IDEC

B-1180(0)

CE

INSTRUCTION SHEET

LF1D-F LED Illumination Unit
LF1D-F Series

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.

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

- Before designing the final equipment and powering up the LF1D-F illumination unit, confirm the specifications secribed on this sheet. If there is any uncertainty in the description, contact IDEC before powering up the LF1D-F illumination unit.
- Do not disassemble, repair, or modify the LF1D-F illumination unit, otherwise severe accidents may result, such as electric shocks, damage, fire, or malfunction.
- Turn off the power to the LF1D-F illumination unit before wiring. Make sure of correct wiring, otherwise electric shocks or damage may result.
- Do not gaze into the LF1D-F illumination unit while it is lit, and do not project the light to other people, otherwise eyes may be injured.
- Make sure that the LF1D-F illumination unit does not fall during transportation, installation, and operation, otherwise damage may result.
- Do not pull out or push in the cable of the LF1D-F illumination unit, otherwise damage may result. Give a slack to the cable while wiring.
- The LF1D-F illumination unit is a general-purpose and industrial electronic device. Do not use the LF1D-F illumination unit for electronic equipment which may damage a human body or threaten a life in case a malfunction or failure occurs.
- Make sure that the cable does not touch the LF1D-F housing.

⚠ CAUTION

- LED modules and illumination units may vary in illumination colors and illuminance.
- Apply a voltage within the rated value, otherwise the LED elements may be damaged.
- The LF1D-F 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 LF1D-F illumination unit. Do not leave a damaged LF1D-F illumination unit unattended or use a damaged LF1D-F.
- Make sure of the correct operating temperature, which is the temperature around the LF1D-F illumination unit. Otherwise internal temperature rise may result in damage.
- Do not use or store the LF1D-F illumination unit in a place subjected to vibrations and shocks.
- Do not use the LF1D-F illumination unit in the following places:
  Exposed to direct sunlight, near heaters, and at high temperatures
  Subjected to chemicals, and corrosire gases
  (Plastic lens types: Iron powder and oil)
  Basements, greenhouses, and other humid places
  Cold storage warehouses and cooler exhaust outlets
  (make sure that no freezing occurs)
- Do not loosen screws, otherwise the protection characteristics will be impaired.

1 Types

Lens Material	Type No.
Reinforced Glass	LF1D-F□F-2W-◇
Plastic	LF1D-F□G-2W-◇

□ : Lens surface code ◇ : Accessory code

Accessories

Cable Gland	LF9Z-A11
Mounting Bracket	LF9Z-B12
Cable (5m)	LF9Z-C05

2 Specifications

General Specifications

Applicable Standard	JIS C 8105-1 EN61000-6-2
Rated Voltage	24V DC (Operating voltage range: 21.6V to 26.4V DC)
Rated Power (approx.)	12.5W typ. (15W maximum)
Operating Temperature	-30 to +55ºC (no freezing)
Storage Temperature	-35 to +70ºC (no freezing)
Operating Humidity	45 to 85% RH (no condensation)
Storage Humidity	20 to 90% RH (no condensation)
Life *1	50,000 hours minimum (until the illuminance reduces to 70% the initial value in 25ºC environment)
Insulation Resistance	1 MΩ minimum (500V DC megger)
Dielectric Strength	1000V AC, 1minute (between input terminal and ground terminal or housing)
Vibration Resistance (damage limits)	5 to 55Hz, amplitude 0.5 mm
Shock Resistance (damage limits)	1000 m/s^2
Material	Front Cover:□ Stainless Steel Housing:□ □ Diecast aluminium Lens *2 : □ □ Reinforced Glass □ Polycarbonate □ Acryl Cable Gland:□ Brass Mounting Bracket:□ Stainless Cable:□ □ PVC
Weight (approx.)	800g (no accessories) 1000g (with cable gland, mounting bracket, cable)
Degree of Protection*3	LF1D-F □ F-2W- ◇ : IP67f LF1D-F □ G-2W- ◇ : IP67

*1: Life of the LED is greatly attected by the operating conditions.

*2: The reinforced glass and polycarbonate lenses have the same appearance, but have the different degrees of protection (IP67f or IP67).

*3: Waterproof and oil-proof characteristics guaranteed for conditions specified by IEC 60529 and JEM1030. For illumination units without accessories, use a cable gland and cable that satisfy IP67f or IP67 degrees of protection.

LED Optical Specifications

Illumination Color	White
Color Temperature (typ.)	5700K
Total Luminous Flux (typ.)	840 lm
Reference Illuminance (typ.) at 1.0m (perpendicular)	1100 lx

3 Installation

Mounting Centers (see Demensions)

- Direct Mount, Bracket Mount
  Mount the LF1D-F illumination unit using four M5 screws. Tighten the screws to the torque shown below.
  Recommended tightening torque: 2.6 to 3.7 N·m

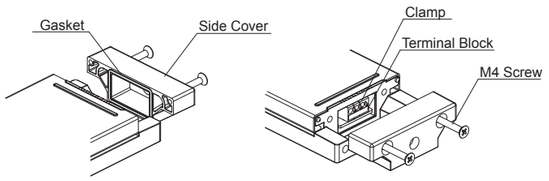
4 Wiring

Wiring

- Connect the ground (⏚) terminal of the LF1D-F LED illumination unit to a proper ground for protection against static electricity and surge voltages.
- The LF1D-E illumination unit is equipped with a cabtyre cable, UL2464 AWG 24 x 3 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 350ºC, and complete soldering within 3 seconds. Use Sn-Ag-Cu lead-free solder.
- Make sure that the cable does not touch the LF1D-F housing.

Cable Connection

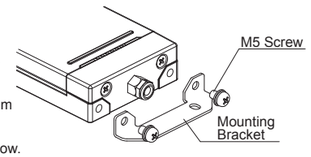
- When connecting a cable to the terminal block, remove the side cover. Before removing the side cover, wipe off water and oil from the housing, otherwise water or oil may enter the inside of the housing.
- When reinstalling the side cover, clean the gasket. Any foreign object on the gasket may impair the water-proof characteristics. Make sure that the cable is not caught between the housing and the side cover.
- To install the side cover, tighten the two M4 screws to the torque shown below.
  Recommended tightening torque: 1.4 to 2.0 N·m
- To remove the cable from the terminal block, push in the clamp and pull out the wire.



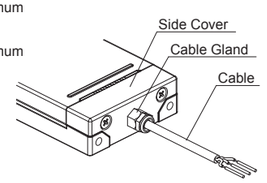
5 Accessories

When installing the optional mounting bracket, cable gland, and cable, follow the steps shown below.

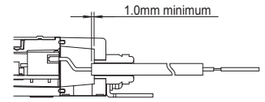
- Install the two mounting brackets using the attached four M5 screws. Tighten the screws to the torque shown below.
  Recommended tightening torque: 2.6 to 3.7 N·m



- Tighten the cable gland to the torque shown below.
  Installation into the side cover:
  Recommended tightening torque: 1.5 N·m minimum
  Tightening the cable:
  Recommended tightening torque: 1.5 N·m minimum
- For cable connection, see [4] "Wiring."



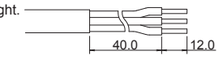
- When installing a cable using the cable gland, make sure that the cable sheath protrudes the gland as shown at right, otherwise the water-proof characteristics may be impaired.



6 Recommended Parts

When using commercially available ferrules, cables, and cable glands, choose the recommended parts shown below.

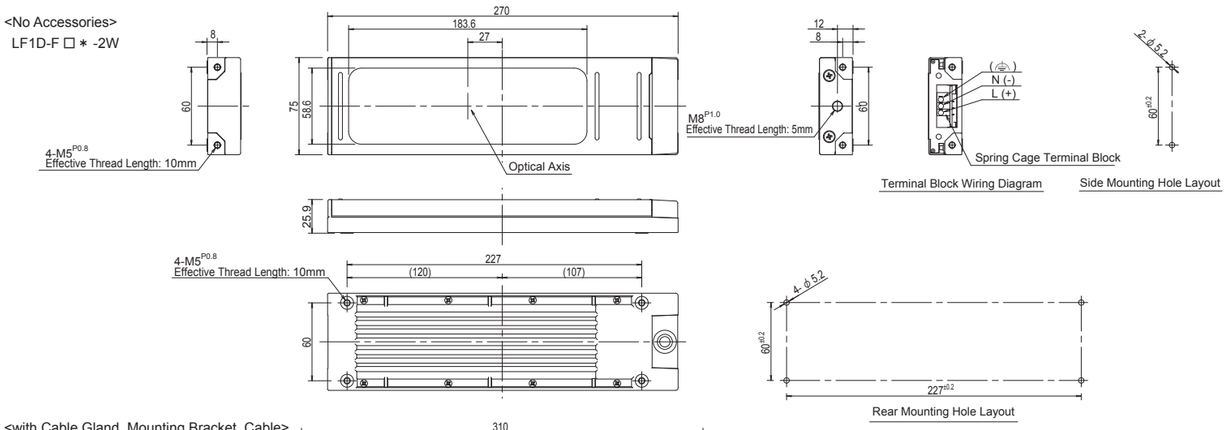
- Ferrule: Al 0.25-12BU, Al 0.34-12TQ
  Al 0.5-12 WH, Al 0.75-12GY (Phoenix Contact)
  Applicable ferrule thickness: 0.25 to 0.75mm^2
- Cable: RO-FLEX 1000T AWG24 x 3c (NICHIGOH)
  Strip the cable sheath and wire insulation as shown at right.



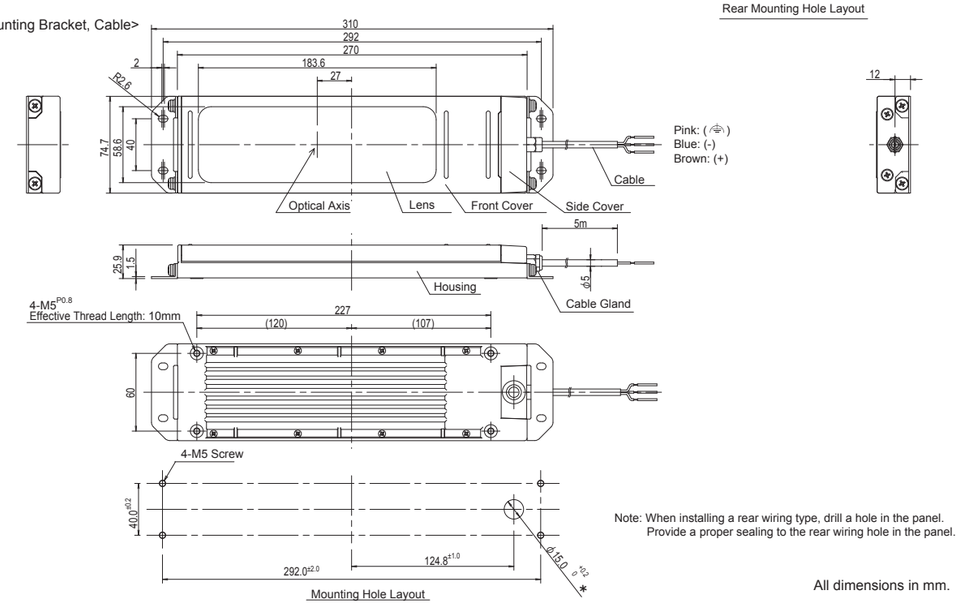
- Cable Gland: SKINDICHT MINI M8X1(LAPP)
  When using a cable gland shown above, choose a cable of ϕ 3.5 to 5.5 mm in order to assure IP67.
  Choose a cable gland in consideration of the thread size and effective thread length.

7 Demensions

<No Accessories>
LF1D-F □ ∗ -2W



<with Cable Gland, Mounting Bracket, Cable>
LF1D-F □ ∗ -2W-A



Note: When installing a rear wiring type, drill a hole in the panel. Provide a proper sealing to the rear wiring hole in the panel.

All dimensions in mm.

8 Precautions for Disposal

- Dispose of the LF1D-F LED Illumination Unit as an industrial waste.

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