

# INSTRUCTION SHEET

## LF3D LED Illumination Unit LF3D-S/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. The warranty period of this product is 1 year after the product is delivered to the designated places.

**⚠ Attention** • Read this instruction manual before using the products and use them in a proper way.

- The life of illumination units is limited.
- Inspections or replacements are recommended. 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: 3000 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 inspect on and clean the products 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

- Products must be installed and used according to the instructions described in the instruction sheet. Improper installation will result in falling, failure, or malfunction of the products.
- Make sure that the operating conditions are as described in the instruction sheet. If you are uncertain about the specifications, contact IDEC before using the products.
- In this instruction sheet, safety precautions are categorized in order of importance as 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

- The products is an apparatus for exclusive use of the indoor. Do not use it outdoors. It may cause insulation failures, electric shocks or malfunctions.
- Do not disassemble, repair, or modify the products. Otherwise severe accidents may result, such as electric shocks, damage, fire, or malfunctions.
- Turn off the power to the products before wiring, installation and cleaning.
- Install the products accurately following the instruction manual when installing the products.
- Incomplete installation can cause falling, fires, and electric shocks. Make sure that wiring is done correctly, or electric shocks and malfunctions can occur.
- Do not gaze into the products 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 products.
- Do not pull out or push in the cables of the products, or damage may result. Give a slack to the cable while wiring.
- The products are general-purpose and industrial electronic devices.
- Do not use the products for electronic equipment that may damage a human body or threaten to life in case malfunctions or failure occurs.
- Give waterproofing and dustproofing to the cables and wires of the products when using the products 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 the products.

#### ⚠ CAUTION

- Apply a voltage within the rated value, or the LED elements may be damaged. The products 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 products. Do not leave the products damaged or use the products damaged.
- Make sure of the correct operating temperature, which is the temperature around the products. Otherwise internal temperature rise may result in damage.
- Do not use or store the products in a place subjected to vibrations and shocks.
- Do not use the products in the following places:
  - The places having high pressure water splashes. (The ones beyond the limits of corresponding IPX5, IPX7X or IPX9K 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.)
  - Environments subjected to substances that can cause failure, such as corrosive gas, volatile gas, inflammable gas, and chemicals.
  - Electric fields and magnetic fields.
  - Environments having inflammable substances.
  - The places exposed to direct sunlight, near heaters, and at high temperatures.
  - The places that the products can get splashed with salty water.
  - Take some measures to prevent freezing and condensation when using the products in freezers and wind outlets.
  - The places subjected to ozone, radiation, and ultraviolet rays.
- Do not loosen screws, or the protection characteristics will be impaired.
- Work with caution while turning on and off (within 30minutes) as the products are hot.
- To clean the cover, use a soft cloth with water or neutral detergent. Leaving the products 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 products 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 products, turn the power off immediately, and consult the distributor.

### Operating Precautions

- Due to variations in LED elements, the products may vary in illumination colors and illuminance.
- Do not repeat turning on/off the products frequently. When turning on after turning off, wait at least 0.5s. Otherwise damage may result.
- External influences such as power supply voltage fluctuations, distortion, and noise may cause flickering, light fluctuations, or diminished brightness, but this is not a malfunction. If you are concerned, we recommend that you use an independent circuit for the wiring of this product.

### 1 TYPES

|                   | Lens type | Model number |
|-------------------|-----------|--------------|
| Surface mounting  | Standard  | LF3D-SB2◇    |
|                   | Diffusion | LF3D-SB1◇    |
| Recessed mounting | Standard  | LF3D-FB2◇    |
|                   | Diffusion | LF3D-FB1◇    |

◇ : Wiring pattern ( Refer to [8].)

#### Accessories

|                          |                                   |  |
|--------------------------|-----------------------------------|--|
| Back mounting adapter    | For side connection : LF9Z-B21    |  |
|                          | For back connection : LF9Z-B22    |  |
| Cable with M12 Connector | Straight type (3m) : LF9Z-CM13    |  |
|                          | Right angle type (3m) : LF9Z-CM23 |  |

### 2 Specification

#### 1 General Specifications

|                                      |  |                           |                |
|--------------------------------------|--|---------------------------|----------------|
| Applicable Standard                  | UL2108 , UL8750 , CSA C22.2 No.250.0 *1<br>EN 61547 , EN IEC 55015 , EN 62471, EN 50581  |                           |                |
| Rated Voltage                        | 24V DC (Operating voltage range: 21.6V to 26.4V DC)  |                           |                |
| Input Current                        | typ. 385mA   |                           |                |
| Rated Power                          | typ. 9.2W  |                           |                |
| 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)   |                           |                |
| Life of Light Source *2              | 50,000 hours<br>(The illumination duration in which the illuminance maintains a minimum 70% the initial value. Ta=25°C and 45% RH) |                           |                |
| Insulation Resistance                | 1 MΩ minimum (500V DC megger)  |                           |                |
| Dielectric Strength                  | 1000V AC, 1minute<br>(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 <sup>2</sup>  |                           |                |
| Material                             | Housing  | : Aluminium               |                |
|                                      | Front cover  | : Stainless               |                |
|                                      | Flange   | : Aluminium               |                |
|                                      | Side cover   | : Zinc die-cast (plating) |                |
|                                      | Illumination surface   | : Reinforced Glass        |                |
|                                      | Cable  | : PVC                     |                |
| Gasket                               | : NBR  |                           |                |
|                                      |  |                           |                |
| Weight (approx.)                     | Cable type   |                           | Connector type |
|                                      | Surface mounting   | 680g                      | 570g           |
| Degree of Protection *3              | Surface mounting   | IP65 , IP67G , IP69K      |                |
|                                      | Recessed mounting  | IP65 , IP67G              |                |

\*1: Use Class 2 power supply when using the product as UL / c-UL Listed.

\*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: The degree of protection is guaranteed for conditions specified by IEC60529 requirements and do not assure protection against all actual operating conditions. These are valid only when the product is installed.

#### 2 Optical Specifications

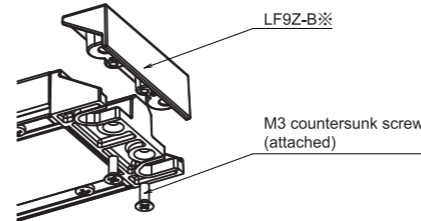
|   |                |             |  |
|---|----------------|-------------|--|
| Color Temperature                             | typ. 5700K     |             |  |
| luminous flux                                 | typ. 1700lm    |             |  |
| Reference Illuminance at 1.0m (perpendicular) | Standard type  | typ. 1800lx |  |
|   | Diffusion type | typ. 1000lx |  |

### 3 Installation

- Refer to [8] for the mounting pitch.

#### ◆ Wall and Ceiling Surface Mount (LF3D-S)

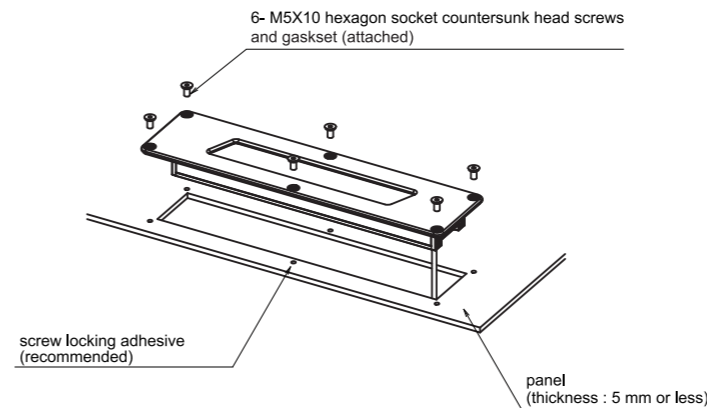
- Mount by one of the following methods.
  - Mounted with M5 screws  
Tighten 4 places with M5 screws within the following range.  
Recommended tightening torque: 2.6-3.7N·m
  - Mounted with M6 screws  
Tighten 4 places with M6 screws within the following range.  
Recommended tightening torque: 2.6-3.7N·m
  - Mounted with the back mounting adapter (LF9Z-B※)  
3-1) Tighten the accessories with the attached M3 screw.  
Recommended tightening torque: 0.7-1.0N·m



- 3-2) After tighten the accessories, tighten the 4 places with M4 screws within the following range.  
Recommended tightening torque: 1.4 to 2.0 N·m

#### ◆ Wall and Ceiling Recessed Mount (LF3D-F)

- 1) Apply screw locking adhesive on the female screw side of the panel, be careful not to flow out to the mounting surface side.  
(Recommended: Loctite 425 / ThreeBond 1401 etc.)  
Note) When not using screw locking adhesive, make sure that the screws are not loose when mounting on the machine before using.
- 2) Tighten with the attached M5 hexagon socket countersunk head screws.  
Recommended tightening torque: 2.6-3.7N·m

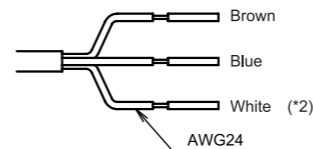


### 4 Wiring

| Cable color | Pin No. | Function     | Connection            |
|-------------|---------|--------------|-----------------------|
| Brown       | 1       | +DC          | Power Supply +24V     |
| White       | 2       | GS-Mode (*1) | Open or +DC           |
| Blue        | 3       | -DC          | Power Supply 0V (GND) |
| -           | 4       | N.C.         | -                     |

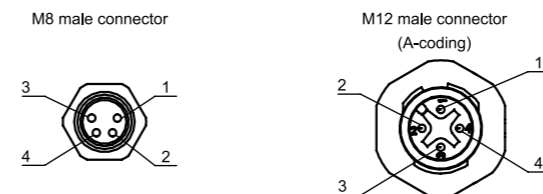
\*1 Refer to [5] for GS-Mode .

#### • Cable diagram



\*2 If the cable is not used, insulate the edge of it.

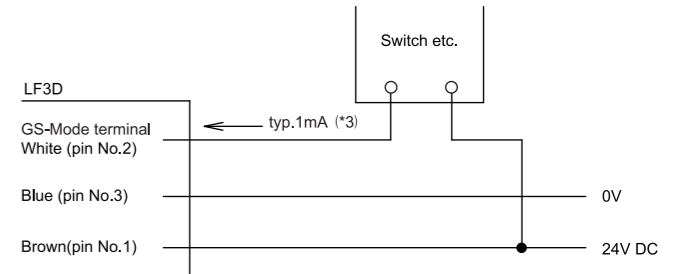
#### • Connector diagram



### 5 Glare save mode (GS-Mode)

This product can be selected for full lighting (100%) and dimming depending on the wiring method.

(1) Connection diagram



- \*1 Wire as short as possible to avoid external influences such as noise.
- \*2 If external influences such as noise cannot be avoided, take appropriate measures such as shields and ferrite cores.
- \*3 In GS-Mode, typ.1mA current is supplied to the GS-Mode terminal.

(2) Function

| GS-Mode | Output               | Wiring  |
|---------|----------------------|---|
| ON      | Dimming              | Short White (pin No.2) and Brown(pin No.1).       |
| OFF     | Full lighting (100%) | Open Note) Insulate the edge of White (pin No.2). |

\*4 The degree of dimming varies depending on the usage environment. It is not a fixed value.

(3) Specification

Current supplied to the GS-Mode terminal : typ. 1mA (Input : 24V DC ,Ta=25°C)  
The dazzling light will be reduced in GS-Mode (dimming), and it may feel like flickering or light fluctuation due to individual differences. However, this is not a malfunction of this product.

### 6 Recommended Parts

When preparing a cable with a connector, refer to the following.

- (1) Recommended M12 connector : PHOENIX CONTACT  
Recommended tightening torque : 0.4N·m (Follow manufacturer's recommendations)
- (2) Recommended M8 connector : HARTING  
Recommended tightening torque : 0.2N·m (Follow manufacturer's recommendations)

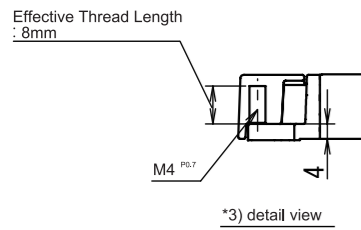
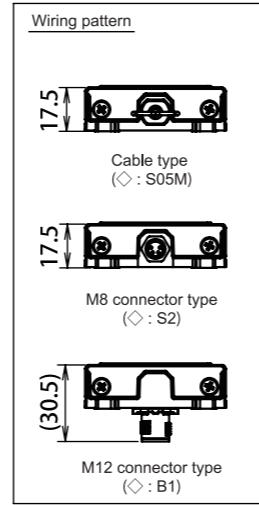
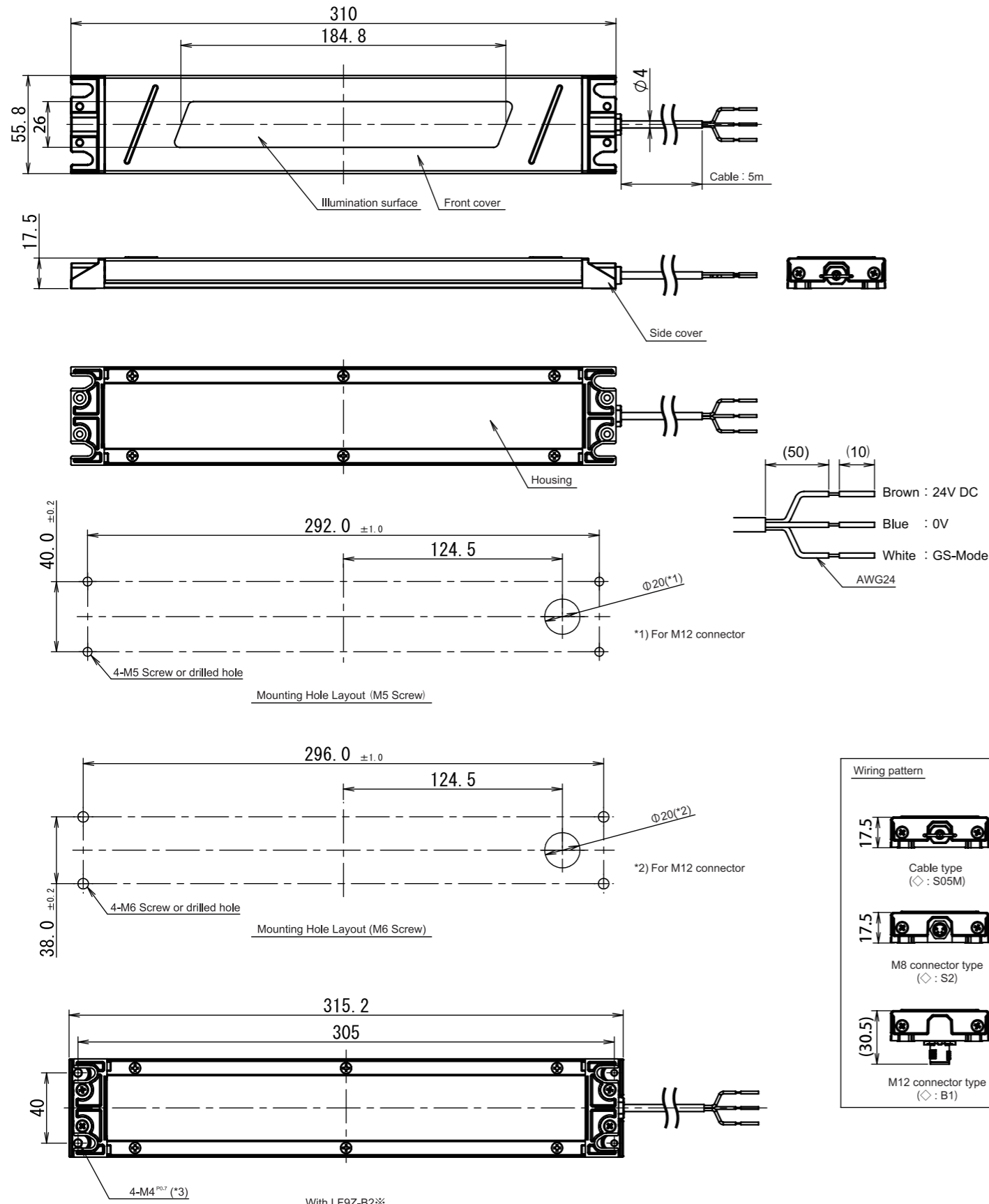
### 7 Precaution for Disposal

- Dispose of the products as industrial wastes.

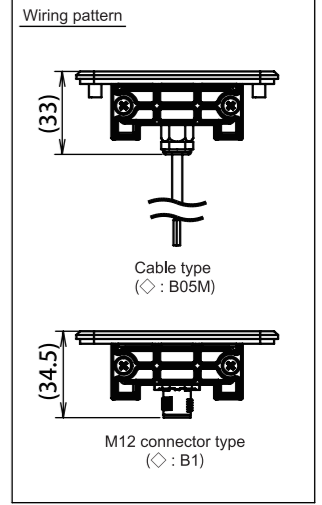
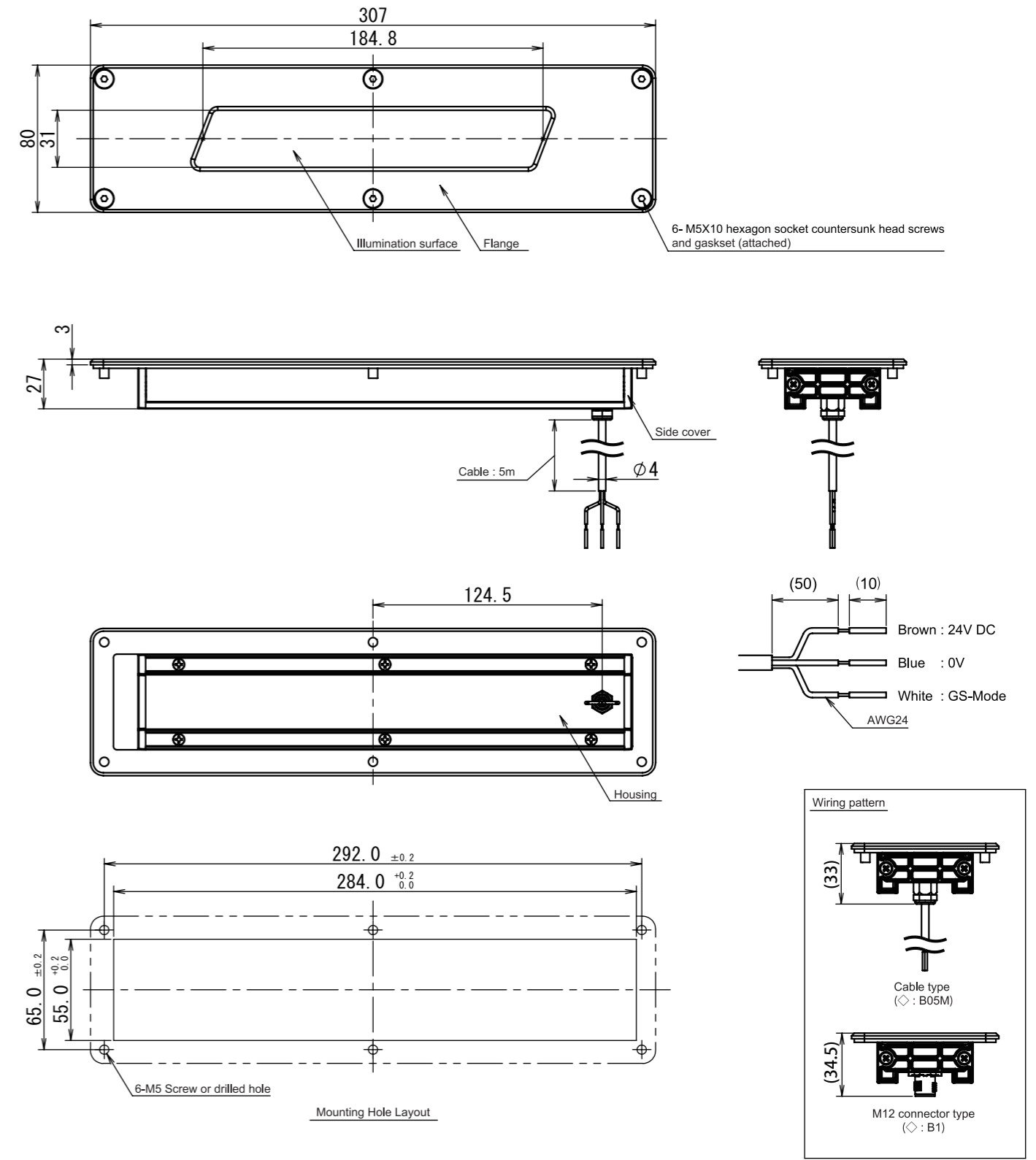
## 8 Dimensions

◆Wall and Ceiling Surface Mount (LF3D-S)

(Dimensions:mm)



◆Wall and Ceiling Recessd Mount (LF3D-F)



**IDEC CORPORATION**

<http://www.idec.com>

Manufacturer : IDEC CORPORATION, 2-6-64 Nishimiyahara, Yodogawa-Ku, Osaka 532-0004, Japan  
 EU Authorized Representative : APEM SAS  
 55, Avenue Edouard Herriot BP1, 82303 Caussade Cedex, France  
 UK Authorized Representative: APEM COMPONENTS LIMITED  
 Address: Drakes Drive, Long Crendon, Buckinghamshire, HP18 9BA, England.