

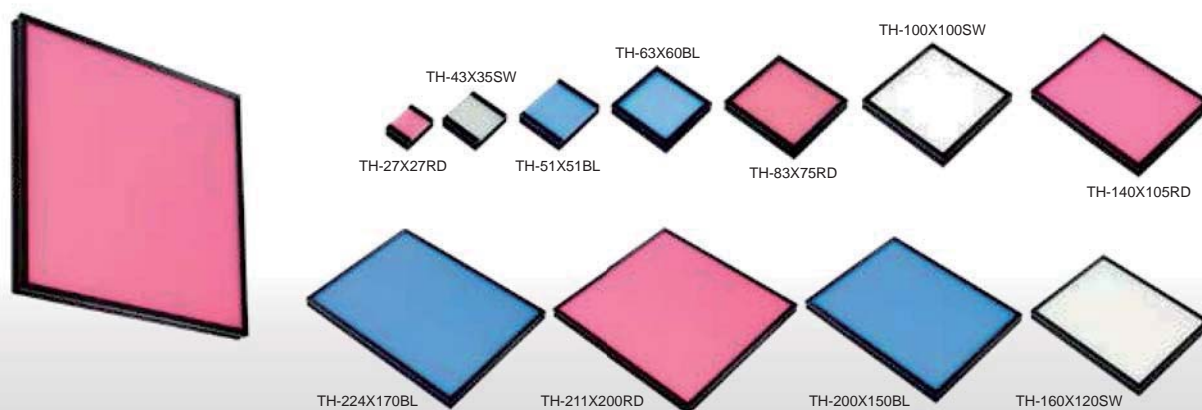
## Diffused Lighting

## Flat Lights

## TH Series

The Flat Lights TH series is scheduled to be discontinued on May 31, 2018.

## Diffuse illumination from a flat emitting surface



## Applications

Dimension measuring, visual inspection, foreign material inspections, liquid level inspection, pinhole inspection, burr inspection of metal parts, etc.

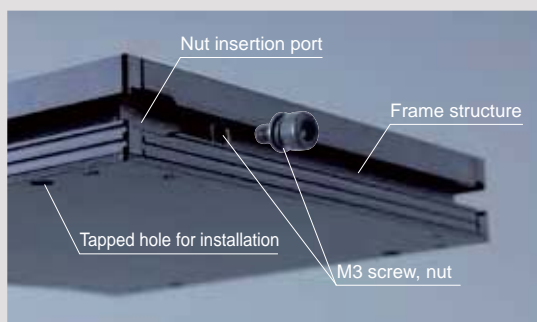
## Rich Variety of Sizes with 11 Types

## Rich variety of sizes

The lineup consists of 33 models, with 11 sizes of emitting surfaces from 27 x 27 mm to 211 x 200 mm in each color.

## Install freely to match your environment

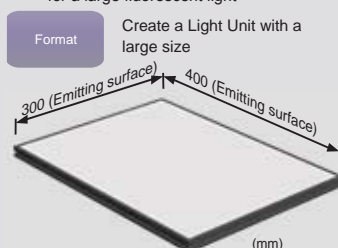
Uses installation method by frame structure. Tapped holes for installation are included not only on the unit side but also on the bottom.



## Custom Orders

Please contact your sales representative.

E.g.: Changed the shape as a replacement for a large fluorescent light



## Customizable items

- External/internal diameter
- Wavelength/color
- Increase output
- Cable length
- Illuminating angle
- Format/material
- Connector format
- Installation/mounting
- etc.

## Flat Lights with High Output

This is a Flat Light with surface-mounted LEDs mounted densely. It illuminates diffused light evenly at high output.

## Achieved significantly higher output than the conventional product

## Conventional Flat Light (Red)



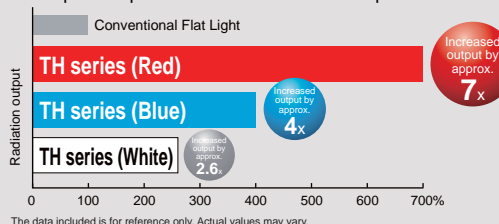
Shutter speed: 1/10,000  
Intensity setting: 100%

## TH series (Red)



Shutter speed: 1/10,000  
Intensity setting: 100%

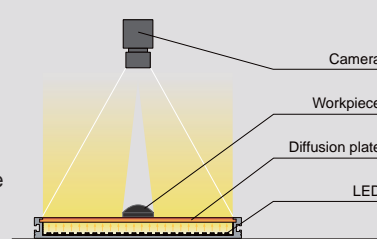
## Output comparison with the conventional product



## Example Configuration

Achieved high output with a flat shape. Light from the LEDs is transmitted through the diffusion panel and illuminated on the rear of the workpiece.

## TH-140X105



## Imaging Example: Imaging Fuse Elements in Glass Tubes



Description	Visual inspection
Workpiece	Glass tube fuses
Conventional lighting	LED Bar Light
New lighting	TH-63X60RD
Result	Emphasized the silhouette

Workpiece image



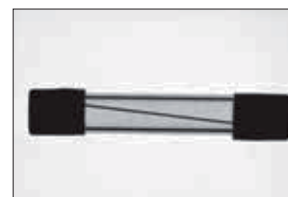
Glass tube fuses

LED Bar Light



Due to reflection from the glass surface, it is difficult to form an image of the element inside the fuse.

TH-63X60RD



Reflection from the glass surface is reduced making it possible to form an image of the element.

## Imaging Example: Imaging Engraved Text on Glass Bottles



Description	Character recognition
Workpiece	Glass bottle
Conventional lighting	LED Bar Light
New lighting	TH-83X75BL
Result	Extracts only the engraved text

Workpiece image



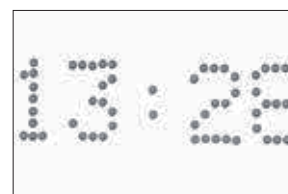
Glass bottles

LED Bar Light



Text cannot be recognized and imaging is difficult.

TH-83X75BL



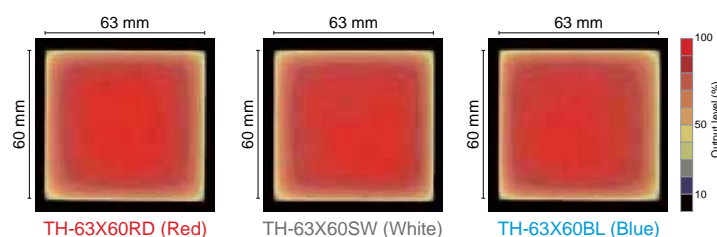
Contrast is good and the text can be clearly imaged.

## Data: Uniformity (Representative Example)

TH-63X60

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

Uniformity (Relative radiance)



Direct Lighting	LDR2 LDR2-LA LDR-LA1 SQR SQR-TP
Diffused Lighting	HPR2 LFR LKR FPR FPQ2 LDL2 LDLB HDL2 HL
Direct Lighting	TH2 (5 types) TH
Diffused Lighting	LFL HPD2 LDM2 LAV PDM LFX3 LFX3-PT LFV3
Coaxial Lighting	MSU MFU
Strobe Lighting	PF
Water-proof Lighting	HLDR-IP/ HSL-PCL
Ultraviolet Lighting	UV2 UV LNSP-UV-FN
Infrared Lighting	IR2
Intensity Control Lighting	IU
Spot Lighting, Etc.	HLV3 HLV2 LV LSP HFS/HFR HLV3-NR HLV3-3M-RGB-4 HLV2-NR HLV2-3M-RGB-3W PFB3 PFB2
Convergent Lighting	LNLP LNSP2 LNSP Coaxial Units LNSP-FN LN/LN-HK
Diffused Lighting	LNSD LND2 HLND LT LNV
Oblique Angled Lighting	LNDG LNIS2 LNIS LNIS-FN
Lenses	Telecentric Lens Macro Lens

## TH Series



The Flat Lights TH series is scheduled to be discontinued on May 31, 2018.

## Lineup

Model name	LED color	Power consumption	Peak wavelength / correlated color temperature	Options	Extension cables	Recommended Control Units	Weight
TH-27X27RD	Red	24 V / 1.9 W	635 nm	<div>Light control film</div> <div>Bracket</div>	<div>FCB*<sup>2</sup> Straight Cable</div> <div>FCB-W*<sup>3</sup> 2-branch Cable</div> <div>FCB-F 4-branch Cable</div> <div>FRCB Robot Cable</div> <p>*2 The cables with a model name that ends with "-ME7", "-EL2", "-PF", or "-PF-EL9" are not included. *3 The cables with a model name that ends with "-EL2" are not included.</p>	<div>PD3</div> <div>CC-ST-1024</div> <div>PSB</div> <div>POD*<sup>1</sup></div>	30 g
TH-27X27SW	White	24 V / 2.2 W	6,600 K				
TH-27X27BL	Blue		470 nm				
TH-43X35RD	Red	24 V / 3.8 W	635 nm				40 g
TH-43X35SW	White	24 V / 3.0 W	6,600 K				
TH-43X35BL	Blue		470 nm				
TH-51X51RD	Red	24 V / 5.1 W	635 nm			60 g	
TH-51X51SW	White	24 V / 5.2 W	6,600 K				
TH-51X51BL	Blue		470 nm				
TH-63X60RD	Red	24 V / 8.1 W	635 nm			100 g	
TH-63X60SW	White	24 V / 7.9 W	6,600 K				
TH-63X60BL	Blue		470 nm				
TH-83X75RD	Red	24 V / 11 W	635 nm			140 g	
TH-83X75SW	White	24 V / 12 W	6,600 K				
TH-83X75BL	Blue		470 nm				
TH-100X100RD	Red	24 V / 19 W	635 nm			200 g	
TH-100X100SW	White	24 V / 18 W	6,600 K				
TH-100X100BL	Blue		470 nm				
TH-140X105RD	Red	24 V / 25 W	635 nm			260 g	
TH-140X105SW	White	24 V / 24 W	6,600 K				
TH-140X105BL	Blue		470 nm				
TH-160X120RD	Red	24 V / 28 W	635 nm			310 g	
TH-160X120SW	White	24 V / 30 W	6,600 K				
TH-160X120BL	Blue		470 nm				
TH-200X150RD	Red	24 V / 38 W	635 nm			440 g	
TH-200X150SW	White	24 V / 37 W	6,600 K				
TH-200X150BL	Blue		470 nm				
TH-224X170RD	Red	24 V / 41 W	635 nm			540 g	
TH-224X170SW	White		6,600 K				
TH-224X170BL	Blue		470 nm				
TH-211X200RD	Red	24 V / 45 W	635 nm			580 g	
TH-211X200SW	White		6,600 K				
TH-211X200BL	Blue		470 nm				
LED Properties: Light Spectrum ▶ P.326		Extension Cables ▶ P.308		Control Unit Selection Guide ▶ P.251		List of Control Unit Specifications ▶ P.253	

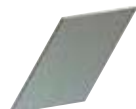
LED Properties: Light Spectrum ▶ P.326

Extension Cables ▶ P.308

Control Unit Selection Guide ▶ P.251

List of Control Unit Specifications ▶ P.253

## Options



In this plastic film are fine louvers with extremely narrow gaps between them. It reduces light diffusion in a particular direction and increases parallelism.

### Light control film

Model name	Applicable Light Unit (Common for all colors)	Model name	Applicable Light Unit (Common for all colors)
LC-TH-27X27-HO	TH-27X27	LC-TH-83X75-HO	TH-83X75
LC-TH-27X27-VE		LC-TH-83X75-VE	
LC-TH-43X35-HO	TH-43X35	LC-TH-100X100-HO	TH-100X100
LC-TH-43X35-VE		LC-TH-100X100-VE	
LC-TH-51X51-HO	TH-51X51	LC-TH-140X105-HO	TH-140X105
LC-TH-51X51-VE		LC-TH-140X105-VE	
LC-TH-63X60-HO	TH-63X60	LC-TH-160X120-HO	TH-160X120
LC-TH-63X60-VE		LC-TH-160X120-VE	

▶ P.304

There are two types of the light control film: the HO and the VE. For details, refer to P. 304.



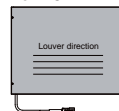
This is a dedicated bracket for affixing the TH series Light Units. The TH series can be affixed in four points.

### Bracket

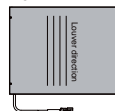
Model name	Applicable Light Unit (Common for all colors)
BK-TH-LE12	Installation bracket common to all TH models (includes 4)

▶ P.305

For HO

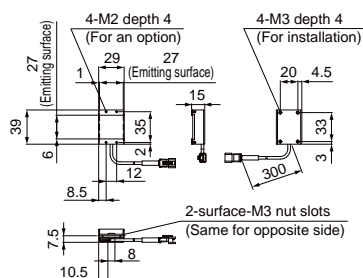


For VE

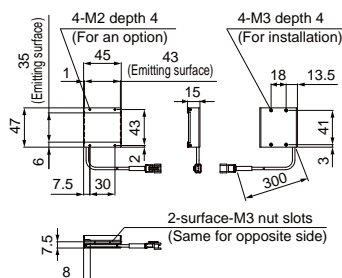


## Dimensions (mm)

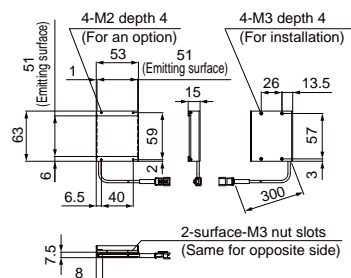
TH-27X27RD/SW/BL



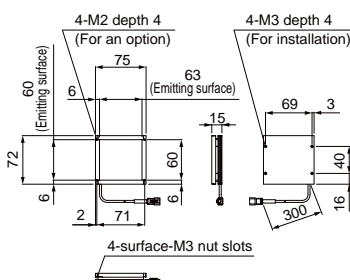
TH-43X35RD/SW/BL



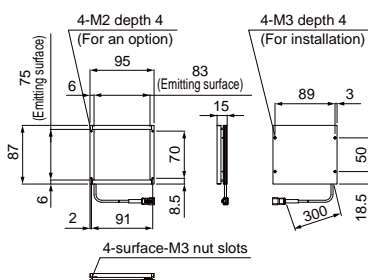
TH-51X51RD/SW/BL



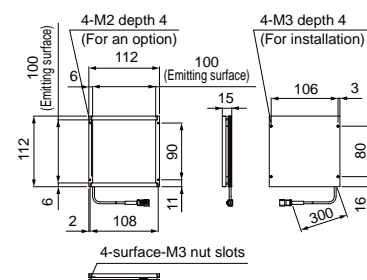
TH-63X60RD/SW/BL



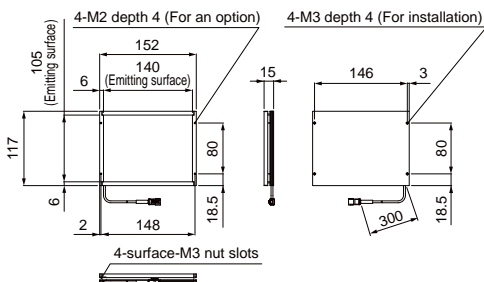
TH-83X75RD/SW/BL



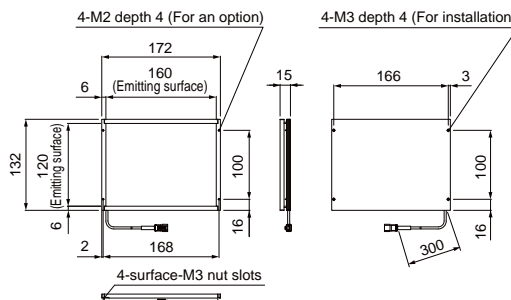
TH-100X100RD/SW/BL



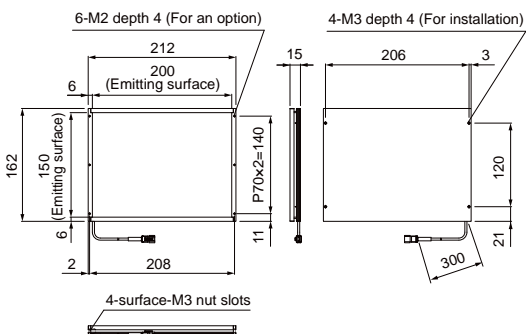
TH-140X105RD/SW/BL



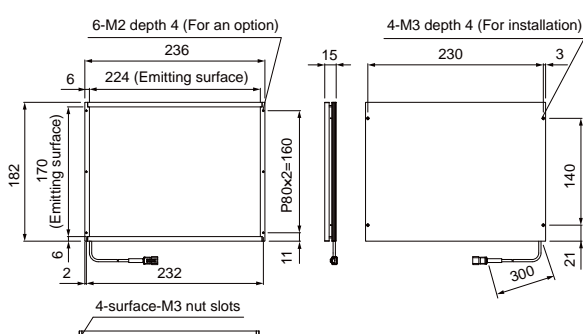
TH-160X120RD/SW/BL



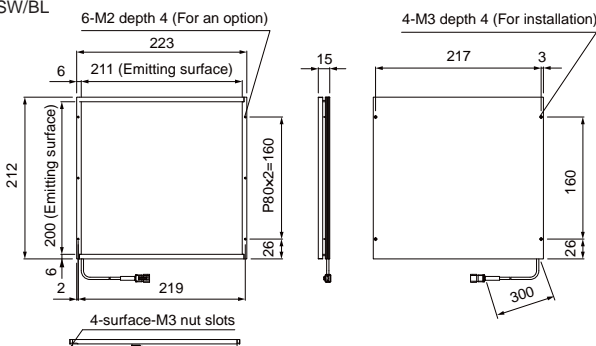
TH-200X150RD/SW/BL



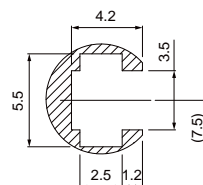
TH-224X170RD/SW/BL



TH-211X200RD/SW/BL



Nut slot detailed figure



You can change the connectors of the Light Unit cable. Choose between M12 connectors and flying leads. Refer to P.5 for details.

Direct Lighting	LDR2 LDR2-LA LDR-LA1 SQR SQR-TP
Diffused Lighting	HPR2 LFR LKR FPR FPQ2
Direct Lighting	LDL2 LDLB HLDL2 HL
Diffused Lighting	TH2 (5 types) TH LFL HPD2 LDM2 LAV PDM LFX3 LFX3-PT LFV3
Command Lighting	MSU MFU
Strobe Lighting	PF
Water-proof	HLDR-IP/ HSL-PCL
Ultraviolet	UV2 UV LNSP-UV-FN
Infrared	IR2
Intensity Control	IU
Spot Lighting, Etc.	HLV3 HLV2 LV LSP HFS/HFR HLV3-NR HLV3-3M-RGB-4 HLV2-NR HLV2-3M-RGB-3W PFB3 PFB2
Convergent Lighting	LNLP LNSP2 LNSP Coaxial Units LNSP-FN LN/LN-HK
Diffused Lighting	LNLD LND2 HLND LT LNV
Oblique Angled Lighting	LNDG LNIS2 LNIS LNIS-FN
Lenses	Telecentric Lens Macro Lens