OMRON

SAFETY, TECHNOLOGY & INNOVATION

Safety Light Curtain
F3SJ-B□□□□□25 Series
F3SJ-E□□□□□25 Series

Quick Installation Manual

Relevant manual	Cat. No.
Safty Light Curtain F3SJ-E/B User's Manual	SCHG-732(PNP) SCHG-733(NPN)

Original instructions

3126345-4B

Introduction

Thank you for purchasing the F3SJ-E/B Series Safety Light Curtain (hereinafter referred to as the "F3SJ-E/B"). This document is a brief description from wiring to pre-operation checklists / maintenance checklists of F3SJ-E/B. For details, download and read F3SJ-E/B operation manual and user's manual from Omron's website. https://industrial.omron.us/en/home

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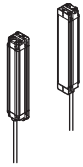
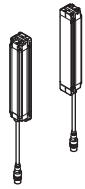
  </td><td>Emitter x 1, Receiver x 1
Functional Setting
<table><tr><th>Function</th><th>Factory Default Setting</th></tr><tr><td>External Test</td><td>PNP: Enabled when Vs-3V to Vs*1 applied
NPN: Enabled when 0V to 3V applied</td></tr></table>*1 Vs here means the voltage value under use environment.
For details, refer to F3SJ-E/B series user's manual.</td></tr>
<tr><td>F3SJ-B□□□□□25 main unit
  </td><td>Emitter x 1, Receiver x 1
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For details, refer to F3SJ-E/B series user's manual.</td></tr>
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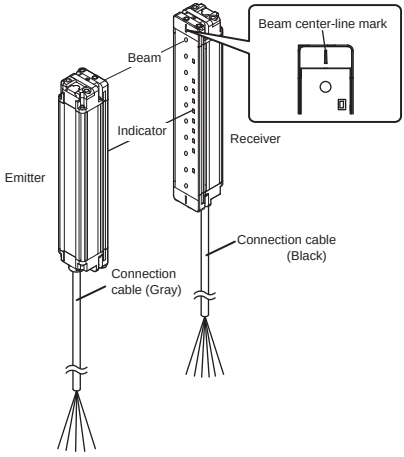
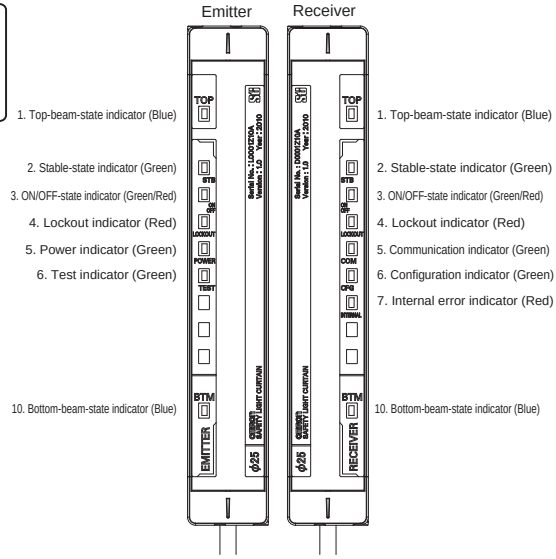
For ratings/specifications, input/output circuit, LED indicator status and troubleshooting, refer to *Safety Light Curtain F3SJ-E/B Series User's Manual*.

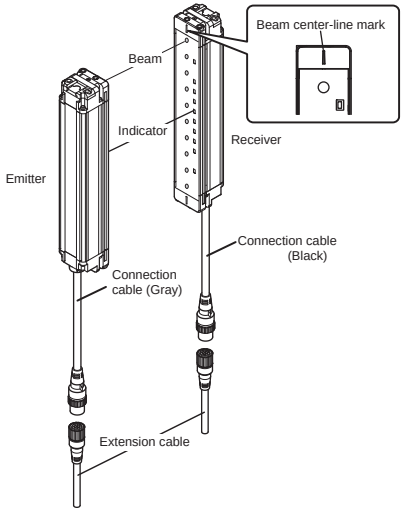
2. System Components

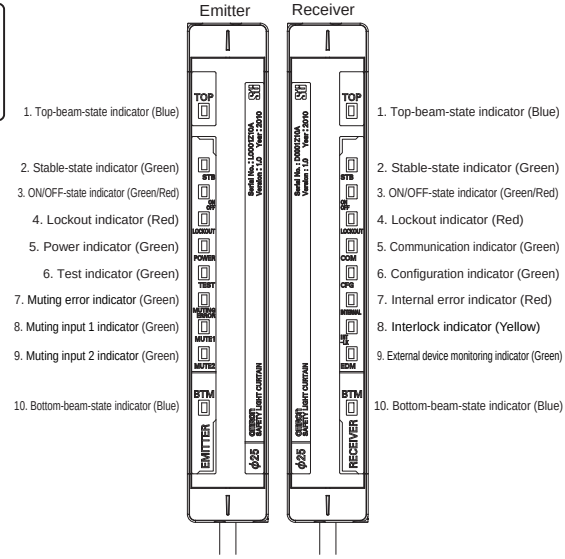
F3SJ-E



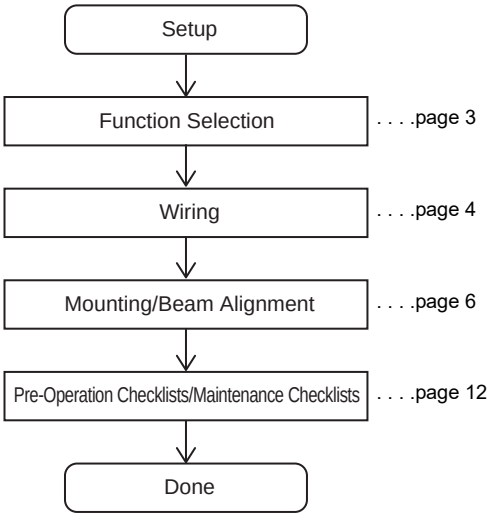


F3SJ-B





3. Light Curtain Setup Flow

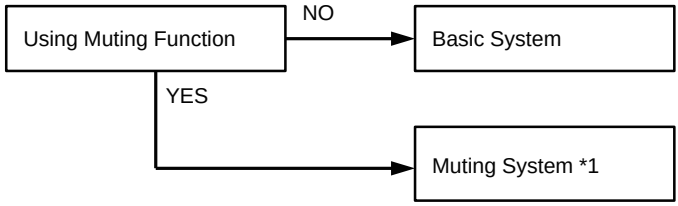


4. Function Selection Flow Chart

F3SJ-E
Wiring depends on the function to be used. Shown below are functions available for F3SJ-E.

- External Test Function

F3SJ-B
Required system configuration depends on functions to be used. Use the following flow chart to determine the system.



*1 Muting Key Cap (F39-CN10) is necessary.

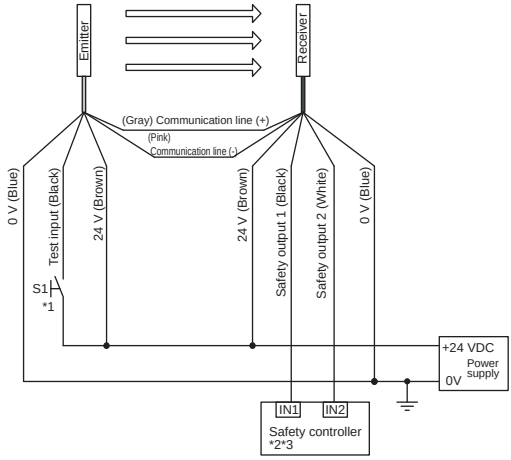
For configuration to use the muting function, refer to *F3SJ-E/B series user's manual*.

5.Wiring Examples

For wiring examples of input/output circuit and other wiring examples than below, refer to *F3SJ-E/B series user's manual*.

F3SJ-E

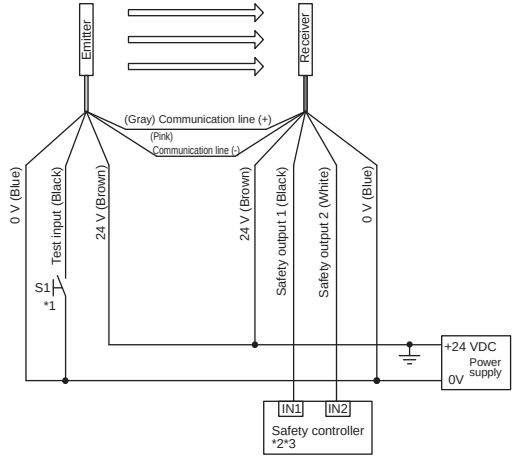
5-1. Auto reset mode, external test used, PNP output



S1: External test/lockout reset switch (connect to 0V if the switch is not necessary)

*1: Use a switch for micro loads (Input specifications: 24V, 1.0mA or less)
*2: For available controller to connect, refer to *F3SJ-E/B series user's manual*.
*3: The safety controller and F3SJ-E/B must share the power supply or power supply common terminal.

5-2. Auto reset mode, external test used, NPN output



S1: External test/lockout reset switch (connect to 24V if the switch is not necessary)

*1: Use a switch for micro loads (Input specifications: 24V, 1.0mA or less)
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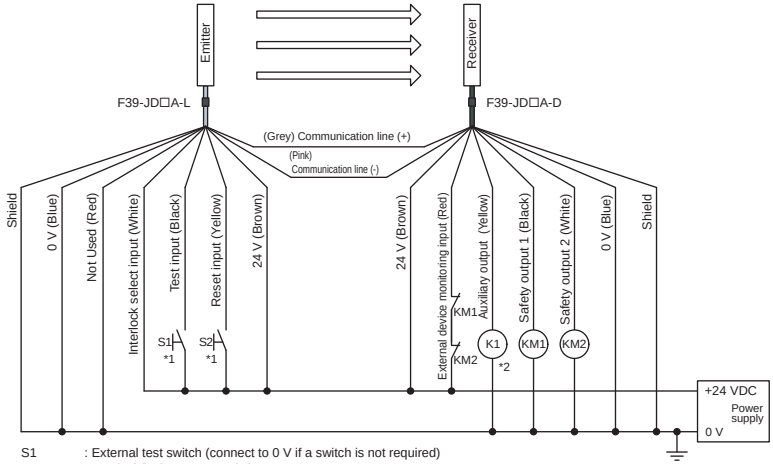
*3: The safety controller and F3SJ-E/B must share the power supply or power supply common terminal.

F3SJ-B

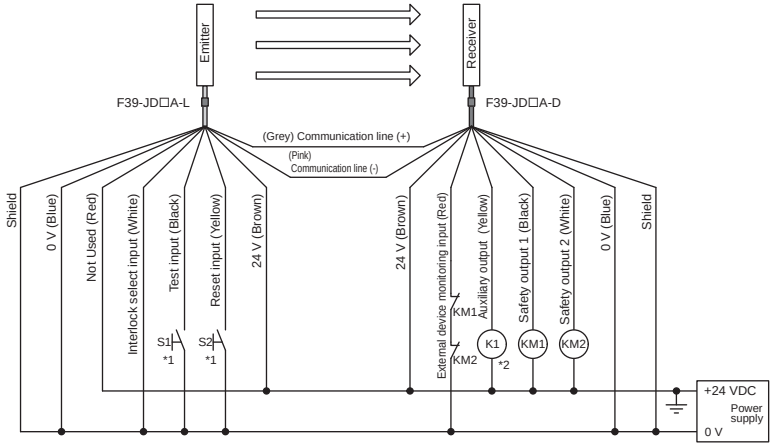
5-3. EDM used, manual reset mode, external test used, muting function not used, PNP output



S1 : External test switch (connect to 0 V if a switch is not required)
S2 : Interlock/lockout reset switch
KM1, KM2 : Safety relay with force-guided contact (G7SA) or magnetic contactor
K1 : Load or PLC, etc. (for monitoring)

*1 Use a switch for micro loads (Input specifications: 24V, 1.0mA or less)
*2 F3SJ can work even if K1 is not connected.

5-4. EDM used, manual reset mode, external test used, muting function not used, NPN output



S1 : External test switch (connect to 24 V if a switch is not required)
S2 : Interlock/lockout reset switch
KM1, KM2 : Safety relay with force-guided contact (G7SA) or magnetic contactor
K1 : Load or PLC, etc. (for monitoring)

*1 Use a switch for micro loads (Input specifications: 24V, 1.0mA or less)
*2 F3SJ can work even if K1 is not connected.

6. Mounting and Beam Alignment

For brackets other than top/bottom brackets (F39-LJB1) and intermediate brackets (F39-LJB2) as well as external dimensions and mounting, refer to *F3SJ-E/B series user's manual*.

6-1. Mutual Interference Prevention

■Series Connection

Up to three sets of F3SJ-Bs can be series-connected. Series connection allows them to be used as a safety light curtain, requiring only one set to be wired to a controller and preventing mutual interference.
If any one set of series-connected F3SJ-B is blocked, both of the safety outputs turn OFF. The indication LED for each F3SJ-B turns ON separately.

- Number of connections: Up to three sets
- Total number of beams: Up to 192 beams
- Connection cable length between two F3SJ-Bs in series connection: 7 m max.

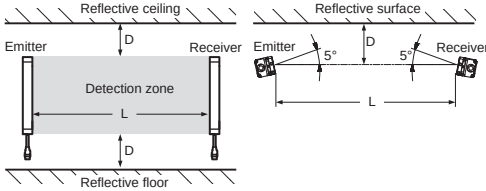
■No Connection

Mutual interference is prevented in up to 3 sets, using interference light avoidance algorithm. If 4 or more sets of F3SJ-E/B are installed and are not connected to each other, arrange them so that mutual interference does not occur. If 2 sets are installed near each other, reflection from the surface of the F3SJ-E/B may cause mutual interference. When mutual interference occurs, the safety outputs are turned OFF in a moment or the F3SJ-E/B enters lockout. Combining countermeasures 1 to 4 shown below is effective.

1. Install a physical barrier between 2 sets
2. Alternate the direction of emission between 2 sets (alternation) If 2 sets are installed near each other, reflection from the surfaces may cause mutual interference. For such a case, it can be improved by reducing operating range through the setting tool (see Step 3).
3. Reducing operating range (setting change by the setting tool is required)
4. Keep sufficient distance between the F3SJ-E/Bs so that mutual interference does not occur

6-2. Distance from Reflective Surfaces

Install the sensor system at distance D or further from highly reflective surfaces such as metallic walls, floors, ceilings, or workpieces, as shown below.



Distance between an emitter and a receiver (operating range L)	Allowable installation distance D
0.2 to 3 m	0.13 m
More than 3 m	L/2 x tan5 ° = L x 0.044 (m)

6-3. Safety Distance

How to calculate the safety distance specified by International Standard ISO 13855(European standard EN ISO 13855)(Reference)

■If a person approaches the detection zone of the F3SJ-E/B perpendicularly

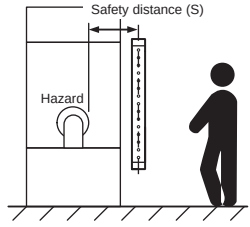
S = K x T + C . . . Formula (1)

- S: Safety distance
- K: Approach speed to the detection zone
- T: Total response time of the machine and F3SJ-E/B
- C: Additional distance calculated by the detection capability of the F3SJ-E/B

<System that has detection capability of 30mm or less>

Use K = 2,000mm/s and C = 8 x (d - 14mm) in formula (1) for the calculation.
S = 2,000mm/s x (Tm + Ts) + 8 x (d - 14mm)

- S = Safety distance (mm)
- Tm = Machine's response time (s)
- Ts = Response time of the F3SJ-E/B from ON to OFF (s)
- d = Detection capability of the F3SJ-E/B (mm)



Please refer to the user's manual for calculation of following safety distance.

■Possible circumventing by reaching over the detection zone

■In case of horizontal approach of a human body to F3SJ-E/B's detection zone

■How to calculate the safety distance specified by American standard ANSI B11.19(reference)

6-4. External dimensions to attach the top/bottom brackets (F39-LJB1) and intermediate brackets (F39-LJB2)

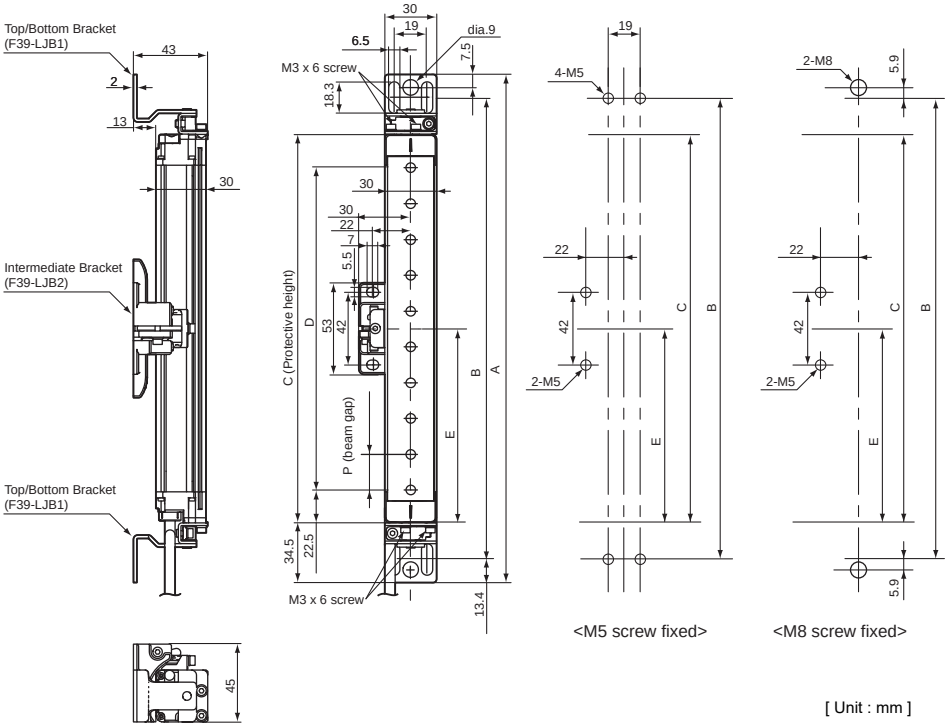
■Dimensions (Check position)

[Backside mounting]

Step1 Check position

Step2 Mount

Step3 Align beams



[Unit : mm]

Dimensions A to E and P

A	C+69
B	C+42.2
C	4-digit number of the type name (protective height)
D	C-45
E	Depends on the protective height. See the table below.
P	20

Dimensions E

Protective height	Number of Intermediate Brackets	Dimensions E
0185 to 1105	0	-
1185 to 1345	1	C/2 max.
1425 to 2065	2	C/3 max.

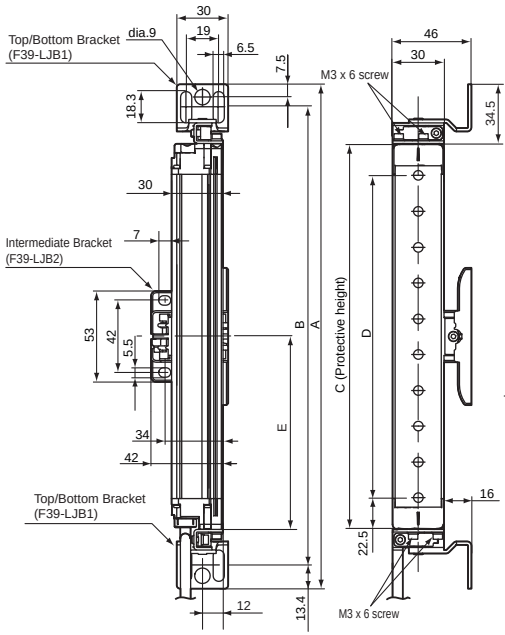
* Value E must be 700 mm or less when not using value E obtained from the calculation above.

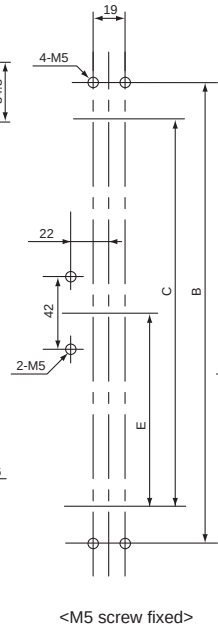
If the protective height exceeds 1105mm, use the intermediate brackets as many as and on the positions specified in the dimensional drawing. Otherwise ratings/specifications cannot be satisfied.

If load is applied to the sensor unit in your environment, add intermediate bracket(s).

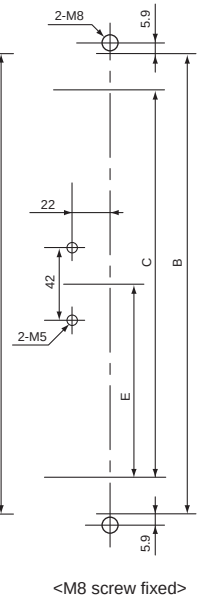
■Dimensions (Check position)

[Side mounting]





<M5 screw fixed>



<M8 screw fixed>

[Unit : mm]

Dimensions A to E

A	C+69
B	C+42.2
C	4-digit number of the type name (protective height)
D	C-45
E	Depends on the protective height. See the table below.

Dimensions E

Protective height	Number of Intermediate Brackets	Dimensions E
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If load is applied to the sensor unit in your environment, add intermediate bracket(s).

For mounting brackets other than top/bottom brackets (F39-LJB1) and intermediate brackets (F39-LJB2) as well as external dimensions, refer to *F3SJ-E/B series user's manual*.

6-5. Mounting and Beam Alignment

Mounting brackets are not included in the product. You must purchase them separately.

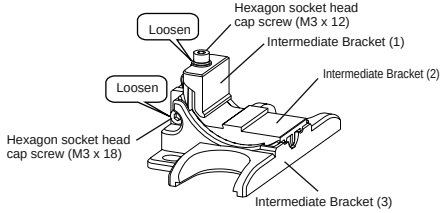
Step1 Check position

Step2 Mount

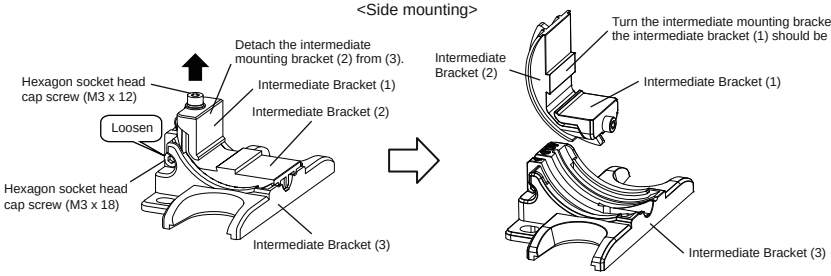
Step3 Align beams

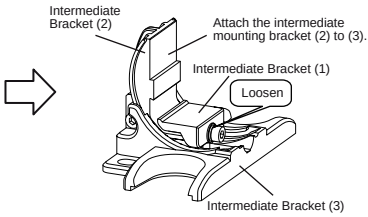
1. Loosen the intermediate mounting bracket bolts.

<Backside mounting>



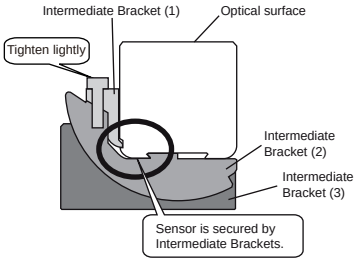
<Side mounting>



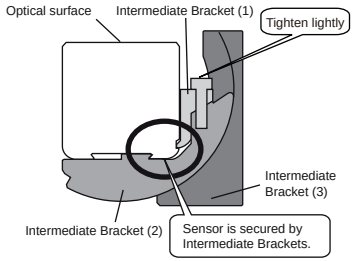


2. Lightly tighten the intermediate mounting bracket to the case.

<Backside mounting>



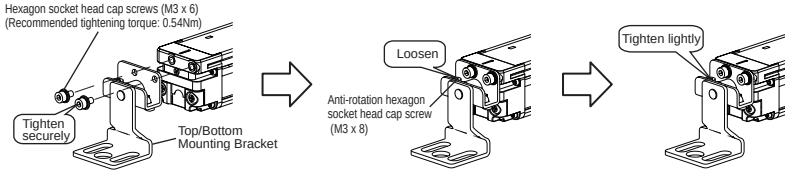
<Side mounting>



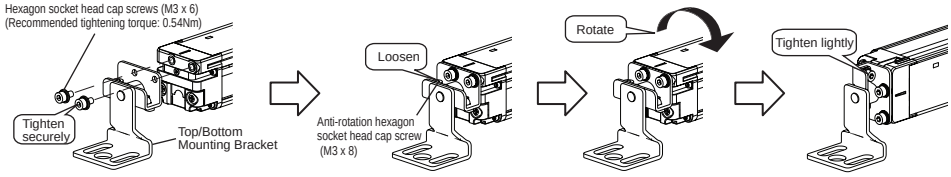
For position and number of intermediate mounting brackets, refer to 6-4 of this document.

3. Attach the top/bottom brackets to the case.

<Backside mounting>



<Side mounting>



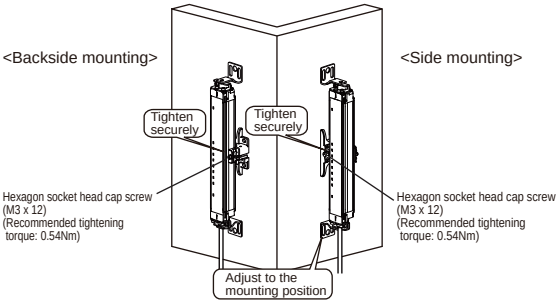
Step1 Check position

Step2 Mount

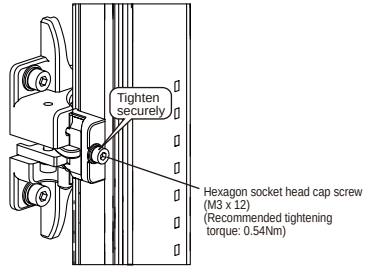
Step3 Align beams

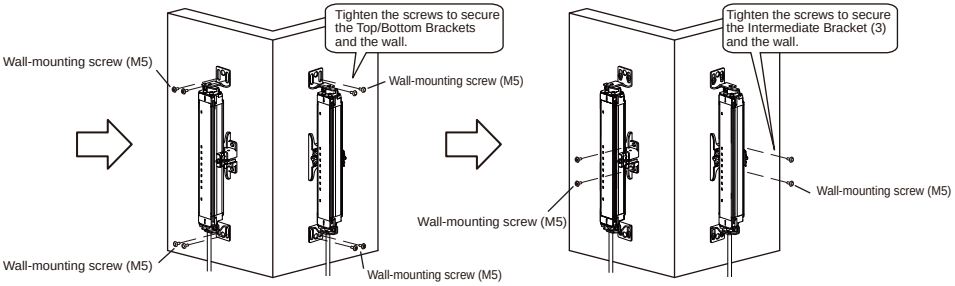
4. Fix the unit on the wall.

<Backside mounting>



<Side mounting>

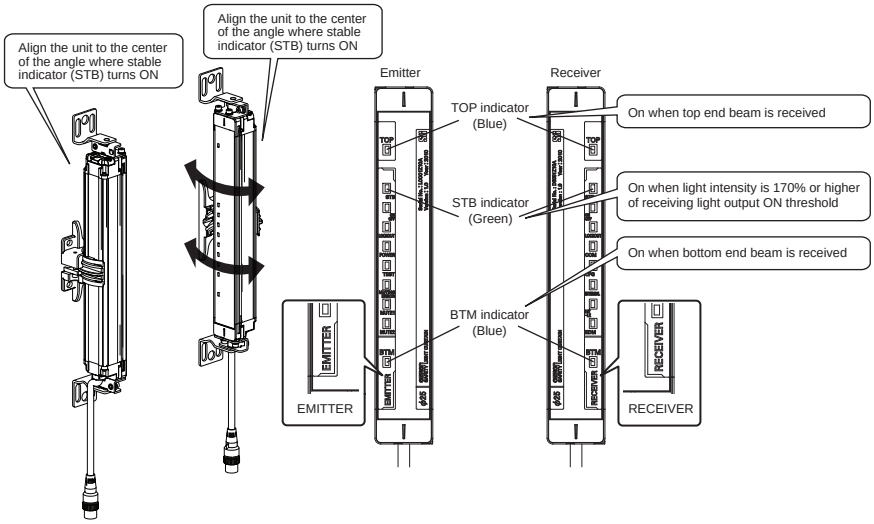




Wall-mounting screws are not included.

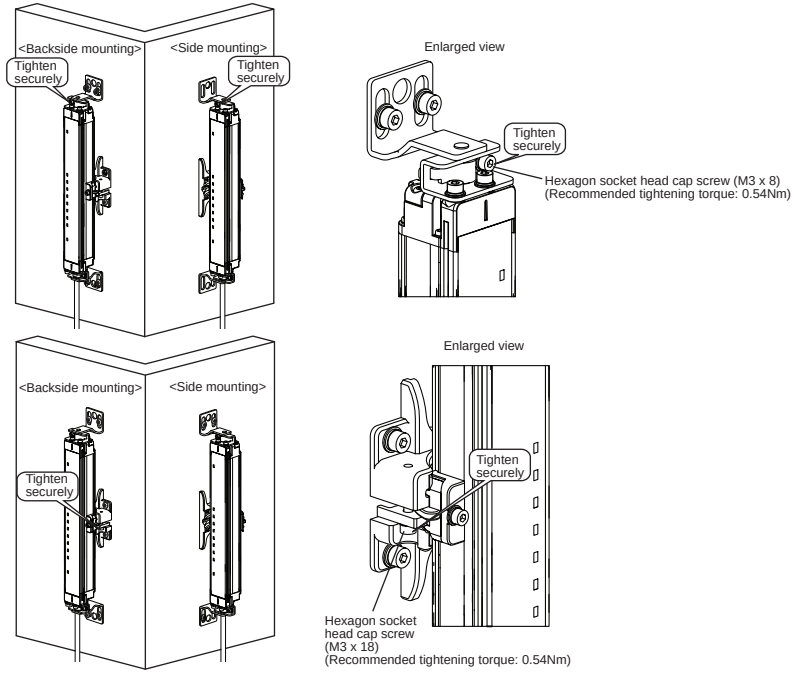
5. Align beams based on the indicators.

Step1 Check position
Step2 Mount
Step3 Align beams



The angle adjustment range of intermediate mounting bracket (F39-LJB2) is +/-30 degrees.

6. Fully tighten the hexagon socket screws (M3 x 8/M3 x 18) of top/bottom brackets and intermediate brackets that were lightly tightened.



Please do not tighten each screw one by one. Fully tighten all of them in a balanced manner at all places.

Tightening with torque exceeding the recommended value too much may lead to a failure.

7. Pre-Operation Checklists / Maintenance Checklists

After wiring, mounting and beam alignment are done, check the operation of the F3SJ-E/B.

Pre-Operation Checklists

After installation, the highest level administrator must use the following checklist to verify the operation, placing a check mark in each of the boxes.

■Checklists

- Installation Condition Check

☐The machine itself does not prevent the operation of safety functions such as stopping.
☐The hazardous part of a machine cannot be reached without passing through the detection zone of the F3SJ-E/B.
☐The system is configured so that the F3SJ-E/B can always detect a worker who is working in the hazardous zone.
☐The interlock reset switch is installed in a location that provides a clear view of the entire hazardous zone and it cannot be activated from within the hazardous zone.
☐Safety distance has been calculated. Calculated distance: S = ( ) mm
☐The actual distance is equal to or greater than the calculated distance. Actual distance = ( ) mm
☐Reflective surfaces are not installed in prohibited zones.
☐Not installed in a reflective configuration.
☐When muting function is used, a muting sensor must be installed so that muting state should not occur when a human body enters a detection zone of F3SJ-E/B by mistake.
☐When muting function is used, a muting sensor must be installed so that muting state should not occur when a human body enters a hazardous zone of a machine.
☐When muting function is used, muting state can be checked from where a worker operates or adjust the machine.
☐A muting sensor consists of two independent devices.
☐Not used in flammable or explosive atmosphere.

- Wiring Check Before Power Is Turned ON

☐Sharing the power supply with other devices may cause the F3SJ-E/B to be affected by noise or voltage drop. It is recommended that this safety component use a dedicated power supply but do not share with other devices.
☐The power supply unit provides 24 VDC while complying with the EMC Directive, Low Voltage Directive, output holding specification.
☐The power supply polarity is not connected in reverse.
☐Emitter/receiver cables are properly connected to the respective emitters/receivers.
☐Double insulation is provided between input/output and hazardous voltage (commercial power source, etc.).
☐Outputs are not short-circuited to the following line.
F3SJ-E□□□□P□□, F3SJ-B□□□□P□□: +24V line
F3SJ-E□□□□N□□, F3SJ-B□□□□N□□: 0V line
☐Loads are not connected to the following line.
F3SJ-E□□□□P□□, F3SJ-B□□□□P□□: +24V line
F3SJ-E□□□□N□□, F3SJ-B□□□□N□□: 0V line
☐All lines are not connected to commercial power source.
☐Model of emitter and receiver must be the same.
☐When two or more sets of F3SJ-E/Bs are used, they are series-connected or mutual interference prevention measures are taken.
☐When two or more sets of F3SJ-Bs are used in series connection, a PNP type must not be connected to an NPN type, and vice versa.
☐A secondary sensor farthest from its power supply has either of the following:
• Cap
• Key cap for muting
☐Neither connector nor bracket must be loose.
☐Auxiliary output must not be used as safety output.
☐Power supply's 0 V must be grounded for F3SJ-E□□□□P□□, F3SJ-B□□□□P□□.
☐Power supply's 24 V must be grounded for F3SJ-E□□□□N□□, F3SJ-B□□□□N□□.

☐Wiring must not be bent, cracked, nor damaged.

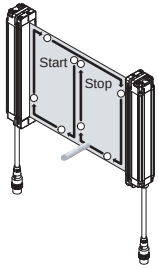
-Operation Check While the Machine Is Stopped

☐The test rod is not deformed.

Depending on the unit's model and settings of floating blanking function, detection capability may vary. Use a test rod with an appropriate diameter for inspection. The model name of test rod is as follows.

Model name	Diameter
F39-TRD25	Dia. 25mm

☐The sensor can detect a test rod wherever it is in the detection zone. In other words, when a test rod is inserted into the detection zone, the stable-state indicators (STB) turn off and the ON/OFF output-state indicators turn red.



☐When the external test function is used:

The OFF-state indicator turns ON when the test input line is short-circuited in the following voltage.
F3SJ-E□□□□P25, F3SJ-B□□□□P25: Vs-3V to Vs
F3SJ-E□□□□N25, F3SJ-B□□□□N25:0V to 3V

☐When the external device monitoring function is used:

When the F3SJ-B is blocked and the external device monitoring input terminal is open, it enters a lockout state.

☐When the manual reset function is used:

After the F3SJ-B is turned ON, the ON/OFF-state indicators must remain red, even if the F3SJ-B is not blocked. The reset input must turn the ON/OFF-state indicators to green. After that, when the F3SJ-B is blocked and returned to unblocked state when the ON/OFF-state indicators are green, the ON/OFF-state indicators remain red. The reset input must turn the ON/OFF-state indicators to green.

☐When using muting lamp:

Under muting state, a signal that indicates muting state is output to the auxiliary output.
Under override state, a signal that indicates override state is output to the auxiliary output.

-Checking that Hazardous Parts Stop While the Machine Operates

☐The hazardous parts stop immediately when a test rod is inserted into the detection zone at three positions: "directly in front of the emitter", "directly in front of the receiver", and "between the emitter and receiver". (Use the appropriate test rod.)

☐The hazardous parts remain stopped as long as the test rod is in the detection zone.

☐The hazardous parts stop when the power of the F3SJ-E/B is turned OFF.

☐The actual response time of the whole machine is equal to or less than the calculated value.

Maintenance Checklists

To ensure safety, keep a record of the inspection results. When the user is a different person from those who installed or designed the system, he/she must be properly trained for maintenance.

■Checklists

-Inspection at Startup and When Changing Operators

☐There is no approach route other than through the detection zone of the F3SJ-E/B.

☐Part of the operator's body always remains in the detection zone of the F3SJ-E/B when working around the machine's hazardous part.

☐The actual safety distance is equal to or greater than the calculated value.

☐There must be no dirt on or damage to the optical surface and spatter protection cover (F39-HB□□□□, sold separately) of the F3SJ-E/B.

☐ON/OFF-state indicators turn red when the test input line is short-circuited to in the following voltage.
F3SJ-E□□□□P25, F3SJ-B□□□□P25: Vs-3V to Vs
F3SJ-E□□□□N25, F3SJ-B□□□□N25:0V to 3V
☐When muting lamp is used, a muting lamp must be clear and free of dirt or degradation.
☐The test rod is not deformed.
☐When the manual reset function is used:
After the F3SJ-B is turned ON, the ON/OFF-state indicators must remain red, even if the F3SJ-B is not blocked. The reset input must turn the ON/OFF-state indicators to green. After that, when the ON/OFF-state indicators are green, block the F3SJ-B and return it to unblocked state. The ON/OFF-state indicators remain red. The reset input must turn the ON/OFF-state indicators to green.
☐When the power of the F3SJ-E/B is turned ON while nothing is in the detection zone, it must operate as follows:
When auto reset is used: The power indicator and ON/OFF-state indicators turn green within 2 seconds after the F3SJ-B is turned ON. When manual reset is used: The power indicator turns green and the ON/OFF-state indicators turn red within 2 seconds after the F3SJ-B is turned ON.
☐When the power of the F3SJ-E is turned ON while nothing is in the detection zone, it must operate as follows:
The power indicator and the ON/OFF-state indicator turn to green within 2 seconds after the power is turned ON.
☐Nothing should exist in the detection zone and stable-state indicators must turn ON at power on.
☐The test rod is detected when it is moved around in the detection zone as shown in the diagram of Pre-Operation Checklists.
In other words, when a test rod is inserted into the detection zone, the stable-state indicators (STB) turn off and the ON/OFF-state indicators turn red.
☐When muting function is used, installation condition of muting sensor must not be changed.
☐When muting function is used, muting state can be checked from where a worker operates or adjust the machine.
☐Neither connector nor bracket must be loose.

-Checking that Hazardous Parts Stop While the Machine Operates
☐The hazardous parts are movable when nothing is in the detection zone.
☐The hazardous parts stop immediately when a test rod is inserted into the detection zone at three positions: "directly in front of the emitter", "directly in front of the receiver", and "between the emitter and receiver". (Use the appropriate test rod.)
☐The hazardous parts remain stopped as long as the test rod is in the detection zone.
☐The hazardous parts stop when the power of the F3SJ-E/B is turned OFF while nothing is in the detection zone.

-Items to Inspect Every 6 Months or When Machine Settings Are Changed
In addition to inspection item at operation start, following items must also be verified.
☐The outputs of the F3SJ-E/B and the machine are properly wired.
☐The total number of times that the control relays/contactors have switched is significantly lower than their design lives.
☐There is no disturbance light.
☐When F3SJ-B is connected again, a secondary sensor farthest from its power supply has either of the followings:
• Cap
• Key cap for muting
☐Power supply's 0 V must be grounded for F3SJ-E□□□□P□□, F3SJ-B□□□□P□□.
☐Power supply's 24 V must be grounded for F3SJ-E□□□□N□□, F3SJ-B□□□□N□□.
☐Wiring must not be bent, cracked, nor damaged.

Suitability for Use

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

See also Product catalog for Warranty and Limitation of Liability.

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OMRON

SAFETY, TECHNOLOGY & INNOVATION

セーフティライトカーテン
F3SJ-B□□□□□25シリーズ
F3SJ-E□□□□□25シリーズ

クイックインストールマニュアル

関連マニュアル	マニュアル番号
セーフティライトカーテン F3SJ-E/B ユーザーズマニュアル	SCHG-732(PNP) SCHG-733(NPN)

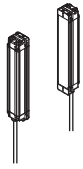
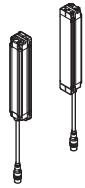
Original instructions

はじめに

このたびはセーフティライトカーテン形 F3SJ-E/B シリーズ (以下 F3SJ-E/B と呼びます) をお買い上げいただき、ありがとうございます。
本書は F3SJ-E/B の配線から動作チェックまでの流れを示した簡易説明書です。
詳細については F3SJ-E/B の取扱説明書、ユーザーズマニュアルを当社ウェブサイトからダウンロードし、よくお読みください。
http://www.fa.omron.co.jp

目次

1. 同梱物のご確認

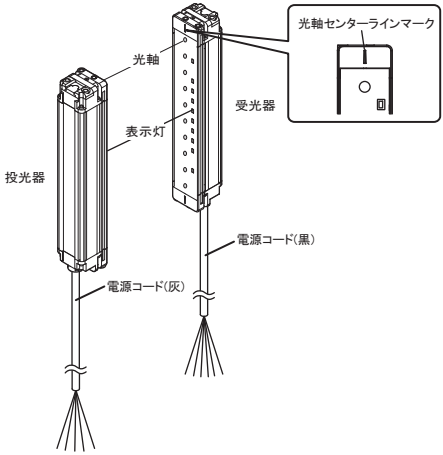
<table>
<tr><th>製品</th><th>数量、内容</th></tr>
<tr><td>形F3SJ-E□□□□□25本体
  </td><td>投光器×1、受光器×1
機能設定
<table><tr><th>機能</th><th>出荷時設定</th></tr><tr><td>外部テスト</td><td>PNP：Vs-3V～Vs*1印加時有効
NPN：0V～3V印加時有効</td></tr></table>*1ここでのVsとは使用環境での電圧値です。
詳細については F3SJ-E/Bシリーズユーザーズマニュアルを参照してください。</td></tr>
<tr><td>形F3SJ-B□□□□□25本体
  </td><td>投光器×1、受光器×1
各種機能設定
<table><tr><th>機能</th><th>設定</th></tr><tr><td>外部テスト</td><td>PNP：Vs-3V～Vs*1印加時有効
NPN：0V～3V印加時有効</td></tr><tr><td>インターロック</td><td>配線にてマニュアルリセットモード、オートリセットモード切り替え可能</td></tr><tr><td>外部リレーモニタ(EDM)</td><td>配線にて有効/無効の切り替え可能</td></tr><tr><td>補助出力</td><td>ベーシックシステム時
制御出力情報(出力反転機能：有効)

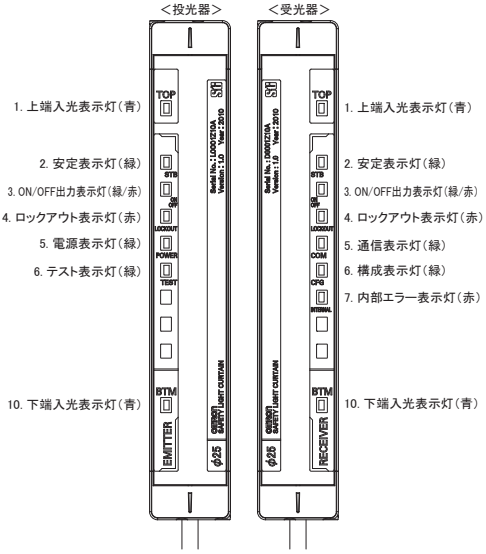
ミューティングシステム時
ミューティング/オーバーライド出力情報（外部表示灯を接続）</td></tr><tr><td>ミューティング</td><td>ミューティング用キーキャップ形F39-CN10装着時有効</td></tr><tr><td>オーバーライド</td><td>ミューティング用キーキャップ形F39-CN10装着時有効</td></tr></table>*1ここでのVsとは使用環境での電圧値です。
詳細については F3SJ-E/Bシリーズユーザーズマニュアルを参照してください。</td></tr>
<tr><td>取扱説明書</td><td>3</td></tr>
<tr><td>クイックインストールマニュアル(本紙)</td><td>1</td></tr>
</table>

定格/性能、入出力回路、LED表示灯の点灯パターン、トラブルシューティングについては、*F3SJ-E/Bシリーズユーザーズマニュアル*を参照してください。

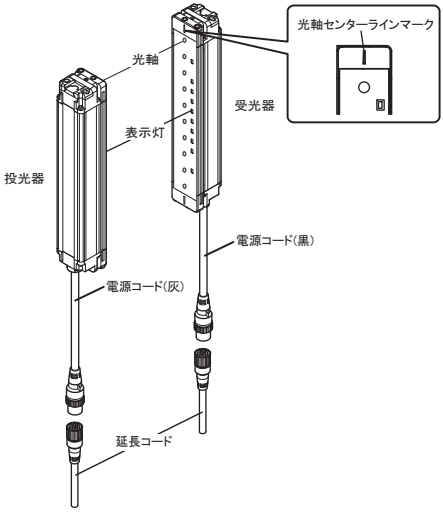
2. 各部の名称

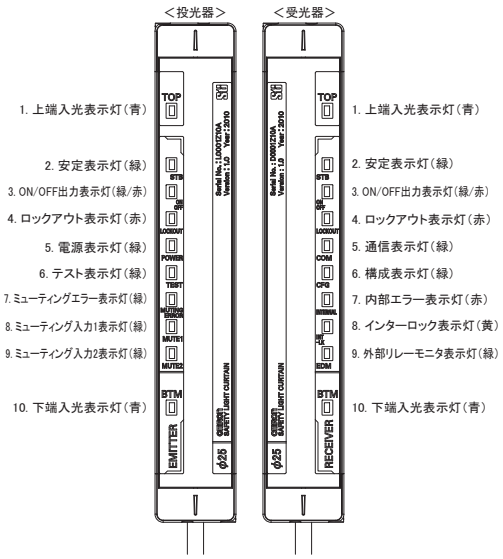
F3SJ-E



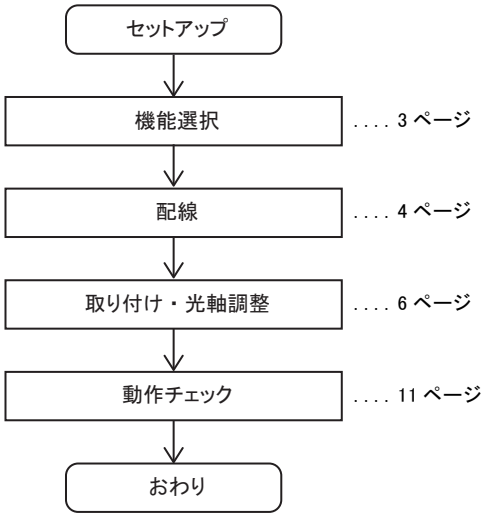


F3SJ-B





3. ライトカーテンセットアップの流れ



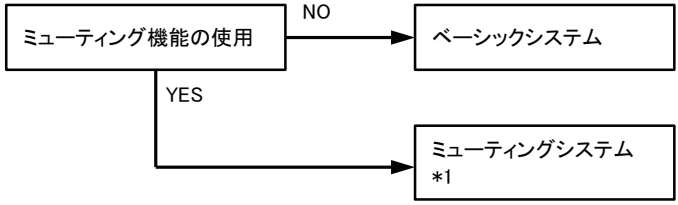
機能選択 ➡ 配線 ➡ 取り付け・光軸調整 ➡ 動作チェック

4. 機能選択フローチャート

F3SJ-E
使用する機能により配線が変わります。F3SJ-E で使用可能な機能は以下のとおりです。

・外部テスト機能

F3SJ-B
使用する機能により必要なシステム構成が変わってきます。以下のフローチャートに従い、どのシステムが必要か決定してください。



*1 ミューティング用キーキャップ(形F39-CN10)が必要です。

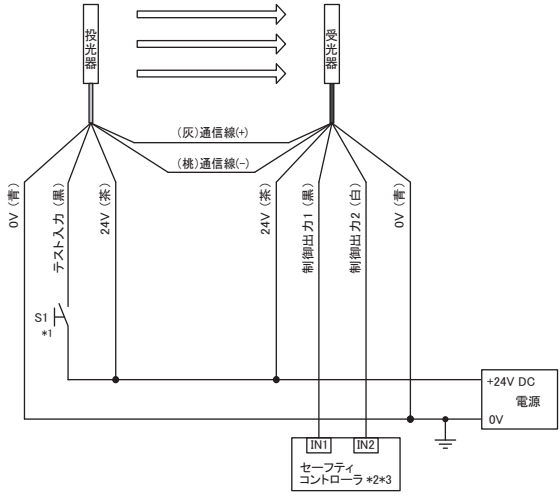
ミューティング機能を使用する場合の構成については、*F3SJ-E/Bシリーズ*ユーザーズマニュアルを参照ください。

5. 配線例

入出力回路および下記以外の配線例については、*F3SJ-E/Bシリーズユーザーズマニュアル*を参照してください。

F3SJ-E

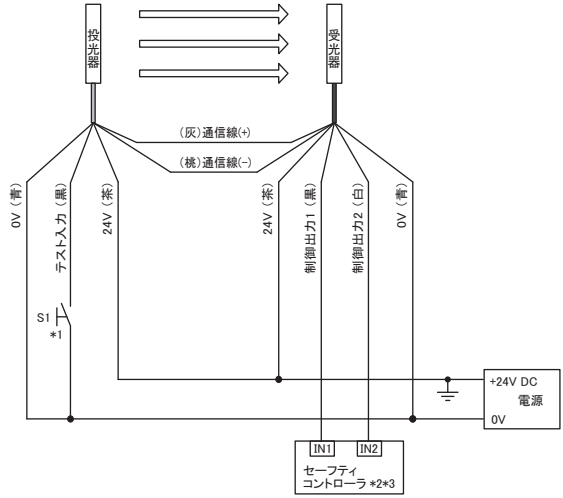
5-1. オートリセットモード、外部テスト使用、PNP 出力



S1：外部テスト/ロックアウトリセットスイッチ(スイッチが不要な場合、0Vに接続)

*1：微小負荷用スイッチ(入力仕様：24V、1.0mA以下)をご使用ください。
*2：接続可能なコントローラにつきましては、*F3SJ-E/Bシリーズ*ユーザーズマニュアルを参照してください。
*3：セーフティコントローラとF3SJ-E/Bは電源を共通化するか、電源コモンを共通化してください。

5-2. オートリセットモード、外部テスト使用、NPN 出力

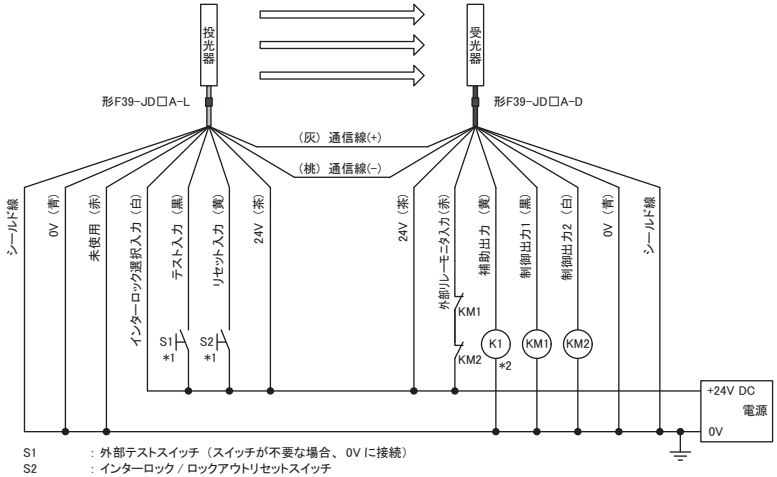


S1：外部テスト/ロックアウトリセットスイッチ(スイッチが不要な場合、24Vに接続)

*1：微小負荷用スイッチ(入力仕様：24V、1.0mA以下)をご使用ください。
*2：接続可能なコントローラにつきましては、*F3SJ-E/Bシリーズ*ユーザーズマニュアルを参照してください。
*3：セーフティコントローラとF3SJ-E/Bは電源を共通化するか、電源コモンを共通化してください。

F3SJ-B

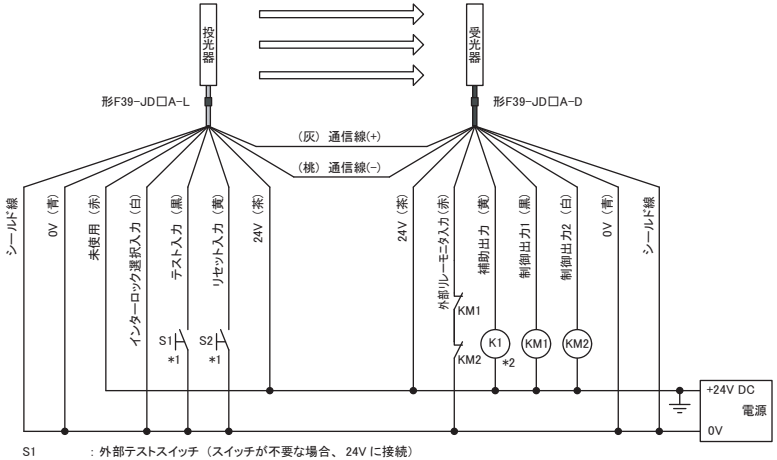
5-3. EDM 使用、マニュアルリセットモード、外部テスト使用、ミューティング機能未使用、PNP 出力



S1　：外部テストスイッチ（スイッチが不要な場合、0V に接続）
S2　：インターロック / ロックアウトリセットスイッチ
KM1、KM2：強制ガイド接点付きセーフティリレー（形 G7SA）やマグネットコンタクタ
K1　：負荷、PLC 等（モニタ用）

*1 微小負荷用スイッチ(入力仕様：24V、1.0mA以下)をご使用ください。
*2 K1が未接続でも形F3SJは動作します。

5-4. EDM 使用、マニュアルリセットモード、外部テスト使用、ミューティング機能未使用、NPN 出力



S1　：外部テストスイッチ（スイッチが不要な場合、24V に接続）
S2　：インターロック / ロックアウトリセットスイッチ
KM1、KM2：強制ガイド接点付きセーフティリレー（形 G7SA）やマグネットコンタクタ
K1　：負荷、PLC 等（モニタ用）

*1 微小負荷用スイッチ(入力仕様：24V、1.0mA以下)をご使用ください。
*2 K1が未接続でも形F3SJは動作します。

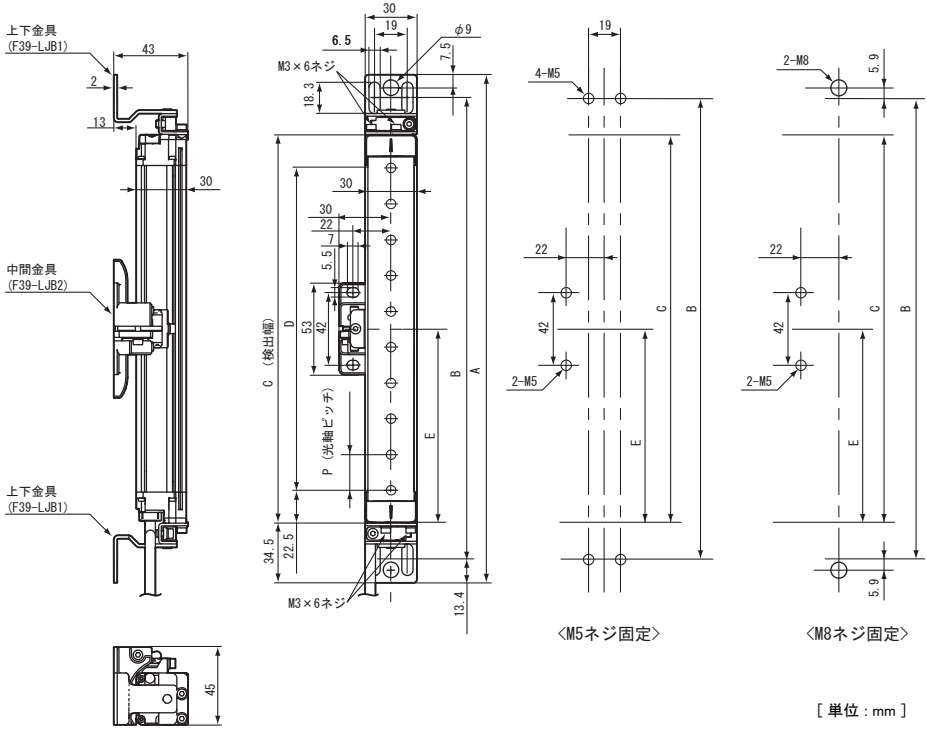
6. 取り付け・光軸調整

上下金具(形F39-LJB1)、中間金具(形F39-LJB2)以外の金具、外形寸法および取り付け方法については、*F3SJ-E/Bシリーズユーザーズマニュアル*を参照してください。

6-1. 上下金具 (形 F39-LJB1)、中間金具 (形 F39-LJB2) を取り付ける場合の外形寸法

■外形寸法図 (取り付け位置確認)

[背面取り付け時]



[単位 : mm]

寸法A～E、Pについて

寸法A	C+69
寸法B	C+42.2
寸法C	形式中の4桁の数字 (検出幅)
寸法D	C−45
寸法E	検出幅によって変わります。下表を確認ください。
寸法P	20

寸法Eについて

検出幅	中間金具の数	寸法E
0185～1105	0	−
1185～1345	1	C/2以下
1425～2065	2	C/3以下

＊上記計算により得られた値Eを使用しない場合Eは700mm以下とする。

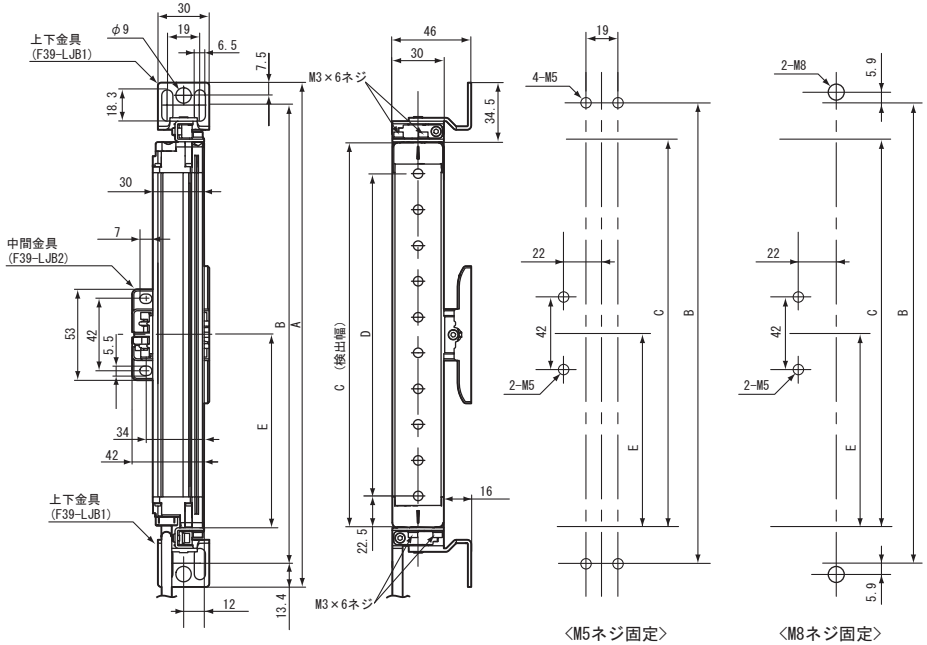
検出幅が1105mmを超える場合、外形寸法図に記載されている規定の数量、位置にしたがって中間金具を使用してください。規定に満たない場合、定格/性能を満たすことができません。

センサ本体に荷重がかかるような使用をされる場合は、中間金具を追加してください。

■外形寸法図（取り付け位置確認）

［側面取り付け時］

Step1 取り付け位置確認
Step2 取り付け
Step3 光軸調整



〈M5ネジ固定〉　〈M8ネジ固定〉

［単位：mm］

寸法A～Eについて

寸法A	C+69
寸法B	C+42.2
寸法C	形式中の4桁の数字（検出幅）
寸法D	C−45
寸法E	検出幅によって変わります。下表を確認ください。

寸法Eについて

検出幅	中間金具の数	寸法E
0185～1105	0	−
1185～1345	1	C/2以下
1425～2065	2	C/3以下

＊上記計算により得られた値Eを使用しない場合Eは700mm以下とする。

検出幅が1105mmを超える場合、外形寸法図に記載されている規定の数量、位置にしたがって中間金具を使用してください。規定に満たない場合、定格/性能を満たすことができません。

センサ本体に荷重がかかるような使用をされる場合は、中間金具を追加してください。

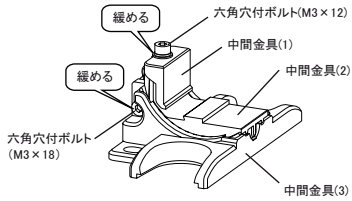
上下金具(形F39-LJB1)、中間金具(形F39-LJB2)以外の取付金具、外形寸法図については、*F3SJ-E/Bシリーズユーザーズマニュアル*を参照してください。

6-2. 取り付け方法と光軸調整

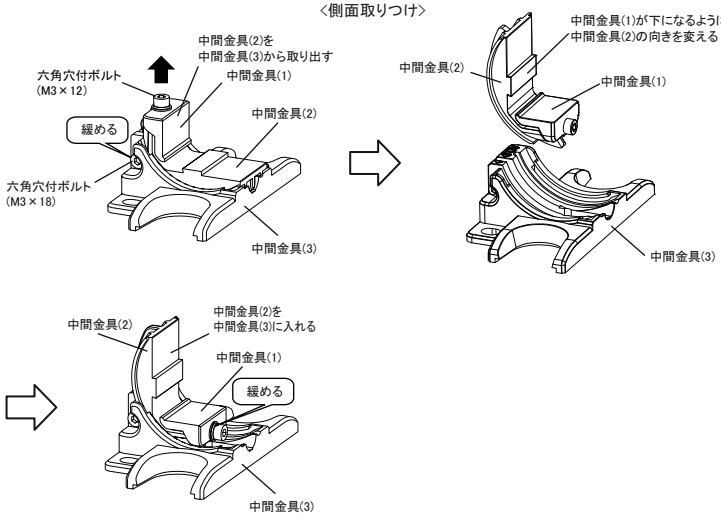
取付金具は本体に付属していません。別途購入いただく必要があります。

1. 中間金具のボルトを緩めます。

<背面取りつけ>

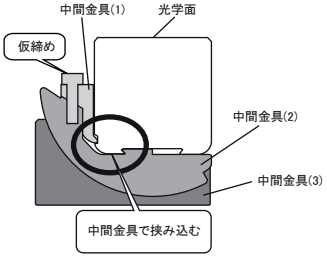


<側面取りつけ>

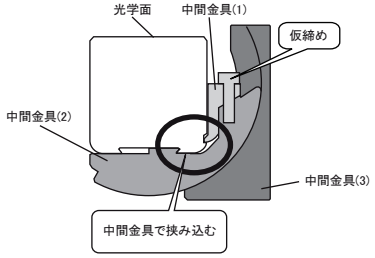


2. 中間金具をケースに仮締めします。

<背面取りつけ>



<側面取りつけ>



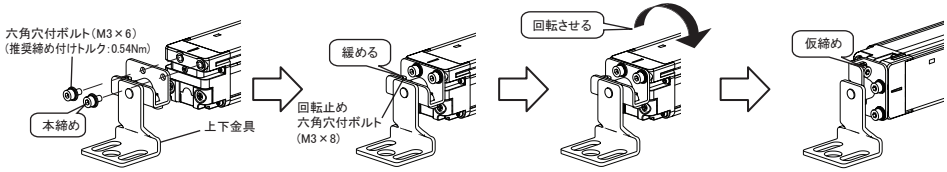
中間金具取り付け位置、個数については、本紙6-1項参照ください。

3. 上下金具をケースに取り付けます。

Step1 取り付け位置確認
Step2 取り付け
Step3 光軸調整

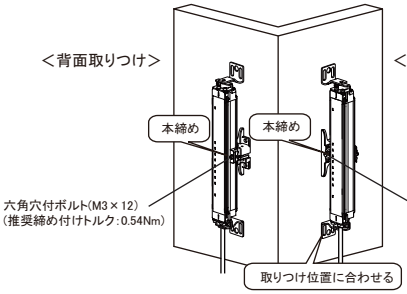
＜背面取りつけ＞

＜側面取りつけ＞

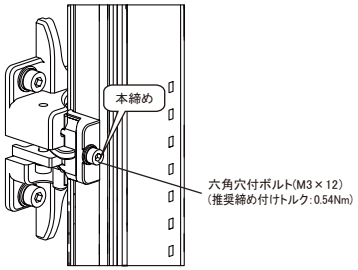


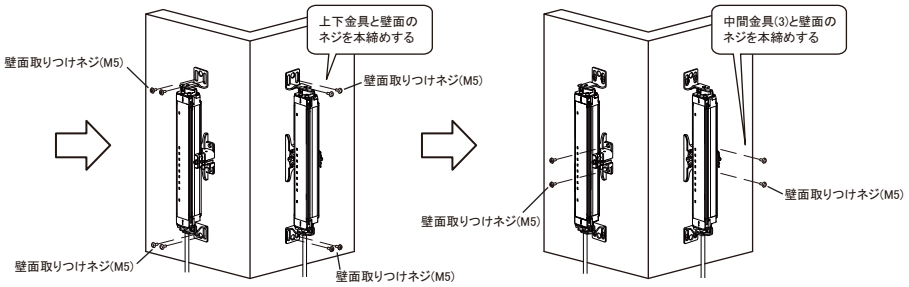
4. 壁面へ固定します。

＜背面取りつけ＞



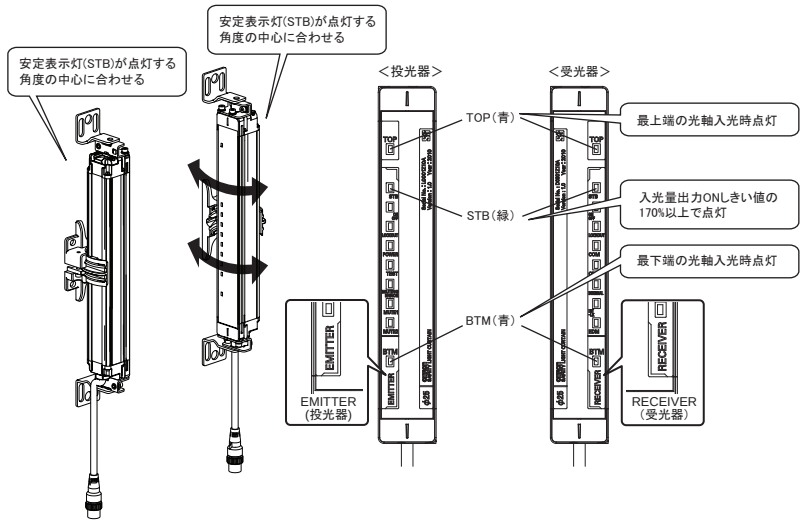
＜側面取りつけ＞





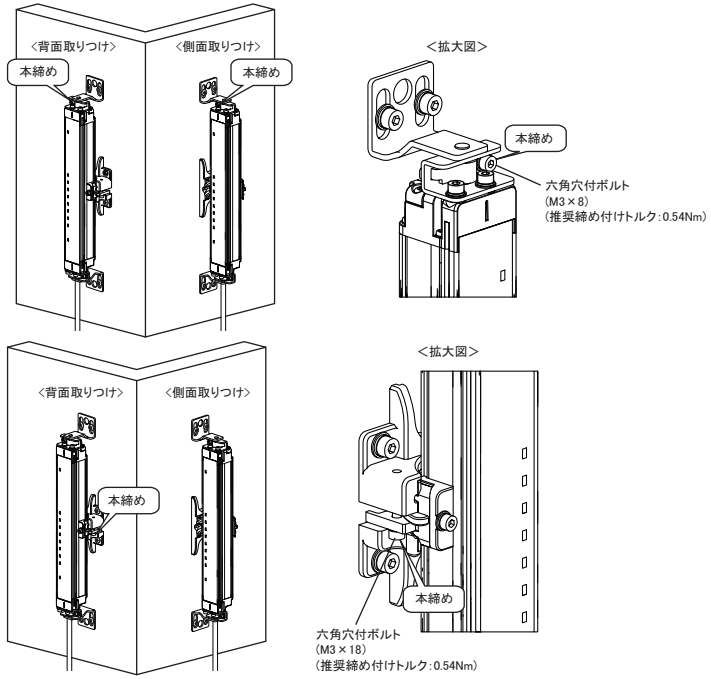
壁面との取り付けネジは付属していません。

5. 表示灯を参考に光軸調整を行います。



中間取付金具(形F39-LJB2)の角度調整範囲は±30°です。

6. 仮締めしていた上下金具、中間金具の回転止め六角穴付ボルト (M3 × 8、M3 × 18) を本締めします。



各ネジは1ヶ所ずつ締めるのではなく、全箇所バランスよく本締めしてください。

推奨値を大きく超えるトルクで固定すると故障の原因となります。

7. 動作チェック

配線、取り付け・光軸調整が終わったら、F3SJ-E/B の動作チェックを実施してください。

動作チェックは*F3SJ-E/Bシリーズユーザーズマニュアル*記載のチェックリストに従い実施してください。

トラブルシューティングについては、*F3SJ-E/Bシリーズユーザーズマニュアル*を参照してください。

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(c) 厳しい条件または環境での用途（例：屋外に設置する設備、化学的汚染を被る設備、電磁的妨害を被る設備、振動・衝撃を受ける設備など）
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