Connector Terminal Box (Muting Terminals)

F39-TC5

CSM_F39-TC5_DS_E_4_1

Significantly reduces amount of wiring between Safety Light Curtains and Muting Sensors.

As of August 2008

- Provides IP67 protection against water and dust.
- Connection using connectors significantly reduces wiring work.
- The wiring status can be checked at a glance with the LED indicators.
- The Support Software can be connected, enabling on-site adjustment of a Light Curtain.

⚠ Be sure to read the *"Safety Precautions"* on page 7 and the *"Precautions for All Safety Sensors"* .

Ordering Information

Connector Terminal Box

Classification	Applicable models	Specification	Type	Model
Muting Terminals	F3SJ-A□□□□P□□ F3SJ-B□□□□P□□	PNP	Model with Muting Sensor Output Mode	**F39-TC5P01**
			Model with Override Mode	**F39-TC5P02**
	F3SJ-A□□□□N□□ F3SJ-B□□□□N□□	NPN	Model with Muting Sensor Output Mode	**F39-TC5N01**
			Model with Override Mode	**F39-TC5N02**

Optional Accessories (Sold separately)

Classification	Appearance	Model
Short-circuit Connector		**F39-CN8**
Waterproof Covers		**XS2Z-22**

Note: One short-circuit connector is included with the F39-T□01 for Muting Sensors.
Three waterproof covers are included with a Connector Terminal Box with Muting Sensor Output Mode (F39-TC5□01) and four waterproof covers with a Connector Terminal Box with Override Mode (F39-TC5□02).
Order the above accessories only as spare parts.

Specifications (Refer to Instruction Sheet for details.)

Ratings

Rated voltage	24 VDC ±20% (at ambient temperature of 20°C)
Rated current	Power line: 2.4 A, Signal line: 0.3 A

Characteristics

Contact resistance	40 mΩ max. (connector section)
Insulation resistance	After applying 500 VDC for 60 s: 100 MΩ min.
Vibration resistance	Speed: 10 Hz to 500 Hz to 10 Hz in 20 minutes. Simple vibration with full amplitude of 1.52 mm or 98 m/s^2 (whichever has the smaller amplitude) for two hours each in three directions X, Y, and Z (total of 6 hours). Measured while connector is connected.
Shock resistance	490 m/s^2 for 11 ms three times each along three axes, six directions X, Y, and Z (total of 18 times). Measured while connector is connected. (MIL-STD-202F Test 213B, Condition A)
Ambient operating temperature	–25 to 70°C (with no icing or condensation)
Ambient operating humidity	25% to 85% (with no icing or condensation)
Degree of protection	IP67
Accessories	Short-circuit connector (models with Muting Sensor outputs only), waterproof cover

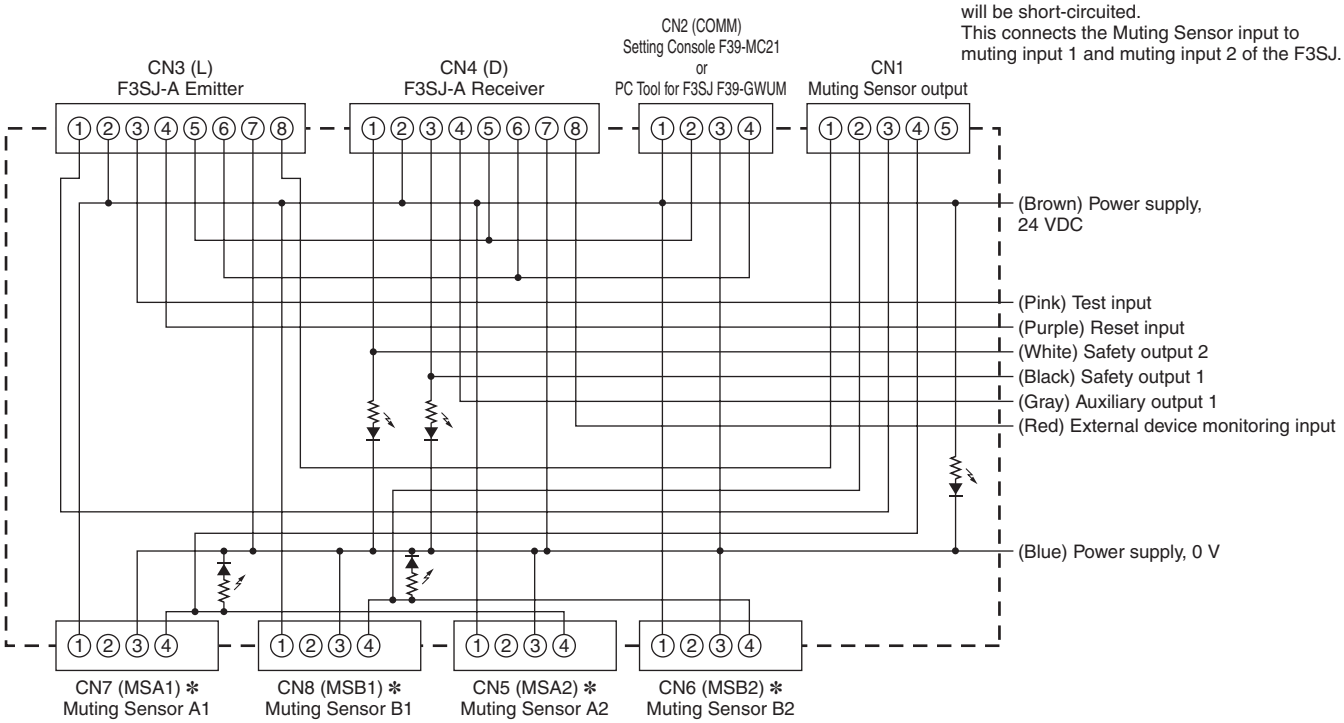
Connections

Internal Circuit Diagrams

PNP

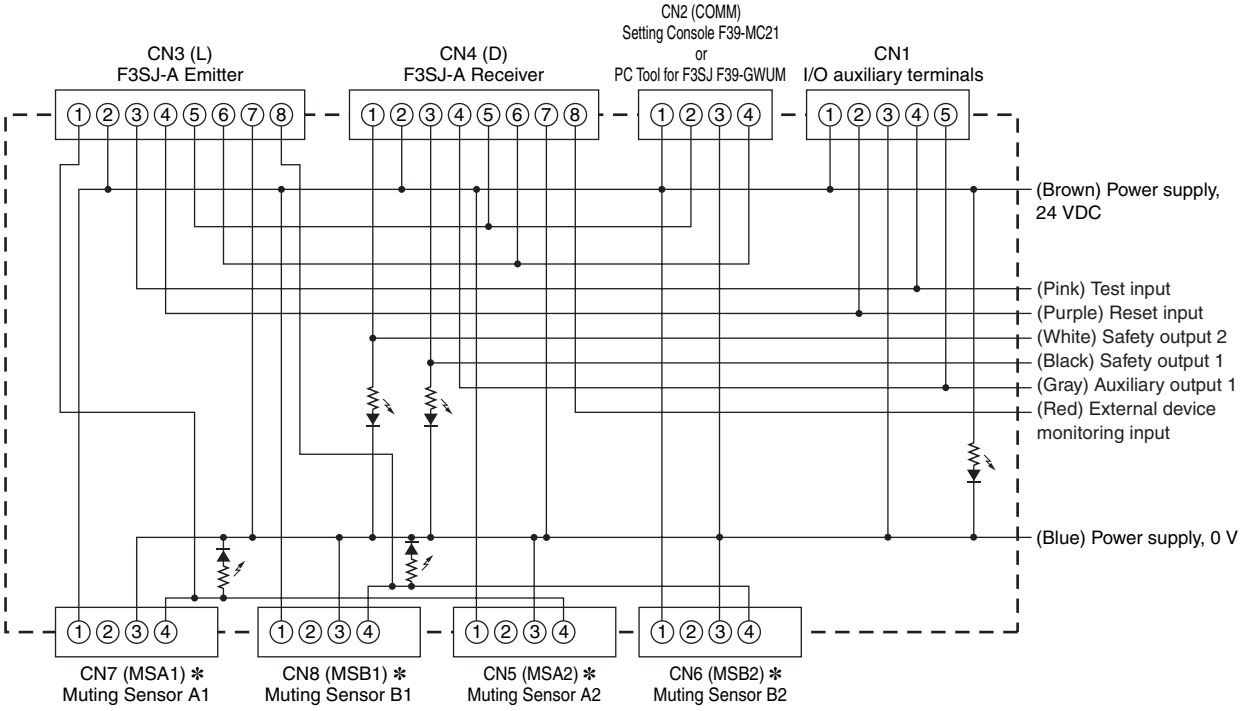
Model with Muting Sensor Output Mode F39-TC5P01

Note: When a short-circuit connector is connected to CN1, terminals 1 and 2, and terminals 3 and 4 will be short-circuited.
This connects the Muting Sensor input to muting input 1 and muting input 2 of the F3SJ.



✻ Use the following connecting cable to connect the Muting Sensors:
M12, 4-pin connector (Pin 1: +24 V, Pin 2: Not used, Pin 3: 0 V, Pin 4: Output)
When using a Through-beam Photoelectric Sensor, use an XS2R-D426-□11-F Y-joint with Socket and Plug or similar product to connect the transmitter and receiver.

Model with Override Mode F39-TC5P02



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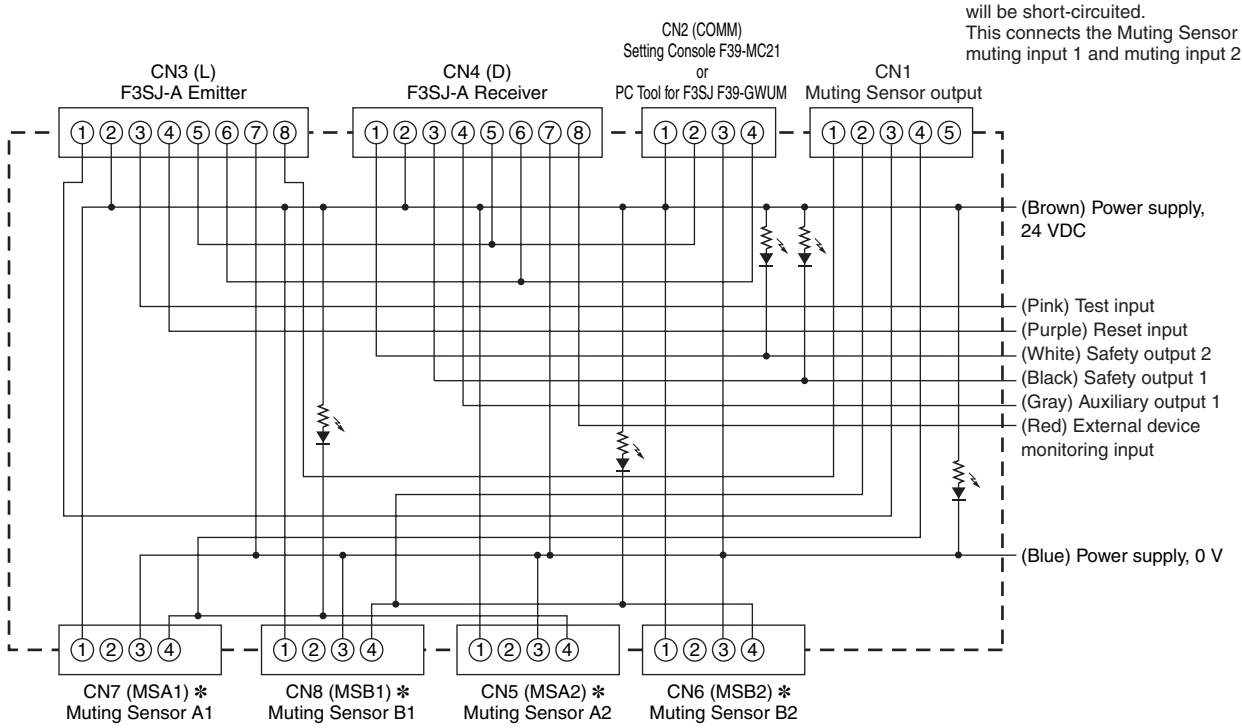
M12, 4-pin connector (Pin 1: +24 V, Pin 2: Not used, Pin 3: 0 V, Pin 4: Output)
When using a Through-beam Photoelectric Sensor, use an XS2R-D426-□11-F Y-joint with Socket and Plug or similar product to connect the transmitter and receiver.

NPN

Model with Muting Sensor Output Mode F39-TC5N01

Note: When a short-circuit connector is connected to CN1, terminals 1 and 2, and terminals 3 and 4 will be short-circuited.
This connects the Muting Sensor input to muting input 1 and muting input 2 of the F3SJ.



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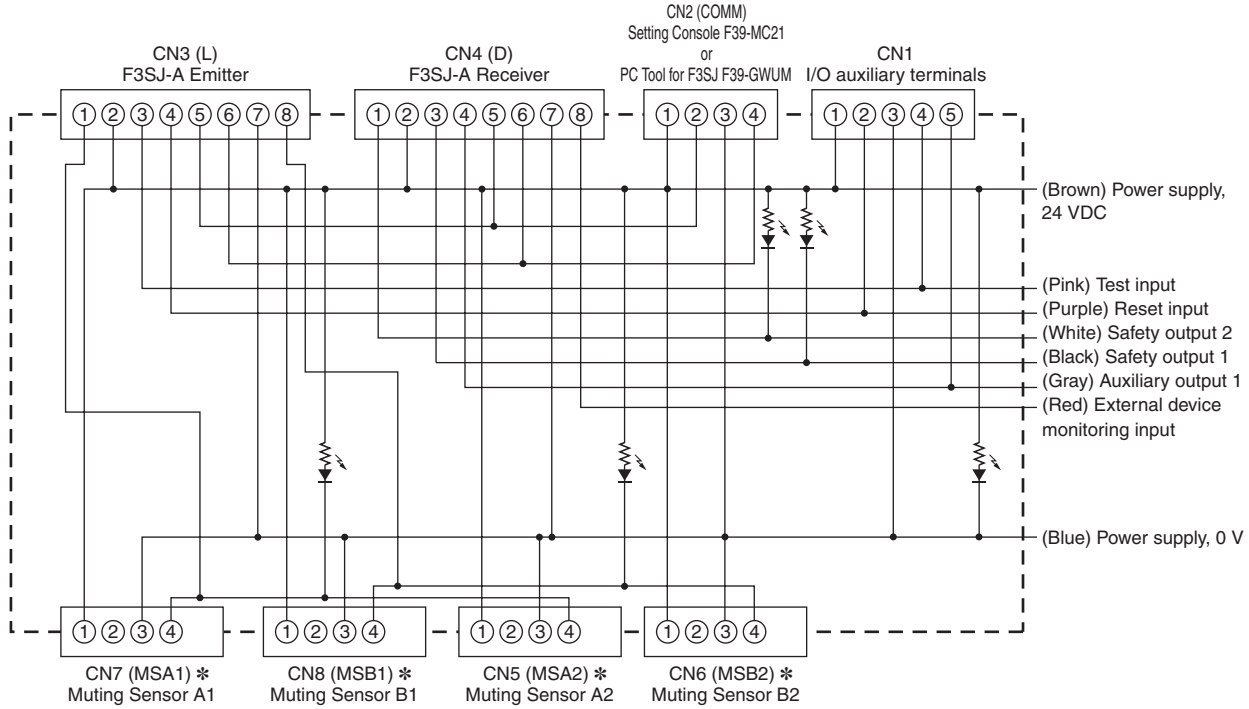
When using a Through-beam Photoelectric Sensor, use an XS2R-D426-□11-F Y-joint with Socket and Plug or similar product to connect the transmitter and receiver.

Model with Override Mode F39-TC5N02



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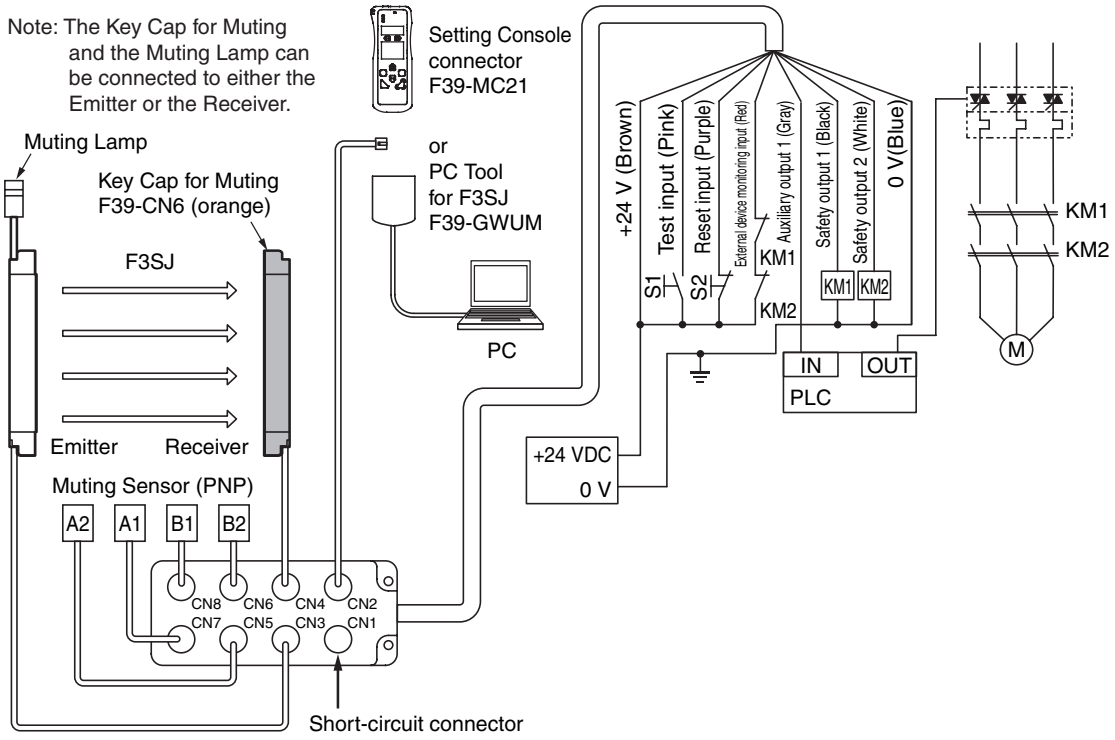
When using a Through-beam Photoelectric Sensor, use an XS2R-D426-□11-F Y-joint with Socket and Plug or similar product to connect the transmitter and receiver.

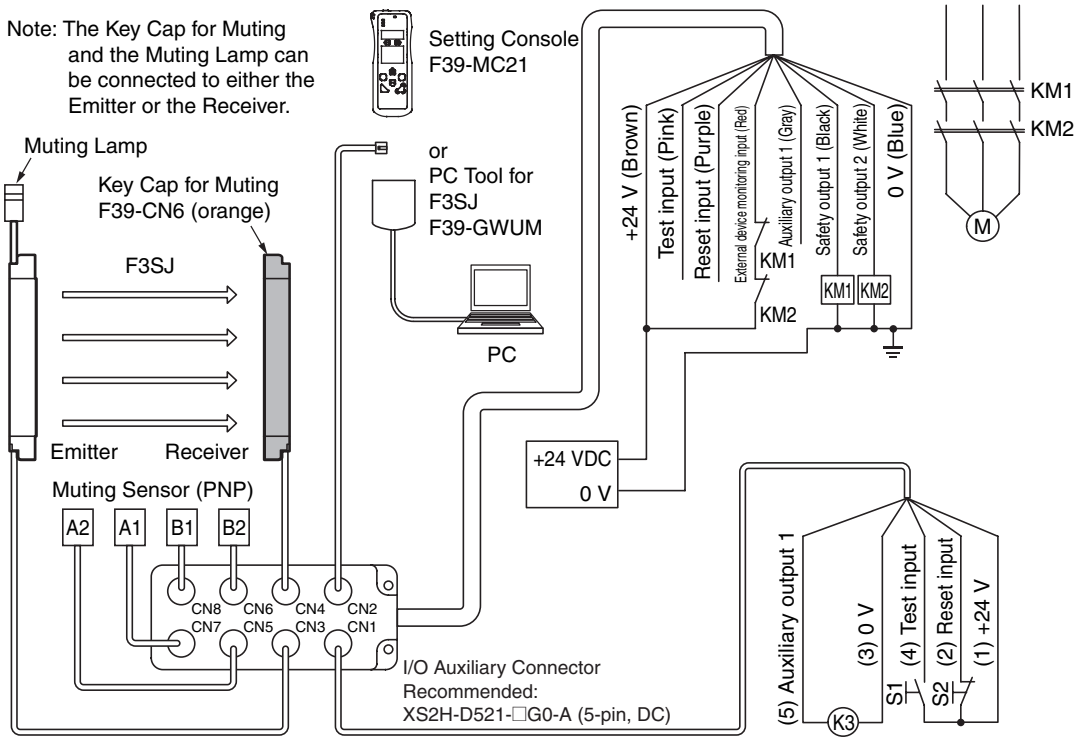
Wiring Diagrams

PNP

Model with Muting Sensor Output Mode F39-TC5P01

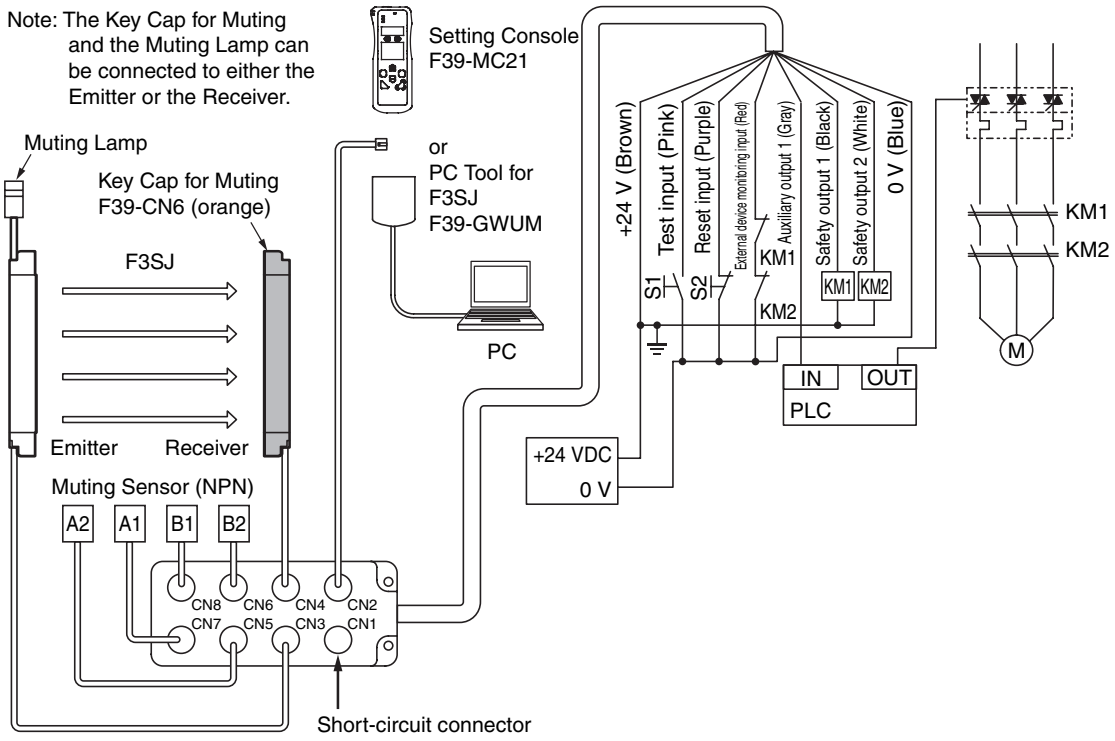


Model with Override Mode F39-TC5P02

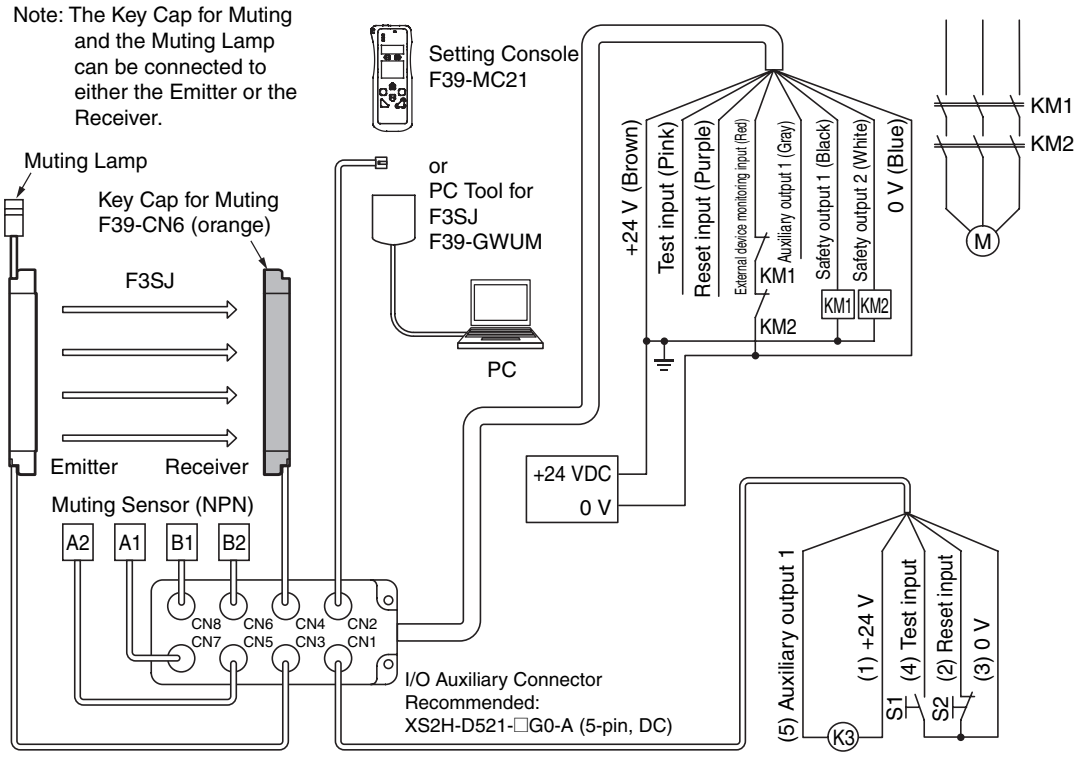


NPN

Model with Muting Sensor Output Mode F39-TC5N01



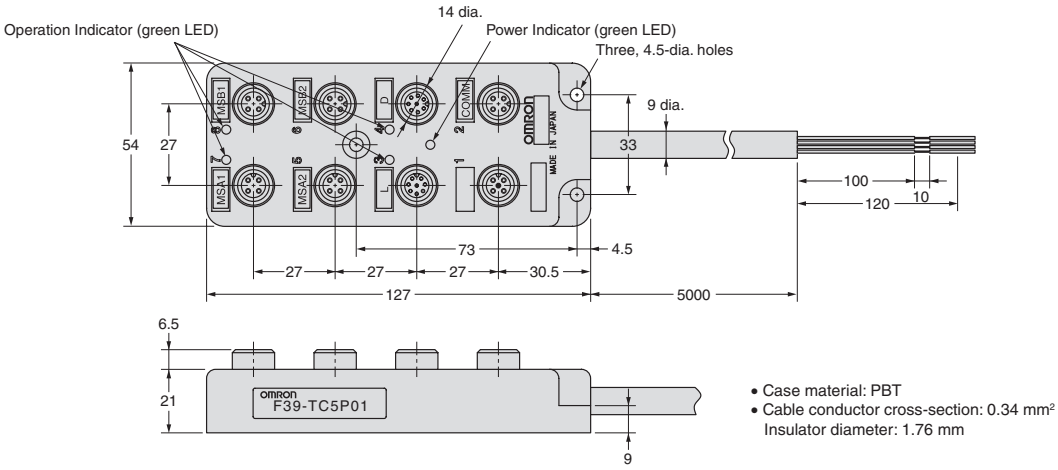
Model with Override Mode F39-TC5N02



Dimensions

(Unit: mm)

F39-TC5P01
F39-TC5P02
F39-TC5N01
F39-TC5N02



- Case material: PBT
- Cable conductor cross-section: 0.34 mm^2
  Insulator diameter: 1.76 mm

Safety Precautions

⚠ WARNING

The muting and override functions disable equipment safety functions. Use separate procedures to ensure safety when the muting and override functions are operating.

Position the Muting Sensors so that a distinction can be made between the entry of an object or a human. If the muting function were to operate when a human passed through, it may cause serious injury.

Install a Muting Lamp where it can be seen from all work locations, so that workers can check the status of the muting and override functions.

Muting times must be precisely set according to the application by qualified personnel who have received appropriate training. In particular, if the muting time limit is to be set to infinity, the person who makes the setting must bear responsibility.

Use two independent input devices for the muting inputs.

Install the F3SJ, Muting Sensors, or a protective wall so that workers cannot enter hazardous areas while muting is in effect, and set muting times.

Install override switches where they can be seen from the hazardous area, and where they cannot be operated from within the hazardous area. Before starting an override, check to make sure that nobody is within the hazardous area.

Precautions for Safe Use

Installation Conditions

- Connector tightening torque: 0.39 to 0.49 N·m
- Panel mounting tightening torque: 0.6 to 0.8 N·m
  (use metric 4 screws)

Handling

- Make sure that the power is turned OFF before connecting or disconnecting the connector.
- Make sure that fasteners are tightened properly by hand. (0.39 to 0.49 N·m)
  The use of pliers may cause damage. If the screws are not tightened properly, the degree of protection may not be obtained, and the screws may come loose from vibration.
- If the cables are connected with the polarity reversed, the load will not operate, or the operation indicator will not light.
- Make sure that signal lines are always connected through a load.
- Use Sensors that meet the specifications.
- Do not pull on the connectors and cables. Doing so may damage the connector or break the cable.
- To avoid breaking the cable and damaging the connector, install them in a location where there is no danger of stepping on them. If you must install them in a location where they might be stepped on, place a protective cover on them.
- When installing the product, do not bend the cable where it is connected to the product.
- If you must bend the cable, make sure that the bend radius is greater than 60 mm.
- If you are not going to install Sensors and switches, place waterproof covers (XS2Z-22) on the connectors to protect the contact surface.

Storage

Observe the following points when storing the product for an extended period of time.

1. Make sure that the storage location is well protected against dust and humidity.
2. Do not store the product close to areas where ammonia or sulfurization gas is generated.

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