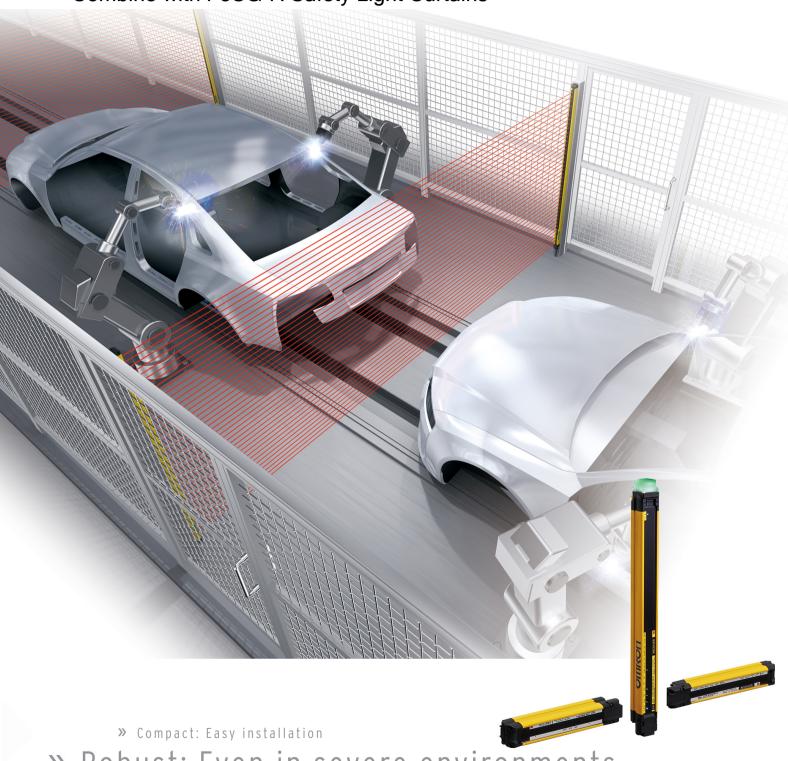


F3W-MA Smart Muting Actuator

Combine with F3SG-R Safety Light Curtains



» Robust: Even in severe environments

» Global: Reliable safety solutions





New muting functionality

Increases both productivity and safety Easily distinguishes between workers and objects

Increasing both productivity and safety

The F3SG-R provides advanced muting function that detects the zone where workpieces pass or the position of a machine or robot and disable beams of the detected part. This increases both safety and productivity.

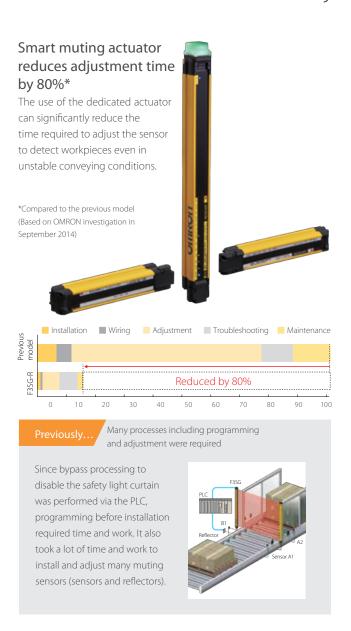
By adding the smart muting actuator, the F3SG-R provides stable operation even for the production lines where errors occur due to vibration caused by the passing workpiece.



The point detection muting sensor mistakenly disabled muting while a workpiece was passing, which led to unexpected machine stops.



The muting actuator detects the surface of a passing workpiece. Even if a workpiece moves due to vibration, muting is kept enabled until the workpiece has passed. This prevents unexpected machine stops.



Powerful features

Prevent unexpected machine stops Ensure stable operation

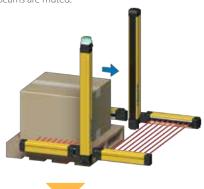
Auto-configuration of muting zone

When workpieces with various heights are conveyed on the same line, partial muting is automatically performed based on the height of the workpiece. This advanced muting function can automatically perform normal detection at the zone where a workpiece does not pass.

Automatically minimizes muting zone according to workpiece size

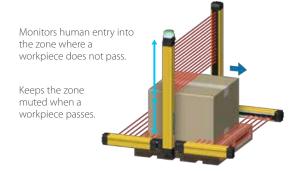
1

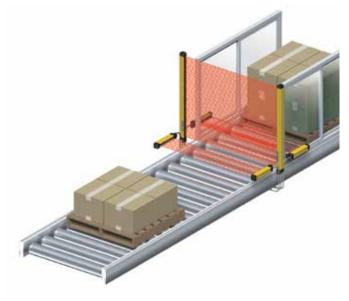
When the muting sensor detects that a workpiece passes, all beams are muted.





The only beams interrupted by the workpiece are kept muted and other beams are released from the muting state three seconds after the workpiece pass through the safety light curtain. Muting is disabled after the workpiece has passed.





Minimizing setting and detection errors

The function to log the muting sensor operating conditions of the F3SG-R visualizes the installation position and setting conditions of the sensor to achieve reliable configuration. The stop due to the muting error can be analyzed using the data stored in the F3SG-R. Quick identification of the cause can reduce unexpected machine downtime.



Smart Muting Actuator F3W-MA

Integrated muting sensor based on multi-beam photoelectric sensor

- A muting system can be configured easily in combination with the F3SG safety light curtain.
- Muting functions can be stably performed even when workpieces with holes pass.



CE

Ordering Information

Smart Muting Actuator

| Appearance | Model | Beam Gap between Muting Trigger Beams | Number of Beams |
|-----------------------|-------------|--|--------------------|
| | F3W-MA0100P | 100mm | 8 |
| C Aller Month (Sp. 5) | F3W-MA0300P | 300mm | 20 |

Accessories (Sold separately)

Single-ended Connector Cable

| Appearance | Туре | Cable length | Model | Specifications |
|------------|--------------|-----------------|-------------|--|
| | | 3 m | F39-JG3A-L | |
| | | 7 m | F39-JG7A-L | |
| | For emitter | 10 m | F39-JG10A-L | Emitter cable:M12 connector (5-pin), 5 wires Color: Gray |
| | | 15 m | F39-JG15A-L | Solot. Gray |
| | | 20 m | F39-JG20A-L | |
| | For receiver | 3 m | F39-JG3A-D | |
| Car | | 7 m | F39-JG7A-D | |
| | | 10 m | F39-JG10A-D | M12 connector (8-pin), 8 wires Color: Black |
| | | 15 m | F39-JG15A-D | - Color: Black |
| | | 20 m | F39-JG20A-D | |

F3W-MA

Double-ended Cable

| Appearance | Туре | Cable length | Model | Specifications |
|------------|---------------|--------------|-------------|------------------------------------|
| | | 0.5 m | F39-JGR5B-L | |
| | | 1 m | F39-JG1B-L | |
| | | 3 m | F39-JG3B-L | |
| | For emitter | 5 m | F39-JG5B-L | M12 connector (5-pin) on both ends |
| | i or enimer | 7 m | F39-JG7B-L | Color: Gray |
| | | 10 m | F39-JG10B-L | |
| | | 15 m | F39-JG15B-L | |
| | | 20 m | F39-JG20B-L | |
| | | 0.5 m | F39-JGR5B-D | |
| A | | 1 m | F39-JG1B-D | |
| • | | 3 m | F39-JG3B-D | |
| | For receiver | 5 m | F39-JG5B-D | M12 connector (8-pin) on both ends |
| | 1 of feceiver | 7 m | F39-JG7B-D | Color: Black |
| | | 10 m | F39-JG10B-D | |
| | | 15 m | F39-JG15B-D | |
| | | 20 m | F39-JG20B-D | |

Sensor Mounting Brackets

| Appearance | Specification | Model | Application | Remarks |
|------------|-----------------------------------|---------|--|----------------------|
| | Standard Fixed Bracket | F39-LGF | Bracket to mount the F3W-MA. Side mounting and backside mounting possible. | Two brackets per set |
| | Standard Adjustable Bracket | F39-LGA | Bracket to mount the F3W-MA. Beam alignment after mounting possible. The angle adjustment range is ±15°. Side mounting and backside mounting possible. | Two brackets per set |

5

Ratings/Specifications

| | | | F3W-MA0100P | F3W-MA0300P | | |
|--------------------|--------------------------------|--|---|---|--|--|
| | Beam Gap between Beams | een Muting Trigger | 100mm | 300mm | | |
| | Number of Beam | ıs | 8 | 20 | | |
| Standard Detection | | ion Object | 30mm | | | |
| Operating | Long | 0.3 to 20.0 m (1 to 65 ft.) | | | | |
| Perfor- | Range | Short | 0.3 to 7.0 m (1 to 23 ft.) | | | |
| mance | | Operation | 13 ms max. | | | |
| | Response Time | Reset | 26 ms max. (Synchronized) 78 ms max. (Not synchronized) | | | |
| | Effective Apertu | re Angle | ±2.5° max., emitter and receiver at operating rang | e of 3 m or greater | | |
| | Light Source | | Infrared LEDs, Wavelength: 870 nm | | | |
| | Startup Waiting | Time | 2 s max. | | | |
| | Power Supply Vo | oltage (Vs) | SELV/PELV 24 VDC±20% (ripple p-p 10% max.) | | | |
| | Current | Emitter | 35mA | 45mA | | |
| | Consumption | Receiver | 75mA | 75mA | | |
| | Muting Outputs | | Two PNP transistor outputs. Load current of 300 mA max., Residual voltage of 2 V max. (except for voltage d | rop due to cable extension)j | | |
| | Output Opera- | Muting Output A | Dark-ON (Muting Output A is enabled when MuteA trigger b | eam is blocked.) | | |
| Electrical | tion Mode | Muting Output B | Dark-ON (Muting Output B is enabled when MuteB trigger b | Dark-ON (Muting Output B is enabled when MuteB trigger beam is blocked.) | | |
| Input Voltage | ON Voltage | [MuteEnable] Vs to Vs-3 V (sink current 5 mA max.) * | | | | |
| | Input Voltage | OFF Voltage | [Mute Enable] 0 to 1/2 Vs, or open * | | | |
| | | * The Vs indicates a sup | oply voltage value in your environment. | | | |
| | Indicators | | Refer to page 40. LED Indicator Status | | | |
| | Protective Circu | it | Protective Circuit Output short protection, Power s | supply reverse polarity protection | | |
| | Insulation Resis | | 20 MΩ or higher (500 VDC megger) | | | |
| | Dielectric Streng | ıth | 1,000 VAC, 50/60 Hz (1 min) | | | |
| Functional | Functions | | Scan Code Selection Operation Mode Selection (Point to Point Detective Prevention) Off-Delay Muting Enable Muting Trigger Beam Allocation Operating Range Selection | on/ Chattering and Void Space | | |
| | Ambient | Operating | -10 to 55°C (13 to 131°F) (non-icing) | | | |
| | Temperature | Storage | -25 to 70°C (-13 to 158°F) | | | |
| | Ambient | Operating | 35% to 85% (non-condensing) | | | |
| | Humidity | Storage | 35% to 95% | | | |
| Environ- mental | Ambient Illumina | ance | Incandescent lamp: 3,000 lx max. on receiver surface Sunlight: 10,000 lx max. on receiver surface | | | |
| | Degree of Protect | ction (IEC 60529) | IP65/IP67 | | | |
| | Vibration Resista | ance (IEC 61496-1) | 10 to 55 Hz, Multiple amplitude of 0.7 mm, 20 sweeps for all 3 axes | | | |
| | Shock Resistance (IEC 61496-1) | | 100 m/s ² , 1000 shocks for all 3 axes | | | |
| | Pollution Degree (IEC 60664-1) | | Pollution Degree 3 | | | |
| Connec- tions | Extension of Por | wer Cable | 100 m max. Note: For T-Shaped configuration with COM lines, the length of cable extension is 30m max. | | | |
| Material | | | Housing: Aluminum, Cap: PBT, Front Window: PMMA, Cable: Oil resistant PVC, FE plate: SUS | | | |
| Weight (pa | ckaged) | | 1.8 kg max. | 2.8 kg max. | | |
| Included A | ccessories | | Instruction Sheet | | | |

F3W-MA

LED Indicator Status

Shown below are indication statuses of F3W-MA LED indicators when you purchased.

Emitter

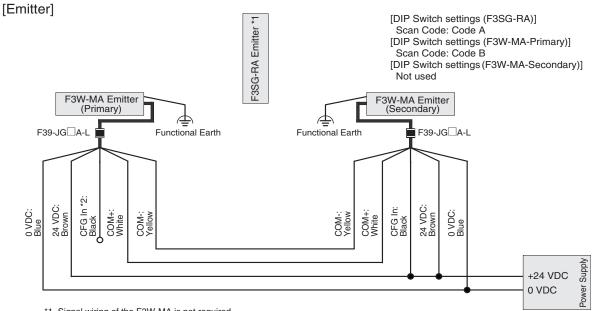
| Name of Ind | icator | Color | Illuminated | Blinking |
|-----------------|--------|-------|--|--|
| Operating range | LONG | Green | Long Range mode is selected by DIP Switch. | - |
| Running | RUN | Green | Power is ON. | - |
| Error | ERR | Red | - | Error in emitter. Generic error happens. |

Receiver

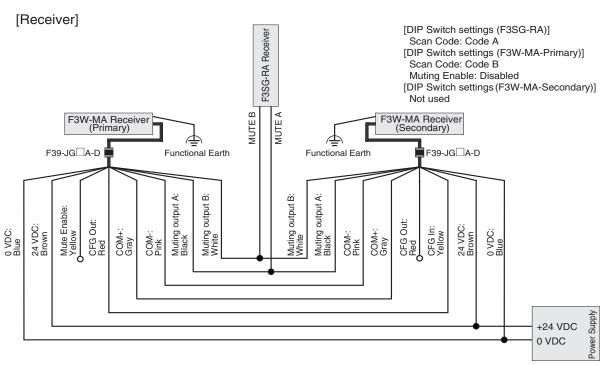
| Name of Inc | dicator | Color | Illuminated | Blinking |
|------------------------|-----------------|--------|--|--|
| Top-beam-state | TOP | Blue | The top beam is unblocked. | - |
| Muting output A | MUTE A | Green | Muting Output A is activated. | - |
| Muting output B | MUTE B | Green | Muting Output B is activated. | - |
| Off-Delay | DELAY | Yellow | Off-Delay function is enabled by DIP Switch. | - |
| Chattering/ Void space | CHAT | Green | Chattering and Void Space Prevention mode is selected by DIP Switch. | - |
| Muting Enable | MUTE DISABLE | Red | The Muting Enable function is enabled and Muting Enable input is turned OFF by DIP Switch. | - |
| Error | ERR | Red | - | Error in receiver. Generic error happens. |
| Stable-state | STB | Green | Incident light level is 170% or higher of ON-threshold | - |
| Running | RUN | Green | Power is ON. | - |
| Communication | СОМ | Green | Synchronization between emitter and receiver is maintained. | [Primary sensor] - Start-up (for approx. 3 s) - Synchronization between emitter and receiver is lost |
| Bottom-beamstate | ВТМ | Blue | The bottom beam is unblocked. | - |

Wiring Examples

Standard Muting Mode with F3SG-R (T-Shaped Configuration with COM lines)



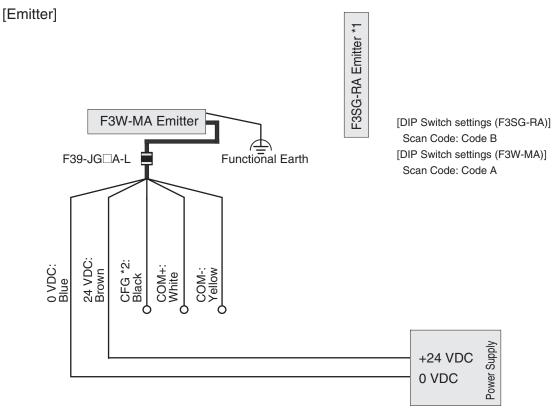
- *1. Signal wiring of the F3W-MA is not required.
- *2. Do not connect CFG In line to +24 VDC line. Otherwise, F3W-MA enters the error state.



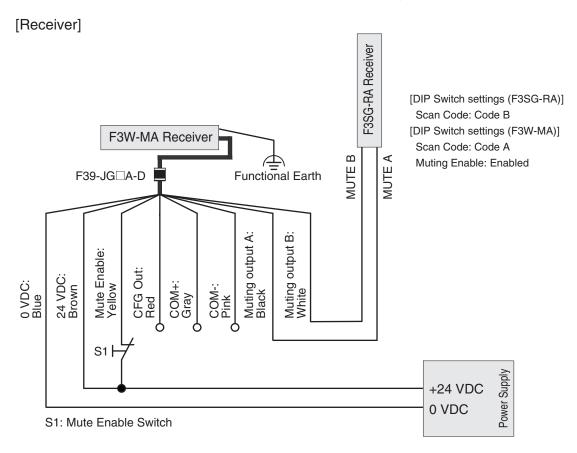
Note 1. For the wiring of safety light curtains such as F3SG-R, refer to the applicable user's manual separately.

Note 2. For devices connecting to the F3W-MA, the same power supply must be used.

Exit-Only Muting Mode with F3SG-R (L-Shaped Configuration)

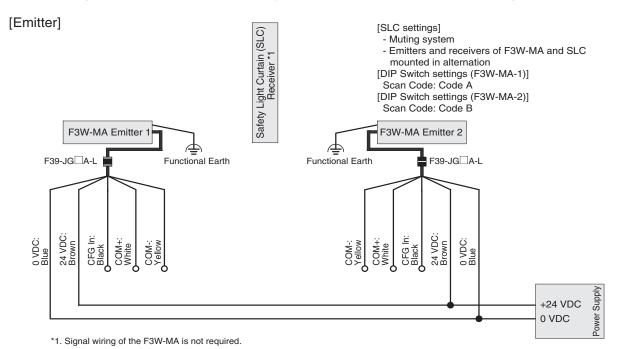


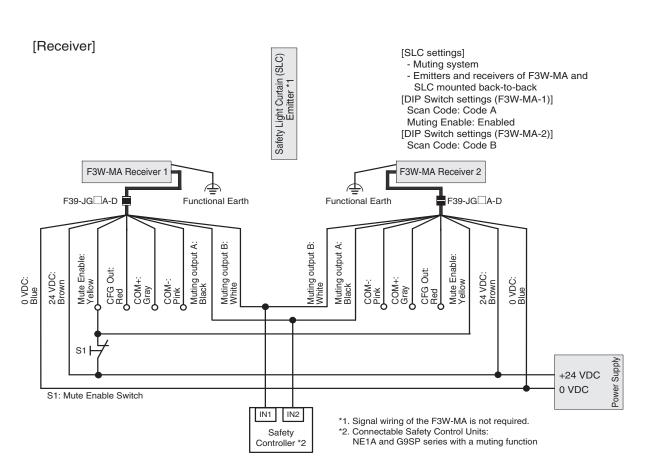
- *1. Signal wiring of the F3W-MA is not required.
- *2. Do not connect CFG In line to +24 VDC line. Otherwise, F3W-MA enters the error state.



Note 1. For the wiring of safety light curtains such as F3SG-R, refer to the applicable user's manual separately. Note 2. For devices connecting to the F3W-MA, the same power supply must be used.

Standard Muting Mode with Other Safety Component(T-Shaped Configuration)





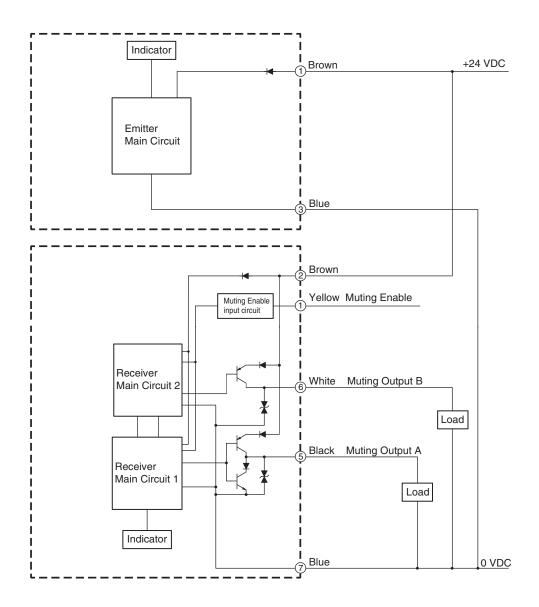
Note 1. For the wiring of safety light curtains such as F3SG-R, refer to the applicable user's manual separately. Note 2. For devices connecting to the F3W-MA, the same power supply must be used.

F3W-MA

Input/Output Circuit

The entire circuit diagram of the F3W-MA is shown below.

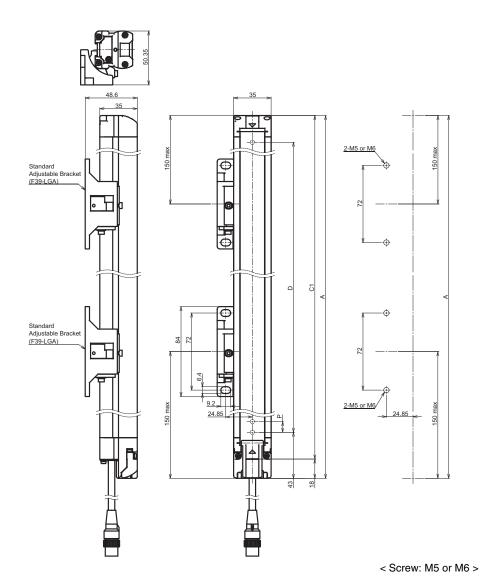
The numbers in the circles indicate the connector's pin numbers.



(Unit: mm)j

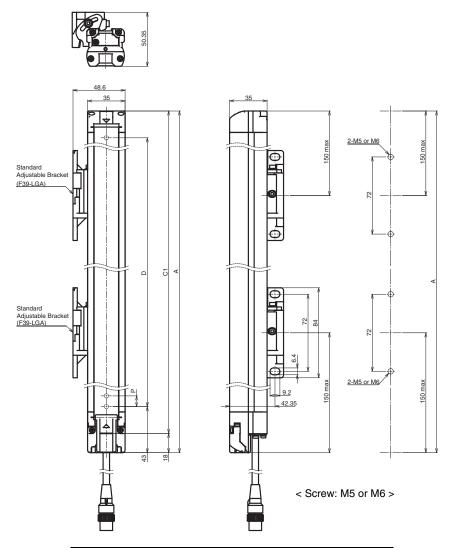
Mounted with Standard Adjustable Brackets (F39-LGA)

Mounted with Standard Adjustable Brackets (F39-LGA) Backside Mounting



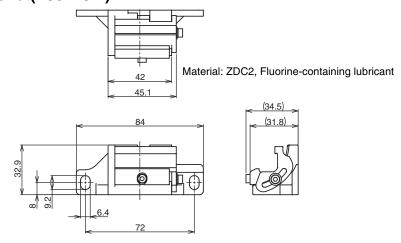
F3W-MA0100P F3W-MA0300P Model Dimension A 478 Dimension C1 190 430 Dimension D 140 410 Dimension P 20 20 Number of Standard Adjustable Brackets 2

Side Mounting

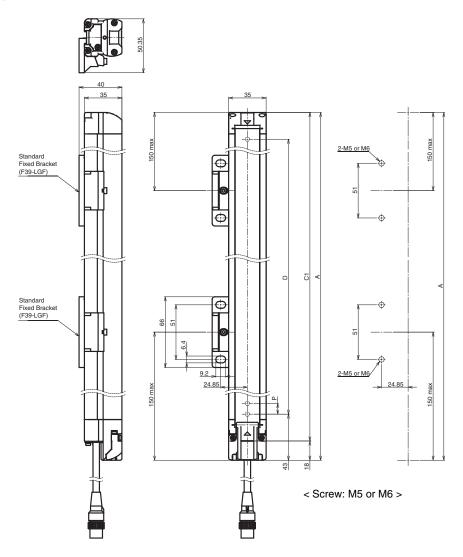


| Model | F3W-MA0100P | F3W-MA0300P |
|---|-------------|-------------|
| Dimension A | 208 | 478 |
| Dimension C1 | 190 | 430 |
| Dimension D | 140 | 410 |
| Dimension P | 20 | 20 |
| Number of Standard Adjustable Brackets | 2 | 2 |

Standard Adjustable Bracket(F39-LGA)

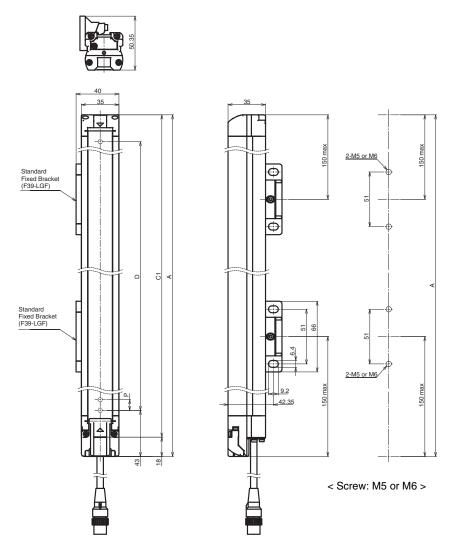


Mounted with Standard Fixed Brackets (F39-LGF) Backside Mounting



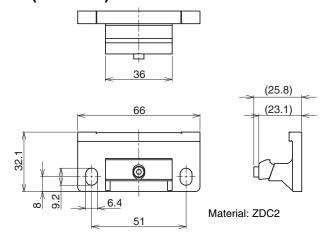
| Model | F3W-MA0100P | F3W-MA0300P |
|--------------------------------------|-------------|-------------|
| Dimension A | 208 | 478 |
| Dimension C1 | 190 | 430 |
| Dimension D | 140 | 410 |
| Dimension P | 20 | 20 |
| Number of Standard Fixed Brackets | 2 | 2 |

Side Mounting



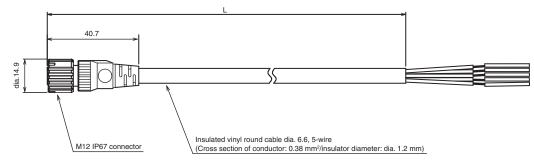
| Model | F3W-MA0100P | F3W-MA0300P |
|--------------------------------------|-------------|-------------|
| Dimension A | 208 | 478 |
| Dimension C1 | 190 | 430 |
| Dimension D | 140 | 410 |
| Dimension P | 20 | 20 |
| Number of Standard Fixed Brackets | 2 | 2 |

Standard Fixed Bracket(F39-LGF)

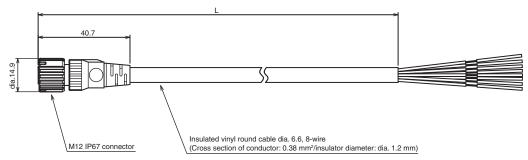


Accessories

Single-Ended Cable for Emitter (F39-JG□A-L, sold separately)

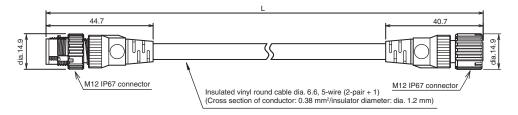


Single-Ended Cable for Receiver (F39-JG□A-D, sold separately)



| Emitter cable (Gray) | Receiver cable (Black) | L (m) |
|----------------------|------------------------|-------|
| F39-JG3A-L | F39-JG3A-D | 3 |
| F39-JG7A-L | F39-JG7A-D | 7 |
| F39-JG10A-L | F39-JG10A-D | 10 |
| F39-JG15A-L | F39-JG15A-D | 15 |
| F39-JG20A-L | F39-JG20A-D | 20 |

Double-ended Cable for Emitter: Cable for extension (F39-JG□B-L, sold separately)



| Emitter cable (Gray) | Receiver cable (Black) | L (m) |
|----------------------|------------------------|-------|
| F39-JGR5B-L | F39-JGR15B-D | 0.5 |
| F39-JG1B-L | F39-JG1B-D | 1 |
| F39-JG3B-L | F39-JG3B-D | 3 |
| F39-JG5B-L | F39-JG5B-D | 5 |
| F39-JG7B-L | F39-JG7B-D | 7 |
| F39-JG10B-L | F39-JG10B-D | 10 |
| F39-JG15B-L | F39-JG15B-D | 15 |
| F39-JG20B-L | F39-JG20B-D | 20 |

Related Manuals

| ManNo. | Model | Manual name |
|--------|--------|---|
| Z355 | F3W-MA | Smart Muting Actuator F3W-MA Series User's Manual |

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- and (ii) Buyer has no past due amounts.

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Note: Specifications are subject to change.

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