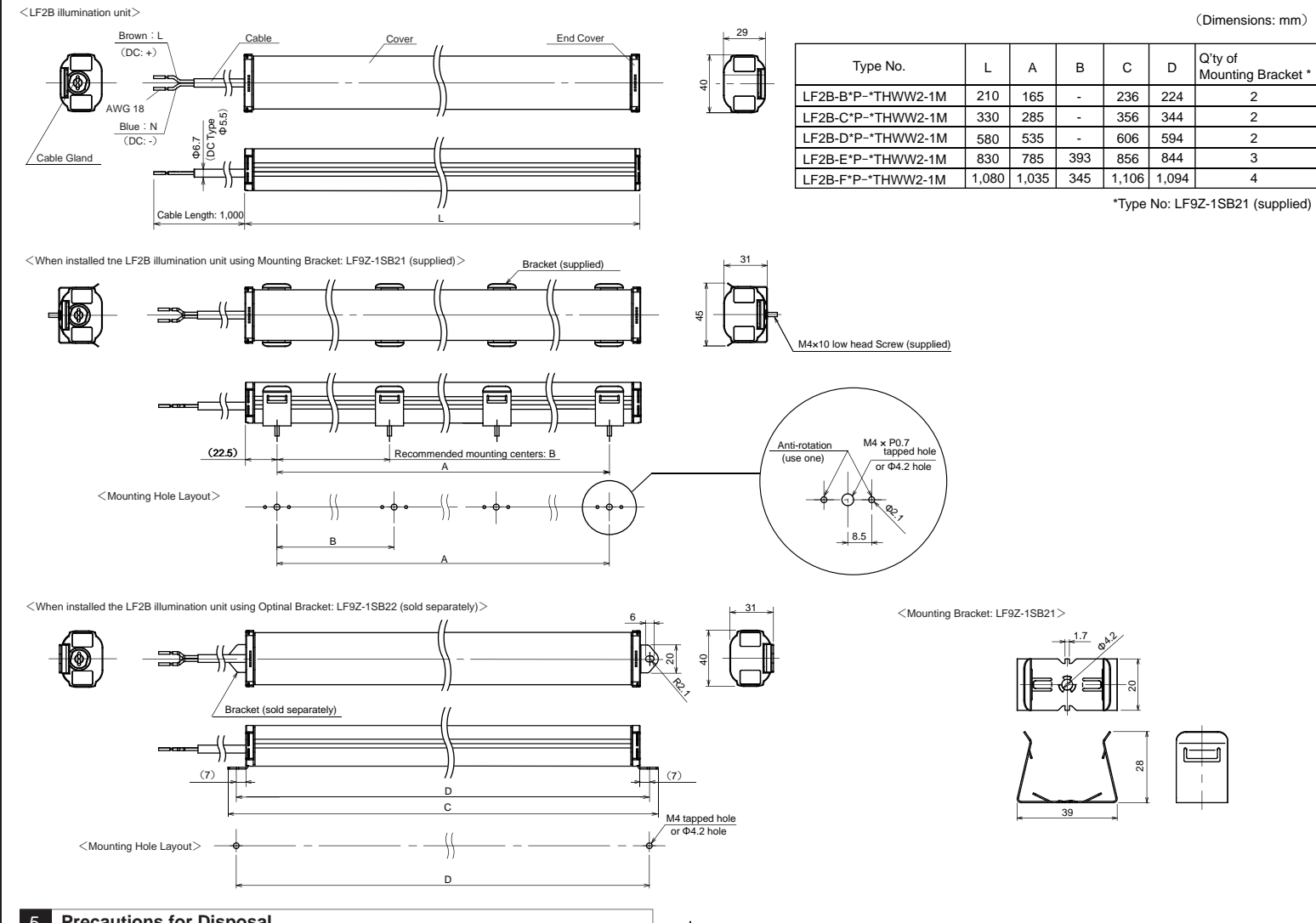
3 Installation / Removal

Installation

- Installation using the mounting brackets supplied with the LF2B illumination unit (see Dimensions)
- Install the LF2B illumination unit on a panel using the mounting brackets (LF9Z-1SB21) and mounting screws (supplied).
 - Recommended tightening torque: 1.4 to 2.0 N•m
 - When using screws commercially available, use M4 screws with screwhead of 1.0 mm maximum.
 - See dimensions for the required quantity of mounting bracket, recommended mounting centers, and mounting hole layout. Note that the LF2B illumination unit may fall if less mounting brackets than specified are used.
 - When anti-rotation is needed on the mounting brackets, bend one of the anti-rotation projections at 90 degrees using pliers.
 - When installing the mounting brackets on a panel by welding, ensure to provide the sufficient welding strength to support the weight of the LF2B illumination unit. Insufficient welding strength causes fall and damage of the LF2B illumination unit.



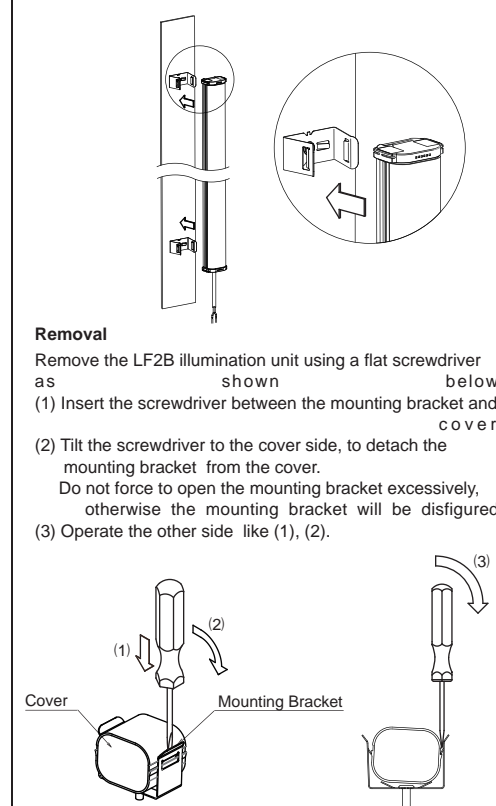
4 Dimensions



5 Precautions for Disposal

- Dispose of the LF2B illumination unit as an industrial waste.
- Waste Disposal Tip**
- This symbol means that your electrical and electronic equipment should be disposed at the end of its life separately from your household waste. There are separate collection systems for recycling in the EU. For more information, please contact the local authority or your retailer where you purchased the product.

Install the LF2B illumination unit as shown below. After installing the mounting brackets on a panel.

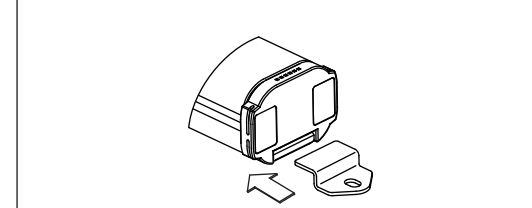


Removal

- Remove the LF2B illumination unit using a flat screwdriver as shown below.
- Insert the screwdriver between the mounting bracket and cover.
 - Tilt the screwdriver to the cover side, to detach the mounting bracket from the cover.
 - Operate the other side like (1), (2).

Installation using optional brackets (sold separately)
When installing the LF2B illumination unit using optional brackets (LF9Z-1SB22), insert the brackets into the slots at both ends of the end cover, as shown below.

Recommended tightening torque: 1.4 to 1.7 N•m



Note: M4 mounting screws are not supplied and must be provided by the user.
Note: Use spring washer (M4) and plain washer (M4) if necessary, in order to prevent the screws from loosening.

Wiring
The LF2B illumination unit is equipped with a cabtyre cable, AWG18 x 2 cores.
When wiring, use an appropriate connector, terminal, or wire to meet the specification values.
When soldering the wires of the cable, use a 20W soldering iron with a tip temperature of 350°C, and complete soldering within 3 seconds.
Sn-Ag-Cu type is recommended when using lead-free solder.