

# IDEC

## INSTRUCTION MANUAL

### EF1A LED Illumination (Flameproof Construction)

B-1442(1)

Confirm that the delivered product is what you have ordered. Read this instruction manual to make sure of correct operation. Make sure that the instruction manual is kept by the end user.

#### Safety Precautions

In this operation instruction manual, 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

- (General requirements)
- Use the EF1A in applicable hazardous areas. (hazardous area: potentially explosive atmosphere where explosive gas or vapor may exist).
  - EF1A can be used in zone 1 and 2. Do not use in Zone 0.
  - Turn power off before working on the EF1A, otherwise explosion, fire hazard, or electric shocks may result.
  - Special expertise is required to install, operate, maintain, and inspect the EF1A. People without such expertise must not use the EF1A, otherwise it may cause damage to equipment or serious accidents.
  - Do not disassemble, repair, or modify the EF1A, otherwise it may cause damage to equipment or serious accidents.
  - Do not use a damaged EF1A, otherwise personal injury or serious accidents.
  - Since the EF1A has glass parts, do not drop, hit objects against the EF1A, apply excessive force, or scratch the surface. Otherwise it may cause damage to equipment or serious accidents.
  - Ensure that the layout of equipment around the EF1A does not cause overheating of the EF1A. Otherwise the capacitor temperature rises beyond the allowable temperature limit, resulting in the shortened service life of lamp, burnout, or deteriorated wire.
  - Do not gaze into the EF1A while it is lit, and do not project the light to other people, otherwise eyes may be injured.

#### (Wiring)

- When connecting the external wire, make sure each wire is connected to the correct terminal, otherwise electric shocks or fire hazard may result.
- For wiring, use wires of a proper size to meet the voltage and current requirements. Use a heat resistance wire (75°C minimum). Tighten the terminal screws (terminal screws only) to a recommended torque. Failure to tighten the terminal screw may cause overheating or fire.

#### (Installation)

- Ground the earth terminal of the EF1A securely, otherwise electric shocks, explosion or fire hazard may result.
- Do not ride on or hang from the EF1A, otherwise damage to equipment, personal injury, or serious accidents may result.
- Install the EF1A securely in a stable site, and do not install in unstable or movable location.
- Ensure to install properly, otherwise fall, electric shocks, and injury may result.
- Do not cover the EF1A with a flammable cloth or paper, and do not insert objects into the openings. Otherwise explosion or fire hazard may result.

#### (Operation)

- Do not open the end cover of the EF1A during operation, otherwise explosion or electric shocks hazard may result.

- (Maintenance and inspection)
- When measuring the insulation resistance of the EF1A, make sure that potentially explosive atmosphere of explosive gas or vapor does not exist, otherwise explosion may result. Do not touch the terminals, otherwise electric shocks may occur. Turn off the power before maintenance or inspection, and wait for at least 2 minutes before

#### CAUTION

- (General requirements)
- Do not place any object on the product label.
  - Do not remove the product label.
  - Keep as much distance as possible from a sound equipment or communication lines.
  - Do not use or store the EF1A in environment subject to excessive vibration or shocks, otherwise damage may result.
  - Do not use the EF1A in the environment exposed to direct sunlight.
  - When installing the EF1A in environment subject to high temperature, low temperature, high humidity, strong wind, strong vibrations, excessive salt or dust, or corrosive gas may be generated, necessary measures must be provided.
  - LED modules and illumination units may vary in illumination colors and illuminance.
  - When opening the end cover for wiring, maintenance, or inspection, take a countermeasure so that foreign objects such as dust, powder, metal chips do not enter inside. Otherwise contact failure or insulation failure may result.

- (Transportation)
- Handle the EF1A carefully not to drop and/or damage the EF1A during transportation.

- (Opening the shipping carton)
- Place the shipping carton on a level plane with the top/bottom positioned correctly, otherwise damage to equipment or personal injury may result.

#### (Installing)

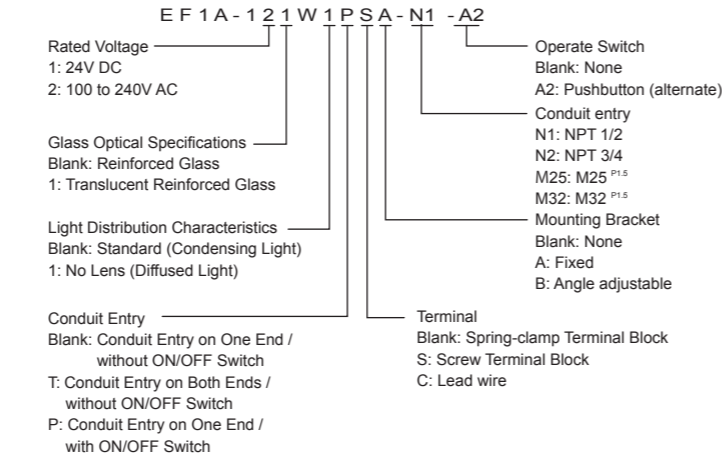
- Do not use the EF1A in the following places:  
Exposed to direct sunlight, near heaters, and at high temperatures.  
Subjected to chemicals and corrosive gases.  
Humid place.  
Cold storage warehouses and cooler exhaust outlets (make sure that no freezing occurs).

#### (Operation)

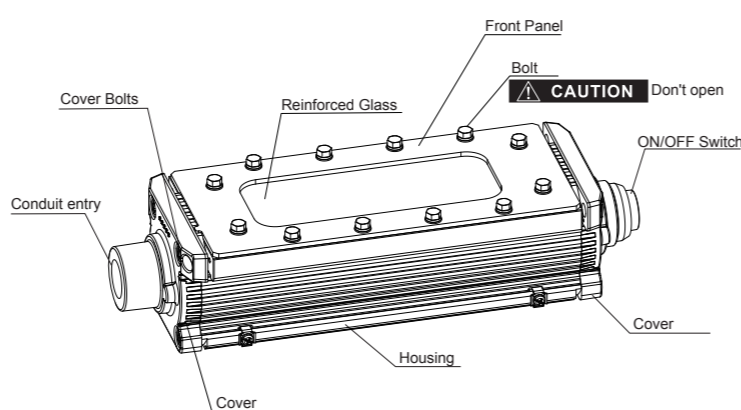
- Stop operation immediately in case of abnormal operation, otherwise secondary accident may be caused.
  - Observe the power voltage described on the product label.
  - Failure to observe power voltage may result in failure, fire hazard, or electric shocks.
  - Observe the frequency (50 or 60 Hz) of the area.
  - Otherwise fire hazard may result.
- (Maintenance and inspection)
- The surface temperature of EF1A may be extremely high during operation. Do not touch with bare hand to avoid burning your hand.
  - For maintaining bright illumination and safe operation, clean and inspect the EF1A periodically.
  - Do not operate the failed EF1A. Consult experts for repairs.
  - After 8 or 10 year operation, the EF1A has deteriorated internally. Inspection or replacement is recommended.
  - Service life is shortened in high ambient temperature and when the EF1A has been lit for long hours. Have the EF1A checked by an expert every three years.

## 1 Product Structure

### (1) Type number

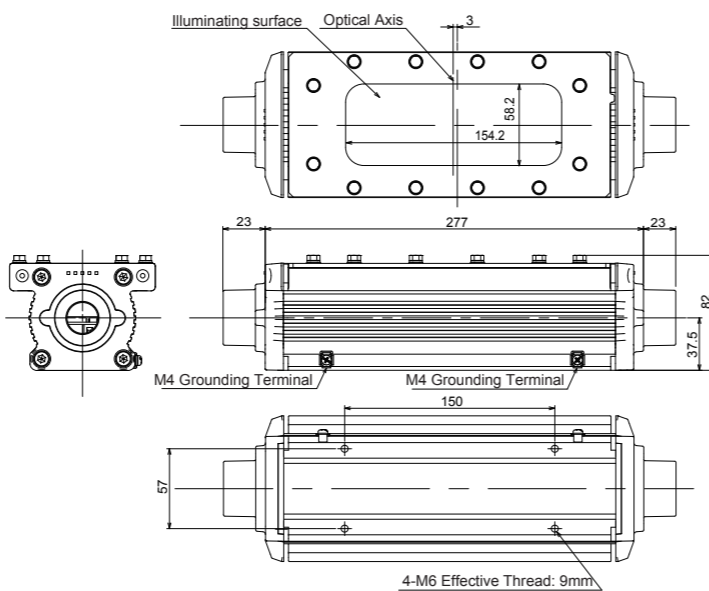


### (2) Description of parts (EF1A-1□□W□□□-□□-□A2)

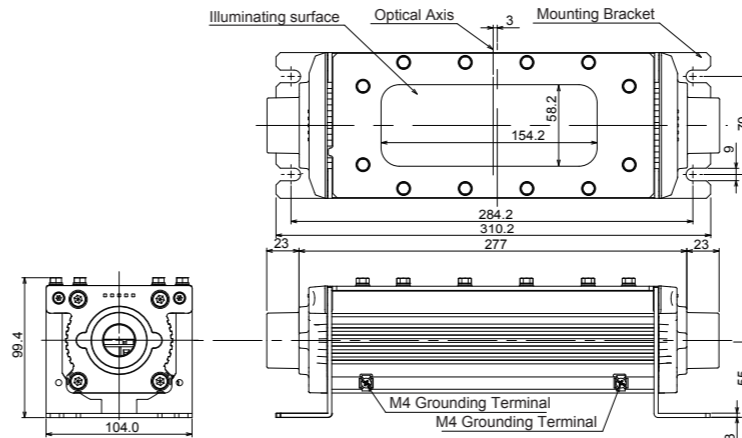


### (3) Dimensions

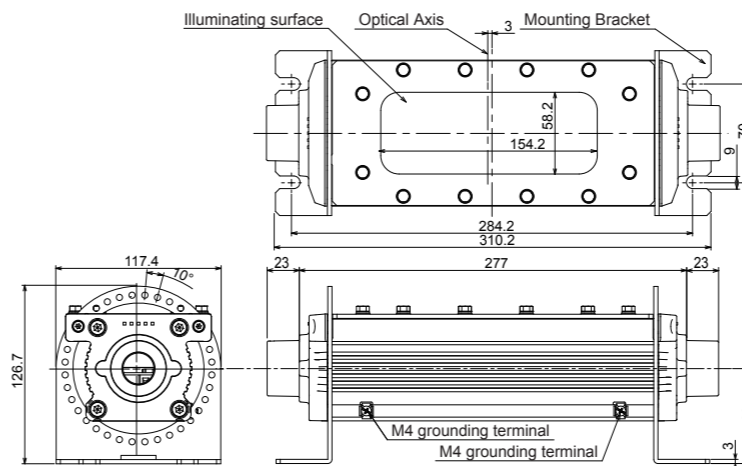
#### 1) Direct mounting



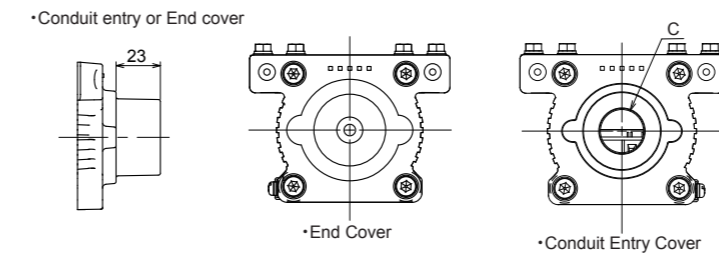
#### 2) With mounting bracket



#### 3) With angle adjustable bracket

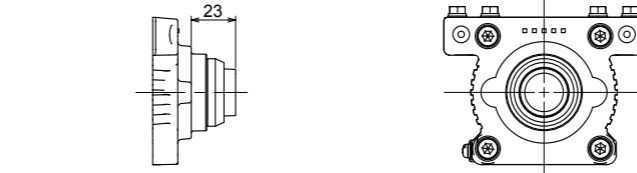


### (4) Dimension of conduit entry and ON/OFF switch and end cover

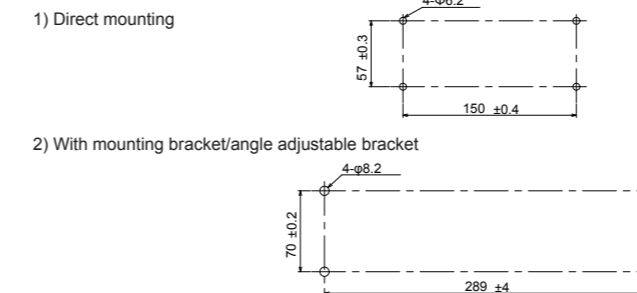


Conduit entry size	C
N1	NPT 1/2
N2	NPT 3/4
M25	M25 <sup>P1.5</sup>
M32	M32 <sup>P1.5</sup>

### ·With ON/OFF Switch



### (5) Mounting hole layout



### (6) Attachments

- Instruction Manual.....1
- Hexagon Wrench (3).....1 (only with bracket)
- Hexagon Wrench (5).....1

## 2 Product Specifications

### (1) Specifications

Explosion Protection	IECEX Ex d II B T4 Gb ATEX Ex tb III C T130°C Db IP67 (or IP65) UL Class I, Zone1 C-UL AEx d II B T4 Gb
Certificate Numbers	IECEX UL 14.0048X DEMKO 14 ATEX 1208667X E353024
Degree of Protection	IP67 / IP65 (with ON/OFF switch)(IEC60529) Type 4X / Type 3S (with ON/OFF switch)(UL50E)
Installation Area	Zone 1,2

### (2) General specifications

Applicable Standards	IEC60079-0:Ed.6(2011),IEC60079-1:Ed.6(2007),IEC60079-31:Ed.1(2008) EN60079-0:2009,EN60079-1:2007,EN60079-31:2009 ANSI/UL 60079-0:Ed.5(2009) , ANSI/UL 60079-1 :Ed.6(2009) CSA C22.2 60079-0:2011 , CSA C22.2 60079-1:2011
Rated Voltage	100 to 240V AC (Universal AC input) / 24V DC
Operating Voltage Range	90 to 264V AC / 21.6 to 26.4V DC
Power Consumption	Typ. approx. 19W: 100 to 240V AC / Typ. approx. 17W: 24V DC
Insulation Resistance	100 to 240V AC: 100 MΩ minimum (500V DC megger) (between input and ground) 24V DC: 50MΩ minimum (500V DC megger) (between input and ground)
Dielectric Strength	100 to 240V AC: 2000V AC, 1 minute (between input and ground) 24V DC: 500V AC, 1 minute (between input and ground)
Vibration Resistance (damage limits)	5 to 55Hz, amplitude 0.5 mm
Shock Resistance (damage limits)	1000 m/s <sup>2</sup>
Operating Temperature	-20 to +50°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)
Service Life	50,000 hours minimum (the illumination duration in which the brightness maintains a minimum of 70% of the initial value at 25°C.)
Material	Housing: aluminium Front panel: stainless steel Illuminating surface: reinforced glass Mounting bracket: stainless steel
Weight (approx.)	3.2 kg (without mounting bracket), 3.4kg (with mounting bracket)

### (3) LED optical specifications

Illuminating surface	Clear		Translucent	
	With	Without	With	Without
Lens				
Illumination Color	White			
Color Temperature (typ.)	5,700K			
Total Luminous Flux (typ.)	960lm			
Reference Illuminance (typ.) at 1.0m Directly Below	1100lx	205lx	450lx	175lx

### Instructions

- LED life depends on the operating environment.
- The degree of protection is according to the test conditions specified by IEC 60529, and is not guaranteed in any operating environment.
- Highly bright LED lamps are used and may be lit due to induced current when the power is off.
- Do not replace LEDs, as it affects explosion proof characteristics. Contact IDEC for replacing LEDs.

## 3 Opening the Shipping Carton

### (1) Opening the Shipping Carton

- Before installation, confirm that product is what you have ordered, and that there is no damage on parts. Contact the retailer in case of any inconvenience.

### (2) Appearance

- The end cover surface may be uneven in color. Performance is not affected.
- Translucent lens may be uneven in color or has minute foreign substances adhered to. Performance is not affected.