

SF4B SERIES Ver.2

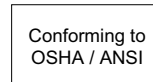
Related Information

- General terms and conditions..... F-17
- Sensor selection guide..... P.511~
- Glossary of terms / General precautions..... P.1359~P.1405
- Korea's S-mark / KC-mark..... P.1410

Ver.2



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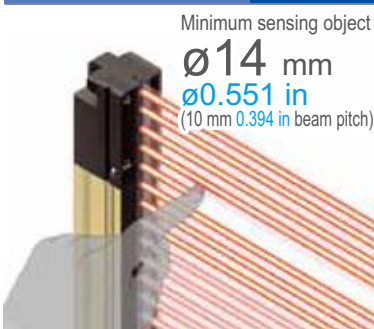


Protection structure IP67

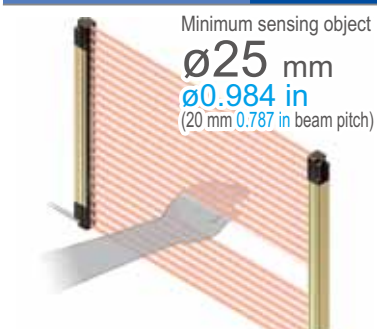
New version with improved environmental resistance performance

It is possible to select from among three types according to the worksite

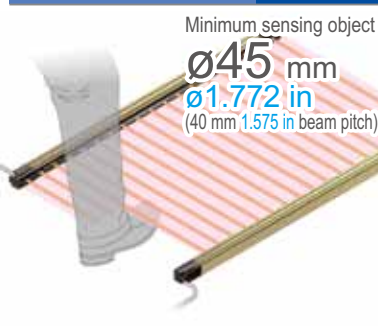
Finger protection type SF4B-F□



Hand protection type SF4B-H□



Arm / Foot protection type SF4B-A□



Global support for press machine / shear (paper cutting machine) safety

Can be widely used for press machines and other types of equipment from Japan, Europe, North America, South Korea, and China.

Type	Model No.	Machinery Directive	EMC Directive	UL Certified	Japanese Press Machine Support	Japanese Shear (Paper Cutter) Support	S-mark certification	Korean Press / Cutting Machine	Chinese GB Compatibility
Light curtains	SF4B-□<V2>	●	●	●	—	—	●	—	●
	SF4B-□-01<V2>	●	●	●	● (No. TA347)	● (No. TA363)	—	—	●
	SF4B-□-03<V2>	●	●	●	—	—	—	● (No.09-AV4BI-0001 to 0009)	—
Control units	SF-C11	●	●	●	● (No. TA348) (Note 1)	—	●	—	—
	SF-C12	●	●	●	—	—	—	—	—
	SF-C13	●	●	●	● (No. TA349) (Note 1)	—	●	—	—
	SF-C14EX	●	●	●	—	—	—	—	—
	SF-C14EX-01	●	●	●	● (No. TA350) (Note 1)	—	—	—	—

Note: In combination with SF4B-□-01<V2>. Please inquire for the details.

APPLICATIONS

Detecting the intrusion and presence of a human being



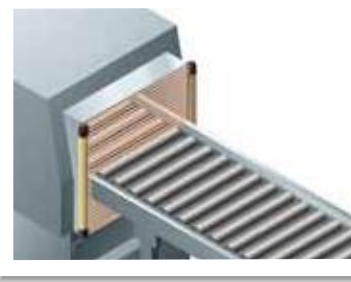
Detecting the intrusion of a human being: Example 1

The light curtains allow you to discriminate between a workpiece and a human being by performing muting control for each beam axis.

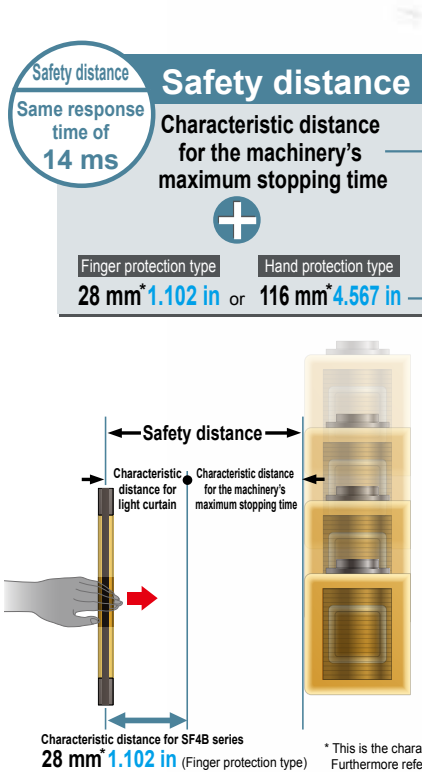


Detecting the intrusion of a human being: Example 2

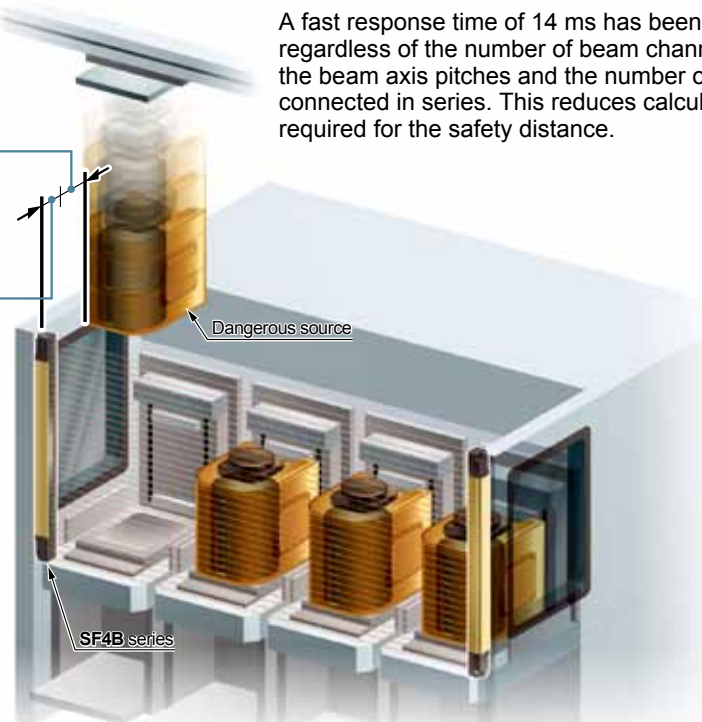
By using the fixed blanking function, obstacles that always exist are ignored.



A unified response time of 14 ms for all models makes setup easy



A fast response time of 14 ms has been achieved regardless of the number of beam channels, the beam axis pitches and the number of units connected in series. This reduces calculation work required for the safety distance.

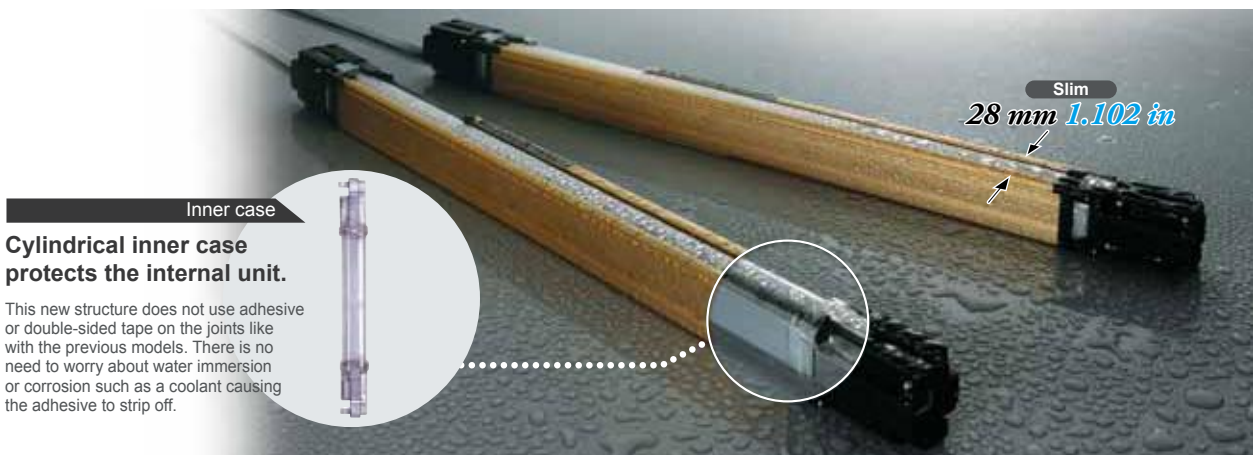


* This is the characteristic safety distance for the light curtain as defined by ISO 13855. Calculate the safety distance by including the machinery's maximum stopping time. Furthermore refer to the relevant standards of the region where this device is to be used, and then install this device.

Improved environmental resistance performance and easier operability

Protection structure IP67 is achieved in such size

A seamless structure with least seam area possible is newly developed. The inner unit is protected by a cylindrical inner case. Seams such as unit and lens surfaces have been greatly reduced, so that particles such as oil mists and dust are prevented from getting in, rising its environmental resistance performance.



Cylindrical inner case protects the internal unit.

This new structure does not use adhesive or double-sided tape on the joints like with the previous models. There is no need to worry about water immersion or corrosion such as a coolant causing the adhesive to strip off.

Achieving protection structure IP67 while keeping its slim body.

- FIBER SENSORS
- LASER SENSORS
- PHOTOELECTRIC SENSORS
- MICRO PHOTOELECTRIC SENSORS
- AREA SENSORS
- LIGHT CURTAINS**
- PRESSURE / FLOW SENSORS
- INDUCTIVE PROXIMITY SENSORS
- PARTICULAR USE SENSORS
- SENSOR OPTIONS
- SIMPLE WIRE-SAVING UNITS
- WIRE-SAVING SYSTEMS
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- Optical Touch Switch
- Definition of Sensing Heights

- SF4C
- SF4B**
- SF4B-G
- SF2B
- BSF4-AH80

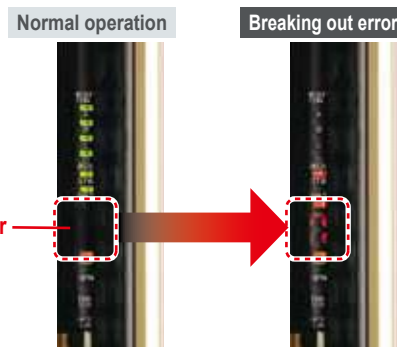
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- B5F4-AH80

Error details can be understood at a glance with a digital error indicator

The system constantly checks the light curtain for problems such as incorrect cable wiring, disconnection, short-circuits, internal circuit problems, and incoming light problems. Details of any electrical problems such as at equipment startup will appear on the digital display. The inconvenience of the previous method of counting the number of LED blinks is no longer needed.

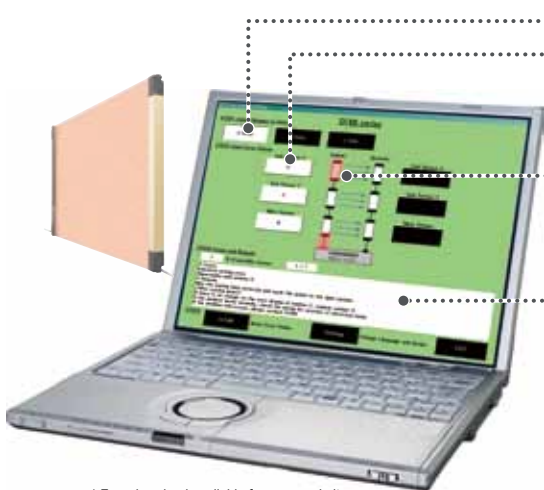


Error number notification means smooth support via telephone



Locate problems easily and quickly by light curtain diagnosis software

Simply select the error no. that is displayed on the light curtain on the PC screen, and the section of error will be displayed visually. Coping process is also displayed for a quick resolution of the problem.



* Free download available from our website.

- STEP 1 Select the number of connected light curtains (1, 2, 3)
- STEP 2 Enter the error condition (error no.) (0, 1...9, F)

Diagnosis starts!

Section of error blinks

Coping process is displayed

- No need to connect to light curtain
- Software can diagnose as many light curtains as possible
- Diagnosis on the spot to ensure maintenance
- Misconnection can also be diagnosed, which contributes to shortened start-up time

[Diagnosis software operation conditions]

Operable in Windows XP or Windows XP embedded (Jap / Eng).

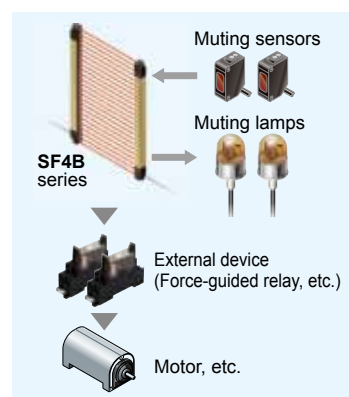
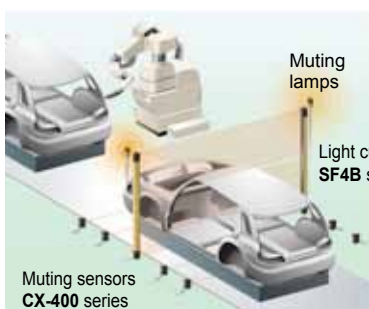
Approx. 1.5 MB of free space is required. Installation is not required. Operates by executable file (EXE).

* Windows® is a registered trademark of Microsoft Corporation in the United States and other countries.

A muting control function is provided to increase both safety and productivity

(excluding SF4B-□-03<V2>)

The light curtain is equipped with a muting control function that causes the line to stop only when a person passes through the light curtain, and does not stop the line when an object passes through. The muting sensors and muting lamps can be connected directly to the light curtain so that an exclusive controller is not required for muting. This both reduces costs and increases safety and productivity.

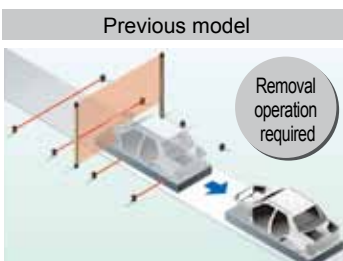


Override function allows the line to be restarted smoothly after it has stopped while muting control was active

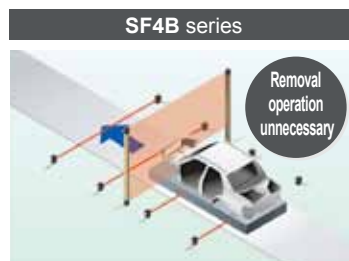
(excluding SF4B-□-03<V2>)

In case the power turns off while the light curtain has been interrupted by an object or in case the line stops before the muting conditions have been established (if only one muting sensor has been interrupted), the line can be restarted smoothly without having to remove the object that is interrupting the light curtain.

(e.g.) When power turns off while light curtain was interrupted



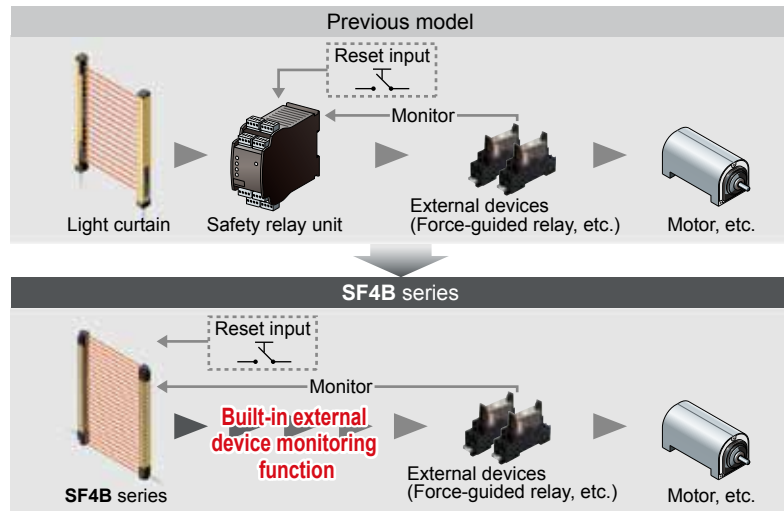
Object must be removed before restart



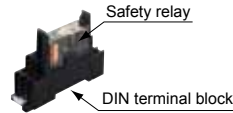
Smooth restart

Equipped with a safety circuit that does not require an exclusive safety relay unit

The light curtain has a built-in external device monitoring function (such as for fused relay monitoring) and an interlock function. The safety circuit is constructed so that a separate safety relay unit is not needed, and the control board has become smaller to help to contribute to lower costs.



- Safety relay
Panasonic Electric Works Ltd.
SF series



Note: Contact the manufacturers for details on the recommended products.

Beam-axis alignment indicators show the incident light position at a glance

Beam-axis alignment indicators display the beam channels of the light curtain in four blocks. When the beam channel at the bottommost channel (or topmost channel), which is used as a reference for beam-axis alignments, is correctly aligned, the LED blinks red. After this, each block lights red as the beam axes successively become aligned. When all channel beam axes are aligned, all LEDs light green. The display also has a stability indicator (STB) added so that setup can be carried out with greater stability.

Supports both PNP and NPN polarities in a single model

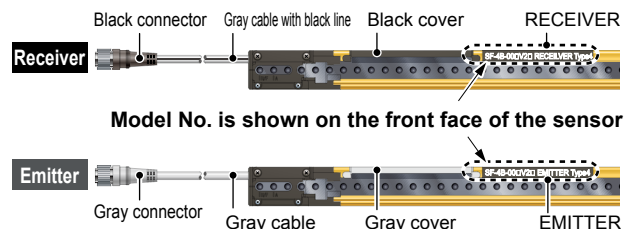
The **SF4B** series combines PNP transistor output and NPN transistor output in a single model. Overseas equipment that uses PNP, replacement with NPN sensors, factories that are positively grounded, and transfer of equipment overseas are all situations where the control circuits for a single model are suitable for use worldwide.



PNP / NPN polarity indicator
Either PNP or NPN side lights depending on which is selected.

Easy to distinguish receiver and emitter

Emitter is in gray; receiver is in black. Whether during startup or maintenance, troubles due to incorrect wiring or false recognition can be greatly reduced. Moreover, model No. can be confirmed from the front face of the light curtain.



Mutual interference is reduced without needing for interference prevention lines

The light curtain is equipped with the ELCA (Extraneous Light Check & Avoid) function. Because it automatically shifts the scan timing of the light curtain in order to avoid interference, it is not necessary to wire interference prevention lines between machineries.

Reducing the number of malfunctions caused by extraneous light

Double scanning method and retry processing are two new functions exclusive to our company, which are effective in eliminating the effects of momentary extraneous light from peripheral equipment. The reduction in operating errors caused by extraneous light reduces frequent stopping of machinery.

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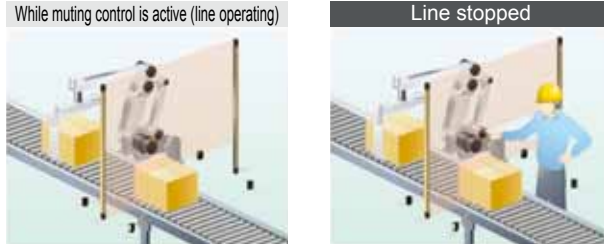
SF4C**SF4B****SF4B-G****SF2B****BSF4-AH80**

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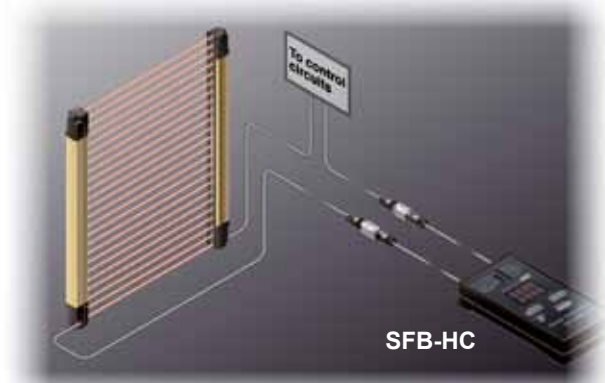
Handy-controller SFB-HC that enables the user to select a variety of settings

Separate muting control function for each beam channel

The handy-controller **SFB-HC*** (optional) can be used to carry out muting control for specified beam channels only. Because individual beam channel can be specified to suit the object, separate guards to prevent entry do not need to be set up.



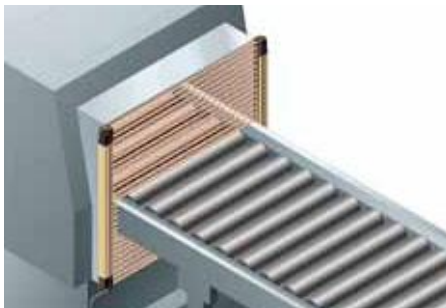
For example, depending on the height of the object, the muting function can be activated for 10 beam channels starting from the bottom, so that if the 11th or subsequent beam channels are interrupted, it is judged that a person has entered the area and the line stops.



* A handy-controller cannot be used with the **SF4B-□-01<V2>**, **SF4B-□-03<V2>** and the **SF-C14EX-01**.

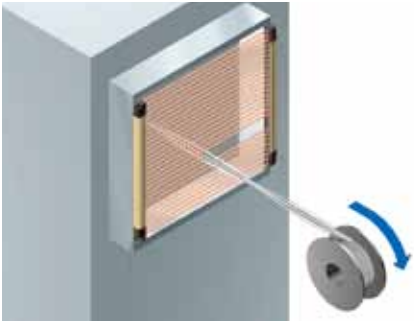
Any valid beam channels can be selected The SF4B series incorporates a fixed blanking function.

The **SF4B** series is equipped with a fixed blanking function which allows specific beam channels to be selectively interrupted without causing the control output (OSSD) to output the OFF signal. This function is convenient for use with applications in which certain fixed obstacles tend to block specific beam channels. Furthermore, this function provides greater safety as the control output (OSSD) will automatically output the OFF signal if the fixed obstacles are subsequently removed from the sensing area.



Non-specified beam channels can be deactivated The SF4B series incorporates a floating blanking function.

1, 2 or 3 non-specified beam channels can be deactivated. If the number of beam channels that are blocked is less than or equal to the set number of beam channels, then the control output (OSSD) will not output the OFF signal. This function is useful in the event when the positions of obstacles within the sensing area must be changed during object rearrangement, or when an object passes through the light curtain's sensing area.



Note: When the floating blanking function is used, the size of the min. sensing object is changed. Refer to "PRECAUTIONS FOR PROPER USE" for details.

Auxiliary output has selectable output configuration

Mode No.	Description
0	Negative logic of the control output (OSSD 1, OSSD 2) (factory setting)
1	Positive logic of the control output (OSSD 1, OSSD 2)
2	For emission: output ON, For non-emission: output OFF
3	For emission: output OFF, For non-emission: output ON
4	For unstable incident beam: OFF (Note 1)
5	For unstable incident beam: ON (Note 1)
6	For muting: ON
7	For muting: OFF
8	For beam received: ON, For beam interrupted: OFF (Note 2)
9	For beam received: OFF, For beam interrupted: ON (Note 2)

Notes: 1) The output cannot be used while the fix blanking function, floating blanking function or the muting function is activated.
 2) This device outputs the beam received / interrupted state under activating the auxiliary output switching function using the handy controller irrespective of activating other functions, fixed blanking function, floating blanking function, and muting function.

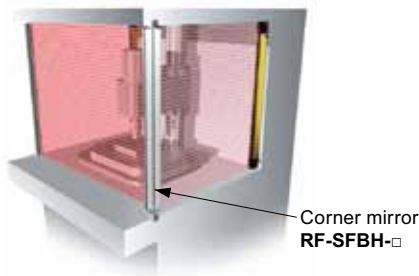
A variety of other functions can be selected

- Emission intensity control function**
 This function reduces the amount of emitting light. The two modes, normal mode and short mode, can be selected. The factory setting is set to the normal mode for the emission intensity control function.
- Setting monitoring function**
 This function allows the user to confirm the details of each light curtain setting.
- Protection function**
 Unless the password is not input, any setting change of the light curtain cannot be allowed. The factory setting is set to invalid for the protect function.
- Copy function**
 Allows settings details to be copied into other light curtains. In the event that the same setting must be input into several different light curtains, this function will reduce the time required for the input of settings.
- Muting lamp diagnosis setting**
 When the muting lamp diagnosis is disabled, the muting function will continue to operate even if the lamp is blown.

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A large reduction in cost by using corner mirror

A single corner mirror makes it possible to eliminate one light curtain set and its associated peripheral safety circuits. This enables costs to be greatly reduced, and also eliminates wiring needs. Control categories also remain unchanged.



Normally for L-shaped or U-shaped installation, 2 or 3 sets of light curtains are needed. With the use of a corner mirror reflecting the light, one set of light curtain is possible for L-shaped or U-shaped installation.



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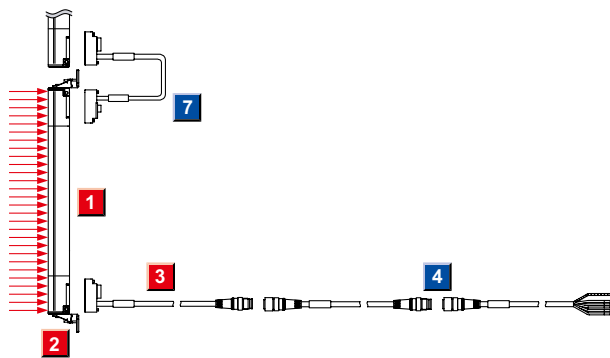
SF2B

BSF4-AH80

PRODUCT CONFIGURATION

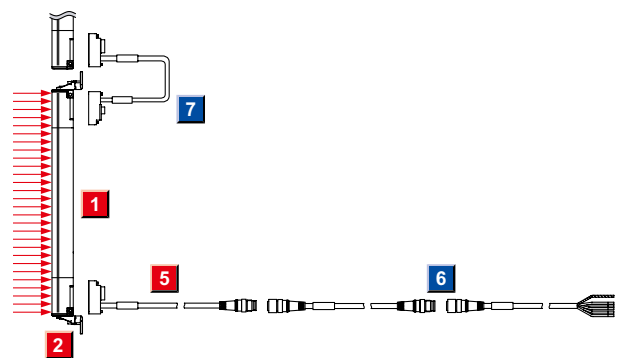
Mounting bracket and mating cable are optional.

Standard components (8-core cable)



Component parts	
Required	1 Light curtain
	2 Mounting bracket (Optional)
	3 8-core bottom cap cable (Optional)
	4 8-core extension cable (Optional, use for cable extension)
	7 Cable for series connection (Optional, use for connection in series)

Muting control components (12-core cable, with interference prevention wire)



Component parts	
Required	1 Light curtain
	2 Mounting bracket (Optional)
	5 12-core bottom cap cable (Optional)
	6 12-core extension cable (Optional, use for cable extension)
	7 Cable for series connection (Optional, use for connection in series)