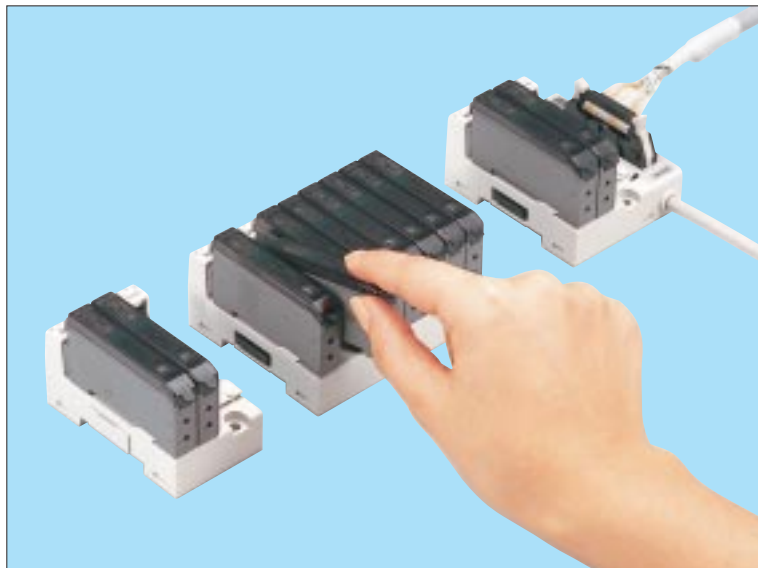


SL-BMW/BW

Sensor Block for Simple Wiring



Quick Connection of 16 Sensors

AUDIN

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Tel. +33(0)326042021 • Fax +33(0)326042820
<http://www.audin.fr> • e-mail info@audin.fr

Set of 16 Inputs Directly Hooked Up to PLC

Up to 16 sensors can be connected on one main block followed by three extension blocks (or one snap-connector extension block).

Snap-connector extension block

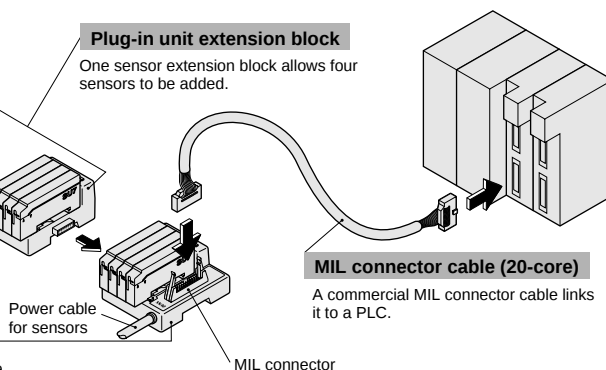
Eight sensors can be connected to one extension block.
(One snap-connector extension block cannot be followed by another extension block.)

Plug-in unit extension block

One sensor extension block allows four sensors to be added.

Sensor main block

The self-diagnosis output switch enables the self-diagnosis output of the connected sensors to be ORed output.
(Maximum 15 sensors are connectable if the self-diagnosis output is used.)



Simple Sensor Connections

Plug-in units

The plug-in connection of sensors achieves wire-saving.

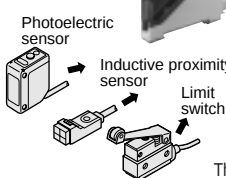
- Fiber sensor
- Digital setting
FX-D1J
FX-D1PJ
- Auto-setting
FX-A1J
FX-A1PJ
FX-A1GJ
- Manual setting
FX-M1J
FX-M1PJ
FX-M1GJ

- Amplifier-separated photoelectric sensor
SU-7J

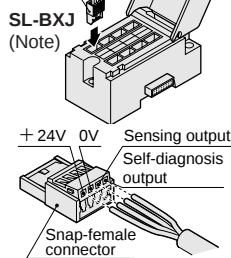
- Amplifier-separated inductive proximity sensor
GA-14J, GA-15J

Snap-connector inputs

- Input terminal unit
SL-TJ1 (Note)
- Various input devices can be connected.

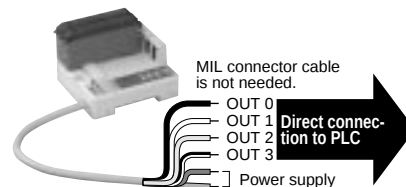


Note: PNP output sensors cannot be connected to SL-TJ1 or SL-BXJ.
The wires of the sensor cable are inserted into the snap-connector holes and then simply pressed with pliers. There is no need to strip the wire insulation or to use any special tools.



Wiring to Connect Four Sensors Is Reduced to Half SL-BW

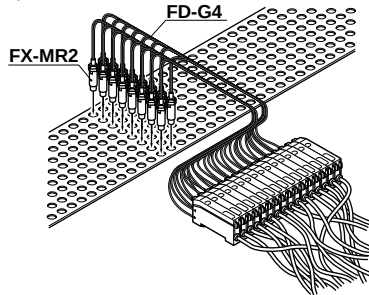
Individual outputs of up to four sensors and the ORed output of the self-diagnosis outputs can be output.
(Output of three sensors if the self-diagnosis output is used.)



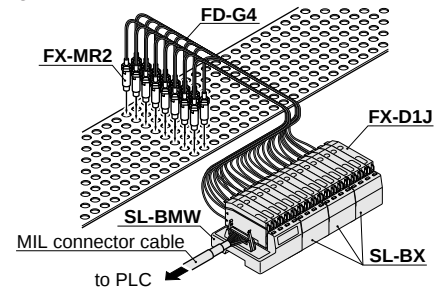
APPLICATIONS

Wire-saving in sensor connection (Detecting presence of tablets)

In the past



Now, using **SL-BMW**



ORDER GUIDE

Designation		Appearance	Model No.	Description
Sensor block	Plug-in unit sensor main block		SL-BMW	One sensor main block allows four plug-in units to be connected, and if three extension blocks are used, total 16 plug-in units can be connected. A commercial MIL connector cable links it to a PLC input module. (The ORed output of the self-diagnosis outputs of the connected sensors can be output as Channel 0. However, in this case, a plug-in unit cannot be connected at Channel 0.)
	Plug-in unit extension block		SL-BX	Four plug-in units can be connected to one extension block.
	Snap-connector extension block (Note)		SL-BXJ	Eight input devices can be connected to one extension block. The connections are simple using snap-female connectors.
	Plug-in unit 4-channel sensor block		SL-BW	Four plug-in units can be connected to one extension block. The attached cable links it to a PLC input module. (The ORed output of the self-diagnosis outputs of the connected sensors can be output as Channel 0. However, in this case, a plug-in unit cannot be connected at Channel 0.)

Note: PNP output device cannot be connected.

SL-BMW/BW

ORDER GUIDE

Designation		Appearance	Model No.	Description	
Plug-in unit	Digital setting fiber sensor		FX-D1J	NPN type (Red LED)	Its thickness is merely 10mm. The incident light intensity and the threshold value can be seen at a glance from the backlit LCD. Further, threshold value setting is simple by using the industry's first jog switch. (For details, refer to P.64~ for the FX-D1 series.)
	FX-D1PJ		PNP type (Red LED)		
	Auto-setting fiber sensor		FX-A1J	NPN type (Red LED)	Its thickness is merely 10mm. The sensitivity setting is simple by using the industry's first jog switch. Level indicators, comprising of 10 LEDs, which enable confirmation of the set sensitivity at a glance, have been incorporated. (For details, refer to P.64~ for the FX-A1 series.)
			FX-A1PJ	PNP type (Red LED)	
			FX-A1GJ	NPN type (Green LED)	
	Manual setting fiber sensor		FX-M1J	NPN type (Red LED)	Its thickness is merely 10mm. Since the sensitivity setting is done by a 12-turn potentiometer, fine setting is possible. (For details, refer to P.64~ for the FX-M1 series.)
			FX-M1PJ	PNP type (Red LED)	
			FX-M1GJ	NPN type (Green LED)	
	Amplifier-separated photoelectric sensor		SU-7J	Its thickness is merely 10mm. The sensitivity is automatically set with ease. 12 kinds of sensor heads are suitable with it. (For details, refer to P.350~ for the SU-7 series.)	
	Amplifier-separated inductive proximity sensor	One-touch clamping type		GA-14J	Its thickness is merely 10mm. The sensitivity is so precisely set with the 18-turn adjuster that the sensor is suitable for sophisticated applications with a high repeatability of 1μm or less. (For details, refer to P.686~ for the GA-10 series.)
Screw tightening type		GA-15J			
Input terminal unit (Note)			SL-TJ1	It allows connection of 1 No. of various kinds of input devices, such as, a photoelectric sensor, an inductive proximity sensor or a limit switch.	
Snap-female connector			SL-CJ1 (White)	For 0.08 to 0.2mm ² Wire dia.: φ0.7 to φ1.2mm	It is used to connect an input device to the snap-connector extension block.
			SL-CJ2 (Black)	For 0.3mm ² Wire dia.: φ1.1 to φ1.6mm	

Note: PNP output device cannot be connected.

SPECIFICATIONS

Sensor blocks

Item	Designation	Plug-in unit sensor main block	Plug-in unit extension block	Snap-connector extension block	Plug-in unit 4-channel sensor block
	Model No.	SL-BMW	SL-BX	SL-BXJ (Note 1)	SL-BW
Supply voltage		Depends on used input device		Supplied from sensor main block	Depends on used input device
Current consumption		Depends on the number and characteristics of the connected input devices (Note 2)		6mA or less/channel (excluding connected users' devices)	Depends on the number and characteristics of the connected input devices (Note 2)
Input channel No.		4 inputs (Max. 16 inputs with extension blocks) (Note 3)			4 inputs (Note 4)
Ambient temperature		0 to +55°C (No dew condensation), Storage: -20 to +70°C			
Ambient humidity		35 to 85% RH, Storage: 35 to 85% RH			
Material		Enclosure: Heat-resistant ABS, Connector: PBT, Cover (SL-BXJ only): Polycarbonate			
Cable		0.3mm ² 2-core cabtyre cable, 2m long			0.2mm ² 6-core cabtyre cable, 2m long
Weight		130g approx.	30g approx.	60g approx.	130g approx.
Accessories		Extension connector cap: 1 No. Plug-in connector cap: 1 set (Note 5)		Input designation label set: 1 sheet Socket seal: 8 sheets	Plug-in connector cap: 1 set (Note 5)

Notes: 1) PNP output device cannot be connected.

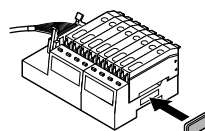
2) Neither **SL-BMW**, **SL-BX** or **SL-BW** consumes current by itself.

3) Maximum 15 inputs are allowed if the self-diagnosis output is used.

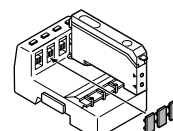
4) Maximum 3 inputs are allowed if the self-diagnosis output is used.

5) Use the extension connector cap and the plug-in connector cap to cover each exposed connector. Three plug-in connector caps are joined together. If two, or less, are to be used, cut to separate them.

Extension connector cap



Plug-in connector cap



SPECIFICATIONS

Plug-in units

Item	Designation	Digital setting fiber sensor		Auto-setting fiber sensor			Manual setting fiber sensor		
		Red LED type		Red LED type		Green LED type	Red LED type		Green LED type
		NPN output	PNP output	NPN output	PNP output	NPN output	NPN output	PNP output	NPN output
	Model No.	FX-D1J	FX-D1PJ	FX-A1J	FX-A1PJ	FX-A1GJ	FX-M1J	FX-M1PJ	FX-M1GJ
Supply voltage		12 to 24V DC ± 10% (24V DC supplied from sensor block)							
Current consumption		45mA or less		50mA or less			45mA or less		
Output		Output 1 and Output 2 (Note 1)		Sensing output and self-diagnosis output					
Applicable fibers		FT-B8, FD-B8 , etc.							
Sensing range		<Thru-beam type> Red LED type with FT-B8 : 650mm Green LED type with FT-B8 : 115mm				<Reflective type> Red LED type with FD-B8 : 210mm Green LED type with FD-B8 : 40mm			
Functions		ON/OFF-delay timer function (Note 2) Interference prevention function		Approx. 40ms fixed OFF-delay timer function Interference prevention function					
Connecting method		Connector							
Ambient temperature		0 to +50°C, Storage: −20 to +70°C		−10 to +50°C (Note 3), Storage: −20 to +70°C					
Ambient humidity		35 to 85% RH, Storage: 35 to 85% RH							
Material		Enclosure: Heat-resistant ABS, Cover: Polycarbonate, Fiber lock lever: PES							
Weight		70g approx.							
Accessories		MS-DIN-2 (Amplifier mounting bracket): 1 No.					MS-DIN-2 (Amplifier mounting bracket): 1 No. Adjusting screwdriver: 1 No.		

Notes: 1) Output 2 cannot be used when it is connected to plug-in unit sensor block.

2) The time period of the ON-delay timer and the OFF-delay timer can be selected from 40ms, 100ms, 200ms and 500ms.

3) Please take care that the rated ambient temperature of the sensor block is 0 to +55°C.

Plug-in units

	Designation	Amplifier-separated photoelectric sensor	Amplifier-separated inductive proximity sensor		Input terminal unit
			One-touch clamping type	Screw tightening type	
Item	Model No.	SU-7J	GA-14J	GA-15J	SL-TJ1
Supply voltage		12 to 24V DC ± 10% (24V DC supplied from sensor block)			24V DC ± 10% (24V DC supplied from sensor block)
Current consumption		35mA or less	25mA or less		0mA (7.5mA or less when the indicator lights up, excluding connected users' device)
Output		Sensing output and self-diagnosis output	Sensing output and disconnection alarm output		
Applicable sensor heads		SH series	GH series		NPN output transistor, DC 2-wire type or relay output sensor, switch, etc. (Signal conditions depend on the input conditions of the PLC connected to the sensor block.)
Sensing range		Thru-beam type: 2m with SH-33R Reflective type: 100mm with SH-32R	Maximum operating distance (Note 1) 1.2mm with GH-2S 1.8mm with GH-3S 2.4mm with GH-5S 4.0mm with GH-8S, GH-F8S		
Functions		Automatic sensitivity setting Sensitivity shift Stability margin indication Interference prevention 0 to 5 sec. variable ON/OFF-delay timer	Disconnection alarm indicator (Orange LED lights up when the disconnection alarm output is ON)		Indicators (Red LED: lights up when the sensor input is ON Yellow LED: lights up when the self-diagnosis input is ON)
Connecting method		Connector			Connector (Screw-on-terminal connection of users' input device)
Ambient temperature		− 10 to + 55°C (Note 2), Storage: − 20 to + 70°C	− 10 to + 60°C (Note 2), Storage: − 20 to + 70°C		− 10 to + 50°C (Note 2), Storage: − 20 to + 70°C
Ambient humidity		35 to 85% RH, Storage: 35 to 85% RH			
Material		Enclosure: Heat-resistant ABS, Cover: Polycarbonate, Cable lock lever: PPS			Enclosure: Heat-resistant ABS Cover: Polycarbonate
Weight		65g approx.			20g approx.
Accessories		MS-DIN-2 (Amplifier mounting bracket): 1 No. Mode indication label: 1 sheet	MS-DIN-2 (Amplifier mounting bracket): 1 No. Adjusting screwdriver: 1 No.		

Notes: 1) The maximum operating distance represents the maximum distance for which the sensor can detect the standard sensing object at +20°C constant ambient temperature.

2) Please take care that the rated ambient temperature of the sensor block is 0 to +55°C.

SL-BMW/BW

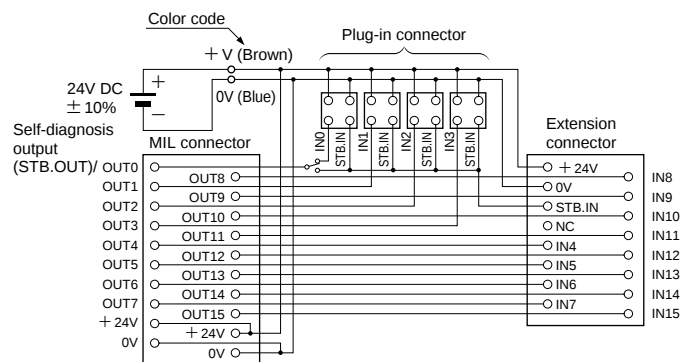
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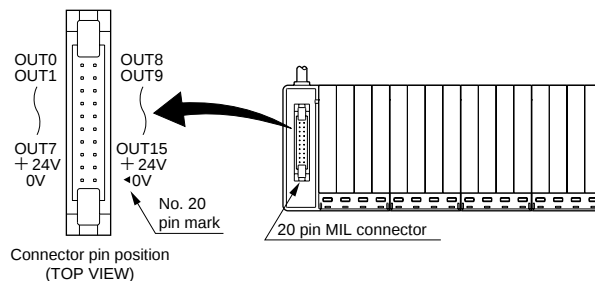
I/O CIRCUIT AND WIRING DIAGRAMS

SL-BMW

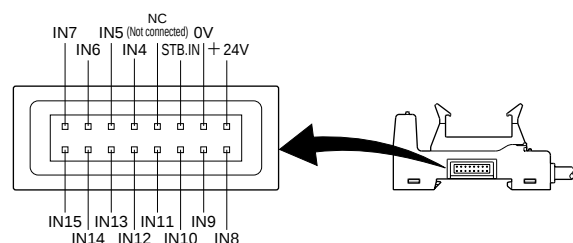
I/O circuit diagram



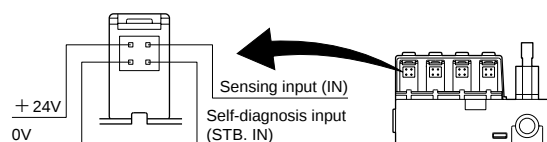
MIL connector pin position



Extension connector pin position

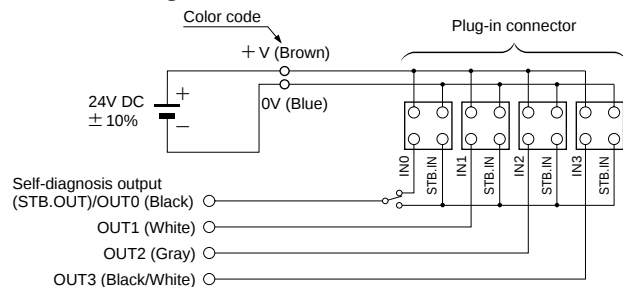


Plug-in connector pin position



SL-BW

I/O circuit diagram



PRECAUTIONS FOR PROPER USE



This product does not possess control functions needed for accident prevention or safety maintenance.

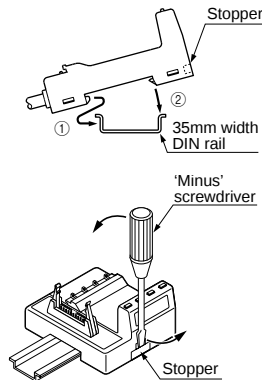
Mounting

Sensor block

<In case of using DIN rail>

- ① The front portion of the part to be mounted is fitted on the 35mm width DIN rail.
- ② The rear portion of the part is then press-fit.

※ The sensor block can be removed by inserting a 'minus' screwdriver in the DIN rail stopper groove and pulling outwards.

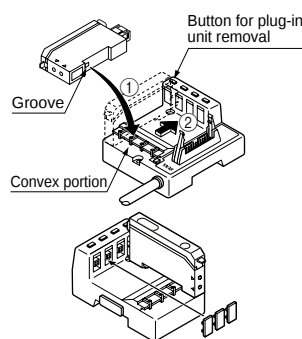


<In case of using screws>

In case of mounting with screws, use M4 pan head screws. And the tightening torque should be 1.2N·m or less.

Plug-in unit

- ① The groove of the plug-in unit is fitted on the convex portion of **SL-BMW** or **SL-BW**.
- ② The plug-in unit is then pushed in the direction of the arrow till a click is felt.
- ③ Please ensure to fit plug-in connector caps (attached with sensor main block) at places where plug-in units are not fitted.



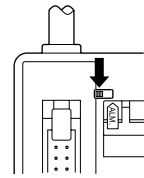
※ To dismantle, pull out the plug-in unit while pressing the button for plug-in unit removal.

Wiring

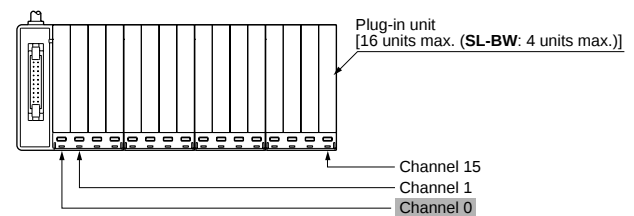
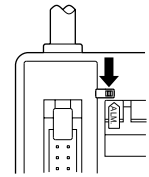
- Make sure to carry out the wiring in the power supply off condition.
- Verify that the supply voltage variation is within the rating.
- If power is supplied from a commercial switching regulator, ensure that the frame ground (F.G.) terminal of the power supply is connected to an actual ground.
- In case noise generating equipment (switching regulator, inverter motor, etc.) is used in the vicinity of the sensor block, connect the frame ground (F.G.) terminal of the equipment to an actual ground.
- Do not run the wires together with high voltage lines or power lines or put them in the same raceway. This can cause malfunction due to induction.

Self-diagnosis output (STB.OUT) (SL-BMW and SL-BW)

- If the self-diagnosis output switch is set to the OFF (unmarked) side, all channels become effective and the sensing output state (ON or OFF) of the sensor of each channel is output. The self-diagnosis output of the sensor of each channel becomes ineffective.



- If the self-diagnosis output switch is set to the 'ALM.' side, Channel 1 to Channel 15 (max.) become effective [Channel 1 to Channel 3 (max.) for **SL-BW**], and the sensing output state (ON or OFF) of the sensor of each channel is output. The self-diagnosis outputs of the sensors connected at Channel 1 to Channel 15 (max.) [Channel 1 to Channel 3 (max.) for **SL-BW**] are ORed and output from Channel 0. A sensor cannot be connected at Channel 0.



Others

- Do not use during the initial transient time (0.5 sec.) after the power supply is switched on.
- Avoid dust, dirt, and steam.
- Take care that the sensor does not come in direct contact with water, oil, grease, or organic solvents, such as, thinner etc.

SL-BMW/BW

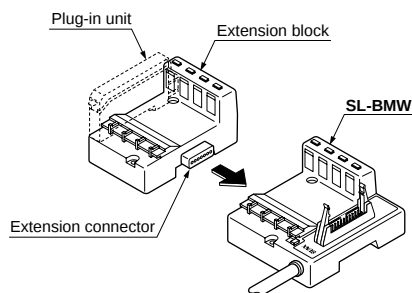
PRECAUTIONS FOR PROPER USE

Extension block connection to SL-BMW

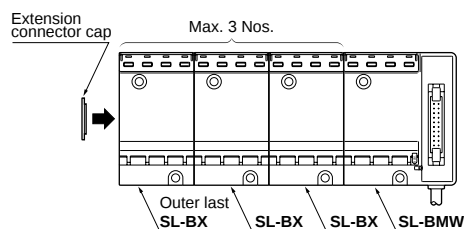
- Connection of **SL-BMW** to the optional extension block is done by the extension connector at the side.

Notes: 1) Before the extension, remove the extension connector cap from **SL-BMW**.

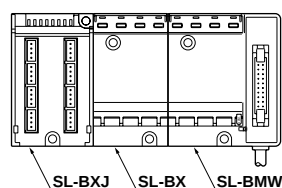
2) After the extension, make sure to fit the extension connector cap on the connector of the outer last **SL-BX**. (Not required for **SL-BXJ**)



- Maximum three **SL-BXs** can be connected to one **SL-BMW**.



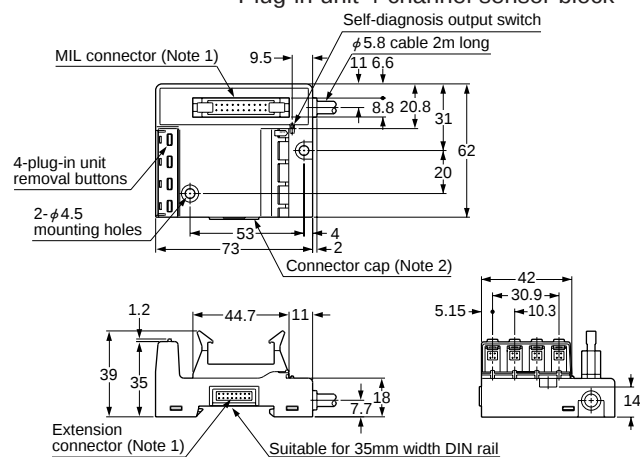
- If **SL-BXJ** is connected, one **SL-BX** can still be connected. However, this **SL-BX** must be connected between **SL-BMW** and **SL-BXJ**.



DIMENSIONS (Unit: mm)

SL-BMW SL-BW

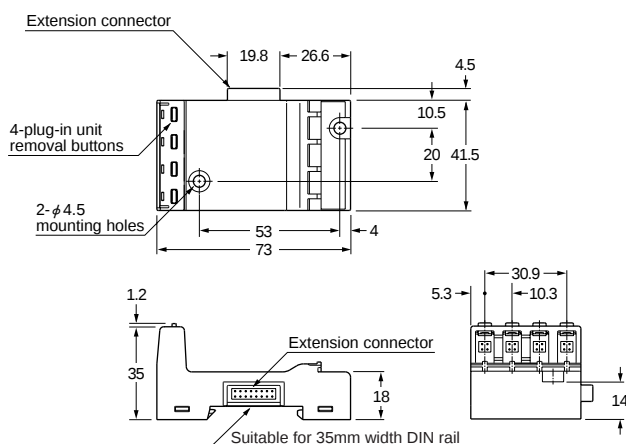
Plug-in unit sensor main block
Plug-in unit 4-channel sensor block



Notes: 1) Not incorporated on **SL-BW**.
2) Do not remove it from **SL-BW**.

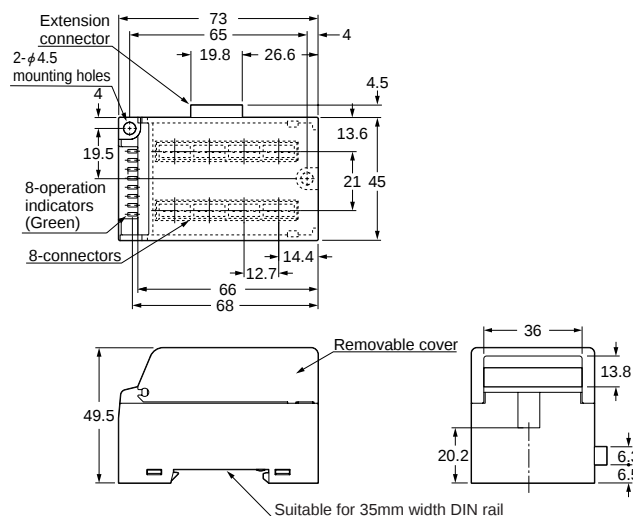
SL-BX

Plug-in unit extension block



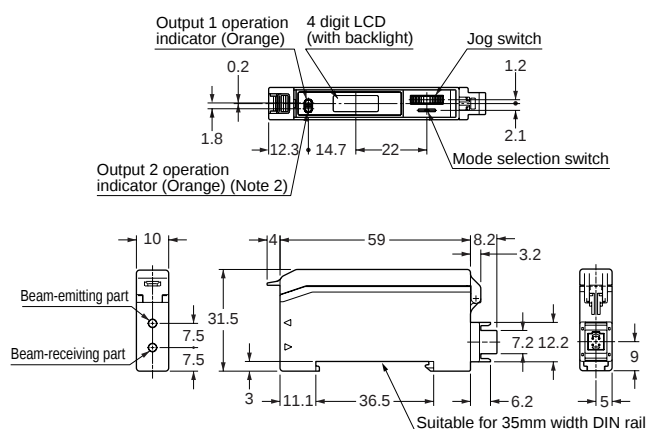
SL-BXJ

Snap-connector extension block



FX-D1J FX-D1PJ

Plug-in unit (Fiber sensor)

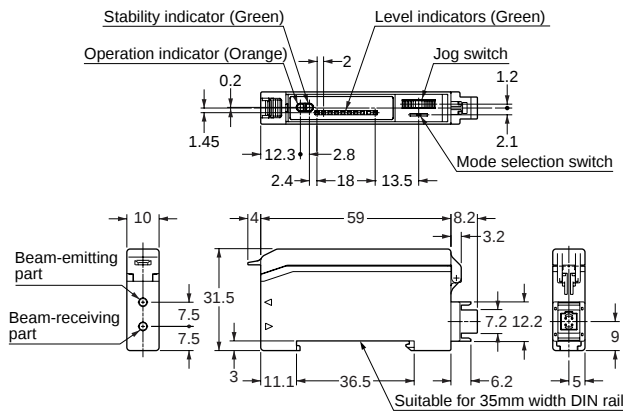


Notes: 1) The top view is shown without the cover.
2) Output 2 cannot be used when it is connected to plug-in unit sensor block.

DIMENSIONS (Unit: mm)

FX-A1J FX-A1GJ FX-A1PJ

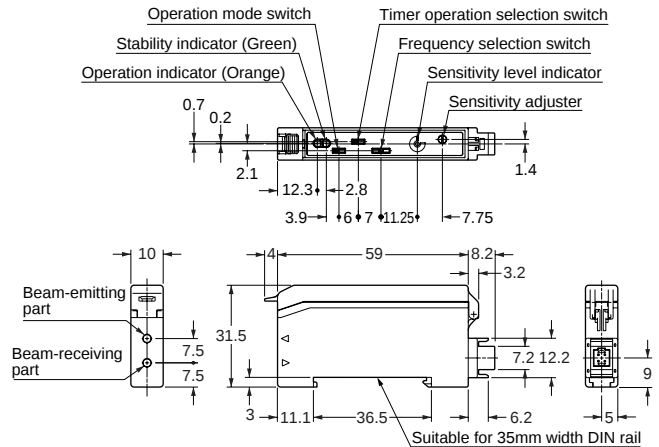
Plug-in unit (Fiber sensor)



Note: The top view is shown without the cover.

FX-M1J FX-M1GJ FX-M1PJ

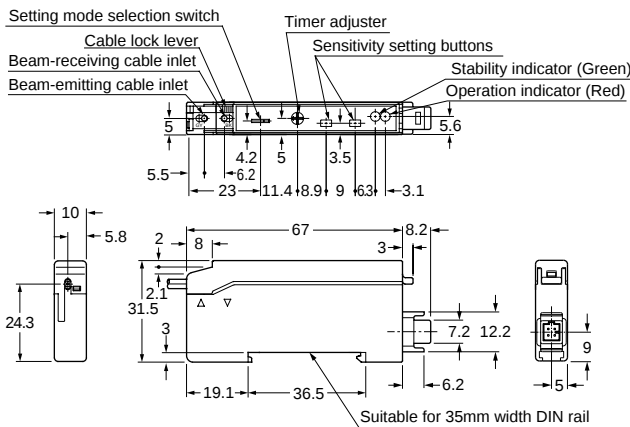
Plug-in unit (Fiber sensor)



Note: The top view is shown without the cover.

SU-7J

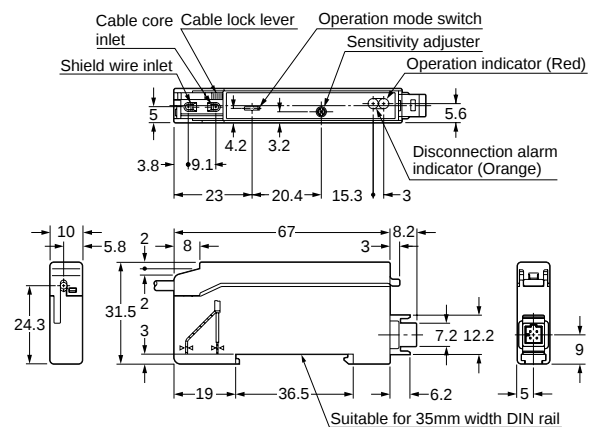
Plug-in unit (Amplifier-separated photoelectric sensor)



Note: The top view is shown without the cable and the cover.

GA-14J

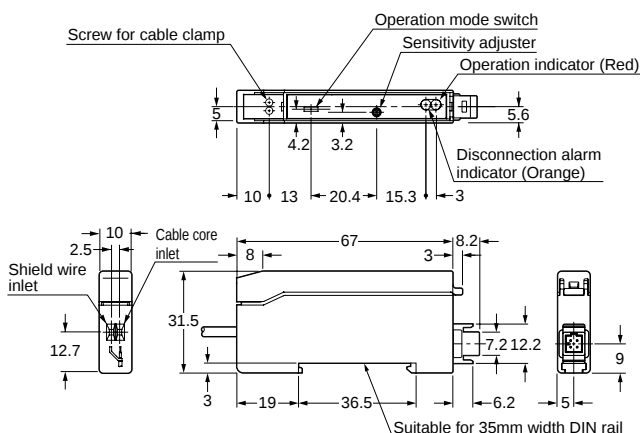
Plug-in unit (Amplifier-separated inductive proximity sensor)



Note: The top view is shown without the cable and the cover.

GA-15J

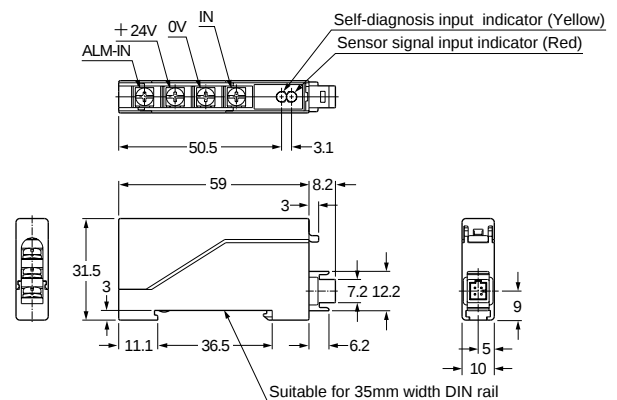
Plug-in unit (Amplifier-separated inductive proximity sensor)



Note: The top view is shown without the cable and the cover.

SL-TJ1

Plug-in unit (Input terminal unit)



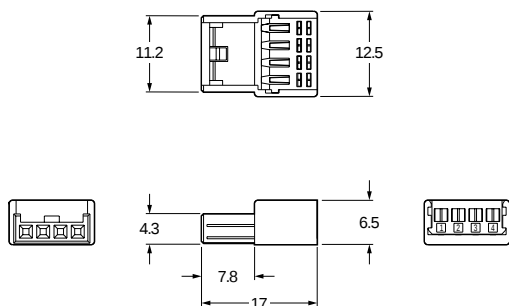
Note: The top view is shown without the cover.

SL-BMW/BW

DIMENSIONS (Unit: mm)

SL-CJ1
SL-CJ2

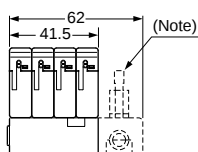
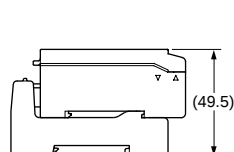
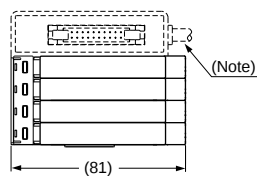
Snap-female connector



Sensor block + Plug-in unit

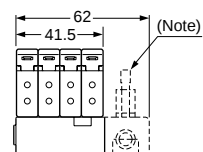
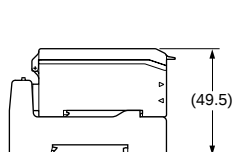
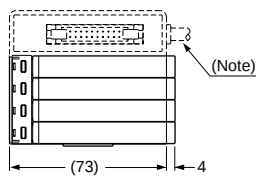
Assembly dimensions of plug-in unit block + plug-in units

SU-7J, GA-14J, GA-15J



Note: The dotted line shows the **SL-BMW** shape.

Others



Note: The dotted line shows the **SL-BMW** shape.