

LF1D/LF2D

LED Illumination Units

**Wide-area lighting for improved target visibility.
A wide variety of sizes and light distribution angles.**

Durable and environmentally resistant



LF1D/LF2D LED Illumination Units

**Water, dust, oil-proof LED illumination units in slim and compact housings.
A variety of sizes and light distribution angles for various sizes and types of machine.**

- Water, dust, oil-proof IP67, IP67F (reinforced glass illumination surface), IP69K (LF1D) degree of protection.
- Robust housing of aluminum diecast, stainless steel, and reinforced glass.

LF1D-C (mini)

- Compact profile of 100 × 50 × 25 mm.
- No-multi shadow light illuminate the small surface scratches and irregularity of target objects, improving the processing accuracy. Wide 120° distribution angle.

LF1D-EH / LF2D-EH / LF1D-FH / LF2D-FH (slim/wide)

- Lights the target object and the periphery in wide angle. Suitable for middle-sized machines.
- The terminal block and spring clamp connections ensure easy wiring and installation. Combination with angle adjustable mounting bracket enables installation in various applications.

LF1D-H / LF1D-J (long)

- Two length available (365 mm and 510 mm).
- Flat, no-multi shadow light with less glare illuminates the small surface scratches and irregularity of target objects from a distance, improving the processing accuracy.
- Wide 120° distribution angle. High-power 2000/3000 lm luminous flux is suitable for replacing fluorescent light.



LF1D-C (mini, illumination color: white)

Cable	Length	Part No.
With (side)	3m	LF1D-C2F-2W-330
	5m	LF1D-C2F-2W-350
With (back)	3m	LF1D-C2F-2W-430
	5m	LF1D-C2F-2W-450

Application Examples

Machine tools, food processing equipment, automatic manufacturing machines, printing machines, production system, and test equipment.



LF1D-EH/FH (slim/wide, wide angle & high illuminance, shape: box, illumination color: white)

Style			Slim (LF1D-EH)		Wide (LF1D-FH)	
Optional Accessories			Illumination Surface			
Cable Gland LF9Z-A11	Cable (5m) LF9Z-C05	Mounting Bracket LF9Z-B11, -B12	Reinforced Glass	Polycarbonate	Reinforced Glass	Polycarbonate
Without (cable gland hole on the side)	—	—	LF1D-EH2F-2W	LF1D-EH3G-2W	LF1D-FH2F-2W	LF1D-FH3G-2W
		With	LF1D-EH2F-2W-101	LF1D-EH3G-2W-101	LF1D-FH2F-2W-101	LF1D-FH3G-2W-101
Without (cable gland hole on the back)	—	—	LF1D-EH2F-2W-200	LF1D-EH3G-2W-200	LF1D-FH2F-2W-200	LF1D-FH3G-2W-200
		With	LF1D-EH2F-2W-201	LF1D-EH3G-2W-201	LF1D-FH2F-2W-201	LF1D-FH3G-2W-201
With (side)	—	—	LF1D-EH2F-2W-300	LF1D-EH3G-2W-300	LF1D-FH2F-2W-300	LF1D-FH3G-2W-300
		With	LF1D-EH2F-2W-301	LF1D-EH3G-2W-301	LF1D-FH2F-2W-301	LF1D-FH3G-2W-301
	With	—	LF1D-EH2F-2W-350	LF1D-EH3G-2W-350	LF1D-FH2F-2W-350	LF1D-FH3G-2W-350
		With	LF1D-EH2F-2W-A	LF1D-EH3G-2W-A	LF1D-FH2F-2W-A	LF1D-FH3G-2W-A
With (back)	—	—	LF1D-EH2F-2W-400	LF1D-EH3G-2W-400	LF1D-FH2F-2W-400	LF1D-FH3G-2W-400
		With	LF1D-EH2F-2W-401	LF1D-EH3G-2W-401	LF1D-FH2F-2W-401	LF1D-FH3G-2W-401
	With	—	LF1D-EH2F-2W-450	LF1D-EH3G-2W-450	LF1D-FH2F-2W-450	LF1D-FH3G-2W-450
		With	LF1D-EH2F-2W-451	LF1D-EH3G-2W-451	LF1D-FH2F-2W-451	LF1D-FH3G-2W-451

Package Quantity: 1

LF2D-EH/FH (slim/wide, wide angle & high illuminance, shape: flange, illumination color: white)

Style		Slim (LF2D-EH)		Wide (LF2D-FH)	
Optional Accessories		Illumination Surface			
Cable Gland LF9Z-A11	Cable (5m) LF9Z-C05	Reinforced Glass	Polycarbonate	Reinforced Glass	Polycarbonate
Without (cable gland hole on the side)	—	LF2D-EH2F-2W	LF2D-EH3G-2W	LF2D-FH2F-2W	LF2D-FH3G-2W
Without (cable gland hole on the back)	—	LF2D-EH2F-2W-200	LF2D-EH3G-2W-200	LF2D-FH2F-2W-200	LF2D-FH3G-2W-200
With (side)	—	LF2D-EH2F-2W-300	LF2D-EH3G-2W-300	LF2D-FH2F-2W-300	LF2D-FH3G-2W-300
	With	LF2D-EH2F-2W-A	LF2D-EH3G-2W-A	LF2D-FH2F-2W-A	LF2D-FH3G-2W-A
With (back)	—	LF2D-EH2F-2W-400	LF2D-EH3G-2W-400	LF2D-FH2F-2W-400	LF2D-FH3G-2W-400
	With	LF2D-EH2F-2W-450	LF2D-EH3G-2W-450	LF2D-FH2F-2W-450	LF2D-FH3G-2W-450

Package Quantity: 1

LUMIFA™ LF1D/LF2D LED Illumination Units

LF1D-EH/FH, LF2D-EH/FH Accessories (slim/wide)

Accessory		Material	Part No.	Remarks	Package Quantity
Cable Gland		Brass	LF9Z-A11	M8, applicable wire size: 3.5 to 5.5	1
Mounting Bracket	LF1D-E/LF1D-EH (slim)	Stainless Steel	LF9Z-B11	With mounting screws	2 (for right and left)
	LF1D-F/LF1D-FH (wide)		LF9Z-B12		
Angle Adjustable Mounting Bracket	LF1D-E/LF1D-EH (slim)	Stainless Steel	LF9Z-1MDE1		
	LF1D-F/LF1D-FH (wide)		LF9Z-1MDF1		
Cable		PVC	LF9Z-C05	5 m	1

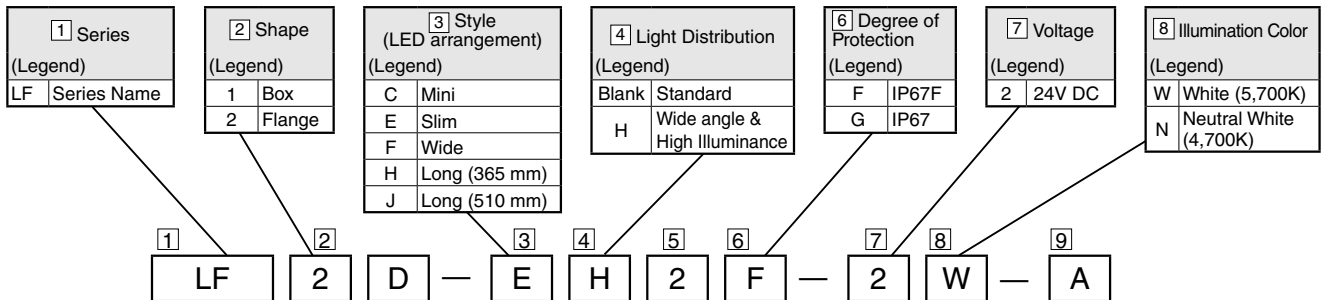
LF1D-H (long model 365 mm, illumination color: neutral white)

Cable	Length	Part No.
Side	5m	LF1D-H2F-2N-350
	1.5m + M12 connector	LF1D-H2F-2N-3B0
Back	5m	LF1D-H2F-2N-450
	1.5m + M12 connector	LF1D-H2F-2N-4B0

LF1D-J (long model 510 mm, illumination color: neutral white)

Cable	Length	Part No.
Side	5m	LF1D-J2F-2N-350
	1.5m + M12 connector	LF1D-J2F-2N-3B0
Back	5m	LF1D-J2F-2N-450
	1.5m + M12 connector	LF1D-J2F-2N-4B0

Part No. Development



5 Illumination Surface (Legend)	
2	Clear Reinforced glass
3	Clear Polycarbonate
5	Diffused Polycarbonate
9	Diffused Reinforced glass

9 Cable Gland (LF9Z-A11) (Legend)		9 Cable (LF9Z-C05) (Legend)		9 Mounting Bracket (LF9Z-B11, LF9Z-B12) (Legend)	
Blank	Without accessories. Cable gland hole on the side.	0	Without	0	Without
1	Without cable gland. Cable gland hole on the side.	3	3m cable	1	With
2	Without cable gland. Cable gland hole on the back.	5	5m cable		
3	With cable gland (standard) on the side.	B	1.5m cable + M12 connector		
4	With cable gland (standard) on the back.				
A	Slim/Wide: with cable gland, With 5m cable. With mounting bracket.				

Not all combinations of part no. codes are possible. For available part nos., contact IDEC.

Specifications

Model	LF1D-C	LF1D-E/LF2D-E	LF1D-EH/LF2D-EH	LF1D-F/LF2D-F	LF1D-FH/LF2D-FH	LF1D-H	LF1D-J
Style	Mini	Slim	Slim (wide angle & high illuminance)	Wide	Wide (wide angle & high illuminance)	Long (365 mm)	Long (510 mm)
Rated Voltage	24V DC						
Voltage Range	21.6 to 26.4V DC						
Rated Power (typ.) (at rated voltage)	4.6W	9W	11W	12.5W	12.5W	18.4W	27.6W
Insulation Resistance	100MΩ minimum (500V DC megger)						
Dielectric Strength	1,000V AC, 50/60Hz, 1 minute						
Vibration Resistance (damage limits)	Frequency 5 to 55Hz, amplitude 0.5mm						
Shock Resistance (damage limits)	1,000 m/s ²						
Operating Temperature	-30 to +55°C (no freezing)						
Operating Humidity	45 to 85%RH (no condensation)						
Storage Temperature	-35 to +70°C (no freezing)						
Operating Atmosphere	No corrosive gas						
Life (Note 1)	50,000 hours (The illumination duration in which the brightness maintains a minimum of 70% of the initial value at 25°C.)						
Degree of Protection (Note 2)	IP67 (all models), IP67F (reinforced glass illumination surface), IP69K (LF1D)						
Material (Note 3)	Housing: aluminum Front cover: stainless steel Illumination surface: reinforced glass	Housing: diecast aluminum Front cover (LF1D): stainless steel Flange (LF2D): diecast aluminum Illumination surface: reinforced glass or polycarbonate				Housing: aluminum Front cover: stainless steel Illumination surface: reinforced glass	
Weight (approx.)	LF1D-C2F-2W-350: 420g	LF1D-E (H)**-2W-W: 950g LF2D-E (H)**-2W-A: 1,000g		LF1D-F (H)**-2W-A: 1,000g LF2D-F (H)**-2W-A: 1,050g		LF1D-H2F-2N-350: 1,200g	LF1D-J2F-2N-350: 1,600g

Note 1: LED life depends on the operating environment.

Note 2: Waterproof or oil-proof characteristics specified by IEC 60529 (IP67) and DIN40050-9 (IP69K). For illumination units without accessories, use a cable gland and cable that satisfy the required degree of protection.

Note 3: The reinforced glass and polycarbonate illumination surfaces have the same appearance, but have different degrees of protection.

LUMIFA™ LF1D/LF2D LED Illumination Units

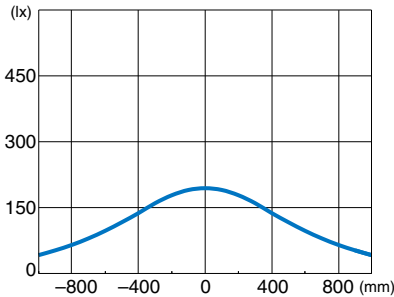
LED Optical Specifications

Model	LF1D-C	LF1D-E/LF2D-E	LF1D-EH/LF2D-EH	LF1D-F/LF2D-F	LF1D-FH/LF2D-FH	LF1D-H	LF1D-J
Style	Mini	Slim	Slim (wide angle & high illuminance)	Wide	Wide (wide angle & high illuminance)	Long (365 mm)	Long (510 mm)
Illumination Color	White					Neutral White	
Color Temp. (typ.)	5,700 K					4,700 K	
Luminous Flux (typ.)	560 lm	600 lm	1,000 lm	840 lm	1,260 lm	2,000 lm	3,000 lm
Reference Illuminance (typ.) at 1.0m directly below	180 lx	1,100 lx	1,450 lx	1,100 lx	1,200 lx	560 lx	840 lx

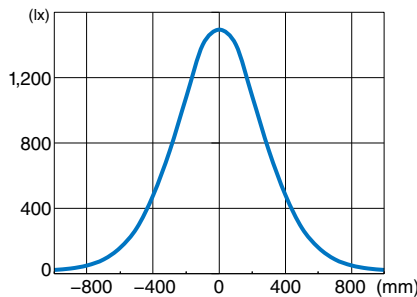
• LED modules and illumination units may vary in illumination color and illuminance.

Light Distribution Characteristics at 1.0 m

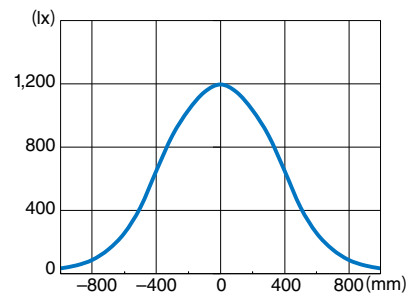
LF1D-C



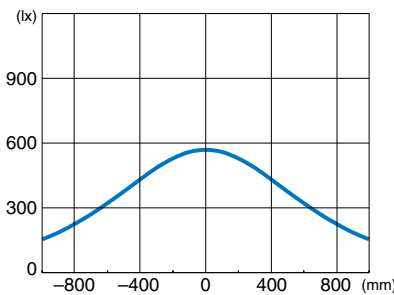
LF1D/2D-EH



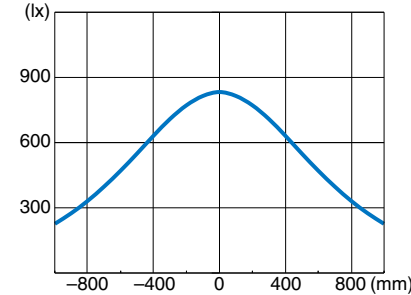
LF1D/2D-FH



LF1D-H

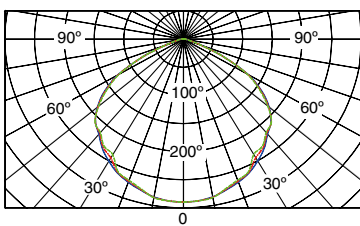


LF1D-J

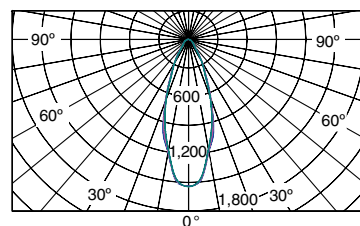


Light Distribution Curve

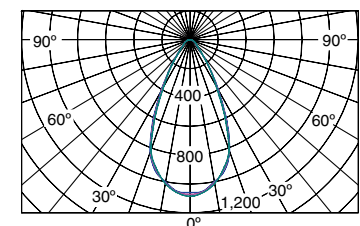
LF1D-C



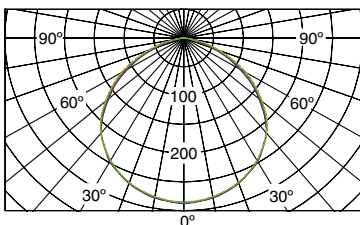
LF1D/2D-EH



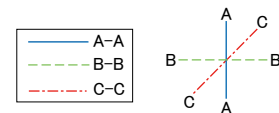
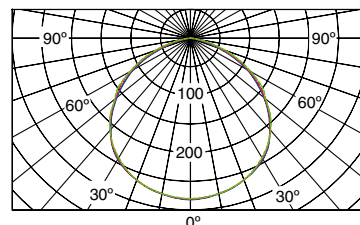
LF1D/2D-FH



LF1D-H

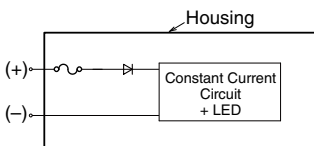


LF1D-J

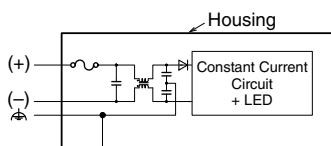


Internal Circuit

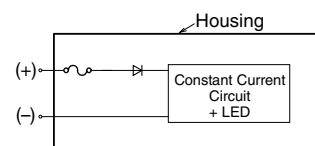
LF1D-C



LF1D-E(H)/LF1D-F(H) LF2D-E(H)/LF2D-F(H)



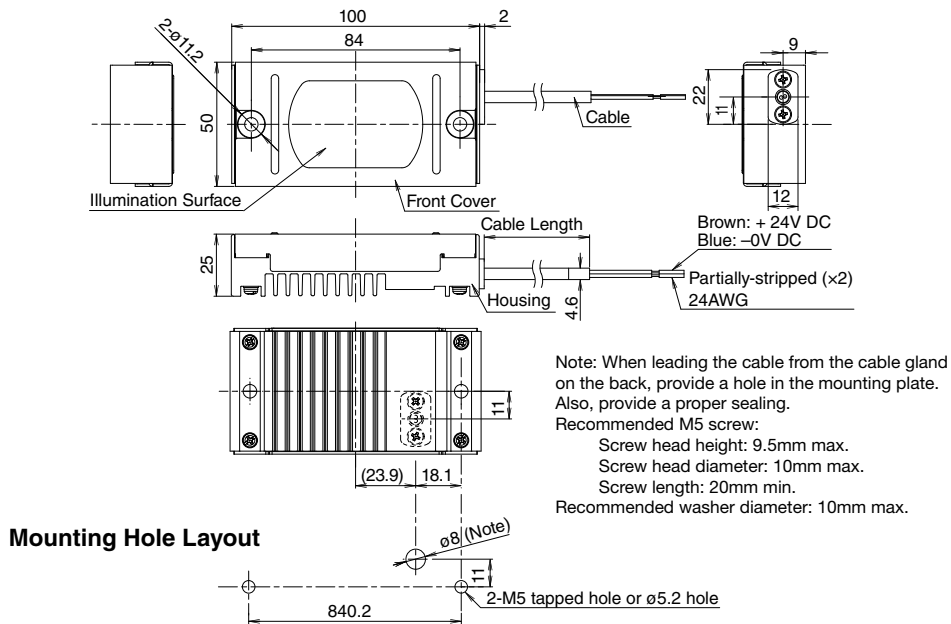
LF1D-H/LF1D-J



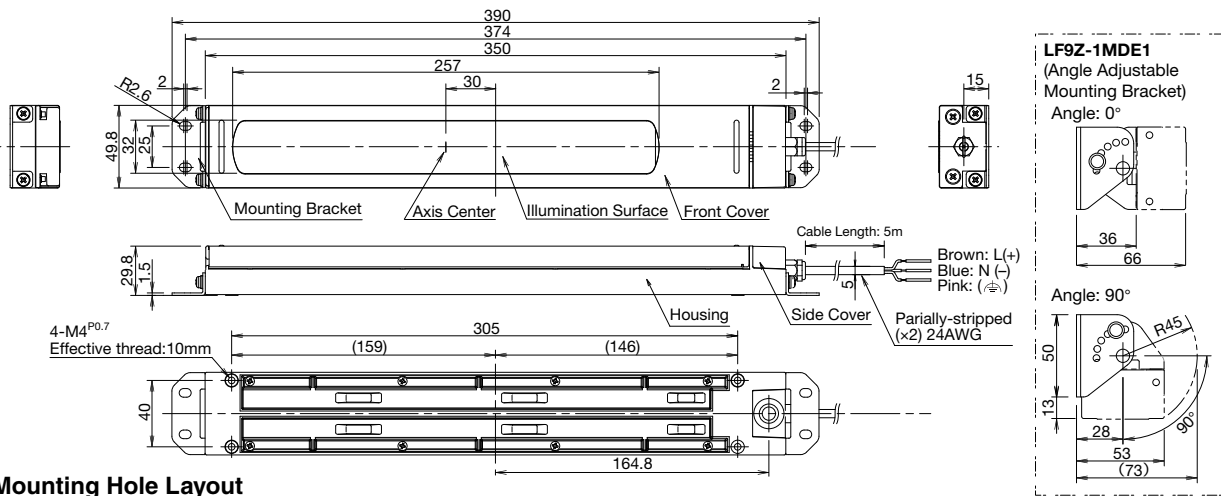
LUMIFA™ LF1D/LF2D LED Illumination Units

Dimensions

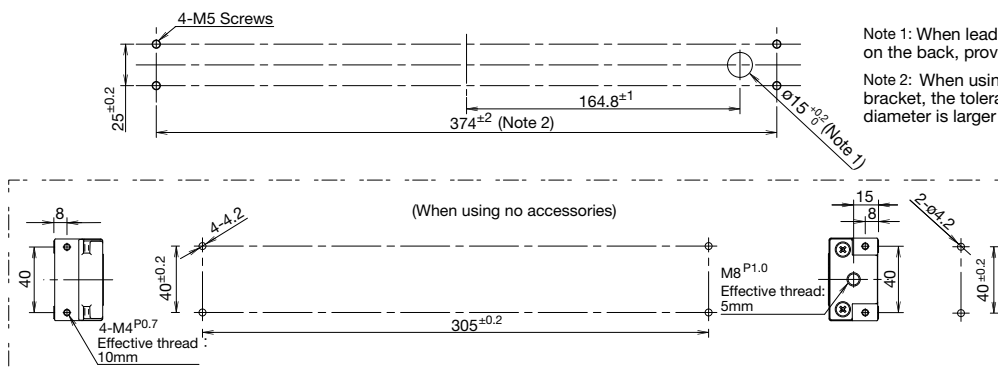
LF1D-C (Mini Model)



LF1D-E/EH (Slim Model/Box) (10 LEDs × 1 row)



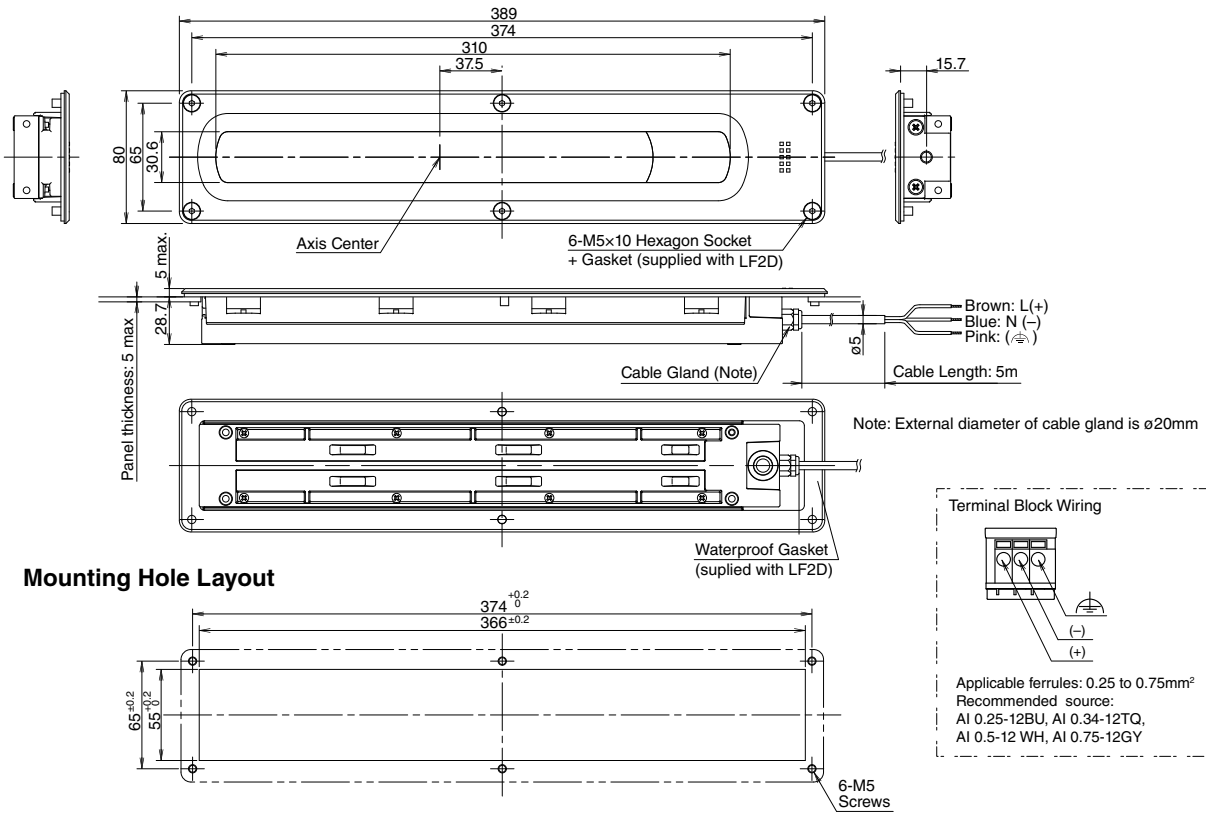
Mounting Hole Layout



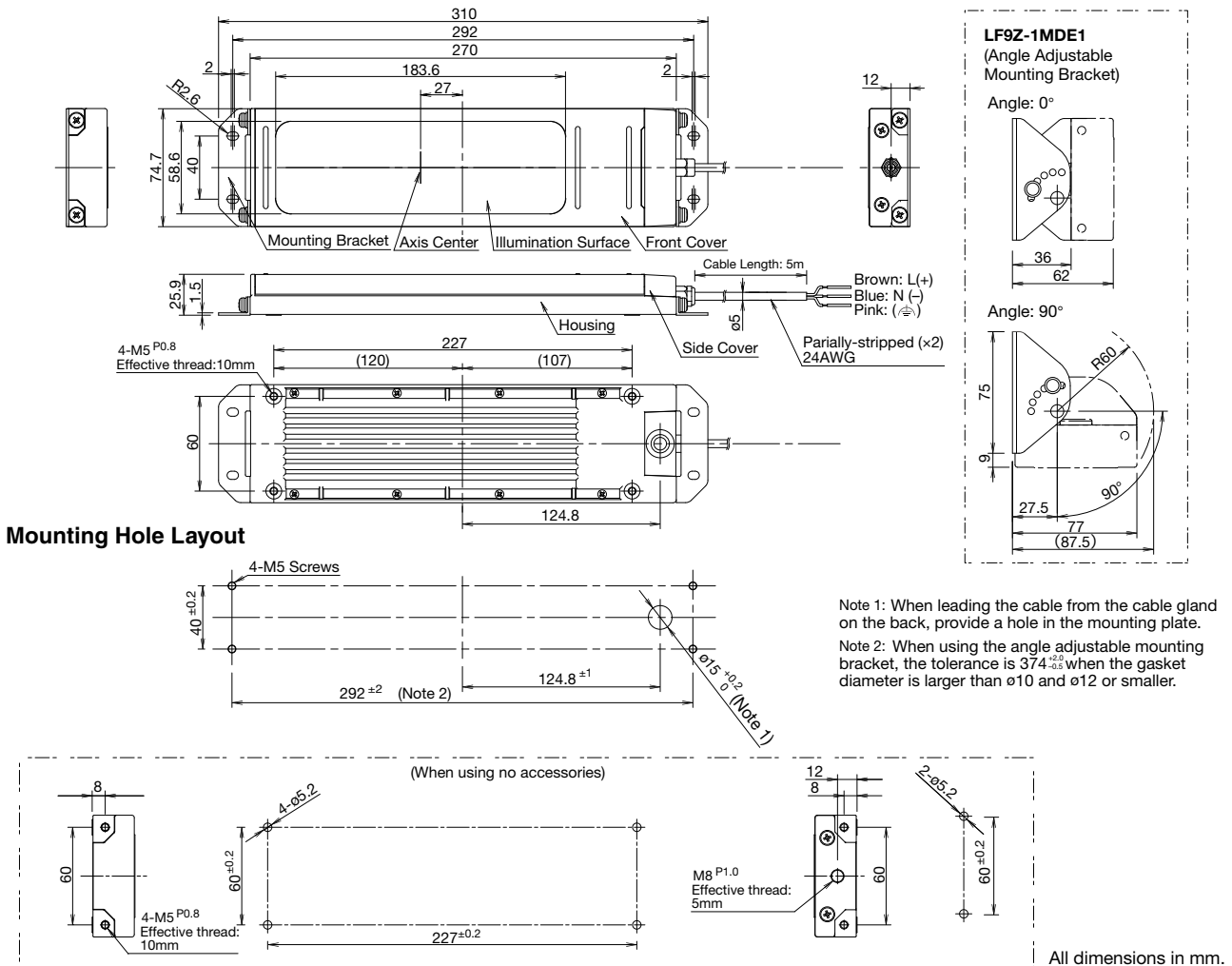
All dimensions in mm.

LUMIFA™ LF1D/LF2D LED Illumination Units

LF2D-E/EH (Slim Model/Flange) (10 LEDs × 1 row)

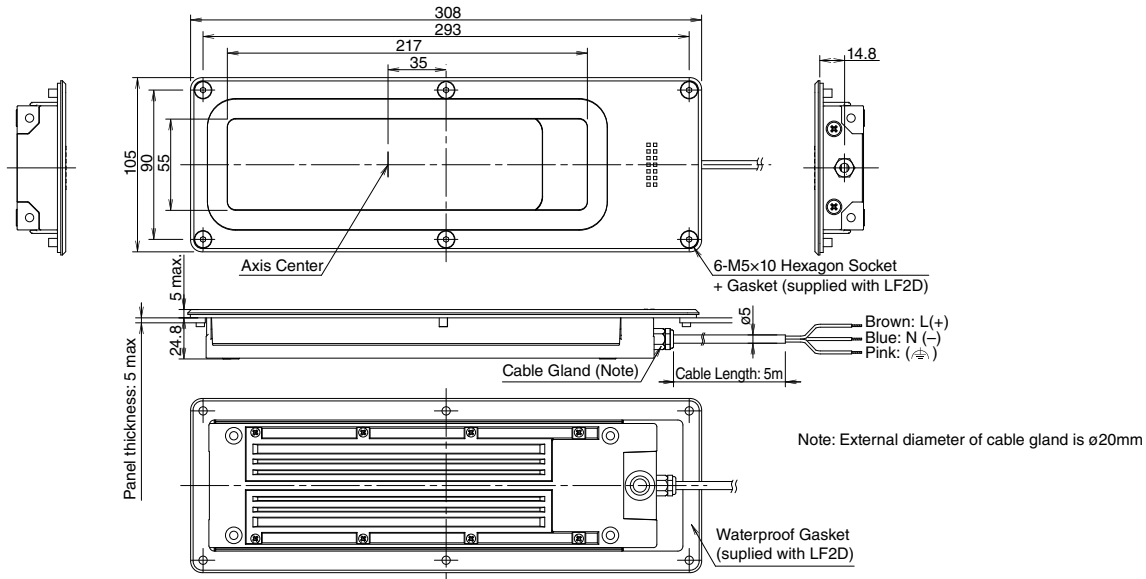


LF1D-F/FH (Wide Model/Box) (7 LEDs × 2 rows)

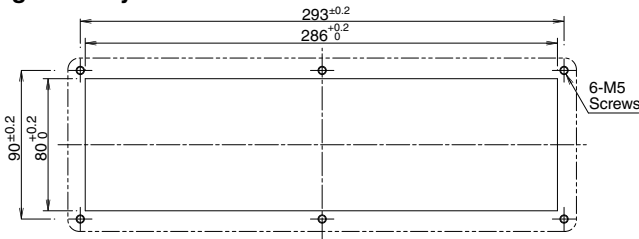


LUMIFA™ LF1D/LF2D LED Illumination Units

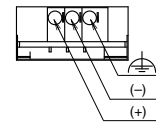
LF2D-F/FH (Wide Model/Flange) (7 LEDs × 2 rows)



Mounting Hole Layout

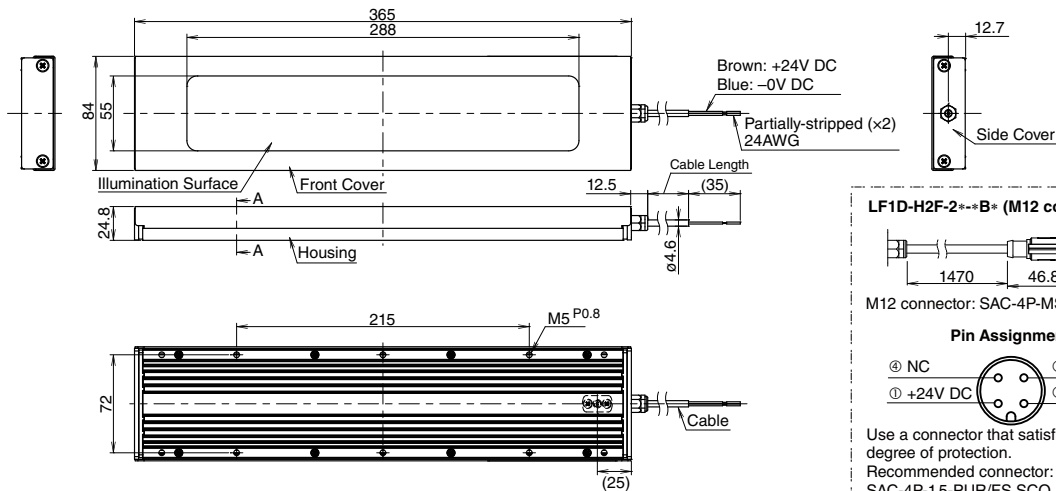


Terminal Block Wiring

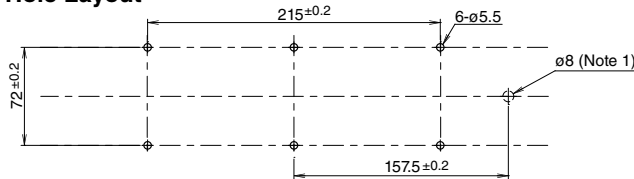


Applicable ferrules: 0.25 to 0.75mm²
 Recommended source:
 AI 0.25-12BU, AI 0.34-12TQ,
 AI 0.5-12 WH, AI 0.75-12GY

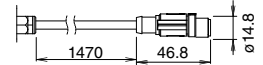
LF1D-H (Long Model, 365 mm)



Mounting Hole Layout

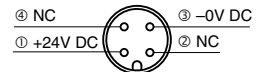


LF1D-H2F-2**B* (M12 connector)



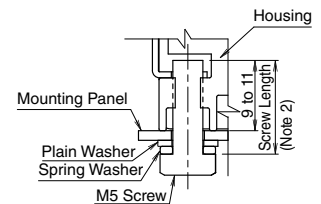
M12 connector: SAC-4P-MS SCO/150/1.5

Pin Assignment



Use a connector that satisfies the required degree of protection.
 Recommended connector:
 SAC-4P-1.5-PUR/FS SCO

Note 1: When leading the cable from the cable gland on the back, provide a hole in the mounting plate. A $\phi 16$ hole is necessary when using the LF1D-*2F-2N-*B* (M12 connector type).
 Note 2: Choose mounting screws in consideration of mounting plate thickness.

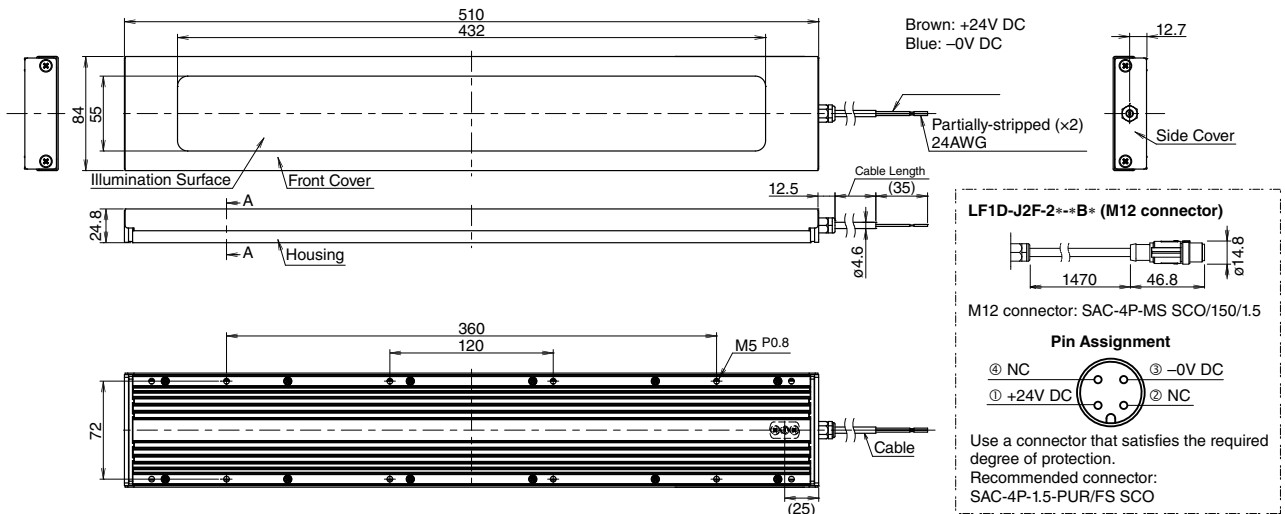


A-A sec. (enlarged view)
 (When M5 screw is installed)

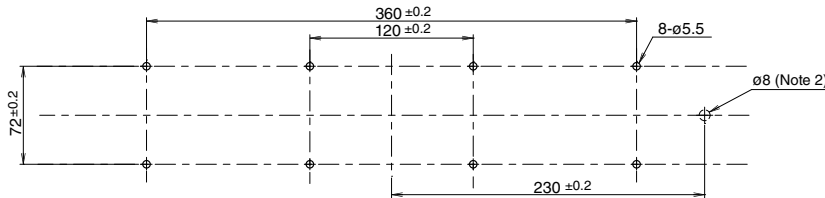
All dimensions in mm.

LUMIFA™ LF1D/LF2D LED Illumination Units

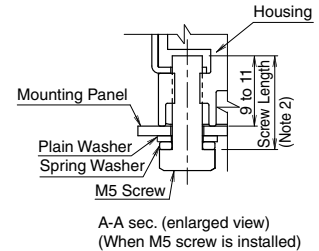
LF1D-J (long model, 510 mm)



Mounting Hole Layout



Note 1: When leading the cable from the cable gland on the back, provide a



All dimensions in mm.



Safety Precautions

- Do not disassemble, repair, or modify the LF1D/2D. Otherwise electric shock, fire, or malfunction may occur.
- Before wiring, confirm that the LF1D/2D has cooled down sufficiently.
- Ensure the correct operating temperature. Otherwise internal temperature rise may result in damage.
- LED illumination unit is general-purpose industrial electric device. Do not use for electronic equipment which may damage the human body or threaten life in case a malfunction or failure occurs.
- Make sure of correct wiring, otherwise electric shock or damage may result.
- Do not stare directly into the LED illumination unit while it is lit, and do not project the light to other people, otherwise eyes may be injured.

Instructions

- LED modules may vary in illumination colors and illuminance.
- Before designing equipment and powering up illumination units, confirm the specifications described in the instruction sheet.
- Apply voltage within the rated value, otherwise the LED elements may be damaged.
- Do not loosen screws, otherwise the protection characteristics will be impaired.
- Do not use or store in a place subjected to vibration and shock. Otherwise electric shock or failure occurs.
- To clean the cover, use a soft cloth with water or neutral detergent. Do not use solvents such as thinners, benzene, or alkaline, otherwise discoloration, deterioration, or decrease in strength may occur.

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



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