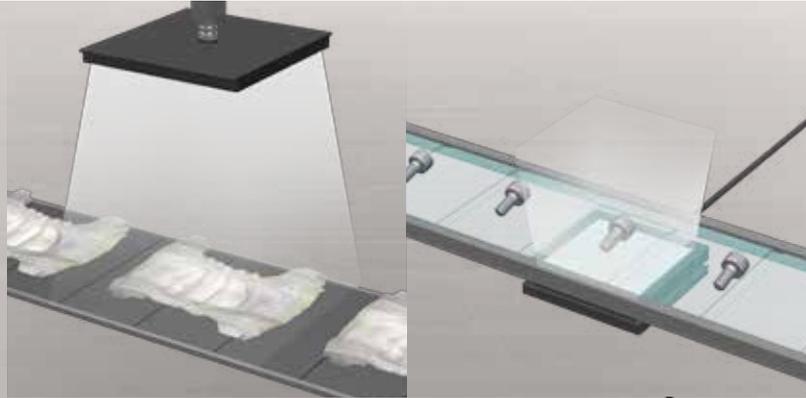
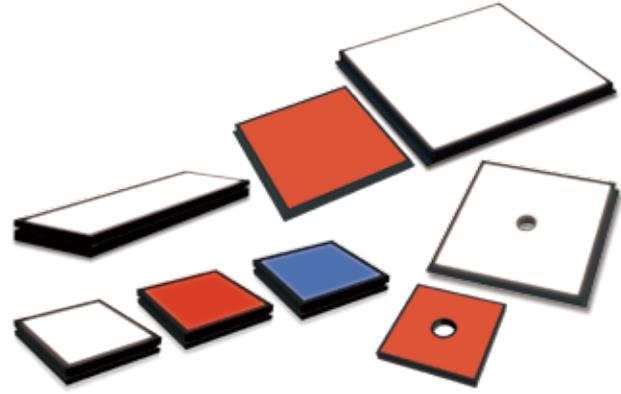
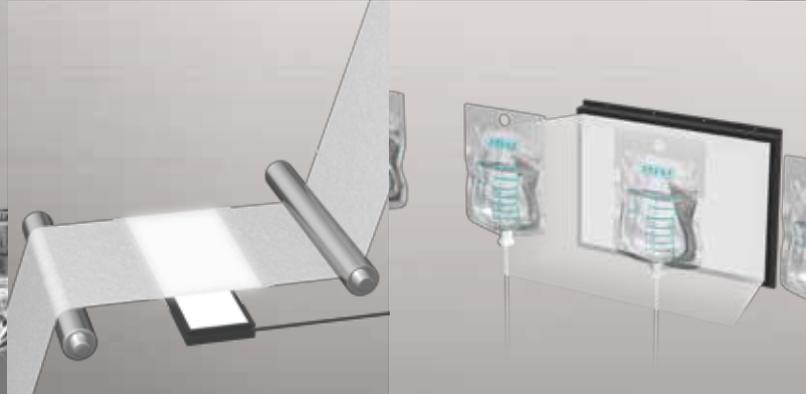


# Flat Lights TH2 Series



Comprehensive product lineup to satisfy all your needs.



# TH2 series

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### TH2-PM series

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### TH2 series

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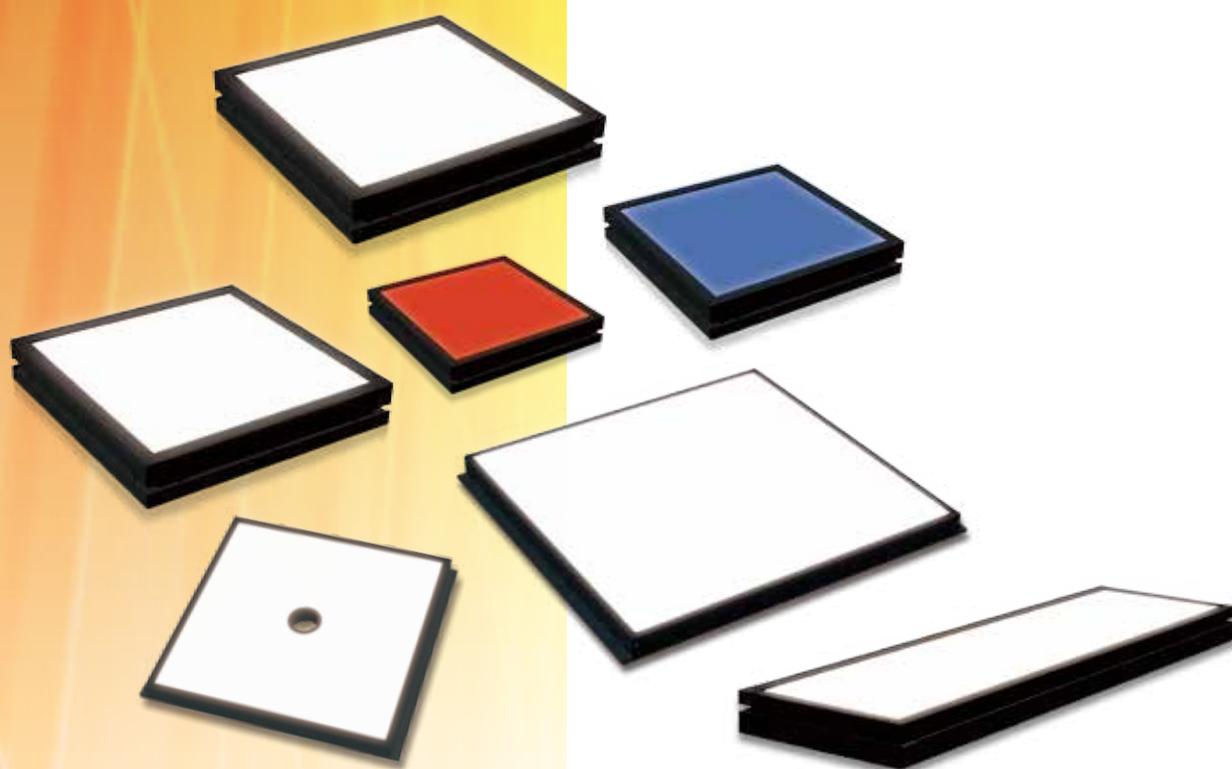
### TH2 series

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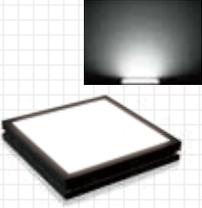
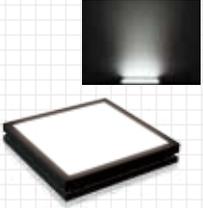
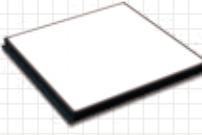
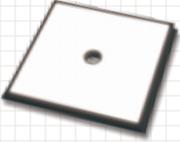
### TH2-CR series

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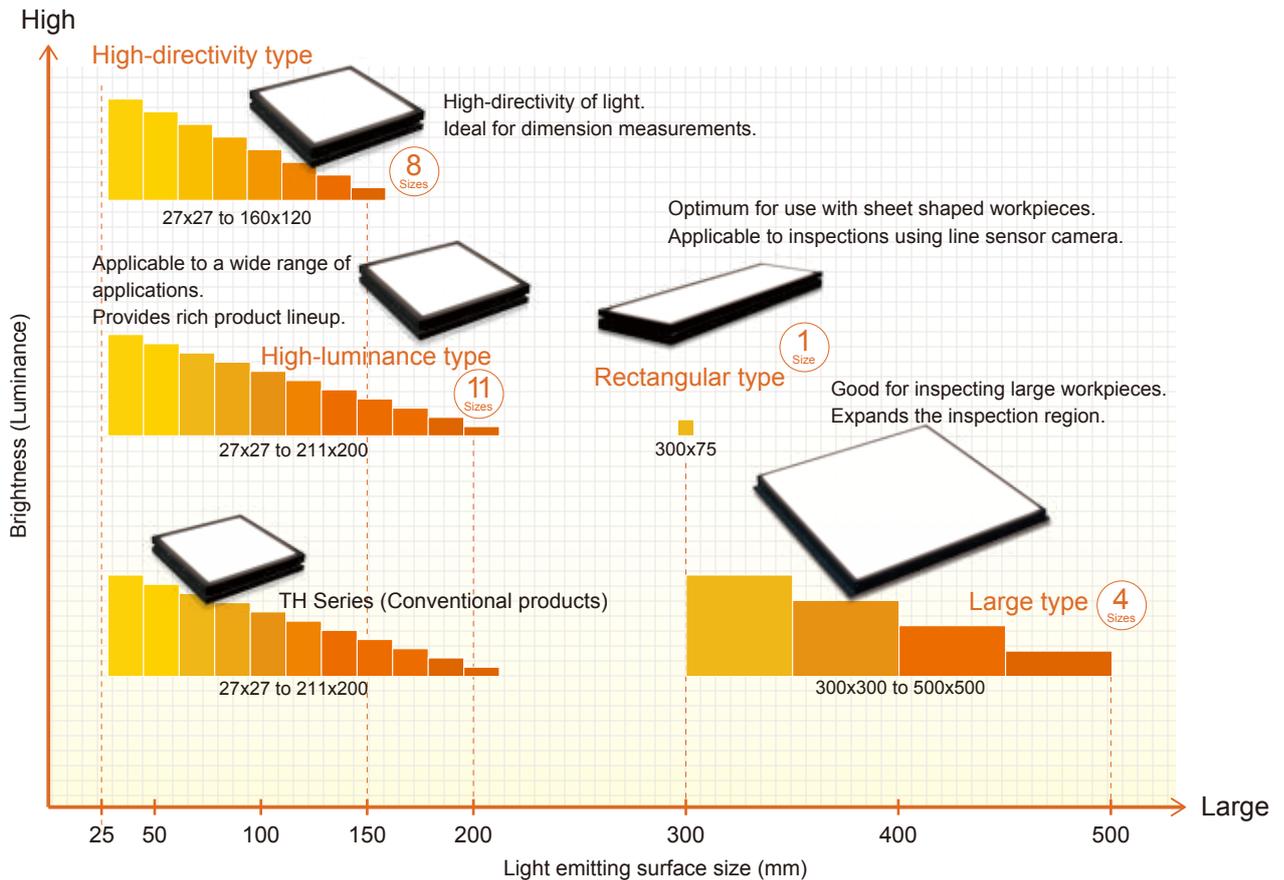


# Product Lineup

Series	For transmission purpose			For reflection purpose	
	TH2 series	TH2-PM series	TH2 series	TH2 series	TH2-CR series
Type	 High-luminance	 High-directivity	 Large	 Rectangular	 Camera-window
LED color					
Emitting surface size (mm)	27x27 43x35 51x51 63x60 83x75 100x100 140x105 160x120 200x150 224x170 211x200	27x27 43x35 51x51 63x60 83x75 100x100 140x105 160x120	300x300 380x250 400x400 500x500	300x75	150x150 211x200 300x300
Page	P.5	P.9	P.13	P.17	P.21

# Product Map

Note: Some products are not included in the map.



# Application Examples

Please feel free to inquire about other applications.

Product Lineup

## High-luminance type



TH2 series

P. 5

## High-directivity type



TH2-PM series

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Application Examples

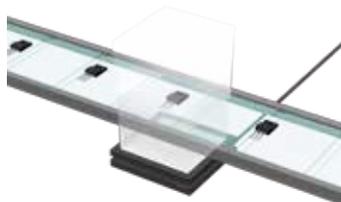
- Inspecting liquid surface level in PET bottles



- Inspecting the appearance of screws



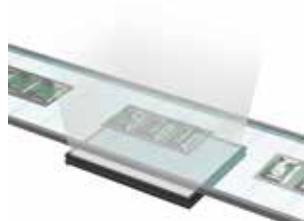
- Inspecting the appearance of electronic components



- Inspecting the appearance of transparent straw bags



- Inspecting the appearance of medicine bags



- Inspecting for faults in acrylic plates



- Pinhole inspection
- Inspection for burr of metal components

- Appearance inspection of automobile components
- Appearance inspection of glass containers

and more

- Dimension measurement of automobile components
- Appearance inspection of pillar-shaped objects

- Dimension measurement of end mills
- Appearance inspection of connector pins

and more

## Large type



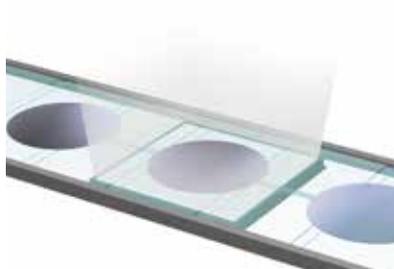
- Inspecting liquid surface level in large bottles



- Inspecting liquid volume in infusion bags



- Inspecting the appearance of wafers



- Appearance inspection of automobile components
- Appearance inspection of large PET bottles
- Light source embedded in conveyors
- Dimension measurement of machined holes in large components

and more

## Rectangular type



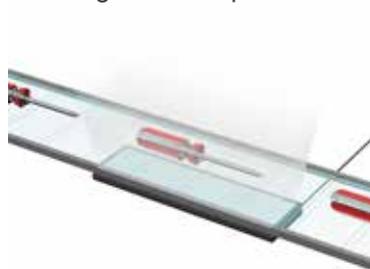
- Inspecting the appearance of cylindrical containers



- Inspecting for stains and foreign materials in non-woven fabrics



- Inspecting the appearance of long-size workpieces



- Inspection for faults in films
- Inspection for faults in sheet-shaped workpieces
- Appearance inspection of glass
- Other appearance inspections of long-size workpieces

and more

## Camera-window type



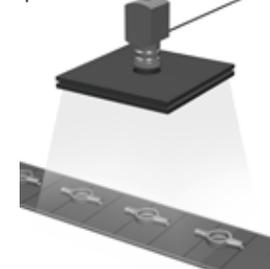
- Inspecting FIPG material of automobile components



- Inspecting for stains and foreign materials in disposable diapers



- Reading engraved text on metal components



- Inspection for foreign materials in disposable masks
- Reading engraved text on piston rings
- Appearance inspection of textured metal surface
- Light source for picking robots

and more

# TH2 series

High-luminance type

- TH2 Series High-luminance
- TH2-PM Series High-directivity
- TH2 Series Large
- TH2 Series Rectangular
- TH2-CR Series Camera-window
- TH-CL Series

Changes in size

Wavelength/related color temperature

Cable length

Light output

Format/material

Connector format

Installation/mounting



**Application examples**

- Pinhole inspection
- Inspection for burr of metal components
- Appearance inspection of automobile components
- Appearance inspection of glass containers
- and more

Imaging liquid surface level in PET bottles

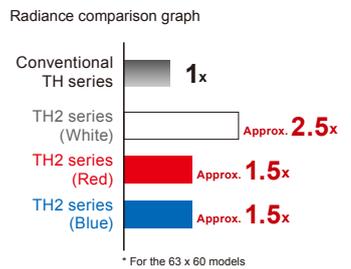
Imaging the appearance of electronic components

Inspecting the appearance of medicine (individual packaging)

## Features

### High-luminance Flat Lights

Increased brightness.  
Applicable to high-speed production lines.



Note: The data shown above is for reference only. Actual values may vary.

## Imaging Examples

Inspecting liquid surface level in PET bottles



● Workpiece image

PET bottles

● TH2-140X105SW

Liquid surface level and the printed text are clearly imaged.

Inspecting the appearance of electronic components

● Workpiece image

Electronic components

● TH2-63X60SW

The appearance of the resin part and pins are clearly imaged.

Inspecting the appearance of medicine (individual packaging)

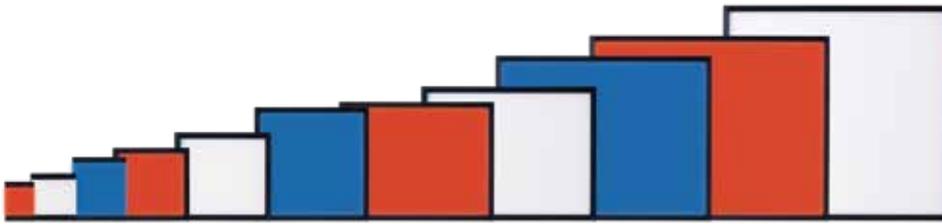
● Workpiece image

Medicine (individual packaging)

● TH2-200X150SW

The state of the cutting edge and perforations are clearly recognized.

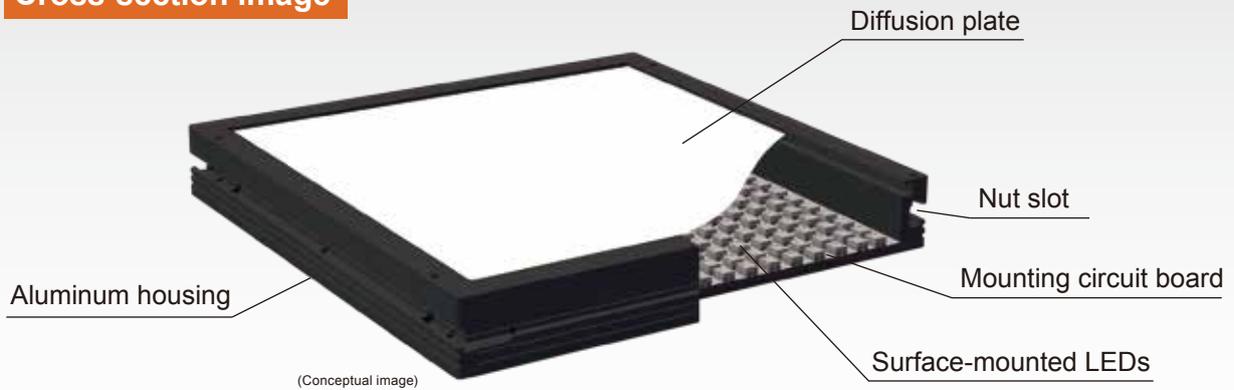
We accept custom orders. Please feel free to inquire.



LED colors White Red Blue

Emitting surface size: 27x27, 43x35, 51x51, 63x60, 83x75, 100x100, 140x105, 160x120, 200x150, 224x170, and 211x200

### Cross-section image



TH2 Series  
High-luminance

TH2-PM Series  
High-directivity

TH2 Series  
Large

TH2 Series  
Rectangular

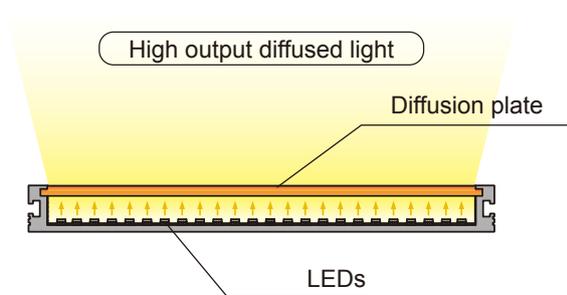
TH2-CR Series  
Camera-window

TH-CL Series

**Surface-mounted LEDs are densely mounted.  
This enables high-output Flat Lights.**

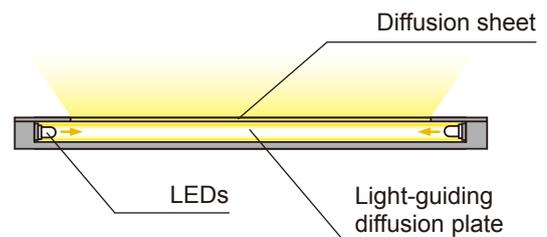
● Illumination image for the TH2 Series

The LEDs are densely mounted on the surface of the circuit board. Diffused light is illuminated.



● Illumination image for the other Flat Lights

LEDs embedded around light-guiding diffusion plate. Diffused light is illuminated.



### Data

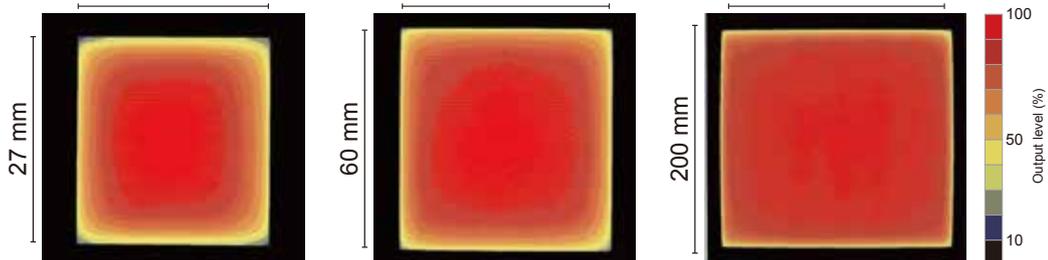
\* The data included is for reference only. Actual values may vary.

Uniformity  
(Relative radiance)

TH2-27X27SW  
27 mm

TH2-63X60SW  
63 mm

TH2-211X200SW  
211 mm



# TH2 series

High-luminance

We accept custom orders. Please feel free to inquire.



TH2 Series High-luminance
TH2-PM Series High-directivity
TH2 Series Large
TH2 Series Rectangular
TH2-CR Series Camera-window
TH-CL Series

## Common Specifications

Cable length	300 mm	Spectral distribution	
Case material	Aluminum alloy, Resin		
Cooling method	Natural air-cooling		
Operation environment	Temperature: 0 to 40°C, Humidity: 20 to 85%RH (with no condensation)		
Storage environment	Temperature: -20 to 60°C, Humidity: 20 to 85%RH (with no condensation)		
CE marking	Safety standard: Conforms to EN62471		
Environmental regulations	RoHS compliant		

\* The correlated color temperature is the same as that of conventional products TH series.  
Value for the Light Unit: 5,800 K (used for TH2 series)  
Value for individual LEDs: 6,600 K (used for TH series)

## Product Lineup

Model name	LED color	Power consumption	Peak wavelength/correlated color temperature*	Options	Extension cables	Recommended Control Units	Weight	Drawing number								
TH2-27X27RD	Red	24 V / 2.3 W	635 nm	Light Control Film  Bracket	FCB* Straight Cable <small>* The cables with a model name that ends with "-ME7" or "-EL2" are not included.</small>	PD3 POD CC-ST-1024 PSB	30 g	1								
TH2-27X27SW	White	24 V / 2.9 W	5,800 K													
TH2-27X27BL	Blue	24 V / 2.7 W	465 nm				FCB-W 2-branch Cable	PD3 POD PSB	40 g	2						
TH2-43X35RD	Red	24 V / 4.9 W	635 nm													
TH2-43X35SW	White	24 V / 4.8 W	5,800 K						FCB-F 4-branch Cable	PD3 POD PSB	60 g	3				
TH2-43X35BL	Blue	24 V / 4.8 W	465 nm													
TH2-51X51RD	Red	24 V / 6.5 W	635 nm								FRCB Robot Cable	PD3 POD PSB	100 g	4		
TH2-51X51SW	White	24 V / 8.2 W	5,800 K													
TH2-51X51BL	Blue	24 V / 8.2 W	465 nm										FCB-W-EL2 2-branch Cable	PD3 POD	140 g	5
TH2-63X60RD	Red	24 V / 9.9 W	635 nm													
TH2-63X60SW	White	24 V / 9.7 W	5,800 K		FCB-EL2 Straight Cable	PD3 POD									200 g	6
TH2-63X60BL	Blue	24 V / 9.7 W	465 nm													
TH2-83X75RD	Red	24 V / 15 W	635 nm				FCB-W-EL2 2-branch Cable	PD3-10024-8 PSB3-30024							260 g	7
TH2-83X75SW	White	24 V / 16 W	5,800 K													
TH2-83X75BL	Blue	24 V / 16 W	465 nm						FCB-W-EL2 2-branch Cable	PD3-10024-8 PSB3-30024					310 g	8
TH2-100X100RD	Red	24 V / 26 W	635 nm													
TH2-100X100SW	White	24 V / 25 W	5,800 K								FCB-W-EL2 2-branch Cable	PD3-10024-8 PSB3-30024			440 g	9
TH2-100X100BL	Blue	24 V / 25 W	465 nm													
TH2-140X105RD	Red	24 V / 28 W	635 nm										FCB-W-EL2 2-branch Cable	PD3-10024-8 PSB3-30024	540 g	10
TH2-140X105SW	White	24 V / 28 W	5,800 K													
TH2-140X105BL	Blue	24 V / 28 W	465 nm	FCB-W-EL2 2-branch Cable	PD3-10024-8 PSB3-30024	580 g									11	
TH2-160X120RD	Red	24 V / 35 W	635 nm													
TH2-160X120SW	White	24 V / 35 W	5,800 K			FCB-W-EL2 2-branch Cable	PD3-10024-8 PSB3-30024	580 g							11	
TH2-160X120BL	Blue	24 V / 35 W	465 nm													
TH2-200X150RD	Red	24 V / 45 W	635 nm					FCB-W-EL2 2-branch Cable	PD3-10024-8 PSB3-30024	580 g					11	
TH2-200X150SW	White	24 V / 44 W	5,800 K													
TH2-200X150BL	Blue	24 V / 44 W	465 nm							FCB-W-EL2 2-branch Cable	PD3-10024-8 PSB3-30024	580 g			11	
TH2-224X170RD	Red	24 V / 66 W	635 nm													
TH2-224X170SW	White	24 V / 66 W	5,800 K									FCB-W-EL2 2-branch Cable	PD3-10024-8 PSB3-30024	580 g	11	
TH2-224X170BL	Blue	24 V / 66 W	465 nm													
TH2-211X200RD	Red	24 V / 67 W	635 nm	FCB-W-EL2 2-branch Cable	PD3-10024-8 PSB3-30024									580 g	11	
TH2-211X200SW	White	24 V / 65 W	5,800 K													
TH2-211X200BL	Blue	24 V / 65 W	465 nm			FCB-W-EL2 2-branch Cable	PD3-10024-8 PSB3-30024							580 g	11	

\* The correlated color temperature is the same as that of conventional products TH series.  
Value for the Light Unit: 5,800 K (used for TH2 series)  
Value for individual LEDs: 6,600 K (used for TH series)

For detailed information on the Control Units and extension cables, refer to our website or the *General Catalog of LED Lighting for Machine Vision Applications*.



Extension cables



Digital Control Units PD3 Series



Strobe Override Control Units POD Series\*



Compact Controller CC-ST-1024



Analog Control Units PSB Series



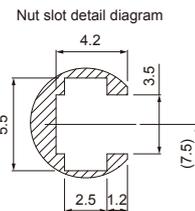
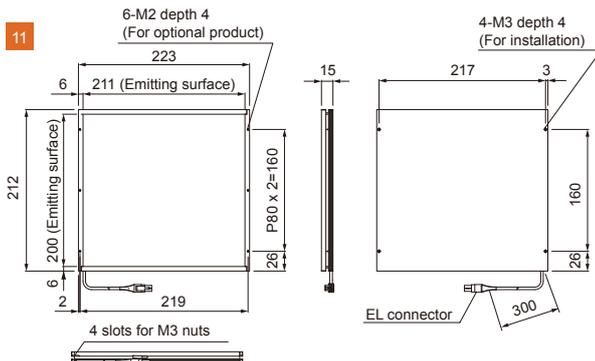
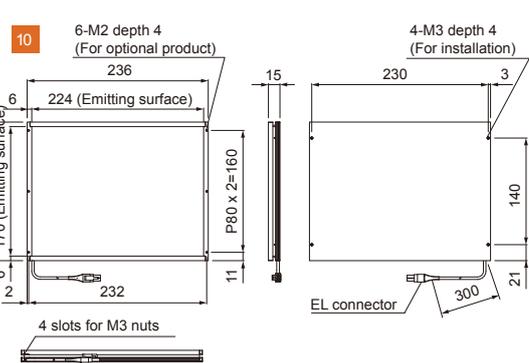
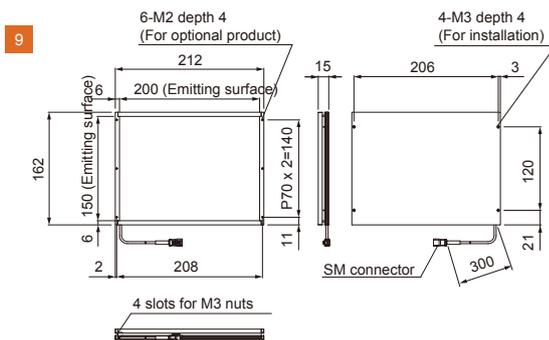
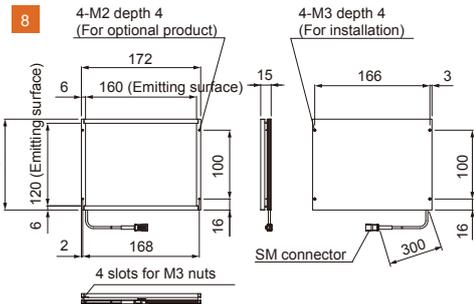
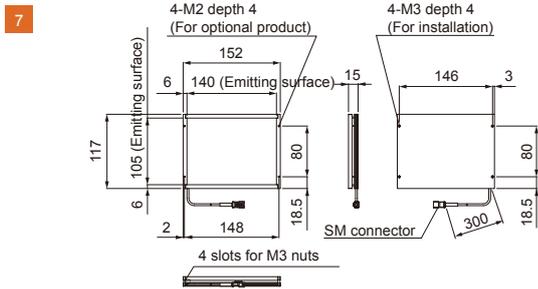
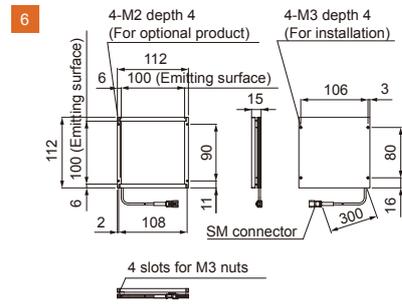
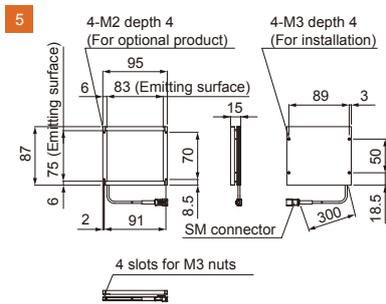
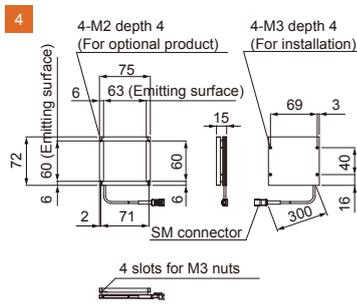
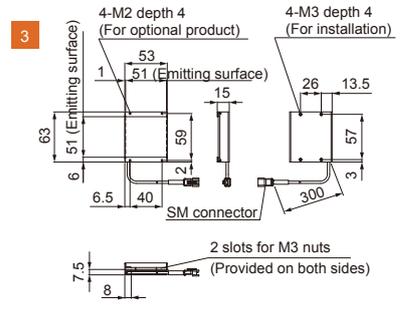
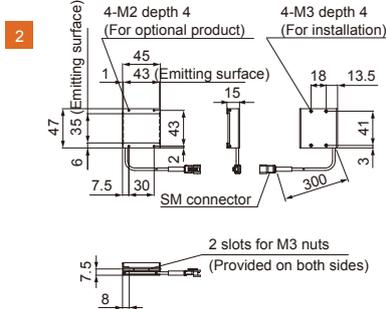
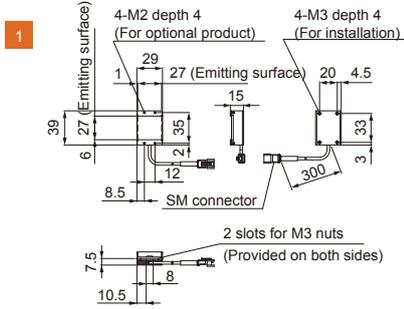
High-capacity Analog Control Unit PSB3-30024

\* For information on the combination of Light Units and POD-series Control Unit, please refer to our website. <http://www.ccs-grp.com/lnk/qr/pod>

# Dimensions

Note: Even for the Light Units of the same emitting surface size, the thickness and other dimensions of the product differ between the high-luminance and high-directivity type Light Units. Be sure to check the dimension diagrams before installing the Light Units.

(Unit: mm)



TH2 Series High-luminance
TH2-PM Series High-directivity
TH2 Series Large
TH2 Series Rectangular
TH2-CR Series Camera-window
TH-CL Series

# TH2-PM series

High-directivity type

TH2 Series High-luminance
TH2-PM Series High-directivity
TH2 Series Large
TH2 Series Rectangular
TH2-CR Series Camera-window
TH-CL Series



- Changes in size
- Wavelength/related color temperature
- Cable length
- Light output
- Format/material
- Connector format
- Installation/mounting

## Features

### Achieved high directivity of light.

These high-output Flat Light Units are equipped with improved light directivity. This makes them ideal for dimension measurements and other inspections that require outline extraction of the workpiece.

## Imaging Examples

Inspecting the appearance of screws

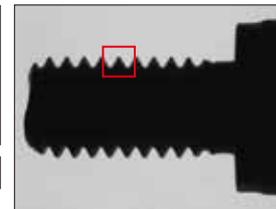


● Workpiece image



Screws

● TH2-63X60SW-PM



The outline of the screw threads is clearly imaged.



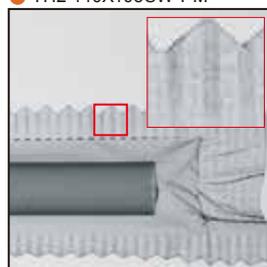
Inspecting the appearance of transparent straw bags

● Workpiece image



Straws

● TH2-140X105SW-PM



The glued portions are clearly imaged.

Inspecting the appearance of acrylic plates

● Workpiece image



Transparent acrylic plates

● TH2-83X75SW-PM



Even with a fine scratch, it is possible to make an image with high contrast.

We accept custom orders. Please feel free to inquire.



Emitting surface size: 27x27, 43x35, 51x51, 63x60, 83x75, 100x100, 140x105, and 160x120

LED colors White Red Blue

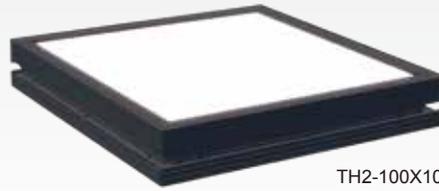
### Comparison of light directivity between the TH2-series Light Units

High-luminance type



TH2-100X100SW

High-directivity type



TH2-100X100SW-PM



Illuminates a wide space.  
(normal directivity)



Provides light with high directivity.

TH2 Series  
High-luminance

TH2-PM Series  
High-directivity

TH2 Series  
Large

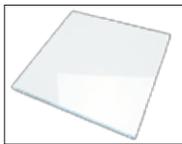
TH2 Series  
Rectangular

TH2-CR Series  
Camera-window

TH-CL Series

### Comparison of images

● Workpiece image



Transparent acrylic plates

TH2-83X75SW (Normal directivity)

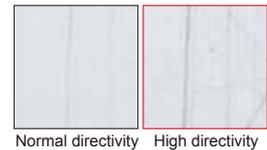


It is difficult to capture the fine scratch.

TH2-83X75SW-PM (High-directivity type)



Even with a fine scratch, it is possible to make an image with high contrast.



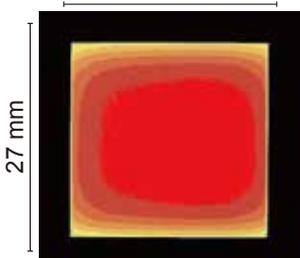
Normal directivity High directivity

### Data

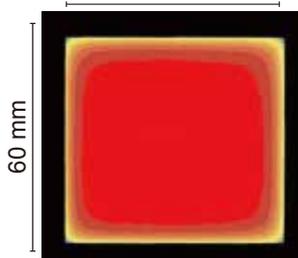
\* The data included is for reference only. Actual values may vary.

Uniformity  
(Relative radiance)

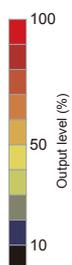
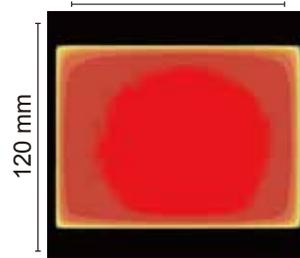
TH2-27X27SW-PM  
27 mm



TH2-63X60SW-PM  
63 mm



TH2-160X120SW-PM  
160 mm



# TH2 series

High-directivity

We accept custom orders. Please feel free to inquire.

- Changes in size
- Wavelength/correlated color temperature
- Cable length
- Light output
- Format/material
- Connector format
- Installation/mounting

- TH2 Series High-luminance
- TH2-PM Series High-directivity
- TH2 Series Large
- TH2 Series Rectangular
- TH2-CR Series Camera-window
- TH-CL Series

## Common Specifications

Cable length	300 mm	Spectral distribution	
Case material	Aluminum alloy, Resin		
Cooling method	Natural air-cooling		
Operation environment	Temperature: 0 to 40°C, Humidity: 20 to 85%RH (with no condensation)		
Storage environment	Temperature: -20 to 60°C, Humidity: 20 to 85%RH (with no condensation)		
CE marking	Safety standard: Conforms to EN62471		
Environmental regulations	RoHS compliant		

## Product Lineup

Model name	LED color	Power consumption	Peak wavelength/correlated color temperature	Options	Extension cables	Recommended Control Units	Weight	Drawing number
TH2-27X27RD-PM	Red	24 V / 2.5 W	635 nm	Bracket	FCB* Straight Cable <small>* The cables with a model name that ends with "-ME7" or "-EL2" are not included.</small>	PD3 POD CC-ST-1024 PSB	40 g	1
TH2-27X27SW-PM	White	24 V / 3.1 W	5,300 K					
TH2-27X27BL-PM	Blue	24 V / 3.1 W	465 nm					
TH2-43X35RD-PM	Red	24 V / 5.7 W	635 nm					
TH2-43X35SW-PM	White	24 V / 5.5 W	5,300 K			FCB-W 2-branch Cable	60 g	2
TH2-43X35BL-PM	Blue	24 V / 5.5 W	465 nm					
TH2-51X51RD-PM	Red	24 V / 7.3 W	635 nm			FCB-F 4-branch Cable	80 g	3
TH2-51X51SW-PM	White	24 V / 9.9 W	5,300 K					
TH2-51X51BL-PM	Blue	24 V / 9.9 W	465 nm			FRCB Robot Cable	120 g	4
TH2-63X60RD-PM	Red	24 V / 9.9 W	635 nm					
TH2-63X60SW-PM	White	24 V / 9.7 W	5,300 K			PD3 POD PSB	170 g	5
TH2-63X60BL-PM	Blue	24 V / 9.7 W	465 nm					
TH2-83X75RD-PM	Red	24 V / 15 W	635 nm			240 g	6	
TH2-83X75SW-PM	White	24 V / 16 W	5,300 K					
TH2-83X75BL-PM	Blue	24 V / 16 W	465 nm			320 g	7	
TH2-100X100RD-PM	Red	24 V / 26 W	635 nm					
TH2-100X100SW-PM	White	24 V / 25 W	5,300 K			390 g	8	
TH2-100X100BL-PM	Blue	24 V / 25 W	465 nm					
TH2-140X105RD-PM	Red	24 V / 28 W	635 nm			PD3 POD	320 g	7
TH2-140X105SW-PM	White	24 V / 28 W	5,300 K					
TH2-140X105BL-PM	Blue	24 V / 28 W	465 nm	390 g	8			
TH2-160X120RD-PM	Red	24 V / 34 W	635 nm					
TH2-160X120SW-PM	White	24 V / 35 W	5,300 K	320 g	7			
TH2-160X120BL-PM	Blue	24 V / 35 W	465 nm					

For detailed information on the Control Units and extension cables, refer to our website or the *General Catalog of LED Lighting for Machine Vision Applications*.



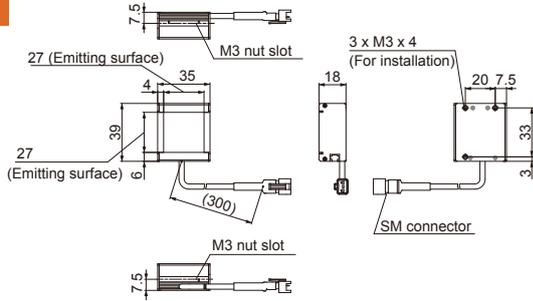
\* For information on the combination of Light Units and POD-series Control Unit, please refer to our website. <http://www.ccs-grp.com/lnk/qr/pod>

# Dimensions

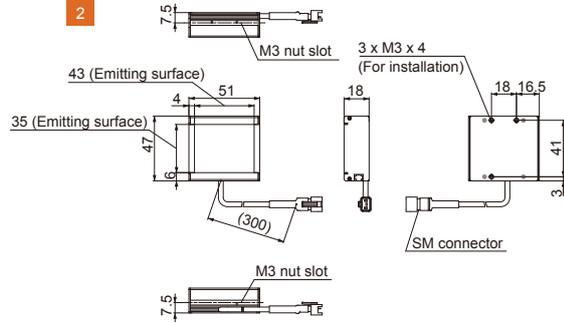
Note: Even for the Light Units of the same emitting surface size, the thickness and other dimensions of the product differ between the high-luminance and high-directivity type Light Units. Be sure to check the dimension diagrams before installing the Light Units.

(Unit: mm)

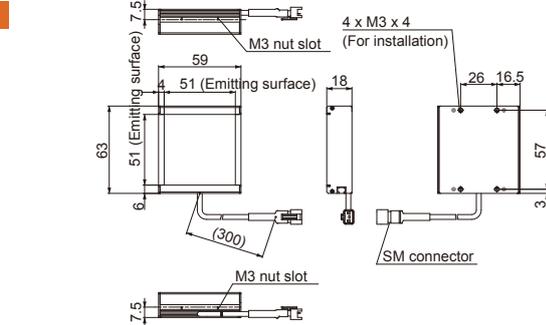
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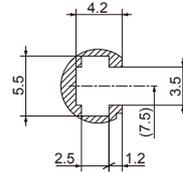
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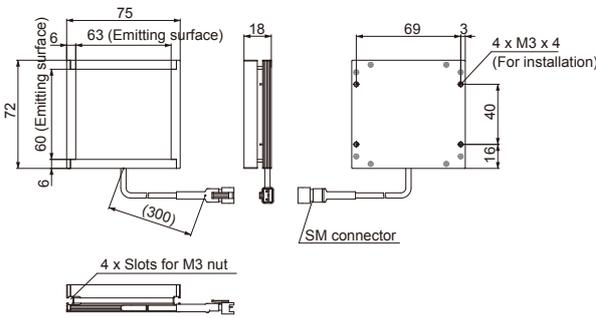
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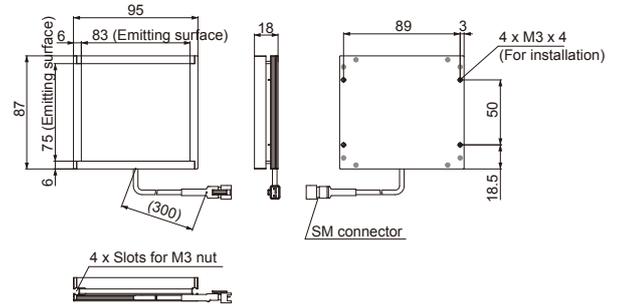
1 2 3 Nut slot detail diagram



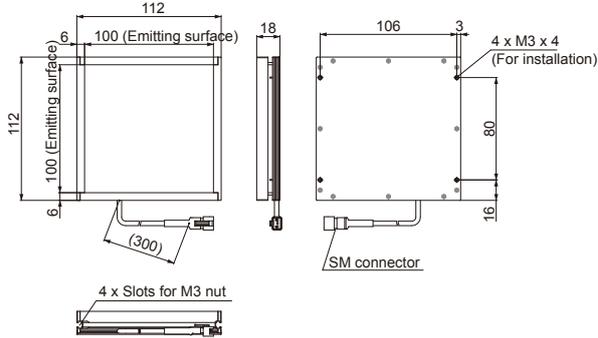
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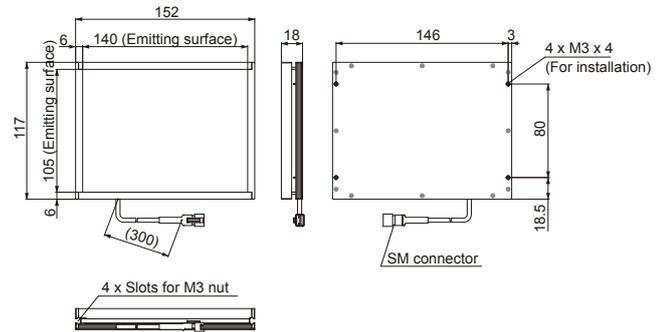
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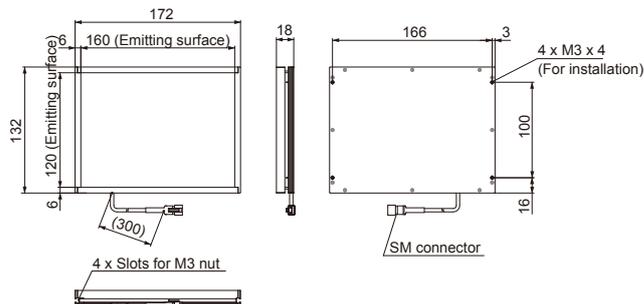
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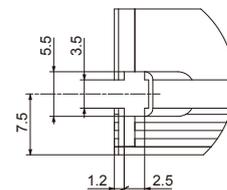
7



8



4 5 6 7 8 Nut slot detail diagram



TH2 Series  
High-luminance

TH2-PM Series  
High-directivity

TH2 Series  
Large

TH2 Series  
Rectangular

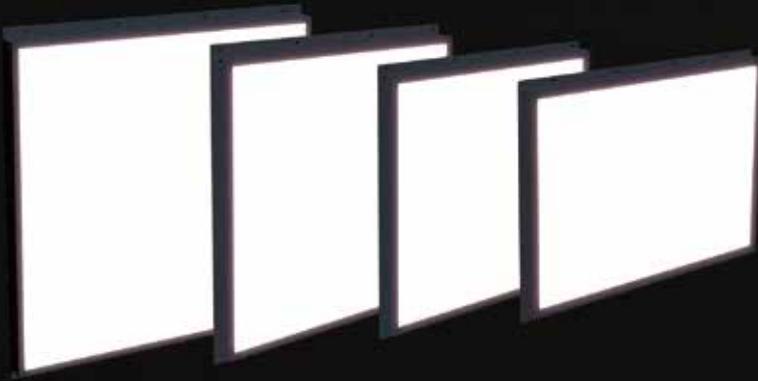
TH2-CR Series  
Camera-window

TH-CL Series

# TH2 series

Large type

TH2 Series High-luminance
TH2-PM Series High-directivity
TH2 Series Large
TH2 Series Rectangular
TH2-CR Series Camera-window
TH-CL Series



**Application examples**

- Appearance inspection of automobile components
- Appearance inspection of large PET bottles
- Light source embedded in conveyors
- Dimension measurement of machined holes on large components and more

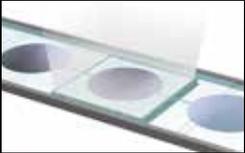
Imaging liquid surface level in large bottles



Imaging liquid surface level in infusion bags



Imaging the appearance of wafers



Changes in size

Wavelength/related color temperature

Cable length

Light output

Format/material

Connector format

Installation/mounting

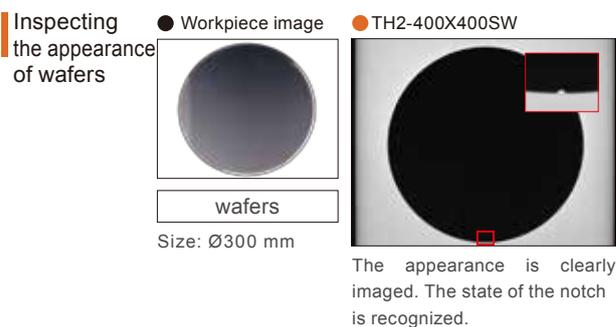
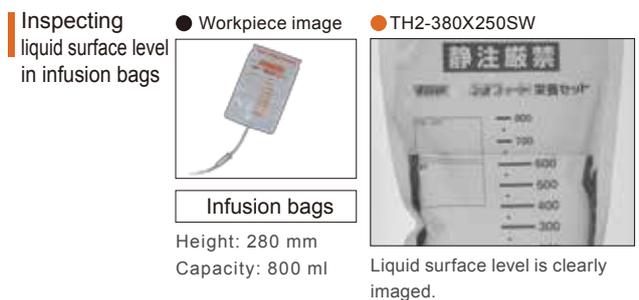
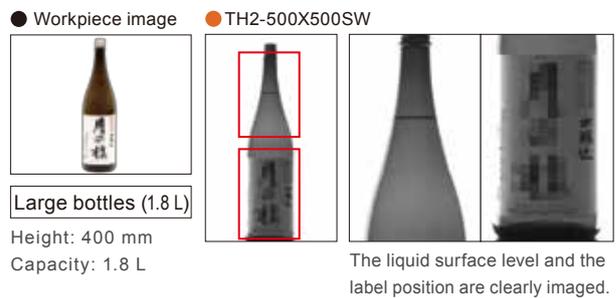
## Features

### Flat Light Units with emitting surfaces of up to 500 x 500 mm

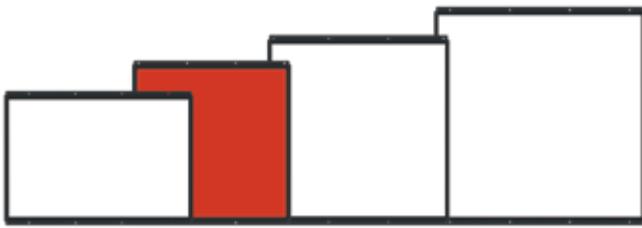
Large sizes are now available. Ideal for inspecting large workpieces.

The large emitting surface (up to 500 x 500 mm) enables inspections over a wide area.

## Imaging Examples



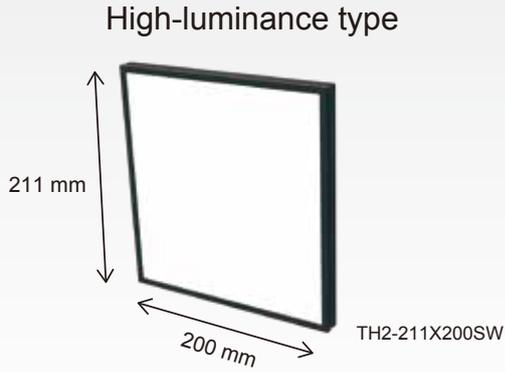
We accept custom orders. Please feel free to inquire.



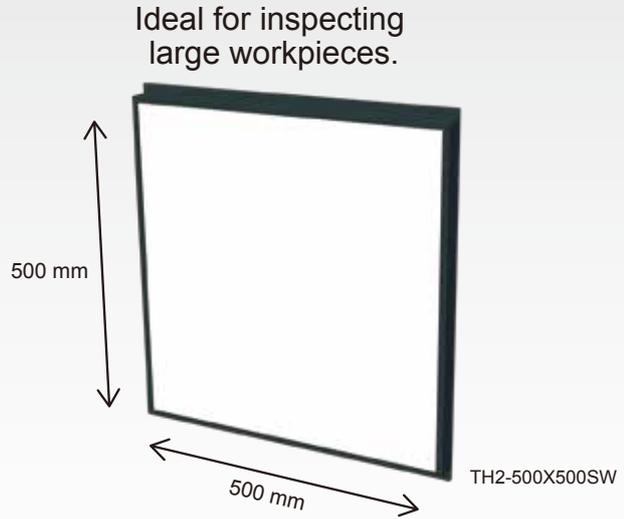
Emitting surface size: 380x250, 300x300, 400x400, and 500x500

LED colors White Red

### Comparison of emitting surface size between the TH2-series Light Units

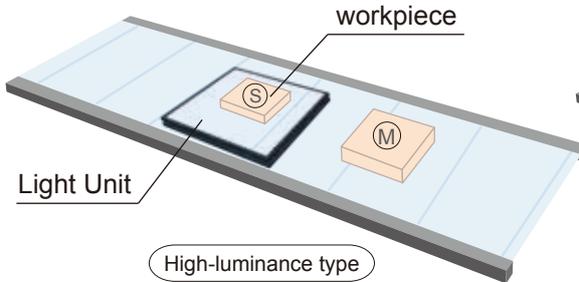


The emitting surface size is up to 211 x 200 mm.

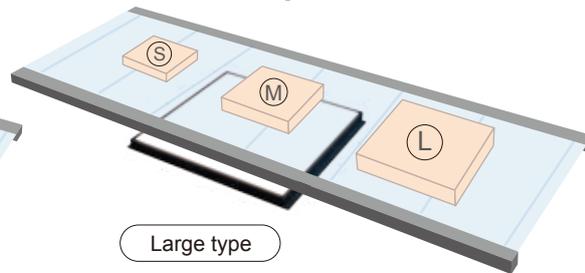


Sizes up to 500 x 500 mm are available.

- Comparison of the maximum workpiece size in a production line



**The large type lets you expand the inspection region so that you can inspect large workpieces in the same production line.**

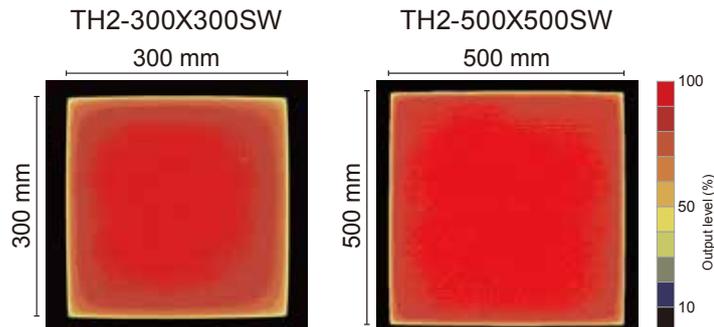


(Conceptual image)

### Data

\* The data included is for reference only. Actual values may vary.

**Uniformity**  
(Relative radiance)



# TH2 series

Large

We accept custom orders. Please feel free to inquire.

- Changes in size
- Wavelength/ correlated color temperature
- Cable length
- Light output
- Format/ material
- Connector format
- Installation/ mounting

- TH2 Series High-luminance
- TH2-PM Series High-directivity
- TH2 Series Large
- TH2 Series Rectangular
- TH2-CR Series Camera-window
- TH-CL Series

## Common Specifications

Cable length	300 mm	Spectral distribution	
Case material	Aluminum alloy, Resin		
Cooling method	Natural air-cooling		
Operation environment	Temperature: 0 to 40°C, Humidity: 20 to 85%RH (with no condensation)		
Storage environment	Temperature: -20 to 60°C, Humidity: 20 to 85%RH (with no condensation)		
CE marking	Safety standard: Conforms to EN62471		
Environmental regulations	RoHS compliant		

## Product Lineup

Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Extension cables	Recommended Control Units	Weight	Drawing number
TH2-300X300RD	Red	24 V / 85 W	635 nm	-	FCB-EL2 Straight Cable	PD3-10024-8	2,700 g	1
TH2-300X300SW	White	24 V / 86 W	5,800 K					
TH2-380X250RD	Red	24 V / 90 W	635 nm		FCB-W-EL2 2-branch Cable	PSB3-30024	2,900 g	2
TH2-380X250SW	White	24 V / 93 W	5,800 K					
TH2-400X400RD	Red	24 V / 130 W	635 nm		FCB-ME7 Straight Cable	PSB3-30024	5,400 g	3
TH2-400X400SW	White	24 V / 153 W	5,800 K					
TH2-500X500RD	Red	24 V / 202 W	635 nm				7,800 g	4
TH2-500X500SW	White	24 V / 239 W	5,800 K					

For detailed information on the Control Units and extension cables, refer to our website or the *General Catalog of LED Lighting for Machine Vision Applications*.



Extension cables



Digital Control Units PD3 Series

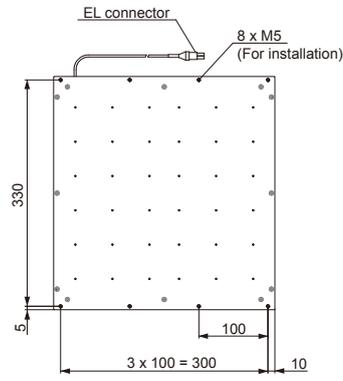
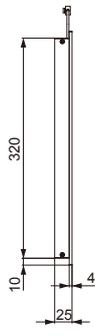
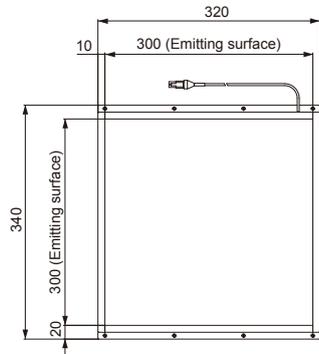


High-capacity Analog Control Unit PSB3-30024

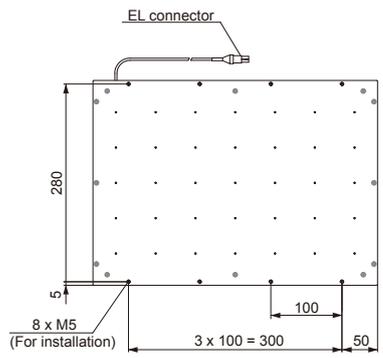
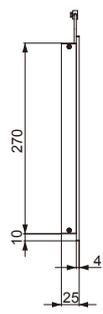
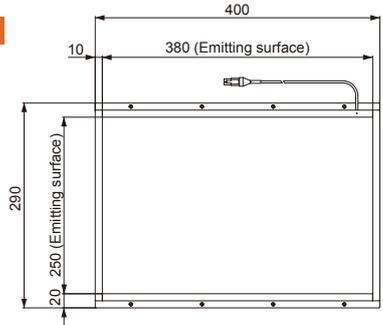
# Dimensions

(Unit: mm)

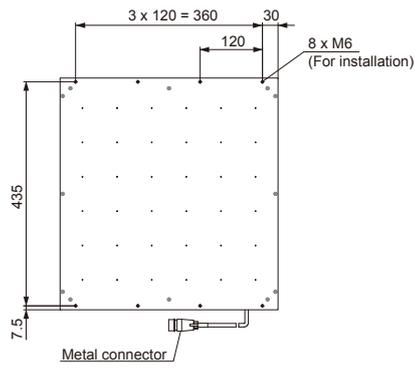
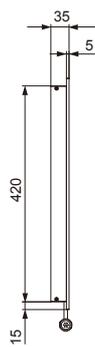
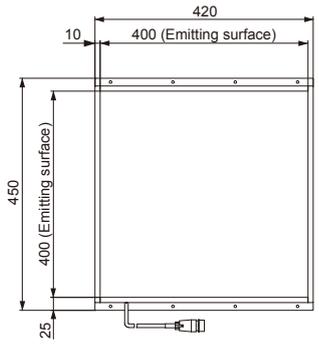
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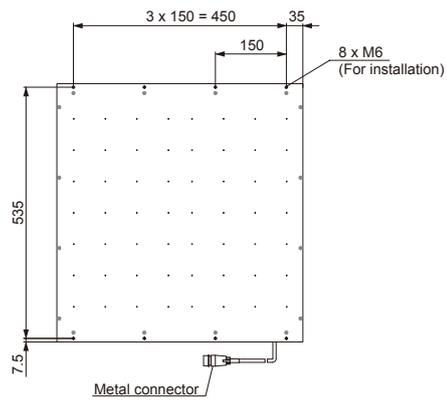
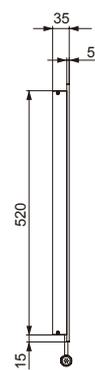
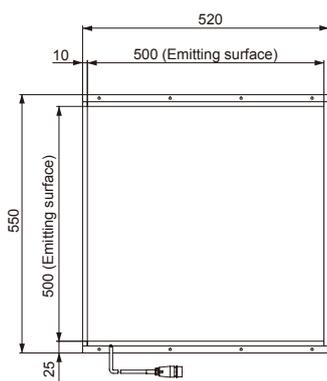
2



3



4



TH2 Series  
High-luminance

TH2-PM Series  
High-directivity

TH2 Series  
Large

TH2 Series  
Rectangular

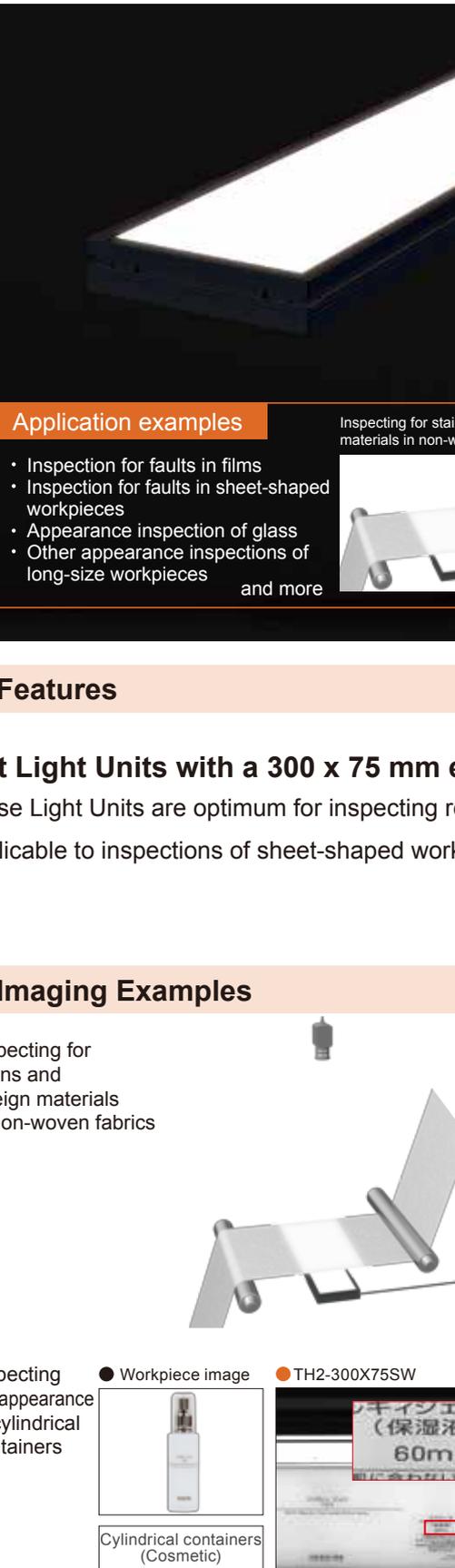
TH2-CR Series  
Camera-window

TH-CL Series

# TH2 series

Rectangular type

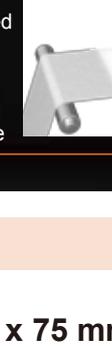
TH2 Series High-luminance
TH2-PM Series High-directivity
TH2 Series Large
TH2 Series Rectangular
TH2-CR Series Camera-window
TH-CL Series



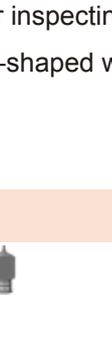
### Application examples

- Inspection for faults in films
- Inspection for faults in sheet-shaped workpieces
- Appearance inspection of glass
- Other appearance inspections of long-size workpieces and more

Inspecting for stains and foreign materials in non-woven fabrics



Inspecting the appearance of cylindrical containers



Inspecting the appearance of long-size workpieces



## Features

### Flat Light Units with a 300 x 75 mm emitting surface

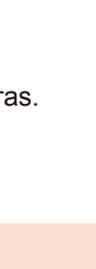
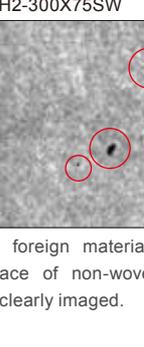
These Light Units are optimum for inspecting rectangular workpieces.  
Applicable to inspections of sheet-shaped workpieces by line sensor cameras.

## Imaging Examples

Inspecting for stains and foreign materials in non-woven fabrics



● Workpiece image ● TH2-300X75SW

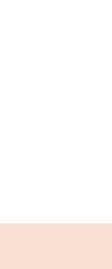
Non-woven fabrics

The foreign materials on the surface of non-woven fabrics are clearly imaged.

Inspecting the appearance of cylindrical containers



● Workpiece image ● TH2-300X75SW




Cylindrical containers (Cosmetic)

The surface state is imaged. The printed text is also clearly visible.

Inspecting the appearance of long-size workpieces




Long-size workpieces (Screwdriver)

The outline is clearly imaged.

We accept custom orders. Please feel free to inquire.



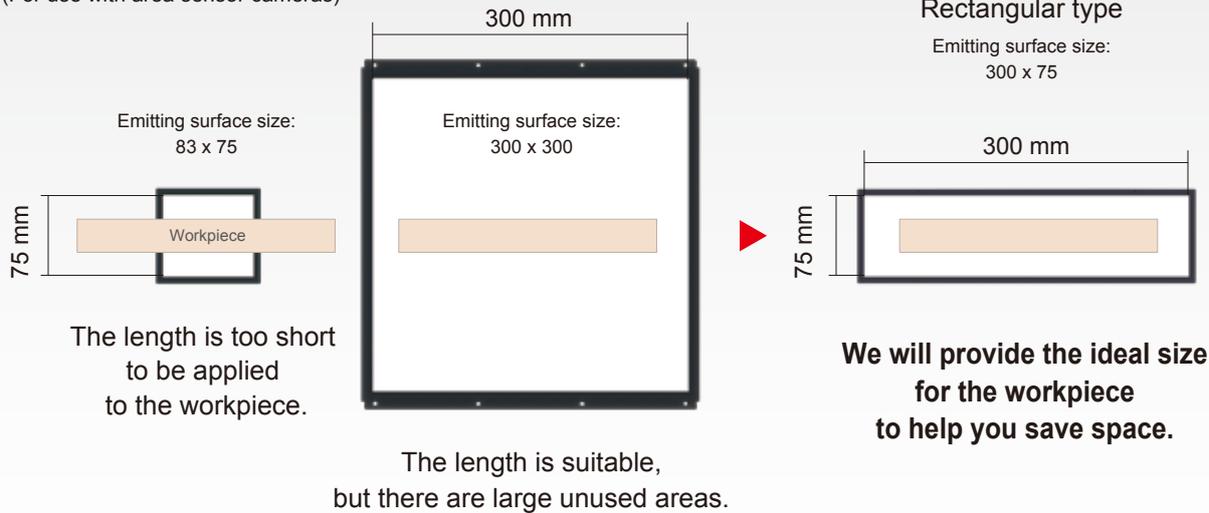
Emitting surface size: 300x75

LED colors White Red

## Comparison of emitting surface size between the TH2-series Light Units

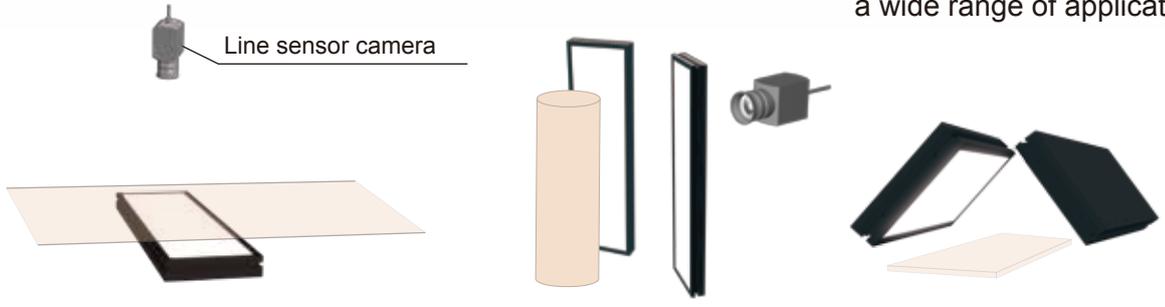
### Ideal for inspecting rectangular workpieces.

(For use with area sensor cameras)



TH2 Series High-luminance
TH2-PM Series High-directivity
TH2 Series Large
TH2 Series Rectangular
TH2-CR Series Camera-window
TH-CL Series

### Ideal for use with line sensor cameras



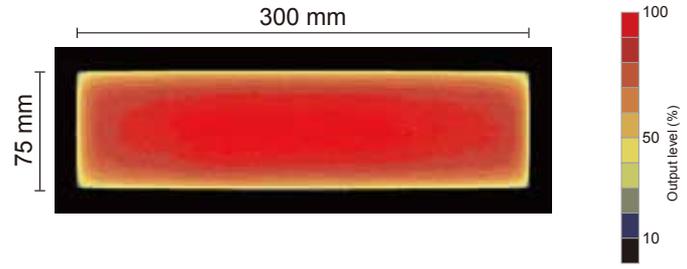
- For sheet-shaped workpieces
- For cylindrical workpieces
- Also reproduce the effect of Dome Lights.

Can be used for a wide range of applications.

## Data \* The data included is for reference only. Actual values may vary.

Uniformity  
(Relative radiance)

TH2-300X75SW



# TH2 series

## Rectangular

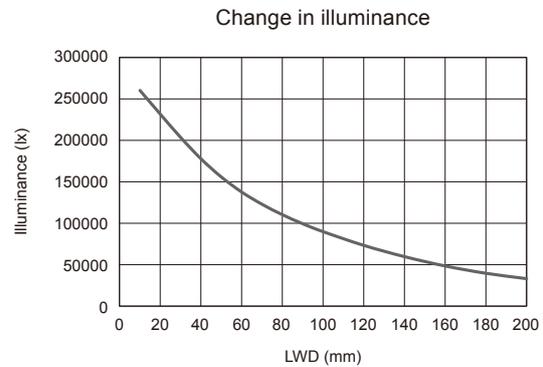
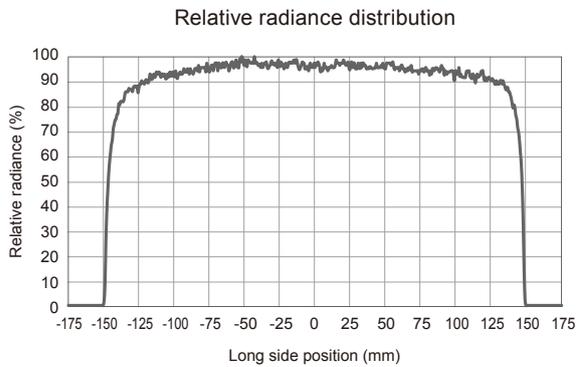
We accept custom orders. Please feel free to inquire.

- Changes in size
- Wavelength/ correlated color temperature
- Cable length
- Light output
- Format/ material
- Connector format
- Installation/ mounting

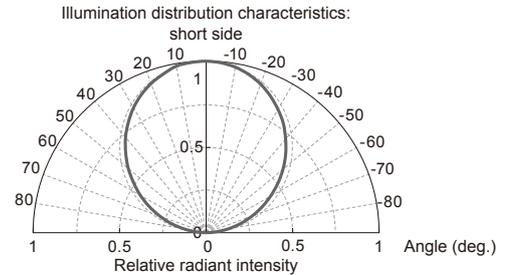
TH2 Series High-luminance
TH2-PM Series High-directivity
TH2 Series Large
TH2 Series Rectangular
TH2-CR Series Camera-window
TH-CL Series

### Data

\* The data included is for reference only. Actual values may vary.



### Characteristic of the illumination distribution



### Common Specifications

Cable length	300 mm	Spectral distribution	<p>Spectral distribution graph showing relative radiant intensity (%) on the y-axis (0 to 100) and wavelength (nm) on the x-axis (350 to 800). The curve shows a peak at approximately 450 nm (White 5,800 K) and a secondary peak at approximately 635 nm (Red 635 nm).</p>
Case material	Aluminum alloy, Resin		
Cooling method	Natural air-cooling		
Operation environment	Temperature: 0 to 40°C, Humidity: 20 to 85%RH (with no condensation)		
Storage environment	Temperature: -20 to 60°C, Humidity: 20 to 85%RH (with no condensation)		
CE marking	Safety standard: Conforms to EN62471		
Environmental regulations	RoHS compliant		

### Product Lineup

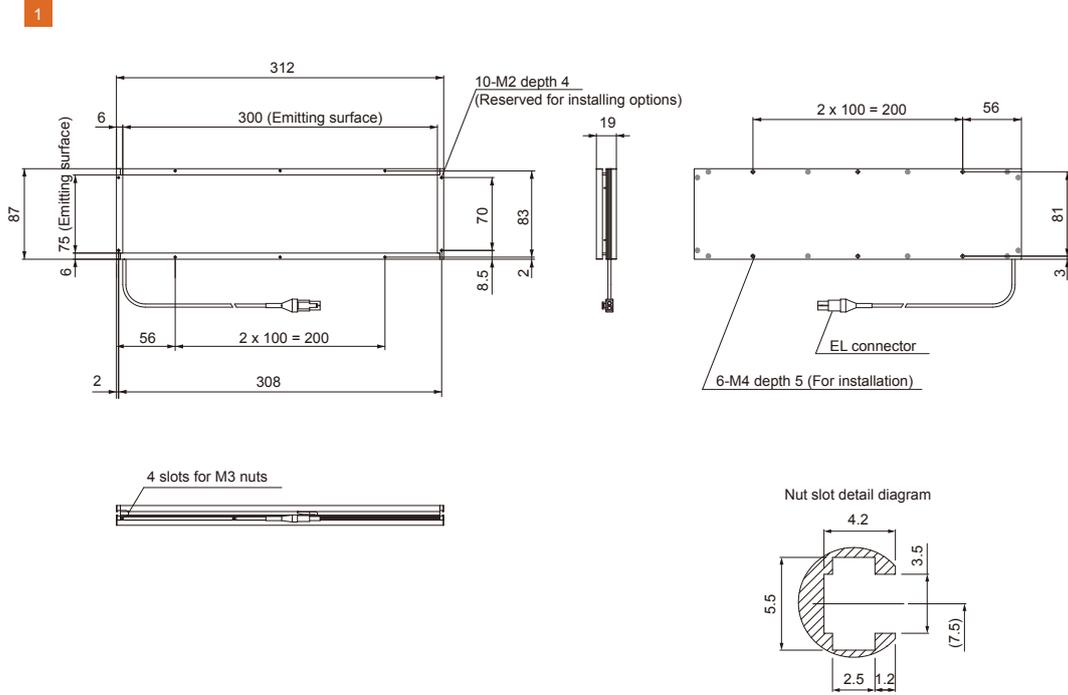
Model name	LED color	Power consumption	Peak wavelength/ correlated color temperature	Options	Extension cables	Recommended Control Units	Weight	Drawing number
TH2-300X75RD	Red	24 V / 54 W	635 nm	-	FCB-EL2 Straight Cable	PD3-10024-8	650 g	1
TH2-300X75SW	White	24 V / 68 W	5,800 K		FCB-W-EL2 2-branch Cable	PSB3-30024		

For detailed information on the Control Units and extension cables, refer to our website or the *General Catalog of LED Lighting for Machine Vision Applications*.



# Dimensions

(Unit: mm)



TH2 Series  
High-luminance

TH2-PM Series  
High-directivity

TH2 Series  
Large

TH2 Series  
Rectangular

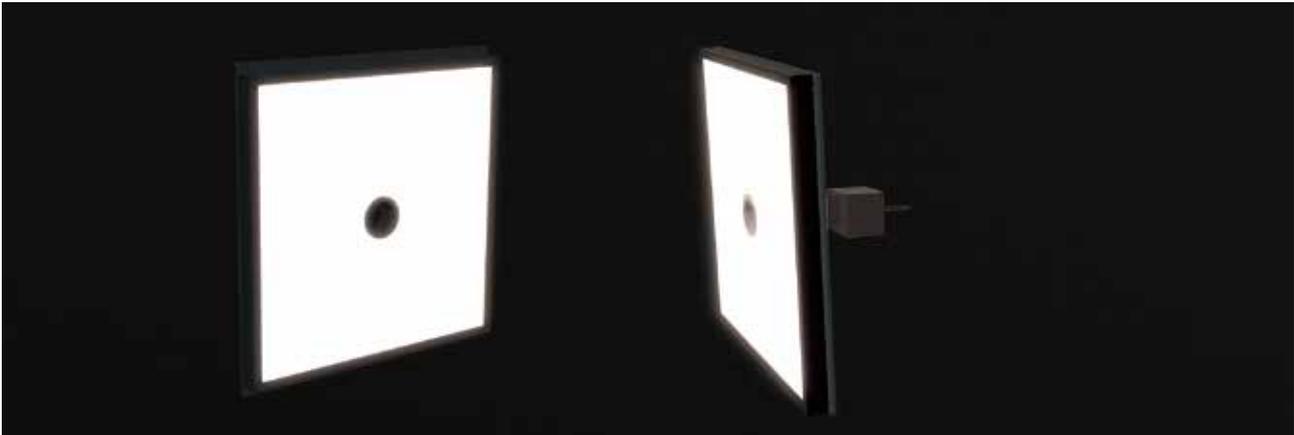
TH2-CR Series  
Camera-window

TH-CL Series

# TH2-CR series

Camera-window type

- TH2 Series High-luminance
- TH2-PM Series High-directivity
- TH2 Series Large
- TH2 Series Rectangular
- TH2-CR Series Camera-window**
- TH-CL Series



### Application examples

Inspecting FIPG material of metal components



Inspecting for stains and foreign materials in disposable diapers



Reading engraved text on metal surface



- Inspection for foreign materials in disposable masks
- Reading engraved text on piston rings
- Appearance inspection of textured metal surface
- Robot picking

and more

## Features

### Wide-field and highly-uniform illumination

Flat Light Units with a camera window provide light from the same axis as the camera in the way Dome Lights and Coaxial Lights do.

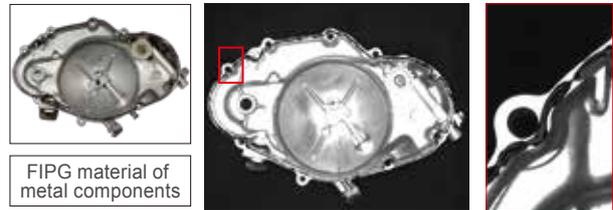
The wide emitting surface enables wide-field and highly-uniform illumination.

## Imaging Examples

Inspecting FIPG material of metal components



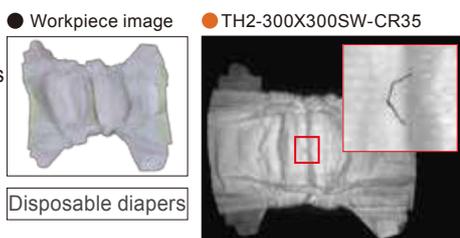
● Workpiece image ● TH2-300X300SW-CR35



FIPG material of metal components

The state of FIPG material is recognized.  
\* The above sample workpiece has been made specifically for sample imaging.

Inspecting for stains and foreign materials in disposable diapers



Disposable diapers

The foreign material on the surface is imaged.

Reading engraved text on metal surface

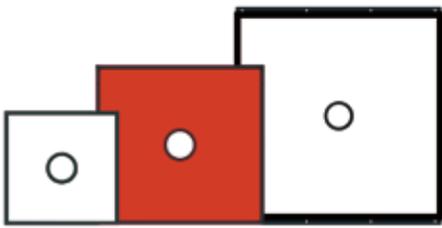
● Workpiece image ● TH2-150X150SW-CR35



Textured metal

The engraved text is clearly imaged.

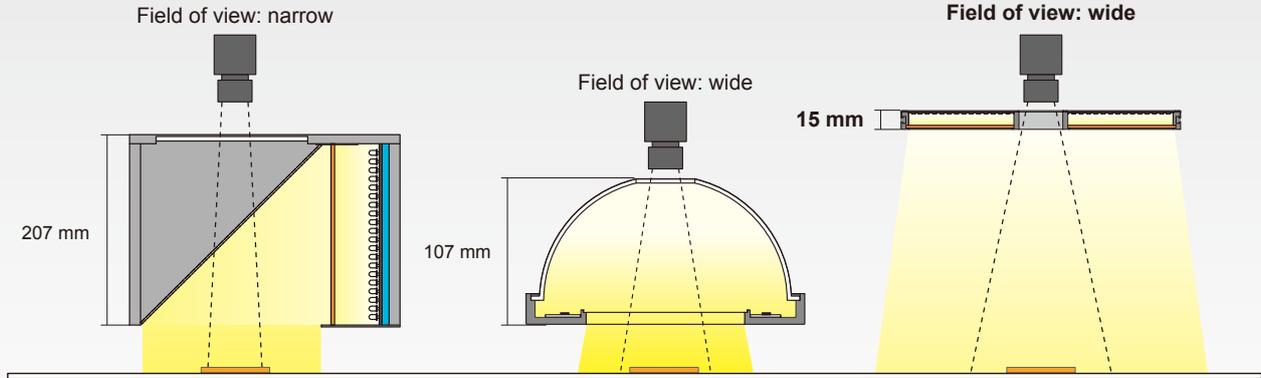
We accept custom orders. Please feel free to inquire.



Emitting surface size: 150x150, 211x200, and 300x300

LED colors White Red

### Comparison of structures



LFB3-200

HPD2-200

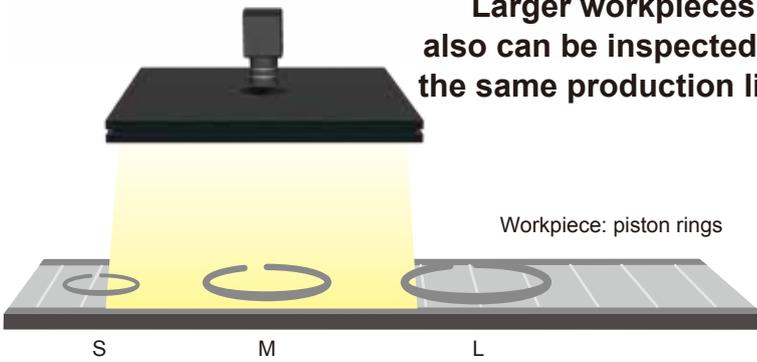
TH2-211X200-CR35

The narrow field of view limits the size of the workpieces. The Light Unit takes up too much space.

The narrow space between the Light Unit and the workpiece interferes with picking by robots.

**Thin case design.**  
**Wide illuminated area.**  
**High uniformity.**

### Compatible with a wide range of workpiece sizes.



**Larger workpieces also can be inspected in the same production line.**

Workpiece: piston rings

**Custom order example**

We accept custom orders for sizes which are not included in the standard products.  
**500 x 500 mm size**



Other customizable items  
• Changes in the size of the camera window  
• Changes in the LED color (blue, infrared, or other color)

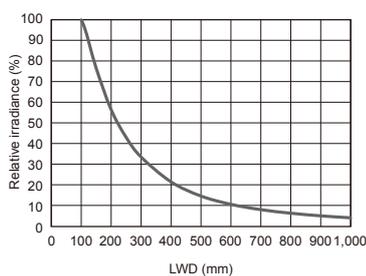
Please contact your CCS sales representative for details.

### Data

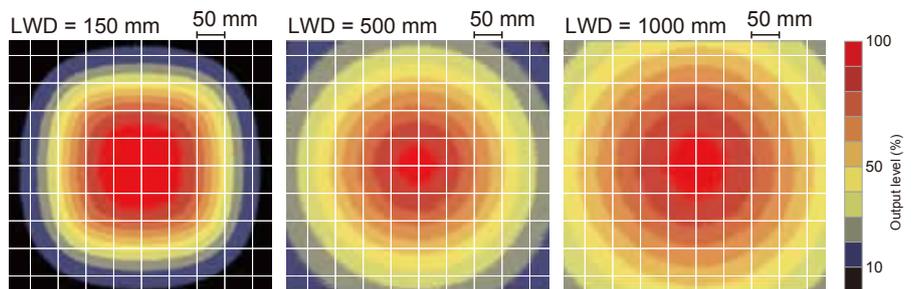
\* The data included is for reference only. Actual values may vary.

#### TH2-300X300SW-CR35

Relative irradiance graph (LWD Characteristics)



Uniformity (Relative radiance)



# TH2 series

Camera-window

We accept custom orders. Please feel free to inquire.

- Changes in size
- Wavelength/correlated color temperature
- Cable length
- Light output
- Format/material
- Connector format
- Installation/mounting

- TH2 Series High-luminance
- TH2-PM Series High-directivity
- TH2 Series Large
- TH2 Series Rectangular
- TH2-CR Series Camera-window
- TH-CL Series

## Common Specifications

Cable length	300 mm	Spectral distribution	
Case material	Aluminum alloy, Resin		
Cooling method	Natural air-cooling		
Operation environment	Temperature: 0 to 40°C, Humidity: 20 to 85%RH (with no condensation)		
Storage environment	Temperature: -20 to 60°C, Humidity: 20 to 85%RH (with no condensation)		
CE marking	Safety standard: Conforms to EN62471		
Environmental regulations	RoHS compliant		

## Product Lineup

Model name	LED color	Power consumption	Peak wavelength/correlated color temperature	Options	Extension cables	Recommended Control Units	Weight	Drawing number
TH2-150X150RD-CR35	Red	24 V / 30 W	635 nm	Bracket	FCB* Straight Cable <small>* The cables with a model name that ends with "-ME7" or "-EL2" are not included.</small>	PD3 POD	350 g	1
TH2-150X150SW-CR35	White	24 V / 30 W	5,800 K		FCB-W 2-branch Cable FCB-F 4-branch Cable FRCB Robot Cable			
TH2-211X200RD-CR35	Red	24 V / 63 W	635 nm		FCB-EL2 Straight Cable			
TH2-211X200SW-CR35	White	24 V / 62 W	5,800 K	-	FCB-W-EL2 2-branch Cable	PD3-10024-8	550 g	2
TH2-300X300RD-CR35	Red	24 V / 83 W	635 nm					
TH2-300X300SW-CR35	White	24 V / 84 W	5,800 K			PSB3-30024	2,700 g	3

For detailed information on the Control Units and extension cables, refer to our website or the *General Catalog of LED Lighting for Machine Vision Applications*.



Extension cables



Digital Control Units PD3 Series



Strobe Overdrive Control Units POD Series\*



High-capacity Analog Control Unit PSB3-30024

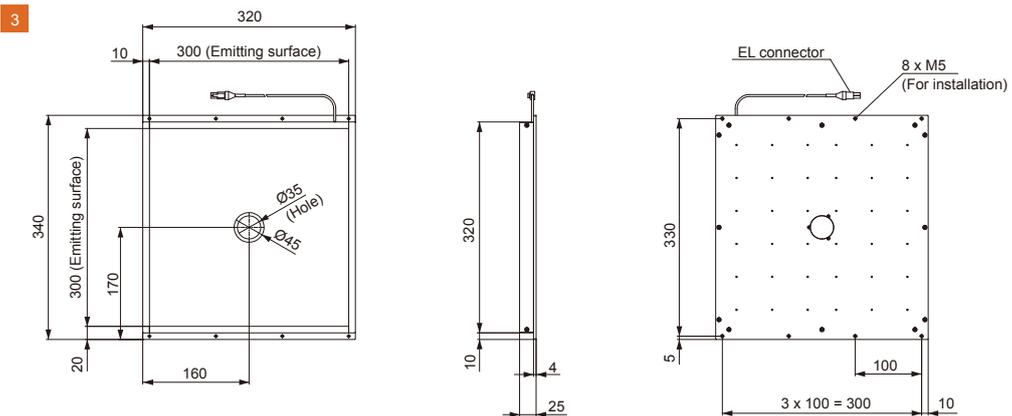
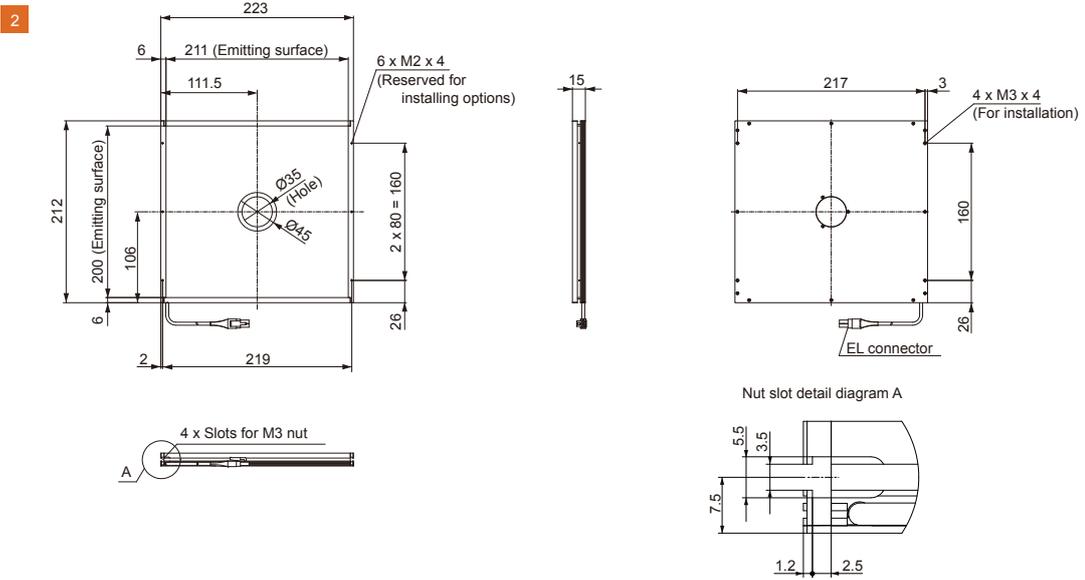
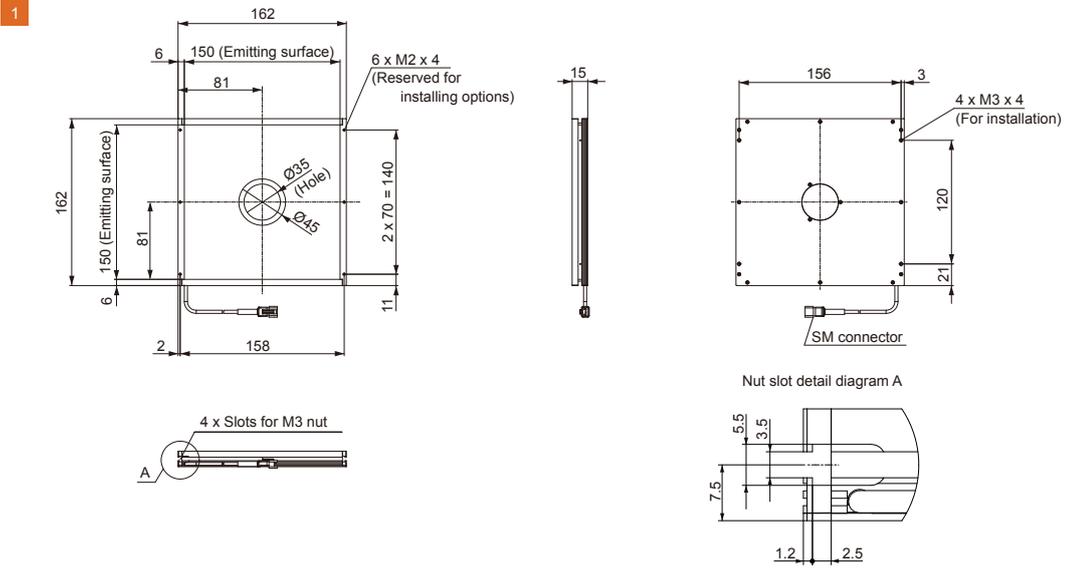
\* For information on the combination of Light Units and POD-series Control Unit, please refer to our website. <http://www.ccs-grp.com/lnk/qr/pod>

Light Units with a 500 x 500 mm emitting surface are available for custom orders.

We also accept custom orders for the size of the camera window, LED color (blue, infrared, or other color), etc. Please feel free to contact your CCS sales representative for details.

# Dimensions

(Unit: mm)



TH2 Series  
High-luminance

TH2-PM Series  
High-directivity

TH2 Series  
Large

TH2 Series  
Rectangular

TH2-CR Series  
Camera-window

TH-CL Series

# TH-CL series

Special Orders



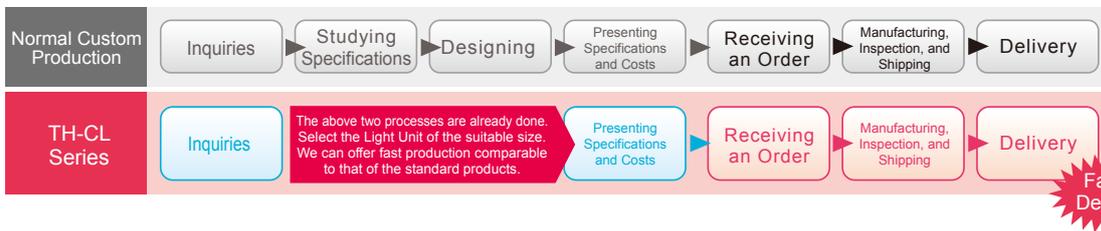
## Do You Face This Problem?

“The standard Light Units don’t have the right size, but studying specifications for custom production is time consuming.”

Let CCS Help You.

### CCS can meet your needs!

Faster specifications development, schematic delivery, and estimates.



## Product Lineup

Model □□ = RD (red) SW (white) BL (blue)	Emitting surface size (mm)	Power consumption (max.)		Weight (max.)
		RD	SW/BL	
TH-30X30□□-CL	30x30	1.6 W	1.9 W	60 g
TH-60X30□□-CL	60x30	3.1 W	3.8 W	90 g
TH-60X60□□-CL	60x60	6.1 W	7.6 W	140 g
TH-90X30□□-CL	90x30	4.6 W	5.7 W	130 g
TH-90X60□□-CL	90x60	9.1 W	12 W	190 g
TH-90X90□□-CL	90x90	14 W	18 W	260 g
TH-120X30□□-CL	120x30	6.1 W	7.6 W	160 g
TH-120X60□□-CL	120x60	13 W	16 W	240 g
TH-120X90□□-CL	120x90	19 W	23 W	320 g
TH-120X120□□-CL	120x120	25 W	31 W	400 g
TH-150X30□□-CL	150x30	7.6 W	9.5 W	230 g
TH-150X60□□-CL	150x60	16 W	19 W	330 g
TH-150X90□□-CL	150x90	23 W	29 W	400 g
TH-150X120□□-CL	150x120	31 W	38 W	480 g
TH-150X150□□-CL	150x150	38 W	48 W	620 g
TH-180X30□□-CL	180x30	9.1 W	12 W	270 g
TH-180X60□□-CL	180x60	19 W	23 W	380 g
TH-180X90□□-CL	180x90	28 W	35 W	490 g
TH-180X120□□-CL	180x120	37 W	46 W	600 g
TH-180X150□□-CL	180x150	46 W	57 W	760 g
TH-180X180□□-CL	180x180	55 W	69 W	870 g
TH-210X30□□-CL	210x30	11 W	14 W	300 g
TH-210X60□□-CL	210x60	22 W	27 W	430 g
TH-210X90□□-CL	210x90	32 W	40 W	550 g
TH-210X120□□-CL	210x120	43 W	53 W	680 g
TH-210X150□□-CL	210x150	53 W	67 W	810 g
TH-210X180□□-CL	210x180	64 W	80 W	930 g
TH-210X210□□-CL	210x210	75 W	93 W	1,060 g

Model □□ = RD (red) SW (white) BL (blue)	Emitting surface size (mm)	Power consumption (max.)		Weight (max.)
		RD	SW/BL	
TH-240X30□□-CL	240x30	13 W	16 W	330 g
TH-240X60□□-CL	240x60	25 W	31 W	470 g
TH-240X90□□-CL	240x90	37 W	46 W	620 g
TH-240X120□□-CL	240x120	49 W	61 W	740 g
TH-240X150□□-CL	240x150	61 W	76 W	860 g
TH-240X180□□-CL	240x180	73 W	91 W	1,000 g
TH-240X210□□-CL	240x210	85 W	106 W	1,170 g
TH-270X30□□-CL	270x30	14 W	18 W	370 g
TH-270X60□□-CL	270x60	28 W	35 W	530 g
TH-270X90□□-CL	270x90	41 W	52 W	680 g
TH-270X120□□-CL	270x120	55 W	69 W	840 g
TH-270X150□□-CL	270x150	69 W	86 W	1,000 g
TH-270X180□□-CL	270x180	82 W	103 W	1,160 g
TH-270X210□□-CL	270x210	96 W	120 W	1,310 g

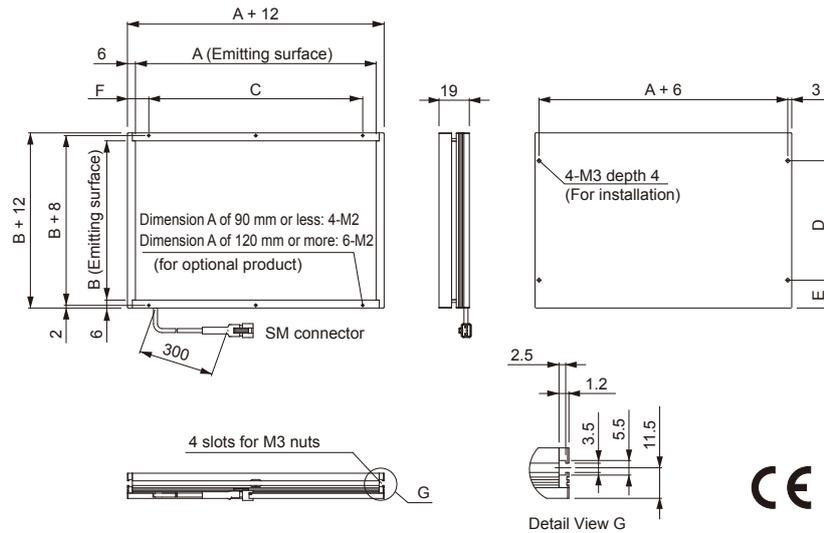
## Common Specifications

LED color	Red (RD)	White (SW)	Blue (BL)
Peak emitted wavelength/correlated color temperature	630 nm	6,600 K*	470 nm
Input voltage	DC24 V (max.)		
Case material	Aluminum alloy, acrylic resin (diffuser)		
Cable length	300 mm		
Operating environment	Temperature: 0 to 40°C, Humidity: 20% to 85% RH (with no condensation)		
Storage environment	Temperature: -20 to 60°C, Humidity: 20% to 85% RH (with no condensation)		
CE Marking	Conforms to safety standard EN 62471		
Cooling method	Natural air cooling		
Spectral distribution			

\* The correlated color temperature is the same as that of TH2 series.  
Value for individual LEDs: 6,600 K (used for TH-CL series)  
Value for the Light Unit: 5,800 K (used for TH2 series)

## 1 Models with an SM Connector (Power Consumption of Less Than 47 W)

(Unit: mm)



TH2 Series  
High-luminance

TH2-PM Series  
High-directivity

TH2 Series  
Large

TH2 Series  
Rectangular

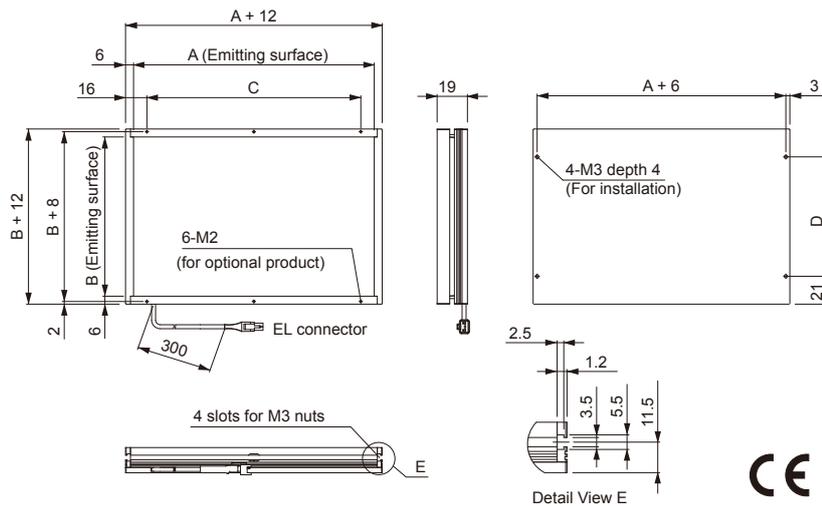
TH2-CR Series  
Camera-window

TH-CL Series

Series and model	A	B	C	D	E	F	Series and model	A	B	C	D	E	F	Series and model	A	B	C	D	E	F
TH-30X30	30	30	20	30	6	11	TH-150X30	150	30	P65x2=130	30	6	16	TH-210X30	210	30	P95x2=190	30	6	16
TH-60X30	60	30	50	30	6	11	TH-150X60	150	60	P65x2=130	60	6	16	TH-210X60	210	60	P95x2=190	60	6	16
TH-60X60	60	60	50	60	6	11	TH-150X90	150	90	P65x2=130	60	21	16	TH-210X90	210	90	P95x2=190	60	21	16
TH-90X30	90	30	80	30	6	11	TH-150X120	150	120	P65x2=130	90	21	16	TH-210X120RD-CL	210	120	P95x2=190	90	21	16
TH-90X60	90	60	80	60	6	11	TH-150X150RD-CL	150	150	P65x2=130	120	21	16	TH-240X30	240	30	P110x2=220	30	6	16
TH-90X90	90	90	80	60	21	11	TH-180X30	180	30	P80x2=160	30	6	16	TH-240X60	240	60	P110x2=220	60	6	16
TH-120X30	120	30	P50x2=100	30	6	16	TH-180X60	180	60	P80x2=160	60	6	16	TH-240X90	240	90	P110x2=220	60	21	16
TH-120X60	120	60	P50x2=100	60	6	16	TH-180X90	180	90	P80x2=160	60	21	16	TH-270X30	270	30	P125x2=250	30	6	16
TH-120X90	120	90	P50x2=100	60	21	16	TH-180X120	180	120	P80x2=160	90	21	16	TH-270X60	270	60	P125x2=250	60	6	16
TH-120X120	120	120	P50x2=100	90	21	16	TH-180X150RD-CL	180	150	P80x2=160	120	21	16	TH-270X90RD-CL	270	90	P125x2=250	60	21	16

## 2 Models with an EL Connector (Power Consumption of 47 W or Higher)

(Unit: mm)

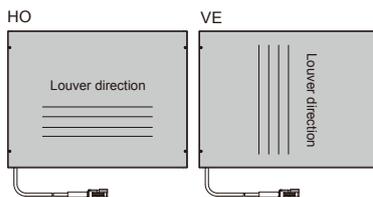
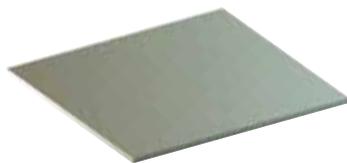


Series and model	A	B	C	D	Series and model	A	B	C	D	Series and model	A	B	C	D
TH-150X150SW-CL/BL-CL	150	150	P65x2=130	120	TH-210X210	210	210	P95x2=190	180	TH-270X120	270	120	P125x2=250	90
TH-180X150SW-CL/BL-CL	180	150	P80x2=160	120	TH-240X120	240	120	P110x2=220	90	TH-270X150	270	150	P125x2=250	120
TH-180X180	180	180	P80x2=160	150	TH-240X150	240	150	P110x2=220	120	TH-270X180	270	180	P125x2=250	150
TH-210X120SW-CL/BL-CL	210	120	P95x2=190	90	TH-240X180	240	180	P110x2=220	150	TH-270X210	270	210	P125x2=250	180
TH-210X150	210	150	P95x2=190	120	TH-240X210	240	210	P110x2=220	180					
TH-210X180	210	180	P95x2=190	150	TH-270X90SW-CL/BL-CL	270	90	P125x2=250	60					

# OPTIONAL ACCESSORIES

## Light Control Films

- Improves parallelism of light to reduce light diffraction.



For the model names that end with "HO":  
The louvers will be horizontal when the Light Control Film is installed on a TH2-series Light Unit with the light cable coming out from the bottom of the Light Unit body, as shown in the figure on the left.

For the model names that end with "VE":  
The louvers will be vertical when the Light Control Film is installed on a TH2-series Light Unit with the light cable coming out from the bottom of the Light Unit body, as shown in the figure on the left.

Model name	Applicable Light Units
LC-TH-27X27-HO	TH2-27X27
LC-TH-27X27-VE	
LC-TH-43X35-HO	TH2-43X35
LC-TH-43X35-VE	
LC-TH-51X51-HO	TH2-51X51
LC-TH-51X51-VE	
LC-TH-63X60-HO	TH2-63X60
LC-TH-63X60-VE	

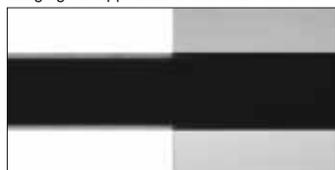
Model name	Applicable Light Units
LC-TH-83X75-HO	TH2-83X75
LC-TH-83X75-VE	
LC-TH-100X100-HO	TH2-100X100
LC-TH-100X100-VE	
LC-TH-140X105-HO	TH2-140X105
LC-TH-140X105-VE	
LC-TH-160X120-HO	TH2-160X120
LC-TH-160X120-VE	

Model name	Applicable Light Units
LC-TH-200X150-HO	TH2-200X150
LC-TH-200X150-VE	
LC-TH-224X170-HO	TH2-224X170
LC-TH-224X170-VE	
LC-TH-211X200-HO	TH2-211X200
LC-TH-211X200-VE	

Note: These accessories are not applicable to the high-directivity-, large-, or camera-window-type Light Units.

### Imaging example

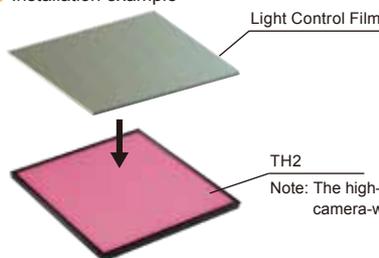
Imaging the appearance of metal round bar



When the Light Control Film is not used.

When the Light Control Film is used.

### Installation example



Secure the Film with the screws that are included as an accessory.

## Brackets

- Secures the Light Units.



Four brackets are included.

Model name	Applicable Light Units
BK-TH-LE12	TH2 Series

Note: This accessory is not applicable to the large-type Light Units or the TH2-300X300-CR35-series Light Units.

### Installation with brackets



Periodically inspect optional products such as polarization and diffusion plates as all of these are consumables. Replace any products that show discoloration or deformation during inspection. CCS recommends maintaining extra optional products on-hand in order to be prepared for replacement.

"CCS", "LIGHTING SOLUTION", and "LNSP" are registered trademarks or trademarks of CCS Inc.

## CAUTION

- To ensure proper and safe use of the product, please read the Instruction Guide completely before using the product.
- The design and specifications of this product are subject to change without notification for product improvement.
- The workpiece imaging examples included in this pamphlet are intended to serve only as references to help you select a suitable Light Unit. Please verify the functionality and conditions required for your particular application before you make a final selection. The sample workpieces used in this pamphlet have been processed specifically for sample imaging. They are not intended to represent product quality and performance.