

**Corner Mirror for SF4D / SF4B / SF2B Series  
RF-SFBH-□**

ME-RFSFBH No.0060-98V

Thank you very much for purchasing Panasonic products. Please read this Instruction Manual carefully and thoroughly for the correct and optimum use of this product. Kindly keep this manual in a convenient place for quick reference.

**⚠ WARNING**

- Make sure to perform maintenance of the light curtain in accordance with the instruction manual of the light curtain.
- Light curtain cannot be used as a retroreflector. Avoid installing the light curtain as a retroreflector when this product is applied.
- The mirror part of this product is made of glass. Note that if it is broken, the glass shards may fly apart.
- Do not use if crack or breakage appears on the reflective surface of this product. Proper sensing range may not be maintained due to diffusion or refraction.  
If crack or breakage appears on the reflective surface of this product, replace the product.
- Do not use if dirt, water, or oil, etc. is attached to the reflective surface of this product. Appropriate sensing range may not be maintained due to diffusion or refraction.
- When adjusting beam channels with a laser alignment tool, etc., take sufficient care that the laser beam reflected by this product is not entered the eyes.
- Failure to follow the above items may result in death or serious injury.

**1 OUTLINE**

- This product is a corner mirror for the light curtain **SF4D** series, **SF4B** series or **SF2B** series.
- Multiple surfaces can be protected with 1 set of the light curtains.
- In the case of the **SF4D** series, up to 3 sets can be installed. In the case of the **SF4B** series or **SF2B** series, up to 2 sets can be installed.

This product should be used in combination with the light curtain. Before using this product, make sure to read the instruction manual enclosed with the light curtain.

**2 CONFIRMATION OF PACKED CONTENTS**

- Following parts are packed.

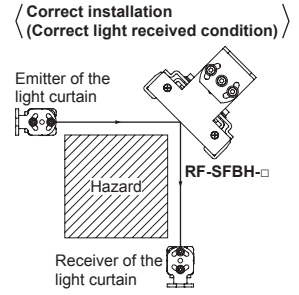
Model No.	Corner mirror	L-shaped mounting bracket	M5 (length 10mm) hexagon-socket-head bolt with washer	Intermediate supporting bracket			
				Intermediate supporting bracket	L-shaped mounting bracket	M5 hexagon-socket-head bolt with washer	
						Length 10mm	Length 12mm
RF-SFBH-8	1 pc.	2 pcs.	6 pcs.	-	-	-	-
RF-SFBH-12							
RF-SFBH-16							
RF-SFBH-20							
RF-SFBH-24							
RF-SFBH-28	1 pc.	2 pcs.	6 pcs.	1 pc.	1 pc.	3 pcs.	2 pcs.
RF-SFBH-32							
RF-SFBH-36							
RF-SFBH-40							
RF-SFBH-48							
RF-SFBH-56	1 pc.	2 pcs.	6 pcs.	2 pcs.	2 pcs.	6 pcs.	4 pcs.
RF-SFBH-64							
RF-SFBH-72							
RF-SFBH-80							
RF-SFBH-88							
RF-SFBH-96							

**3 CAUTIONS**

- This product has been developed / produced for industrial use.
- Avoid dust, dirt, and steam.
- Take care that the product does not come in contact with oil, grease, or organic solvents such as thinner, etc., strong acid or alkaline.
- Avoid using this product in places where it may come in contact with corrosive gas, etc.
- Do not use this product in places subject to intense vibrations or shock that cause misalignment of installation.

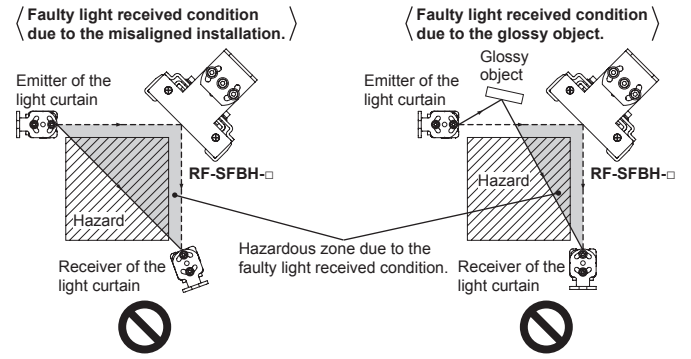
**4 INSTALLATION REQUIREMENTS**

- Make sure to understand the installation requirements (**Installation area, Installation distance, and Reflection angle**) first, and then install this product and the light curtain properly so that the hazard can be protected.



**⚠ WARNING**

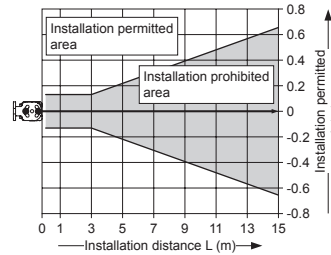
- Due to misaligned installation, if the receiver of the light curtain directly receives the beam from the emitter of the light curtain without involving this product, the hazard may not be protected.
- If the receiver of the light curtain receives the beam from the emitter of the light curtain that is reflected by a glossy object, the hazard may not be protected.
- To avoid the above hazardous situation, be sure to understand the contents below sufficiently, and follow the installation requirements when installing this product and the light curtain. Failure to follow the installation requirements may result in death or serious injury.



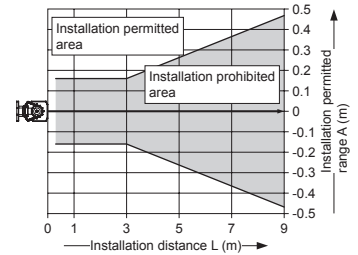
**Installation area**

- The installation area is different between the light curtain.
- Only one **RF-SFBH-□** can be installed for the emitter (or receiver) of the light curtain in the installation prohibited area. Install the receiver (or emitter) of the light curtain, or another **RF-SFBH-□** in the installation permitted area.

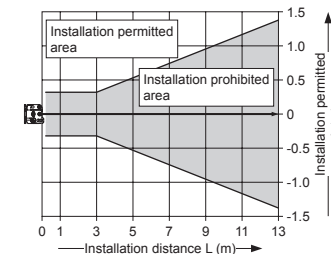
<For SF4D series>



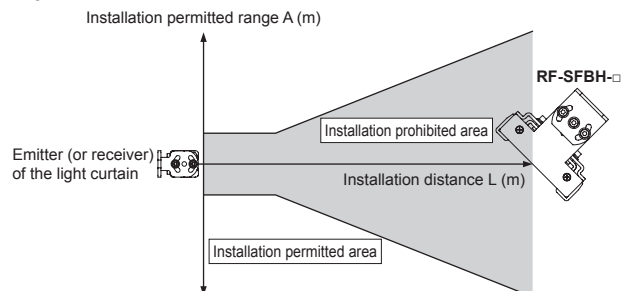
<For SF4B series>



<For SF2B series>

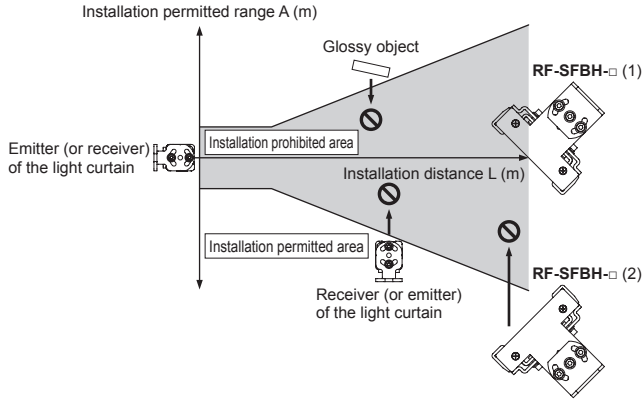


**<Example of correct installation>**



# ⚠ WARNING

- Since the emitter (or receiver) of the light curtain and the **RF-SFBH-□** (2) cannot be installed in the installation prohibited area, be sure to install them in the installation permitted area.
- Since a glossy object cannot be installed in the installation prohibited area either, be sure that no glossy object is present in the installation prohibited area.  
If there is no choice to have a glossy object in the installation prohibited area, take countermeasures such as painting, masking, roughening the glossy surface, or changing the material of the glossy surface, etc.
- Failure to fulfill the above installation requirements leads to an unintended faulty light received condition, and that may result in death or serious injury.



## Installation distance

- Installable distance is determined by multiplying the sensing range of the applied light curtain by attenuation rate of the sensing range (refer to the following table) that corresponds to the number of this products to be installed.
- When the light curtain and this product are installed as follows, **Installation distance (A + B + C + D) ≤ Sensing range of the light curtain × Attenuation rate of the sensing range**
- Installation distance of each A, B, C and D should be 0.3m or more.

### <Example>

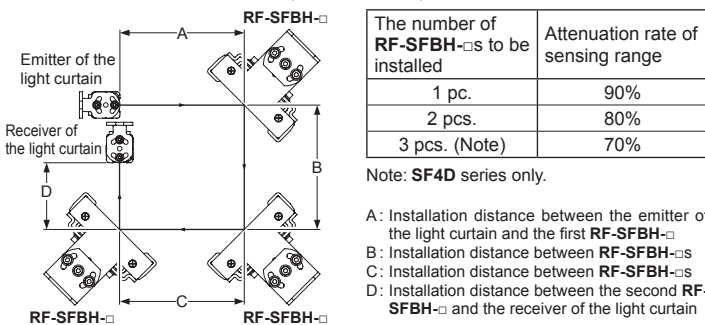
The installation distance (A + B + C + D) when installing the light curtain **SF4D-H20** and 3 pcs. of **RF-SFBH-□** should be as follows.

- Sensing range of the light curtain **SF4D-H20**: 15m (long mode)
- Attenuation rate of the sensing range when 3 pcs. of **RF-SFBH-20** are installed: 70%

Installation distance (A + B + C + D) ≤ Sensing range of the light curtain × Attenuation rate of the sensing range,

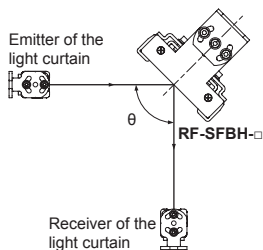
$$\text{Installation distance (A + B + C + D)} \leq 15 \text{ (m)} \times 70 \% \leq 10.5 \text{ (m)}$$

Install the emitter and the receiver of the light curtain and 3 pcs. of **RF-SFBH-□** so that the installation distance (A + B + C + D) is 10.5m or less.



## Reflection angle

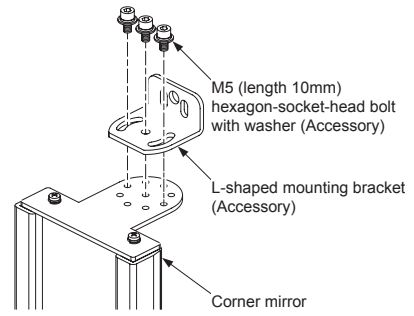
- Install this product so that the reflection angle  $\theta$  is  $60^\circ \leq \theta \leq 100^\circ$ .



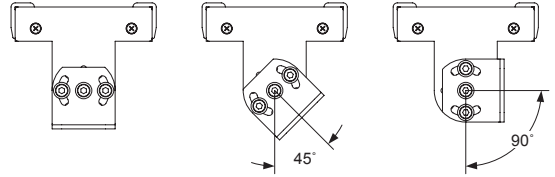
# 5 INSTALLATION REQUIREMENTS

## When mounting L-shaped mounting bracket

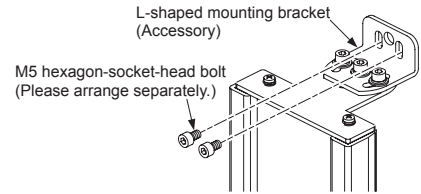
1. Mount the attached L-shaped mounting bracket on the top (bottom) of this product with three M5 (length 10mm) hexagon-socket-head bolts with washers.  
The tightening torque should be 1.5N·m or less.



The angle of this product can be adjusted by 45° each as follows.

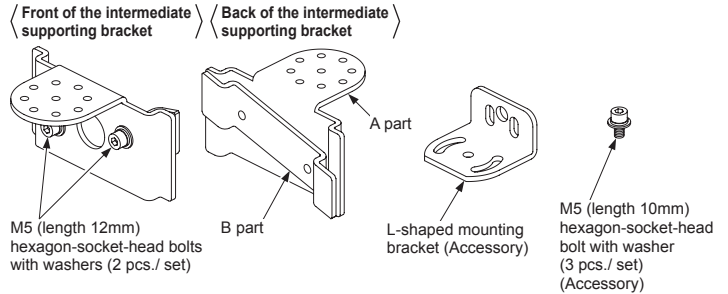


2. Mount the L-shaped mounting bracket on the mounting surface with two M5 hexagon-socket-head bolts (please arrange separately).

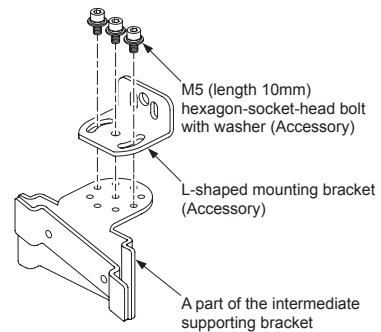


## When mounting intermediate supporting bracket

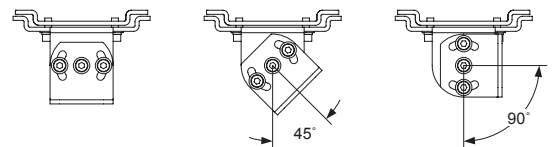
- The intermediate supporting bracket is composed of the following parts.



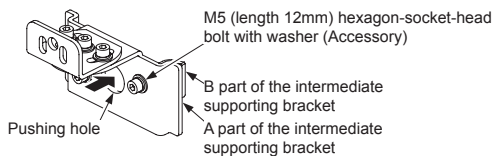
1. Mount the attached L-shaped mounting bracket on the A part of the intermediate supporting bracket with three M5 (length 10mm) hexagon-socket-head bolts with washers.  
The tightening torque should be 1.5N·m or less.



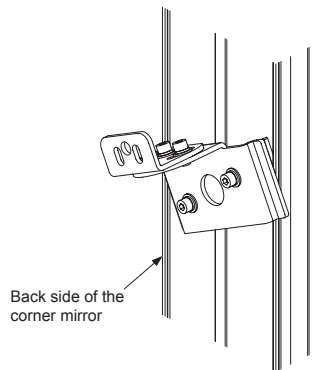
The angle of this product can be adjusted by 45° each as follows.



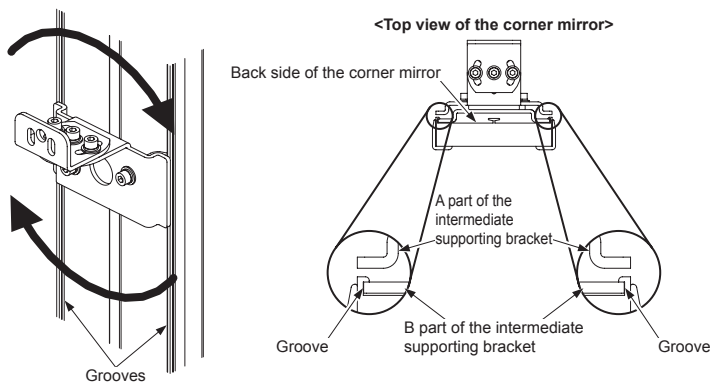
2. Loosen two M5 (length 12mm) hexagon-socket-head bolts with washers until they not to come off. Hold the intermediate supporting bracket while pushing the B part from the pushing hole of the A part.



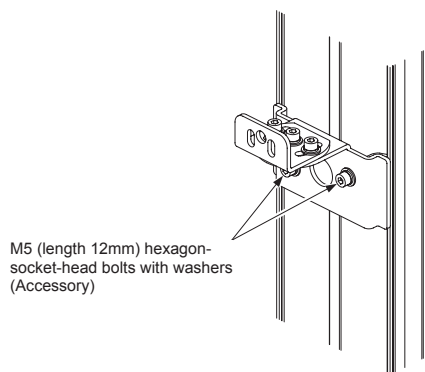
3. Set the intermediate supporting bracket at a tilt to the back side of this product while maintaining the condition in the procedure 2.



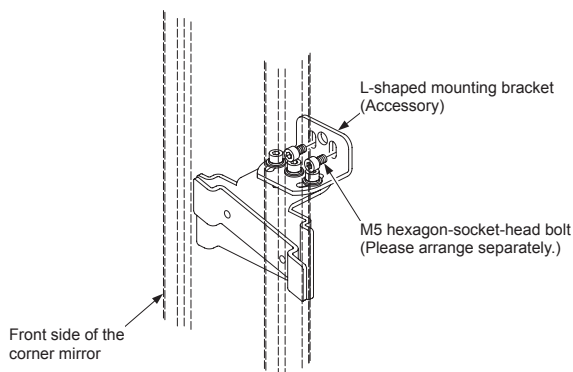
4. Fit the B part to the grooves of this product by rotating the intermediate supporting bracket.



5. Fix the intermediate supporting bracket by tightening the two M5 (length 12mm) hexagon-socket-head bolts with washers. The tightening torque should be 1.5N·m or less.

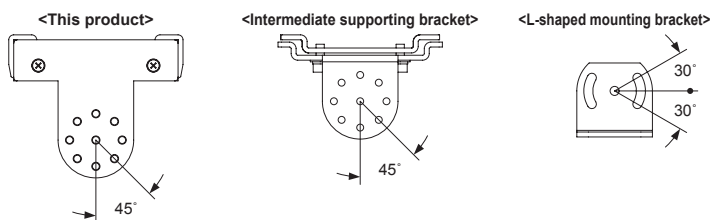


6. Mount it on the mounting surface with two M5 hexagon-socket-head bolts (please arrange separately).



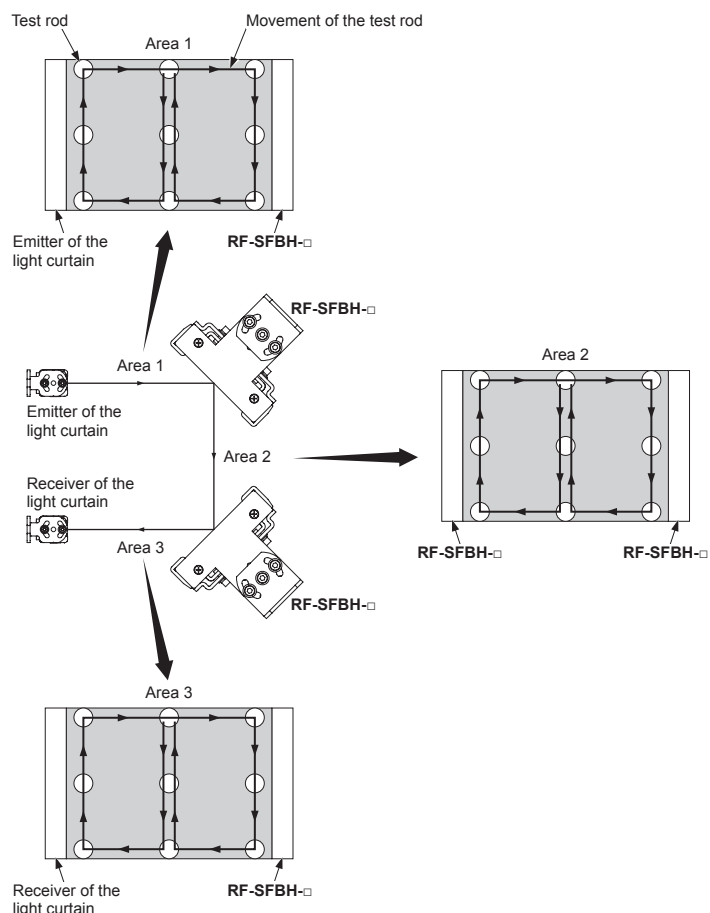
## 6 ANGLE ADJUSTMENT

- The angle of this product can be adjusted by 45° each. In addition, the angle can be minutely adjusted in the range of ±30°.



## 7 MAINTENANCE

- Make sure to conduct an operation test with the test rod enclosed with the light curtain, after installing this product and the light curtain.
- As a daily inspection, conduct the operation test with the test rod enclosed with the light curtain, before the operation.
- The operation test should be performed just in front of the emitter or receiver of the light curtain, just in front of this product, and the middle of each area.



- If any dirt, water, or oil, etc. is attached to the reflective surface of this product, wipe them away with a soft cloth which is moistened with a neutral detergent, etc. After the cleaning, dry the reflective surface with a soft cloth, taking care not to leave any detergent or moisture on the surface.
- Check if there are no loose screws in this product.

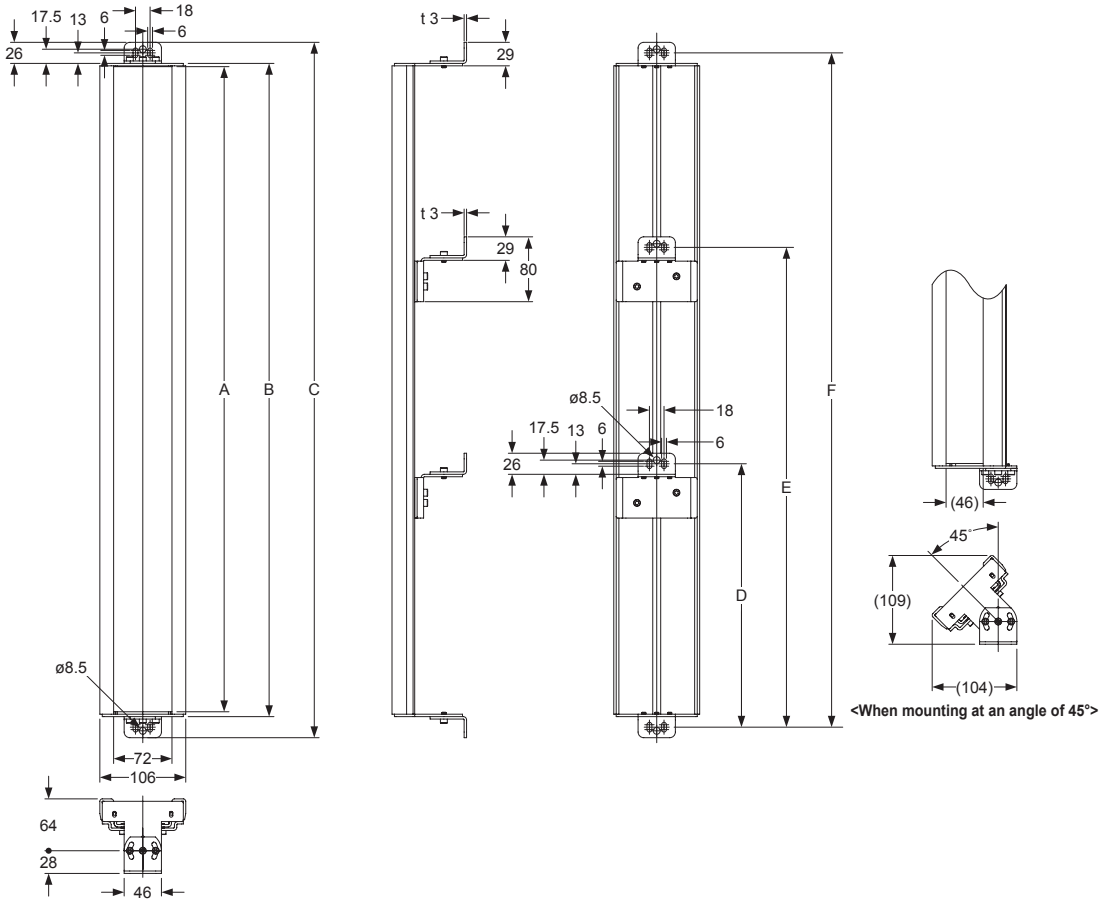
## 8 MAINTENANCE

Model No.	RF-SFBH-8	RF-SFBH-12	RF-SFBH-16	RF-SFBH-20	RF-SFBH-24	RF-SFBH-28	RF-SFBH-32	RF-SFBH-36
Applicable light curtain	SF4D series, SF4B series and SF2B series							
Dimensions of effective reflective surface	173 × 72mm	236 × 72mm	316 × 72mm	396 × 72mm	476 × 72mm	556 × 72mm	636 × 72mm	716 × 72mm
Attenuation rate of sensing range	RF-SFBH-□ × 1 pc.: 90% of the sensing range, RF-SFBH-□ × 2 pcs.: 80% of the sensing range RF-SFBH-□ × 3 pcs. (SF4D series only): 70% of the sensing range							
Ambient temperature	-10 to +55°C (No dew condensation), Storage : -25 to +70°C							
Ambient humidity	30 to 85% RH, Storage: 30 to 95% RH							
Vibration resistance	10 to 55Hz frequency, 0.75mm amplitude in X, Y and Z directions for 2 hours each							
Shock resistance	300m/s <sup>2</sup> acceleration (30G approx.) in X, Y and Z directions for 3 times each							
Material	Enclosure: Aluminium, Mirror (rear surface mirror): Glass, Side cover: EPDM, L-shaped mounting bracket: Stainless steel							
Weight	Approx. 810g	Approx. 970g	Approx. 1,170g	Approx. 1,370g	Approx. 1,570g	Approx. 1,770g	Approx. 1,970g	Approx. 2,170g

Model No.	RF-SFBH-40	RF-SFBH-48	RF-SFBH-56	RF-SFBH-64	RF-SFBH-72	RF-SFBH-80	RF-SFBH-88	RF-SFBH-96
Applicable light curtain	SF4D series, SF4B series and SF2B series							
Dimensions of effective reflective surface	796 × 72mm	956 × 72mm	1,116 × 72mm	1,276 × 72mm	1,436 × 72mm	1,596 × 72mm	1,756 × 72mm	1,916 × 72mm
Attenuation rate of sensing range	RF-SFBH-□ × 1 pc.: 90% of the sensing range, RF-SFBH-□ × 2 pcs.: 80% of the sensing range RF-SFBH-□ × 3 pcs. (SF4D series only): 70% of the sensing range							
Ambient temperature	-10 to +55°C (No dew condensation), Storage : -25 to +70°C							
Ambient humidity	30 to 85% RH, Storage: 30 to 95% RH							
Vibration resistance	10 to 55Hz frequency, 0.75mm amplitude in X, Y and Z directions for 2 hours each							
Shock resistance	300m/s <sup>2</sup> acceleration (30G approx.) in X, Y and Z directions for 3 times each							
Material	Enclosure: Aluminium, Mirror (rear surface mirror): Glass, Side cover: EPDM, L-shaped mounting bracket: Stainless steel, Intermediate supporting bracket: Stainless steel							
Weight	Approx. 2,660g	Approx. 3,060g	Approx. 3,460g	Approx. 3,890g	Approx. 4,550g	Approx. 4,950g	Approx. 5,350g	Approx. 5,750g

Note: As for the accessories, refer to '■ CONFIRMATION OF PACKED CONTENTS.'

## 9 DIMENSIONS (Unit: mm)



Model No.	A	B	C	D	E	F
RF-SFBH-8	173	183	235	—	—	209
RF-SFBH-12	236	246	298	—	—	272
RF-SFBH-16	316	326	378	—	—	352
RF-SFBH-20	396	406	458	—	—	432
RF-SFBH-24	476	486	538	—	—	512
RF-SFBH-28	556	566	618	—	—	592
RF-SFBH-32	636	646	698	—	—	672
RF-SFBH-36	716	726	778	—	—	752
RF-SFBH-40	796	806	858	458±50	—	832
RF-SFBH-48	956	966	1,018	538±50	—	992
RF-SFBH-56	1,116	1,126	1,178	618±50	—	1,152
RF-SFBH-64	1,276	1,286	1,338	698±50	—	1,312
RF-SFBH-72	1,436	1,446	1,498	538±50	1,018±50	1,472
RF-SFBH-80	1,596	1,606	1,658	591±50	1,125±50	1,632
RF-SFBH-88	1,756	1,766	1,818	645±50	1,231±50	1,792
RF-SFBH-96	1,916	1,926	1,978	698±50	1,338±50	1,952

## Panasonic Industrial Devices SUNX Co., Ltd.

<http://panasonic.net/id/pidsx/global>

Overseas Sales Division (Head Office)

2431-1 Ushiyama-cho, Kasugai-shi, Aichi, 486-0901, Japan

Phone: +81-568-33-7861 FAX: +81-568-33-8591

For sales network, please visit our website.

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