

Think Automation and beyond...

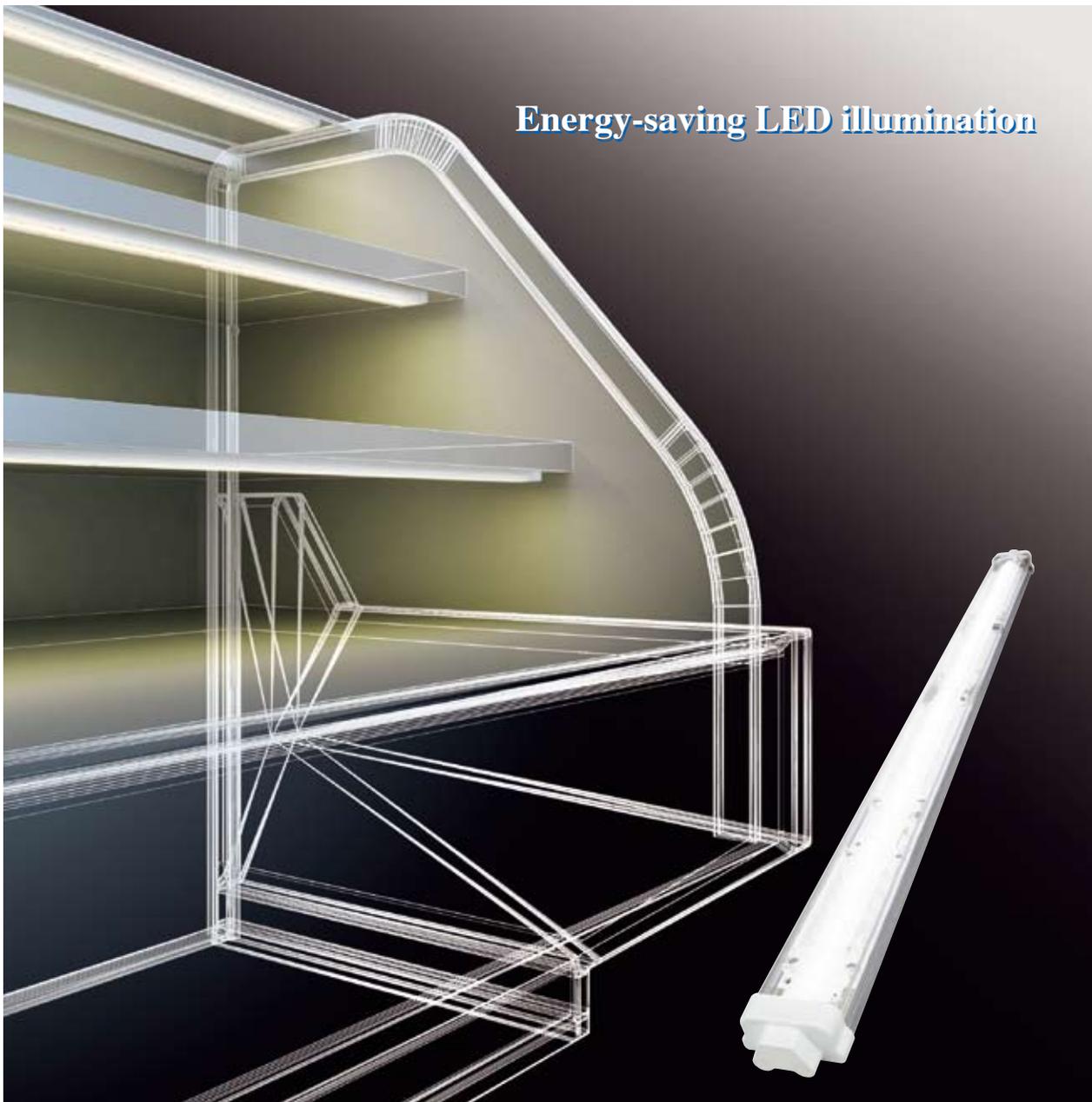


LUMIFA™

LF1E Series

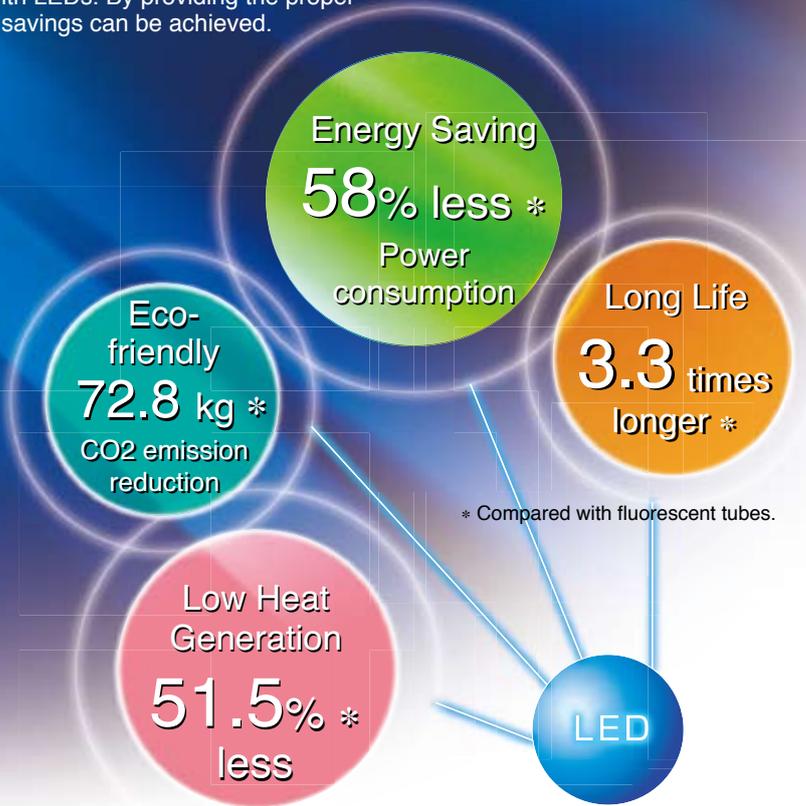


LED Illumination Units for Freezer/Refrigerated Display Cases

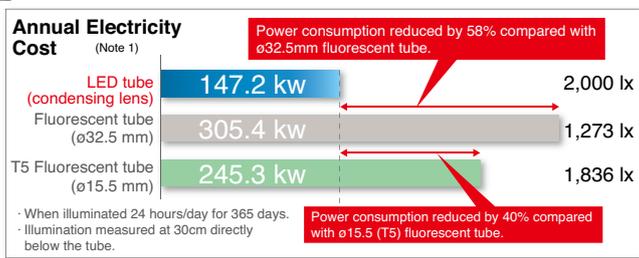


LF1E LED Illumination Units for freezer and refrigerated display cases

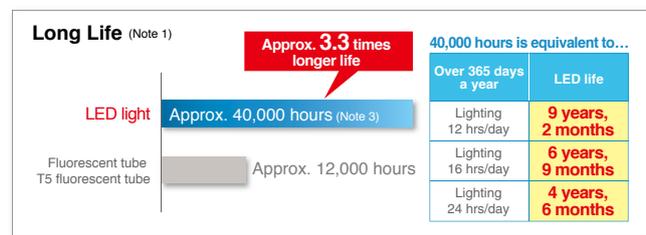
Optimal light distribution is achieved by employing optical simulation technology and combining this with original lenses and reflectors with LEDs. By providing the proper amount of light to the target object, greater energy savings can be achieved.



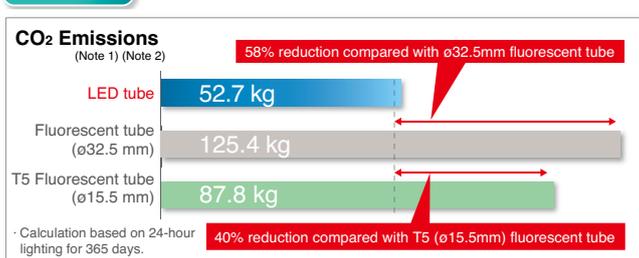
Energy Saving Lower power consumption; equivalent brightness. Power consumption reduced by 58% (Note 1) compared with fluorescent tubes (ø32.5mm), saving money.



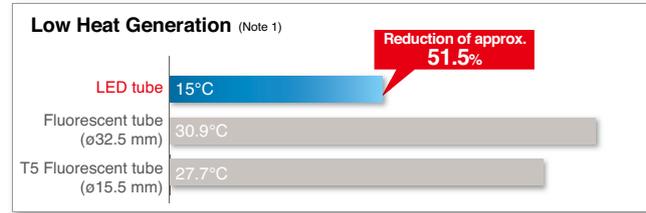
Long Life 3.3 times (approx.) longer service life, reduced maintenance, and energy savings. 40,000 hours of maintenance-free service life. Reduces industrial waste.



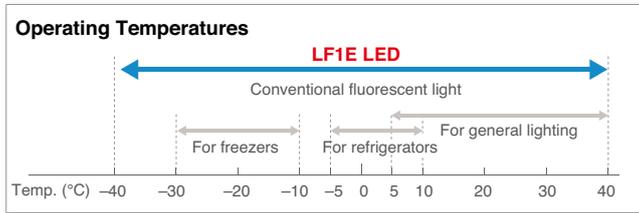
Eco-friendly Environment friendly—Big reduction of CO₂ emissions.



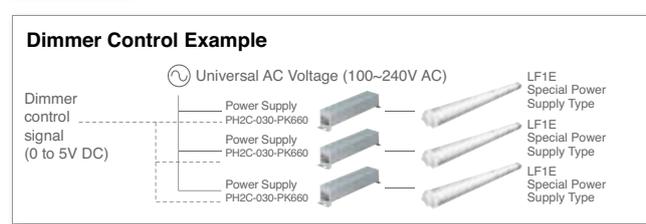
Low Heat Low heat generation for safety and peace of mind. Because the rise of surface temperature is low, the LF1E units are suited for heat-sensitive products.



Wide Temp. Range Can be used in a wide range of temperatures. The LF1E series can be used at temperatures ranging from -40 to +40°C, allowing for use in freezers, refrigerators, and at room temperatures.



Dimming Control Dimmable between 0 (approx.) to 100%. Special power supply type (power supply PH2C-030-PK660 necessary) achieves desired visual and spatial effects. (Note 4)



Note 1: Comparison among LED illumination unit LF1E-D3 (1,066mm), 40W fluorescent tube equivalent (1,198mm), and T5 fluorescent tube equivalent (1,200mm).
Note 2: CO₂ coefficient 0.358 kg CO₂/kWh

Note 3: The total illumination life in which the illuminance maintains a minimum of 70% of the initial value in 25°C environment. LED life depends on the operating environment and conditions.
Note 4: PH2C-030-PK660 is not UL approved or CE marked.

Brighten up your display cases!

IDEC LF1E LED illumination units not only light up frozen and refrigerated food—they improve your food business.



Variety

<p>Color</p> <div style="display: flex; justify-content: space-around;">   </div> <p>3000K (warm white) 5000K (white)</p>	<p>Length</p> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 5px;"> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: 50px; text-align: center;">550 mm</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: 50px; text-align: center;">808 mm</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: 50px; text-align: center;">1066 mm</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: 50px; text-align: center;">1450 mm</div> </div>	<p>With or without Dimmer Control</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border: 1px solid black; padding: 5px; text-align: center;"> <p><i>With</i></p> <p>Special Power Supply Type (0 to 100% control)</p> </td> <td style="width: 50%; border: 1px solid black; padding: 5px; text-align: center;"> <p><i>Without</i></p> <p>24V DC Type (No dimmer control)</p> </td> </tr> </table>	<p><i>With</i></p> <p>Special Power Supply Type (0 to 100% control)</p>	<p><i>Without</i></p> <p>24V DC Type (No dimmer control)</p>
<p><i>With</i></p> <p>Special Power Supply Type (0 to 100% control)</p>	<p><i>Without</i></p> <p>24V DC Type (No dimmer control)</p>			

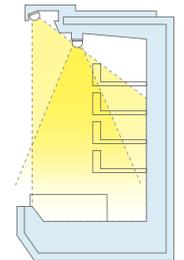
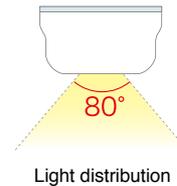
Note: Power supply PH2C-030-PK660 must be ordered separately.

APPLICATION 01 For Open Front Display Cases



we recommend...
▶▶▶▶

Condensing lens type



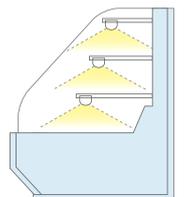
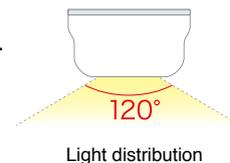
Application example

APPLICATION 02 For Glass Front Display Cases



we recommend...
▶▶▶▶

No-lens type



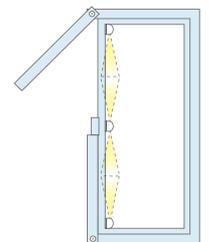
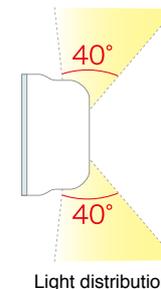
Application example

APPLICATION 03 For Reach-in Display Cases



we recommend...
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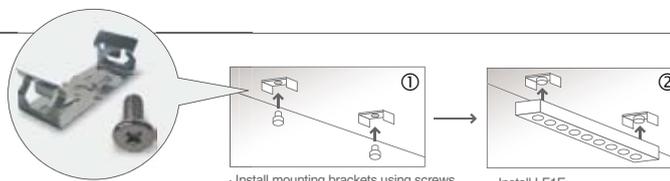
Dual lens type



Application example

Other features

Long LED illumination units can be installed easily using mounting brackets (attached)



IP54 protection against dust and water splash

Waterproof covers not necessary.

- CE marked (24V DC Type)
- RoHS compliant/environmentally friendly
- Shatter-resistant plastic cover

LF1E series LED Illumination Units

LED illumination units for freezer and refrigerated display cases.

- LED light sources achieve energy saving, long service life, reduced mounting space, elimination of noise, and low heat generation.
- Available in 4 lengths of 550, 808, 1066, and 1450 mm designed to meet the width of display cases.
- 3 types of light distribution characteristics are available; no-lens, condensing lens, and dual lens.
- IP54 protection against dust and water.
- Dimmer control for adjusting brightness and saving energy is possible by using special power supply type (PH2C-030-PK660 supplied separately).
- Plastic lens suitable for food industry.
- CE marked.
- Applying for UL listing (24V DC type only)



Specifications

Type (length in mm)		550	808	1066	1450
Type No.		LF1E-B	LF1E-C	LF1E-D	LF1E-E
Rated Voltage	24V DC	24V DC			
Input Current (typ.) (at rated input)	24V DC	350 mA (404 mA max.)	525 mA (606 mA max.)	700 mA (807 mA max.)	950 mA (1004 mA max.)
	Special Power Supply	875 mA ±5%			
Power Consumption (typ.) (at rated input)	24V DC Type	8.4W (9.7W max.)	12.6W (14.6W max.)	16.8W (19.4W max.)	22.8W (26.3W max.)
	Special Power Supply	9.4W (10.4W max.)	14.1W (15.5W max.)	18.8W (20.7W max.)	23.5W (25.9W max.)
Insulation Resistance	100 MΩ minimum (500V DC megger) between input and housing				
Dielectric Strength	500V AC, 1 minute				
Vibration Resistance (damage limits)	Frequency: 5 to 55 Hz Amplitude: 0.17 mm				
Shock Resistance (damage limits)	300 m/s ²				
Operating Temperature	-40 to +40°C (no freezing)				
Operating Humidity	45 to 85% RH (no condensation)				
Storage Temperature	-40 to +70°C (no freezing)				
Operating Atmosphere	No corrosive gases				
Life	40,000 hours (The total illumination duration where the illuminance maintains a minimum of 70% of the initial value in 25°C environment.)				
Weight (approx.) (Note)		275g	390g	515g	690g
Degree of protection	IP54				
Materials	End cover, conduit: polyamide Cable: PVC		Cover: polycarbonate Mounting bracket: stainless steel		

- Note: Dual lens type
• Contact IDEC for special power supply PH2C-030-PK660.

LED Optical Specifications

Illumination Color		White	Warm white	
Color Temperature (typ.)		5000K	3000K	
Reference Illuminance (typ.)	Lens Type	Unit Length	Illuminance	
		No-lens (Note)	550 mm	950 lx
	808 mm		1100 lx	900 lx
	1066 mm		1200 lx	950 lx
	1450 mm		1250 lx	1000 lx
	Condensing Lens (Note)	550 mm	1950 lx	1500 lx
		808 mm	2000 lx	1550 lx
		1066 mm	2000 lx	1550 lx
Dual Lens	1450 mm	2000 lx	1550 lx	
	See the illuminance distribution chart on page 5.			

Note: Measured at 0.3m directly below the unit.

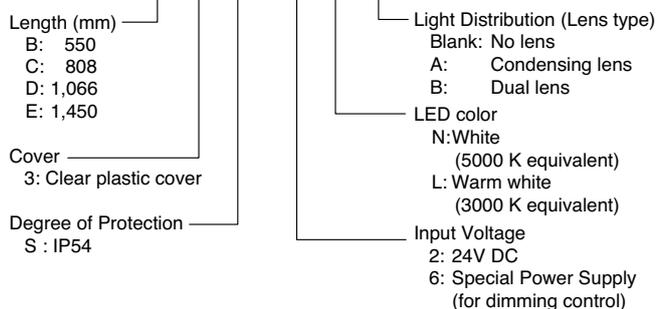
Accessories

Item	Type No.	Package Quantity
Mounting Bracket	LF9Z-1SE1PN05	5

- Five mounting screws are supplied (one mounting screw is used for a mounting bracket)
- Number of mounting brackets supplied: LF1E-B (2), LF1E-C (3), LF1E-D (4) and LF1E-E (4)
When installing the LF1E unit in the place subject to excessive vibrations, supply additional mounting brackets.
- See page 5 for dimensions.
- Use PH2C-030-PK660 power supply for the dimmable special power supply type (PH2C-030-PK660 is not UL approved or CE marked).

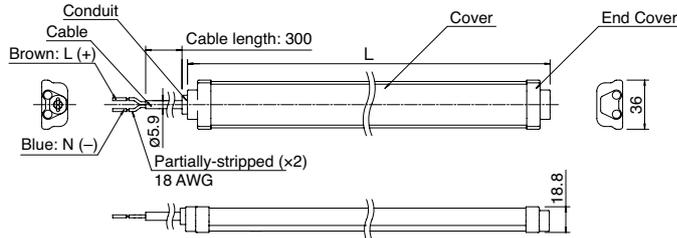
Type No. Development

LF1E - B 3 S - 2 N A

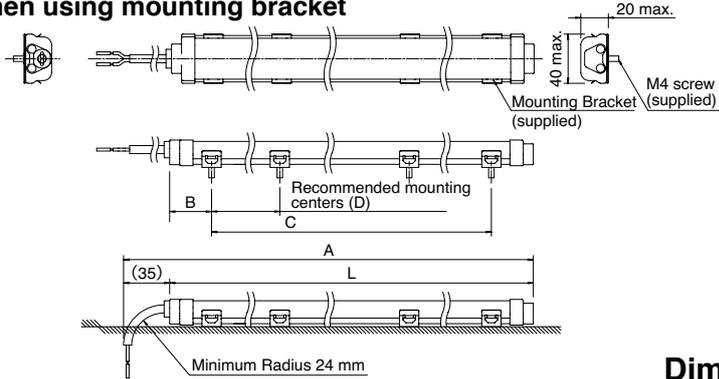


Dimensions

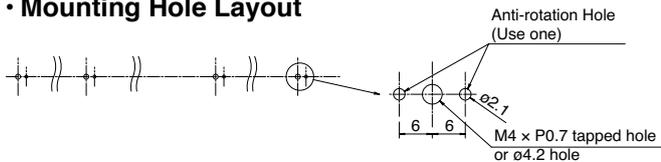
• LF1E Illumination Unit



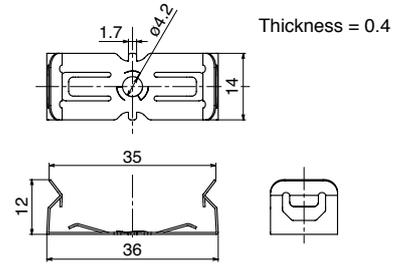
• When using mounting bracket



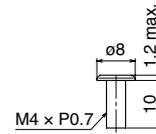
• Mounting Hole Layout



• Mounting Bracket (supplied) (LF9Z-1SE1)



• Mounting Screw (supplied)



All dimensions in mm.

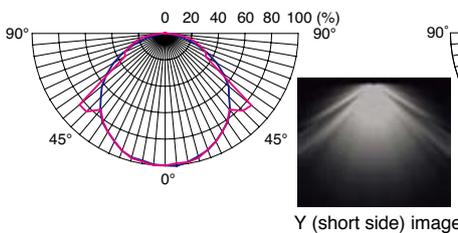
Dimensions

(Unit: mm)

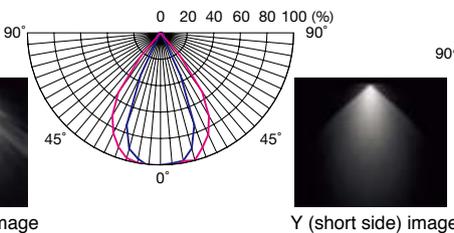
Type No.	L	A	B	C	D	No. of Mounting Brackets
LF1E-B3	550	585	30	490	490	2
LF1E-C3	808	843	29	750	375	3
LF1E-D3	1066	1101	30.5	1005	335	4
LF1E-E3	1450	1485	32	1386	462	4

Illuminance Distribution Chart

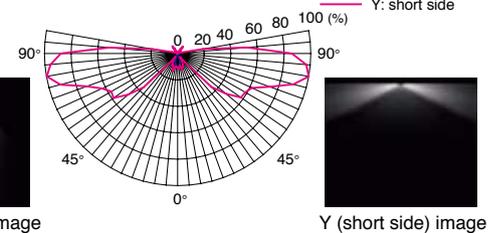
• No-lens



• Condensing Lens

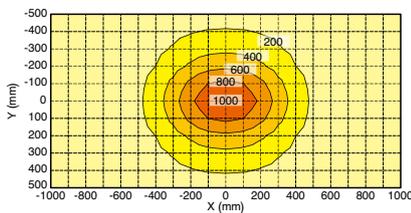


• Dual Lens

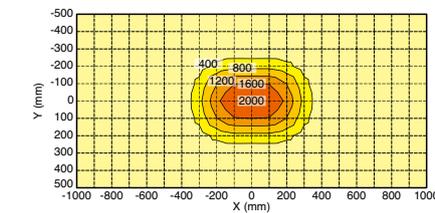


Illumination Chart (reference value of 5000K at 0.3m. Dual lens type at 50 mm.)

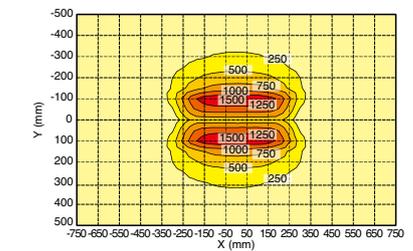
• No-lens (LF1E-B3S-2N)



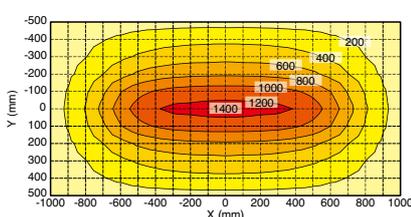
• Condensing Lens (LF1E-B3S-2NA)



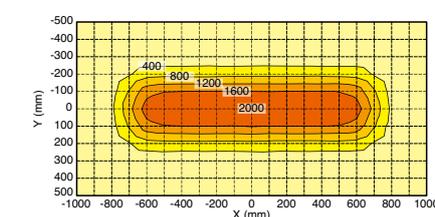
• Dual Lens (LF1E-B3S-2NB)



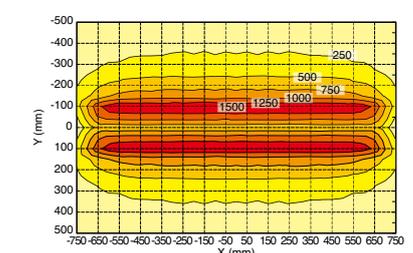
• No-lens (LF1E-E3S-2N)



• Condensing Lens (LF1E-E3S-2NA)



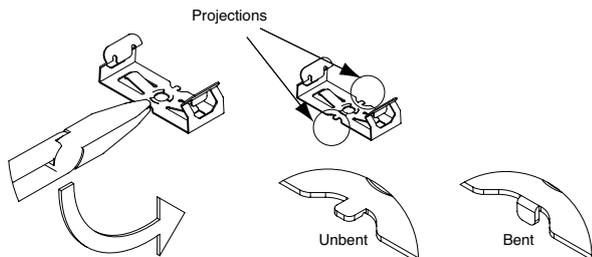
• Dual Lens (LF1E-E3S-2NB)



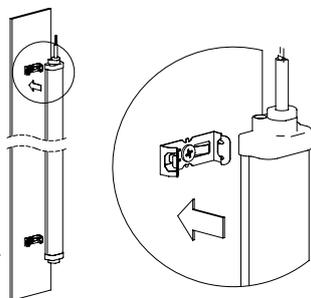
LF1E Series LED Illumination Units

Installation

- Install the LF1E illumination unit on a panel using the mounting brackets and M4 mounting screws (supplied), with a recommended tightening torque of 1.4 to 2.0 N·m. If choosing different screws, use M4 screws with screw heads of 1.2 mm maximum.
- See dimensions for the required number of mounting brackets, recommended mounting centers, and mounting hole layout (page 5). Make sure that the required number of mounting brackets are used, otherwise the lack of mounting brackets may result in the LF1E illumination unit falling.
- When anti-rotation is needed on the mounting brackets, bend one of the anti-rotation projections at a 90 degree angle using pliers.

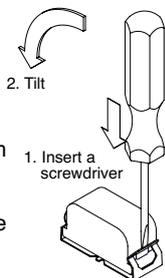


- When welding the mounting brackets to a panel, provide sufficient welding strength to support the weight of the LF1E illumination unit. Insufficient welding strength may cause damage or result in the LF1E illumination unit falling.
- After installing the mounting brackets on a panel, install the LF1E illumination unit as shown.



Removal

- Remove the LF1E illumination unit using a flat screwdriver as described below.
 1. Insert the screwdriver between the mounting bracket and cover.
 2. Tilt the screwdriver towards the covered side and detach the mounting bracket from the cover.
 3. Do not force open the mounting bracket, otherwise the mounting bracket will become deformed.



Safety Precautions

- Do not disassemble, repair, or modify the LF1E illumination unit. Otherwise electric shock, fire, or malfunction may occur.
- Turn off the power to the LF1E illumination unit before wiring. Make sure of correct wiring, otherwise electric shock or damage may result.
- Do not stare directly into the LF1E illumination unit while it is lit, and do not project the light to other people, otherwise eyes may be injured.
- Make sure that the LF1E illumination unit does not fall during transportation, installation, and operation, otherwise damage may occur.
- Do not pull or push the cable of the LF1E illumination unit, otherwise damage may occur. Allow sufficient slack in the cable during wiring.
- The LF1E illumination unit is a general-purpose industrial electric device. Do not use the LF1E illumination unit for electronic equipment which may damage the human body or threaten life in case a malfunction or failure occurs.
- Make sure that the cable does not touch the LF1E housing.

Instructions

- Individual LED elements and illumination units may vary in illumination colors and brightness.
- Apply voltage within the rated value, otherwise the LED elements may be damaged.
- The illumination unit is vulnerable to static electricity. Take sufficient protection against static electricity and voltage spikes.
- Do not apply excessive force to the LF1E illumination unit. Do not leave a damaged LF1E illumination unit unattended or use a damaged LF1E.
- Ensure the correct operating temperature around the LF1E illumination unit. Otherwise internal temperature rise may result in damage.
- Do not use or store the LF1E illumination unit in a place subjected to vibration and shock.
- Do not use the LF1E illumination unit in the following places:
 - * Exposed to direct sunlight, near heaters, and at high temperatures
 - * Subject to chemicals, and corrosive gases, iron powder and oil)
 - * Basements, greenhouses, or other humid places
 - * When using in the place where freezing of LF1E illumination unit is anticipated, make sure that no ice forms.
- Do not loosen screws, otherwise the protection characteristics will be impaired.
- To clean the cover, use a soft cloth with water or neutral detergent. Do not use solvents such as thinner, 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 LF1E illumination unit in a capillary action when water splashes directly onto the cable sheath.



Specifications and other descriptions in this catalog are subject to change without notice.



IDEC CORPORATION

7-31, Nishi-Miyahara 1-Chome, Yodogawa-ku, Osaka 532-8550, Japan
Tel: +81-6-6398-2571, Fax: +81-6-6392-9731
E-mail: marketing@idec.co.jp

IDEC CORPORATION (USA)
Tel: +1-408-747-0550 / (800) 262-IDEC (4332)
Fax: +1-408-744-9055 / (800) 635-6246
E-mail: opencontact@idec.com

IDEC CANADA LIMITED
Tel: +1-905-890-8561, Toll Free: (888) 317-4332
Fax: +1-905-890-8562
E-mail: sales@ca.idec.com

IDEC AUSTRALIA PTY. LTD.
Tel: +61-3-9763-3244, Toll Free: 1800-68-4332
Fax: +61-3-9763-3255
E-mail: sales@au.idec.com

IDEC ELECTRONICS LIMITED
Tel: +44-1256-321000, Fax: +44-1256-327755
E-mail: sales@uk.idec.com

IDEC ELEKTROTECHNIK GmbH
Tel: +49-40-25 30 54 - 0, Fax: +49-40-25 30 54 - 24
E-mail: service@idec.de

IDEC (SHANGHAI) CORPORATION
Tel: +86-21-5353-1000, Fax: +86-21-5353-1263
E-mail: idec@cn.idec.com

IDEC (BEIJING) CORPORATION
Tel: +86-10-6581-6131, Fax: +86-10-6581-5119

IDEC (SHENZHEN) CORPORATION
Tel: +86-755-8356-2977, Fax: +86-755-8356-2944

IDEC IZUMI (H.K.) CO., LTD.
Tel: +852-2803-8989, Fax: +852-2565-0171
E-mail: info@hk.idec.com

IDEC TAIWAN CORPORATION
Tel: +886-2-2698-3929, Fax: +886-2-2698-3931
E-mail: service@tw.idec.com

IDEC IZUMI ASIA PTE. LTD.
Tel: +65-6746-1155, Fax: +65-6844-5995
E-mail: info@sg.idec.com