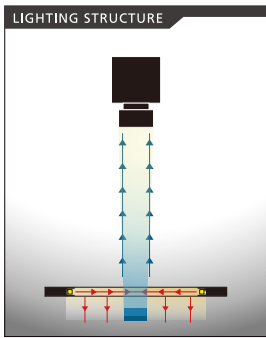# Square Diffuse Irradiate Dome Illumination
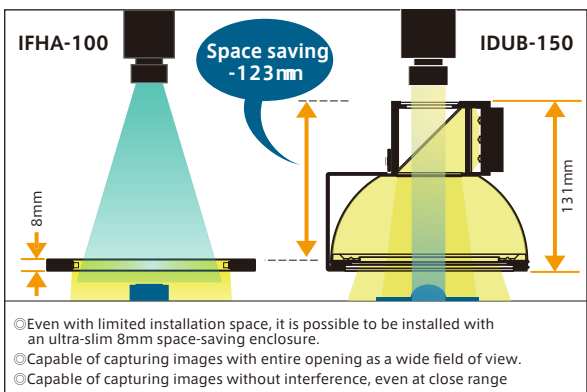# [IFHA series]

Designed to be thin and lightweight at only 8mm, achieves a brighter, clearer, and more space-saving uniform illumination
Ideal for capturing the entire target object uniformly and extensively
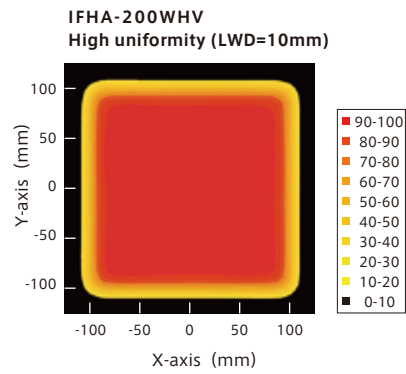
24V DC Models Available

Applications
· Can /Aluminum manufacturing industry etc.
  ➡ Inspection of dents/characters on the bottom etc.
· Food/Pharmaceutical/Packaging industry etc.
  ➡ Inspection of tablet chipping /sheet tearing /character etc.

LIGHTING STRUCTURE

Standard Size Lineup Standard release available in rectangle and square shapes, with 10 different sizes ranging from □25 to approximately 400x200mm².

Lightweight and thin, easy to install.
Capable of capturing images with a wide field of view.

IFHA-100   Space saving -123mm   IDUB-150

8mm   131mm

◎Even with limited installation space, it is possible to be installed with an ultra-slim 8mm space-saving enclosure.
◎Capable of capturing images with entire opening as a wide field of view.
◎Capable of capturing images without interference, even at close range

Emitting Surface Luminance Distribution(Ref.Value)

IFHA-200WHV
High uniformity (LWD=10mm)

■	90-100
■	80-90
■	70-80
■	60-70
■	50-60
■	40-50
■	30-40
■	20-30
■	10-20
■	0-10

Y-axis (mm)
X-axis (mm)

Significant Improvement In Image Clarity

Enhanced print visibility, allowing for precise identification without blurring or smudging.

IFH-150/150DW (Conventional Products)   IFHA-150W

Barcodes

62322 8001   ▶   62322 8001

Hazy barcodes become clear and legible, enabling accurate identification of code spacing and line thickness.

Object: Package

Printing part

16.09.29
5.11.G7
Camera: Monochrome USB 3.0
Shutter: 1/1,000 sec.
Lens: 25mm
Aperture: f/4
▶
16.09.29
5.11.G7
Camera: Monochrome USB 3.0
Shutter: 1/10,000 sec.
Lens: 25mm
Aperture: f/6

Optical Spectrum (Ref.Value)

Relative Radiant Intensity [%] — Wavelength [nm]
5,000K 465nm 520nm 630nm 850nm
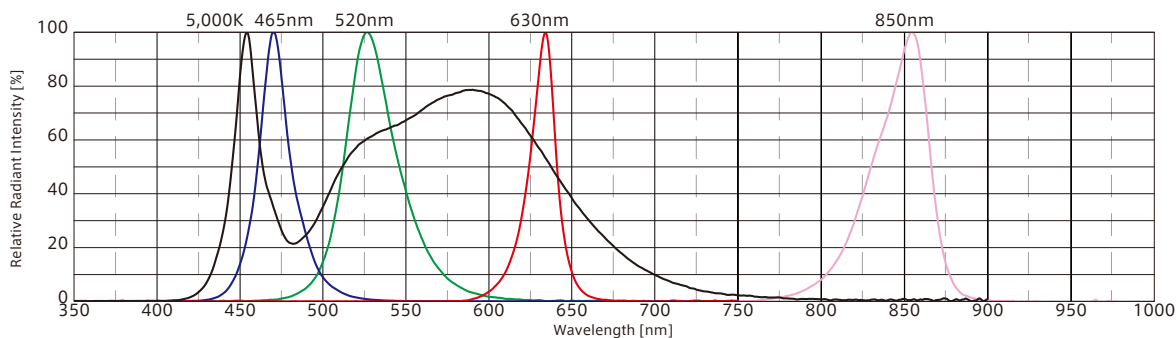
Capable Of Any Combination Of Desired Emission Colors Through Customization
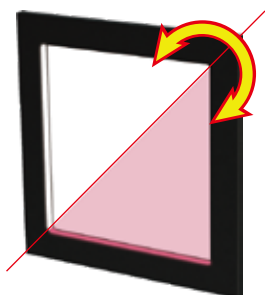
By selecting a customized configuration, it becomes possible to have illumination with various types of emission colors. For example, by having different emission colors on opposing sides, it becomes possible to illuminate the workpiece with light of different properties such as white light and infrared light without changing the position of the workpiece. This allows for clear differentiation in a short amount of time!Capable to compact the inspection line by fitting the space of two units (two colors) into one unit."

※ The intensity of the illumination for each color will decrease by combining colors
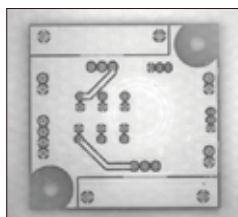
<Infrared Light Illumination >
It enables inspection of electronic circuit patterns by transmitting through printing, resist layers, and other elements
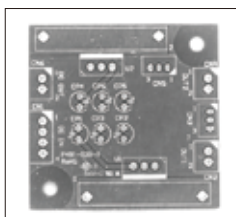
<White Light Illumination >
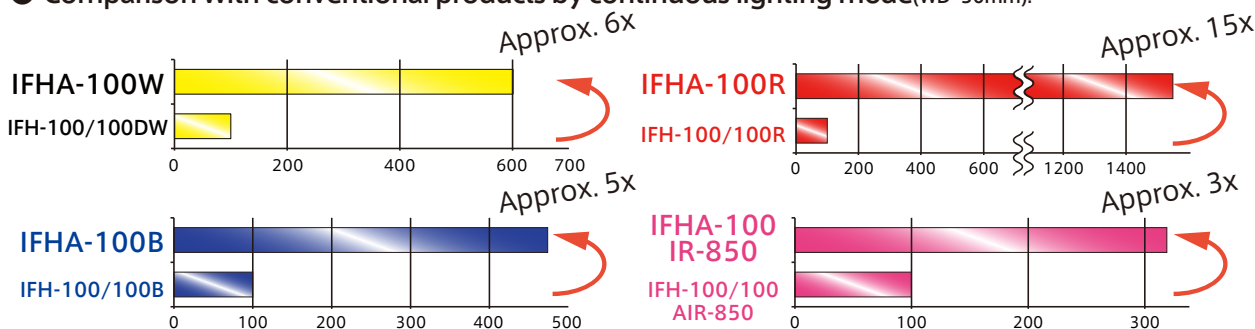It enables clear inspection of the silkscreen printing on electronic circuit boards.

<IFHA-100WIR: White and Infrared Combination> <IFHA-100W>

White monochromatic illumination
Illuminance Distribution(LWD=10mm)
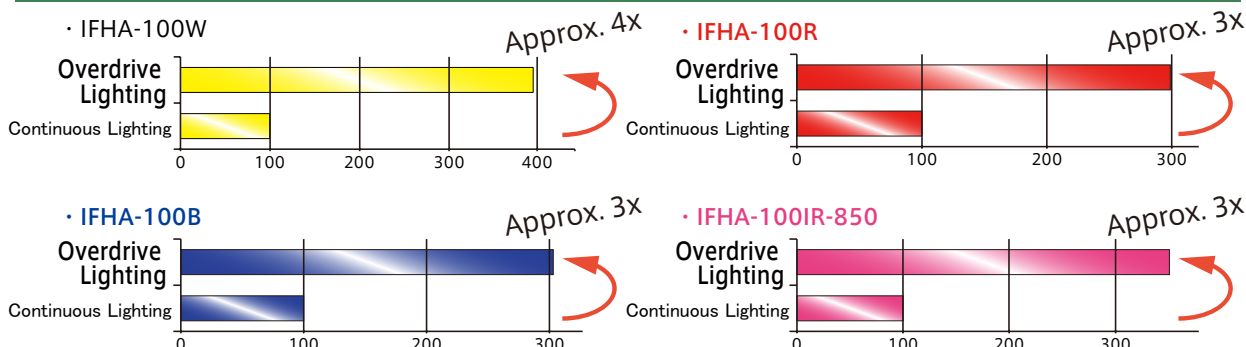
White illumination
Illuminance Distribution(LWD=10mm)

90-100
80-90
70-80
60-70
50-60
40-50
30-40
20-30
10-20
0-10
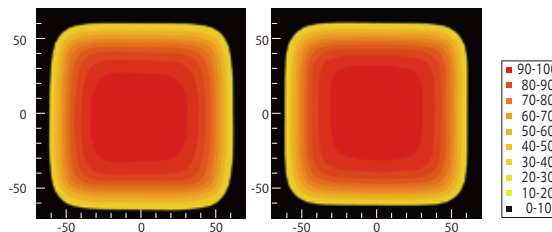
The comparison of illuminance distribution shows the high uniformity even with a two-color combination configuration.

Approx. 6 times higherilluminance (in white)! Supports high-speed inspection with fast shutter

● Comparison with conventional products by continuous lighting mode(WD=50mm).

Approx. 6x

IFHA-100W
IFH-100/100DW
0 200 400 600 700

Approx. 15x

IFHA-100R
IFH-100/100R
0 200 400 600 1200 1400

Approx. 5x

IFHA-100B
IFH-100/100B
0 100 200 300 400 500

Approx. 3x

IFHA-100
IR-850
IFH-100/100
AIR-850
0 100 200 300

Achieve an additional approx. 4 times higher illuminance (in white) by overdrive lighting!

· IFHA-100W

Approx. 4x

Overdrive Lighting
Continuous Lighting
0 100 200 300 400

· IFHA-100R

Approx. 3x

Overdrive Lighting
Continuous Lighting
0 100 200 300

· IFHA-100B

Approx. 3x

Overdrive Lighting
Continuous Lighting
0 100 200 300

· IFHA-100IR-850

Approx. 3x

Overdrive Lighting
Continuous Lighting
0 100 200 300

Imaging Example

Quantity inspection in a plastic bag

Object: Screws in a polyethylene bag

Ring illination:IMAR-130DW (LWD=100mm)

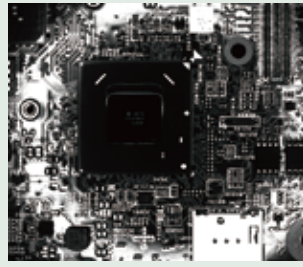Halation occurs on the surface of the plastic bag, making it unsuitable for accurate quantity inspection.

Square Dome:IFHA-150W (LWD=10mm)

Halation on the surface of the plastic bag reduced, making it suitable for accurate quantity inspection.

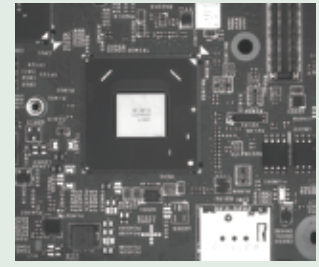### Inspection of silk-screen printing on the PCB's

Object: PCB's

Ring illination:IMAR-130DW (LWD=100mm)

In areas close to the light-emitting section, halation occurs, while the central part with the camera hole becomes darker.

Square Dome:IFHA-150W (LWD=10mm)

Capable of uniformly illuminating the entire field of view, allowing clear recognition of silk printed characters and lines.

Printing inspection of a recess

Object: Paper container (bottom)

Ring illination:IMAR-130DW (LWD=60mm)

Shadow is reflected around the printed area, making it difficult to distinguish the characters.

Square Dome:IFHA-150W (LWD=10mm)

Shadow reflections around the printed area are minimized, making it easy to distinguish the characters.

Printing inspection of high reflectance film

Object: Coated aluminum film

Ring illination:IMAR-130DW (LWD=50mm)

Uneven color occurs on the printed area due to halation on the surface of the film.
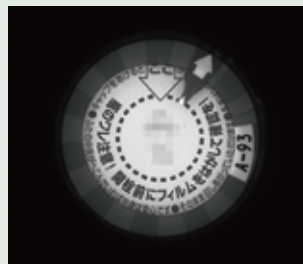

Square Dome:IFHA-150W (LWD=20mm)

No uneven color occurs due to halation, allowing clear recognition of printed characters and text on the outer perimeter.

Inspection of characters, scratches, dust, etc. on/under the printed surface

Object: Shrink packaging of a metal lid

Square Dome:IFHA-150WIR
(White Lighting/ LWD=20mm)
Reflection from coatings and shrink wraps is minimized, allowing for clear recognition of the print.

Square Dome:IFHA-150WIR
(IR850nm/ LWD=20mm)
Enable recognition of characters below the printed surface as well as detection of scratches, dirt, and other imperfections.

Model	Color	Power Consumption(W)	Input Voltage	SAG(※)	Applicable Controller Type	Applicable Controller	Drawing
IFHA-25□	R	2.1	DC12V	89	①	【Contoller Type①】 IDMU Series（P.193） ILP-30M2（P.197） IDGC Series（P.209） and the others Strobe/Overdrive Controllers, etc.	1
	W			83			
	B	2.4		73			
	G			6F			
	IR(850)	1.2		A3			
IFHA-50□	R		DC12V	D0	①		2
	W	9.5		CB			
	B			AD			
	G	8.5		AB			
	IR(850)	6		FF			
IFHA-75□	R		DC12V	DC	①		3
	W	14		E0			
	B			B6			
	G	11		B4			
	IR(850)	9		FF			
IFHA-100□	R		DC12V	C3	①		4
	W	22		BC			
	B			A5			
	G	15		BE			
	IR(850)	12.5		FF			
IFHA-150□	R		DC12V	DA	①		5
	W	30		B8			
	B			B6			
	G	20		CA			
	IR(850)	17		FF			
IFHA-200□HV	R		DC24V	-	②	【Contoller Type②】 IDMU-24 series（P.193） ILP-60M2-24（P.197） IDGC-24 series（P.209）etc.	6
	W	33					
	B						
	G	27					
IFHA-200IR-850	IR(850)	20.5	DC12V	FF	①		
IFHA-300□HV	R		DC24V	-	②		7
	W	46					
	B						
	G	40					
IFHA-300IRHV-850	IR(850)	38					
IFHA-200/100□	R		DC12V	FF	①		8
	W	20		FF			
	B			F1			
	G	19		CE			
	IR(850)	17.5		FF			
IFHA-300/150□HV	R		DC24V	-	②		9
	W	30					
	B						
	G						
IFHA-300/150IRHV-850	IR(850)	26					
IFHA-400/200□HV	R		DC24V	-	②		10
	W	44					
	B						
	G						
	IR(850)	40					

★The emission color (W=White,R=Red, G=Green, B=Blue, IR-850) is indicated by □ in the model table.
★DC24V products are also available. (Except IFHA-25IR-850 and IFHA-75IR-850.)Please feel free to contact us for more information.
※SAG: The maximum instantaneous upper limit output voltage setting value in the controller for the corresponding illumination when used in combination with the Overdrive controller.

Extension Cable For DC12V Illumination

I-CB-S Series

When used for moving parts such as robots, please use the I-CB-S_R-C02 series, which manufactured with robust robot cable with high flexibility. I-CB-S_-24 series and I-CB-S_R-24-C02 series are compatible for DC24V model.

Recommended Digtal Controller(PWM Control)
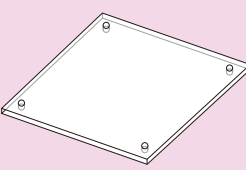
IDMU Series

Output control: 1,000 Levels. Compact PWM controller with DC24V input voltage, ideal for installation inside panels. Expandable up to 40 channels by linking units. Equipped with programming and camera trigger output functions, making it versatile.
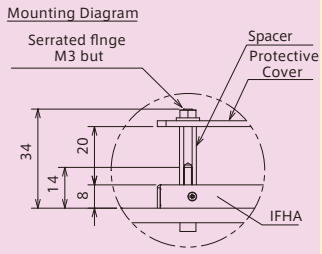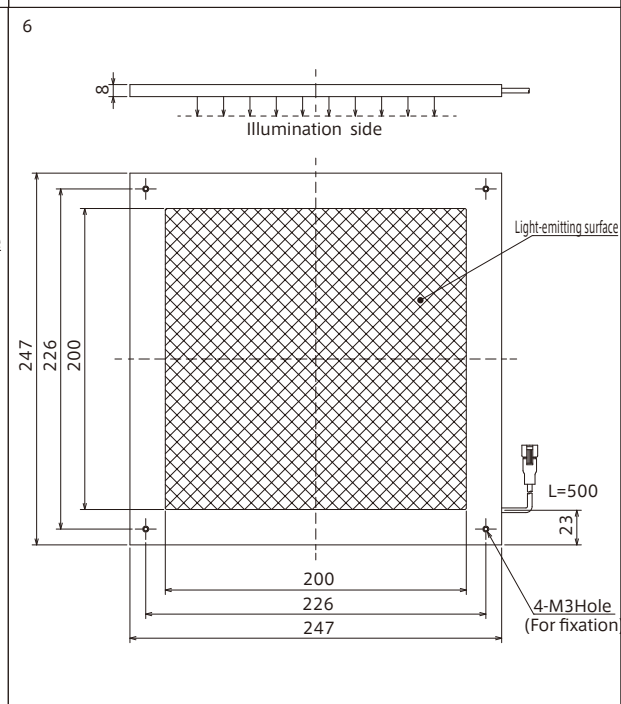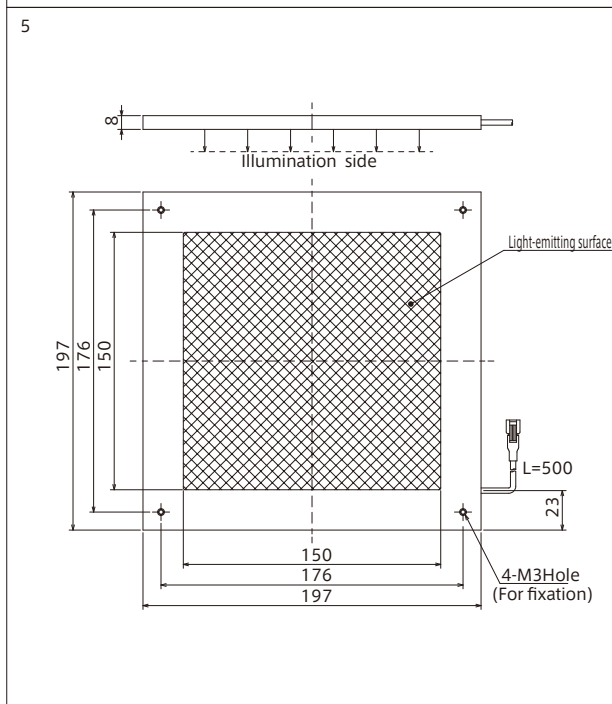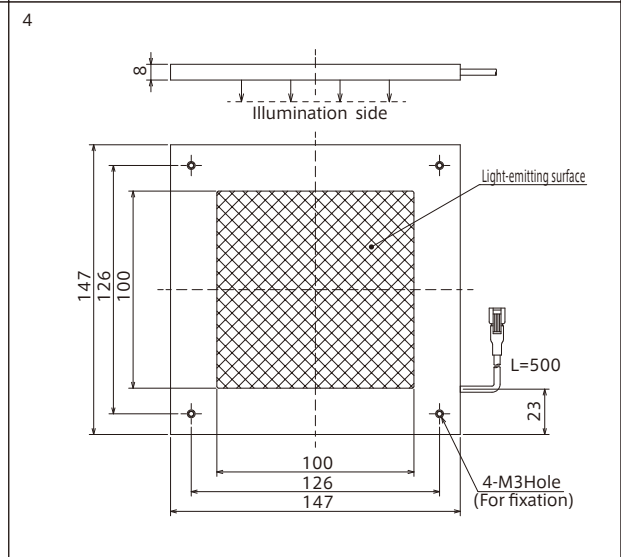
Protective Cover for IFHA
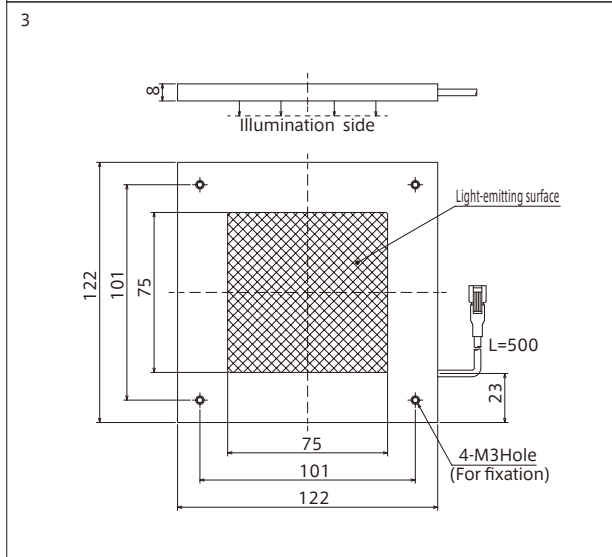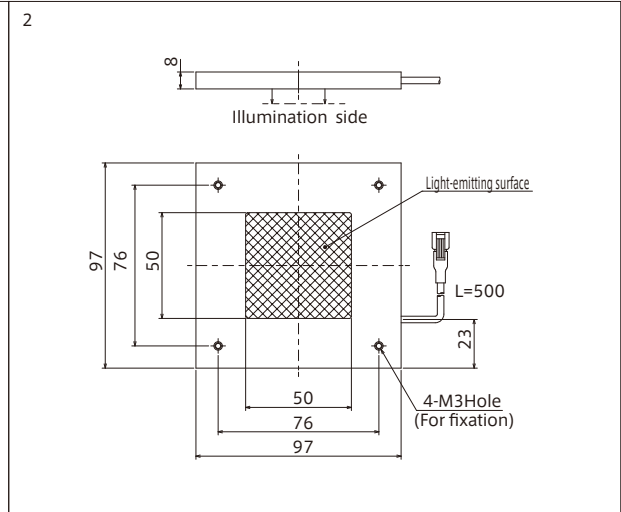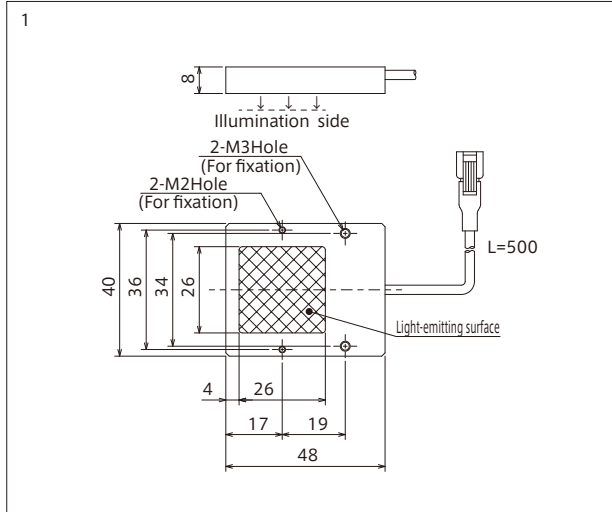
IKFHA-AR series

This is a protective cover designed to protect the non-illuminated sides of IFHA. It features AR multi-layer coating on both sides, and additionally, a water-repellent layer coating on one side, applied over the AR coating.
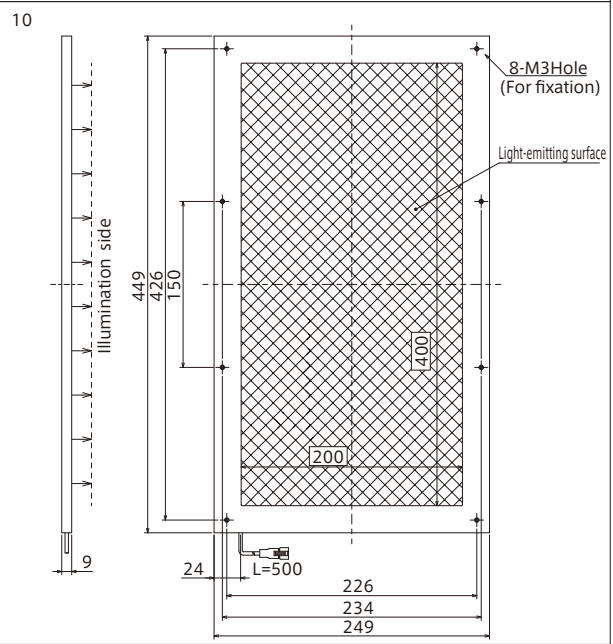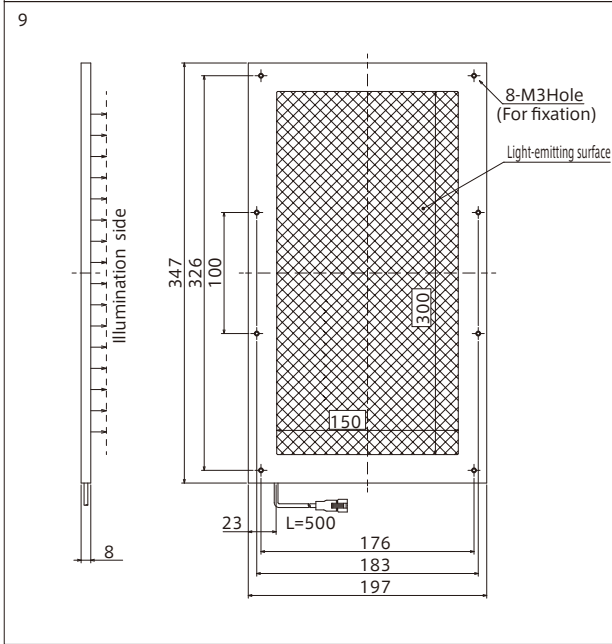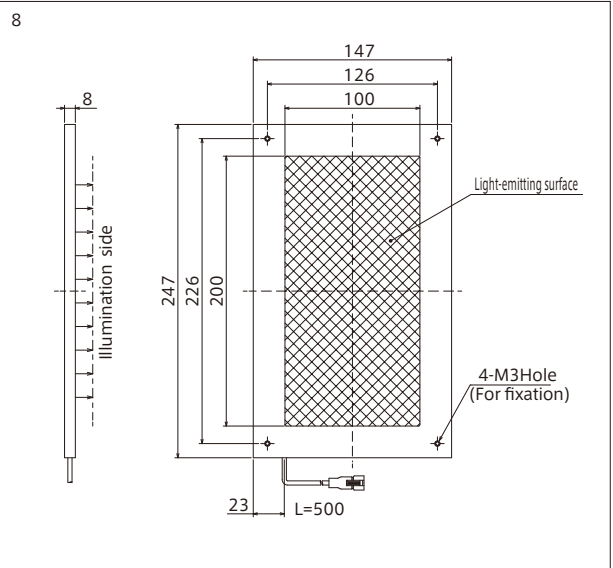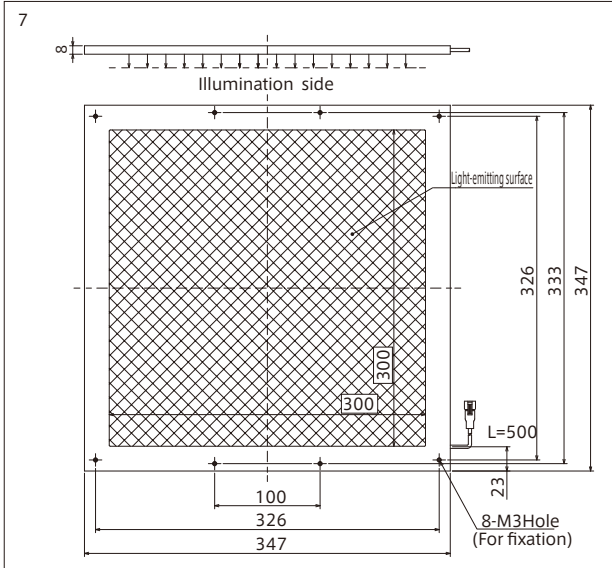
Model	Applicable Illumination	Model	Applicable Illumination
IKFHA-50-AR	IFHA-50□	IKFHA-200/100-AR	IFHA-200/100□
IKFHA-75-AR	IFHA-75□	IKFHA-300/150-AR	IFHA-300/150□HV
IKFHA-100-AR	IFHA-100□	IKFHA-400/200-AR	IFHA-400/200□HV
IKFHA-150-AR	IFHA-150□		
IKFHA-200-AR	IFHA-200□HV		
IKFHA-300-AR	IFHA-300□HV		

Mounting Diagram
Serrated flnge M3 but
Spacer
Protective Cover
IFHA

1. Illumination side — 2-M3Hole (For fixation), 2-M2Hole (For fixation), Light-emitting surface, L=500; dimensions: 8, 40, 36, 34, 26, 4, 26, 17, 19, 48

2. Illumination side — Light-emitting surface, 4-M3Hole (For fixation), L=500; dimensions: 8, 97, 76, 50, 50, 76, 97, 23

3. Illumination side — Light-emitting surface, 4-M3Hole (For fixation), L=500; dimensions: 8, 122, 101, 75, 75, 101, 122, 23

4. Illumination side — Light-emitting surface, 4-M3Hole (For fixation), L=500; dimensions: 8, 147, 126, 100, 100, 126, 147, 23

5. Illumination side — Light-emitting surface, 4-M3Hole (For fixation), L=500; dimensions: 8, 197, 176, 150, 150, 176, 197, 23

6. Illumination side — Light-emitting surface, 4-M3Hole (For fixation), L=500; dimensions: 8, 247, 226, 200, 200, 226, 247, 23

Leimac CHALLENGE & HIGH QUALITY

7

Illumination side

Light-emitting surface

326
333
347

300

300

100
326
347

100

23

8-M3Hole
(For fixation)

L=500

8

8

Illumination side

147
126
100

Light-emitting surface

247
226
200

4-M3Hole
(For fixation)

23
L=500

8

9

Illumination side

347
326
100

300

150

8-M3Hole
(For fixation)

Light-emitting surface

23
L=500

176
183
197

8

10

Illumination side

449
426
150

400

200

8-M3Hole
(For fixation)

Light-emitting surface

24
L=500

226
234
249

9