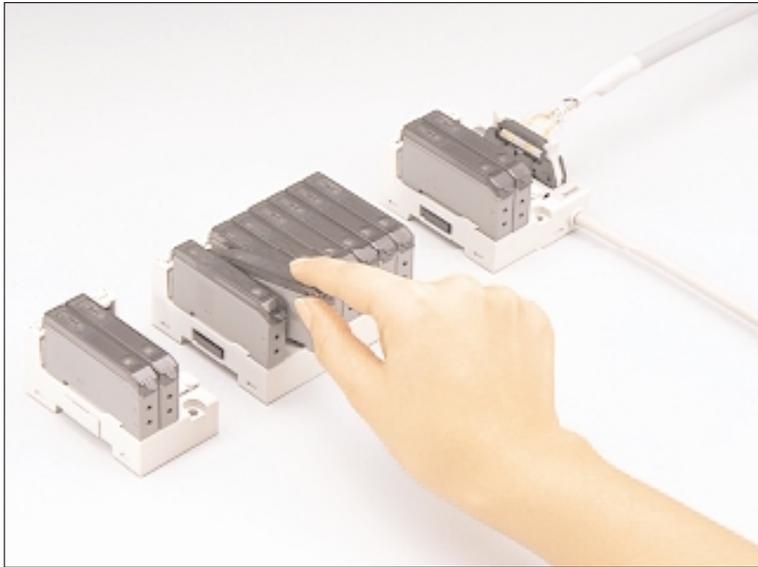


SL-BMW/BW

Sensor Block for Simple Wiring



Quick connection of 16 sensors

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-conductor extension block).

Snap-conductor extension block

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

Plug-in unit extension block

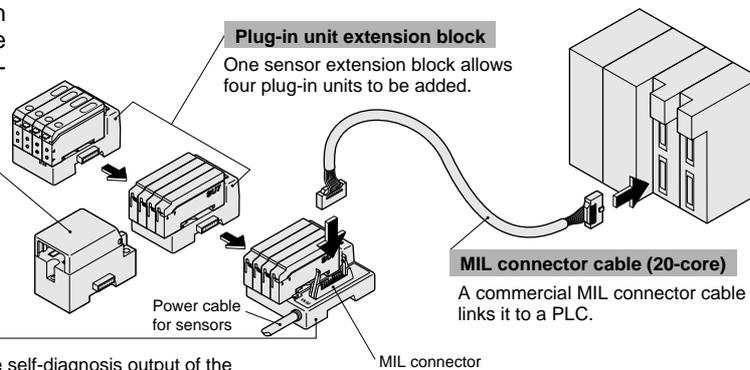
One sensor extension block allows four plug-in units to be added.

MIL connector cable (20-core)

A commercial MIL connector cable links it to a PLC.

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

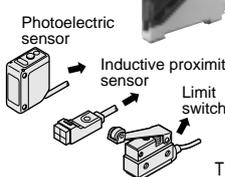
The plug-in connection of sensors achieves wire-saving.

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

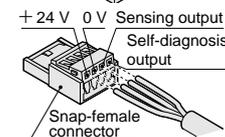
- Amplifier-separated photoelectric sensor
SU-7J
- Amplifier-separated inductive proximity sensor
GA-14J, GA-15J

Snap-conductor inputs

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



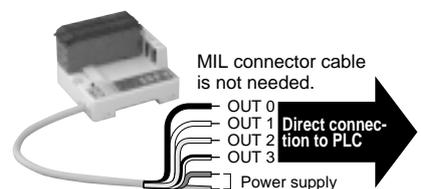
SL-BXJ (Note)



The wires of the sensor cable are inserted into the snap-conductor 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

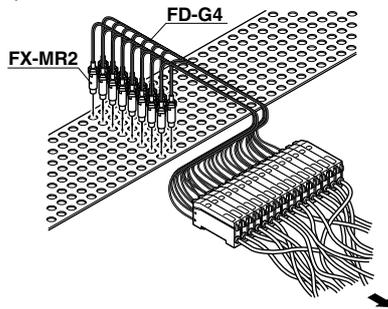
Individual outputs of up to four sensors and the ORed output of the self-diagnosis outputs can be output. (Output of three sensors if the self-diagnosis output is used.)



APPLICATIONS

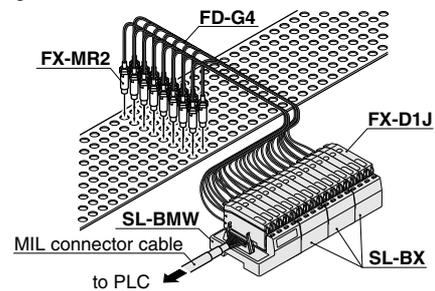
Wire-saving in sensor connection (Detecting presence of tablets)

In the past



To PLC or intermediate terminal block

Now, using **SL-BMW**



to PLC

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 10 mm 0.394 in. The incident light intensity and the threshold value can be seen at a glance from the backlight LCD. Further, threshold value setting is simple by using the jog switch. (Please contact our office for details.)
			FX-D1PJ	PNP type (Red LED)
	Auto-setting fiber sensor		FX-A1J	NPN type (Red LED) Its thickness is merely 10 mm 0.394 in. The sensitivity setting is simple by using the jog switch. Level indicators, comprising of 10 LEDs, which enable confirmation of the set sensitivity at a glance, have been incorporated. (Please contact our office for details.)
			FX-A1PJ	PNP type (Red LED)
			FX-A1GJ	NPN type (Green LED)
	Manually set fiber sensor		FX-M1J	NPN type (Red LED) Its thickness is merely 10 mm 0.394 in. Since the sensitivity setting is done by a 12-turn potentiometer, fine setting is possible. (Please contact our office for details.)
			FX-M1PJ	PNP type (Red LED)
		FX-M1GJ	NPN type (Green LED)	
	Amplifier-separated photoelectric sensor		SU-7J	Its thickness is merely 10 mm 0.394 in. The sensitivity is automatically set with ease. 12 kinds of sensor heads are suitable with it. (For details, refer to p.386~ for the SU-7 series.)
	Amplifier-separated inductive proximity sensor	One-touch clamping type		GA-14J
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 0.2 mm ² (conductor cross-section area) Wire dia.: φ0.7 to φ1.2 mm φ0.028 to φ0.047 in	It is used to connect an input device to the snap-connector extension block. When hook-up wiring, make sure to use the SL-JPC exclusive pliers.
		SL-CJ2 (Black)	For 0.3 mm ² (conductor cross-section area) Wire dia.: φ1.1 to φ1.6 mm φ0.043 to φ0.063 in	

Note: PNP output device cannot be connected.

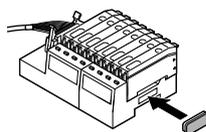
SPECIFICATIONS

Sensor blocks

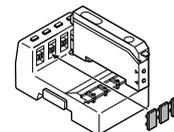
Item	Designation	Plug-in unit sensor main block	Plug-in unit extension block	Snap-connector extension block	Plug-in unit 4-channel sensor block
	Model No.	SL-BMW	SL-BX	SL-BXJ (Note 1)	SL-BW
Supply voltage		Depends on used input device	_____	Supplied from sensor main block	Depends on used input device
Current consumption		Depends on the number and characteristics of the connected input devices (Note 2)		6 mA 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 + 32 to + 131°F (No dew condensation), Storage: - 20 to + 70°C - 4 to + 158°F			
Ambient humidity		35 to 85 % RH, Storage: 35 to 85 % RH			
Material		Enclosure: Heat-resistant ABS, Connector: PBT, Cover (SL-BXJ only): Polycarbonate			
Cable		0.3 mm ² 2-core cable, 2 m 6.562 ft long	_____	_____	0.2 mm ² 6-core cable, 2 m 6.562 ft long
Weight		130 g approx.	30 g approx.	60 g approx.	130 g approx.
Accessories		Extension connector cap: 1 pc. 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 Model No.	Digital setting fiber sensor		Auto-setting fiber sensor			Manually set 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
		FX-D1J	FX-D1PJ	FX-A1J	FX-A1PJ	FX-A1GJ	FX-M1J	FX-M1PJ	FX-M1GJ
Supply voltage	12 to 24V DC ± 10 % (24 V DC supplied from sensor block)								
Current consumption	45 mA or less			50 mA or less			45 mA 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 : 650 mm 25.591 in Green LED type with FT-B8 : 115 mm 4.528 in					<Reflective type> Red LED type with FD-B8 : 210 mm 8.268 in Green LED type with FD-B8 : 40 mm 1.575 in			
Functions	ON / OFF-delay timer function (Note 2) Interference prevention function			Approx. 40 ms fixed OFF-delay timer function Interference prevention function					
Connecting method	Connector								
Ambient temperature	0 to +50 °C + 32 to + 122 °F, Storage: -20 to +70 °C - 4 to + 158 °F			- 10 to + 50 °C + 14 to + 122 °F (Note 3), Storage: - 20 to + 70 °C - 4 to + 158 °F					
Ambient humidity	35 to 85 % RH, Storage: 35 to 85 % RH								
Material	Enclosure: Heat-resistant ABS, Cover: Polycarbonate, Fiber lock lever: PES								
Weight	70 g approx.								
Accessories	MS-DIN-2 (Amplifier mounting bracket): 1 pc.						MS-DIN-2 (Amplifier mounting bracket): 1 pc. Adjusting screwdriver: 1 pc.		

- Notes: 1) Output 2 cannot be used when it is connected to plug-in unit sensor block.
 2) The timer period of the ON-delay timer and the OFF-delay timer can be selected from 40 ms, 100 ms, 200 ms and 500 ms.
 3) Please take care that the rated ambient temperature of the sensor block is 0 to + 55 °C + 32 to + 122 °F.

Plug-in units

Item	Designation Model No.	Amplifier-separated photoelectric sensor		Amplifier-separated inductive proximity sensor		Input terminal unit
				One-touch clamping type	Screw tightening type	
		SU-7J		GA-14J	GA-15J	
Supply voltage	12 to 24 V DC ± 10 % (24 V DC supplied from sensor block)				24 V DC ± 10 % (24 V DC supplied from sensor block)	
Current consumption	35 mA or less		25 mA or less		0 mA (7.5 mA 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: 2 m 6.562 ft with SH-33R Reflective type: 100 mm 3.937 in with SH-32R		Maximum operating distance (Note 1) 1.2 mm 0.047 in with GH-2S 1.8 mm 0.071 in with GH-3S 2.4 mm 0.094 in with GH-5S 4.0 mm 0.157 in with GH-8S, GH-F8S		—	
Functions	Automatic sensitivity setting Sensitivity shift Stability margin indication Interference prevention 0 to 5 sec. variable ON and OFF-delay timers		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 + 14 to + 131 °F (Note 2), Storage: -20 to +70 °C - 4 to + 158 °F		-10 to +60 °C + 14 to + 140 °F (Note 2), Storage: -20 to +70 °C - 4 to + 158 °F		-10 to +50 °C + 14 to + 122 °F (Note 2), Storage: -20 to +70 °C - 4 to + 158 °F	
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	65 g approx.				20 g approx.	
Accessories	MS-DIN-2 (Amplifier mounting bracket): 1 pc. Mode indication label: 1 sheet		MS-DIN-2 (Amplifier mounting bracket): 1 pc. Adjusting screwdriver: 1 pc.		—	

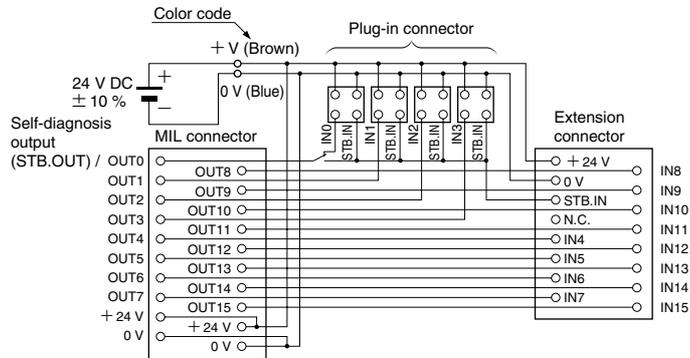
- Notes: 1) The maximum operating distance represents the maximum distance for which the sensor can detect the standard sensing object at + 20 °C + 68 °F constant ambient temperature.
 2) Please take care that the rated ambient temperature of the sensor block is 0 to + 55 °C + 32 to + 131 °F.

SL-BMW/BW

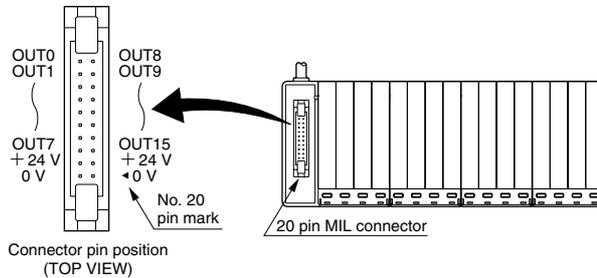
I/O CIRCUIT AND WIRING DIAGRAMS

SL-BMW

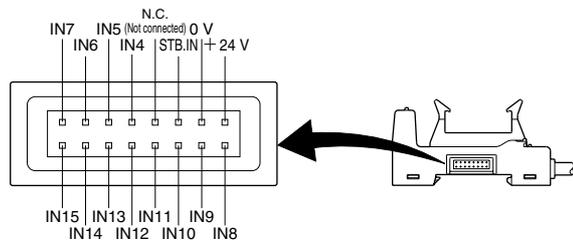
I/O circuit diagram



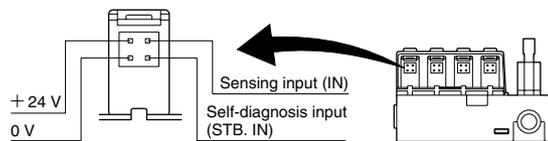
MIL connector pin position



Extension connector pin position

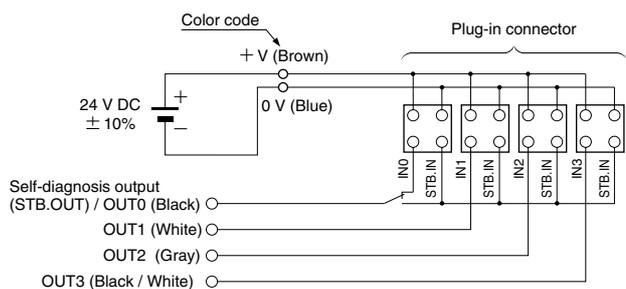


Plug-in connector pin position



SL-BW

I/O circuit diagram



PRECAUTIONS FOR PROPER USE



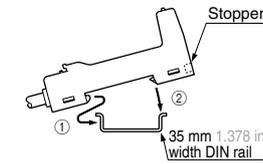
This product does not possess control functions needed for accident prevention or safety maintenance.

Mounting

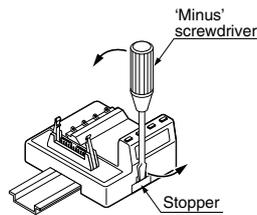
Sensor block

<In case of using DIN rail>

- ① The front portion of the part to be mounted is fitted on the 35 mm 1.378 in 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.

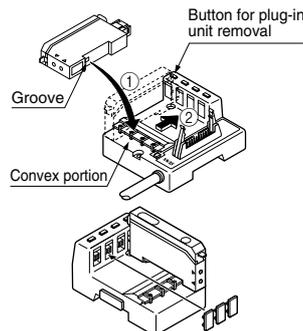


<In case of using screws>

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



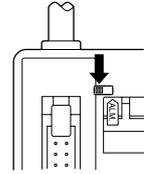
- ※ To dismantle, pull out the plug-in unit while pressing the button for plug-in unit removal.

Wiring

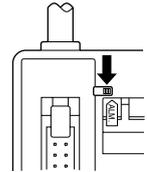
- Make sure that the power supply is off while wiring.
- Verify that the supply voltage variation is within the rating.
- If power is supplied from a commercial switching regulator, ensure that the frame ground (F.G.) terminal of the power supply is connected to an actual ground.
- In case noise generating 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)

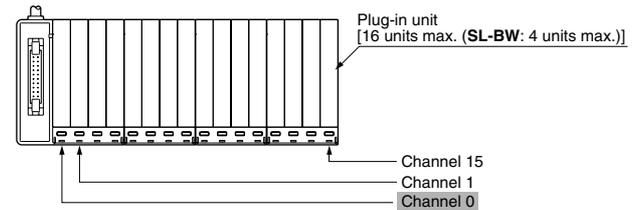
- If the self-diagnosis output switch is set to the OFF (unmarked) side, all channels become effective and the sensing output state (ON or OFF) of the sensor of each channel is output. The self-diagnosis output of the sensor of each channel becomes ineffective.



- 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

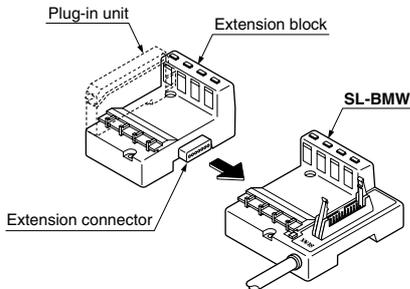
PRECAUTIONS FOR PROPER USE

Extension block connection to SL-BMW

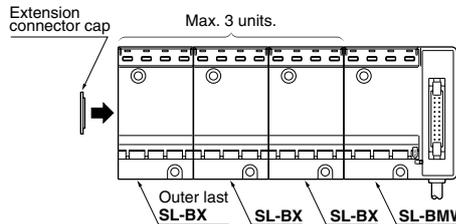
- Connection of **SL-BMW** to the optional extension block is done by the extension connector at the side.

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

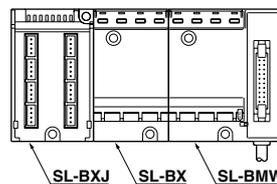
- 2) After the extension, make sure to fit the extension connector cap on the connector of the outer last **SL-BX**. (Not required for **SL-BXJ**)



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



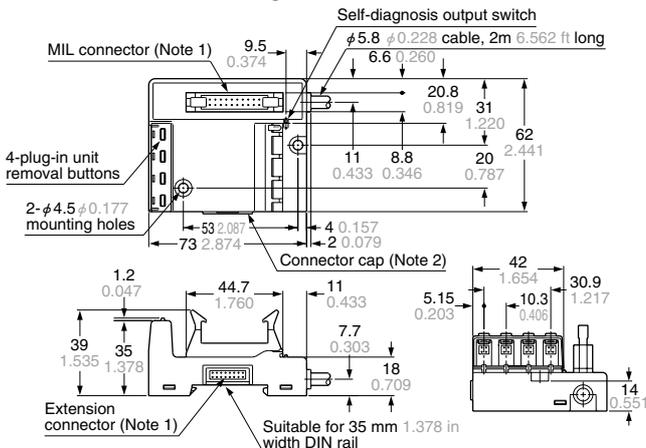
- If **SL-BXJ** is connected, one **SL-BX** can still be connected. However, this **SL-BX** must be connected between **SL-BMW** and **SL-BXJ**.



DIMENSIONS (Unit: mm in) The CAD data in the dimensions can be downloaded from the SUNX website: <http://www.sunx.co.jp/>

SL-BMW SL-BW

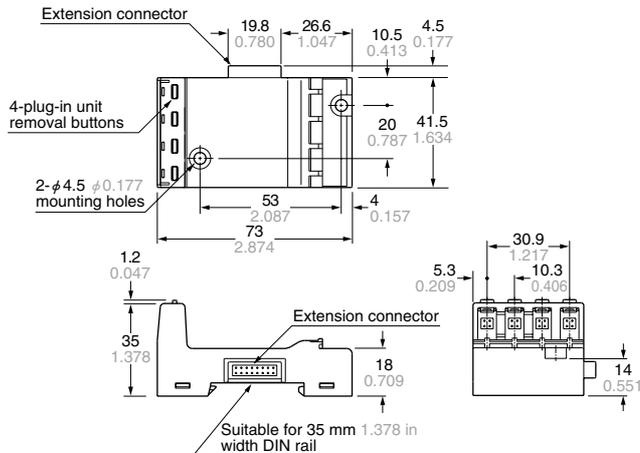
Plug-in unit sensor main block Plug-in unit 4-channel sensor block



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

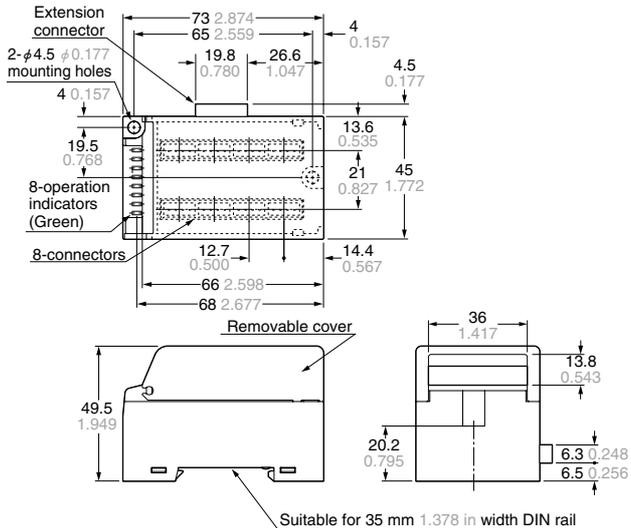
SL-BX

Plug-in unit extension block



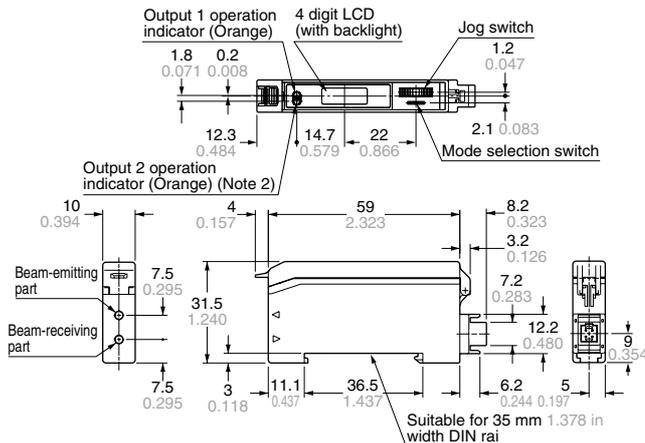
SL-BXJ

Snap-connector extension block



FX-D1J FX-D1PJ

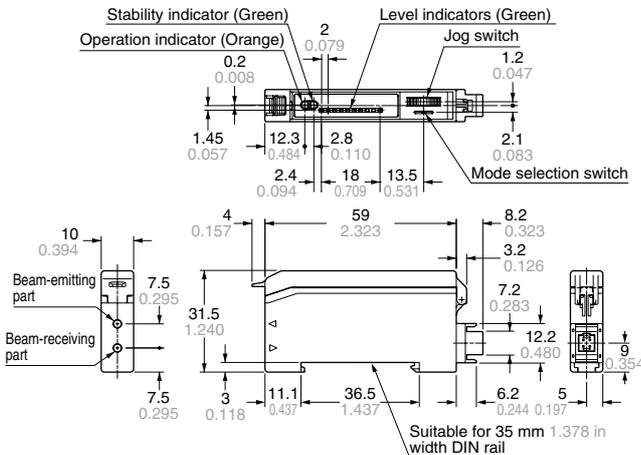
Plug-in unit (Fiber sensor)



- 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.

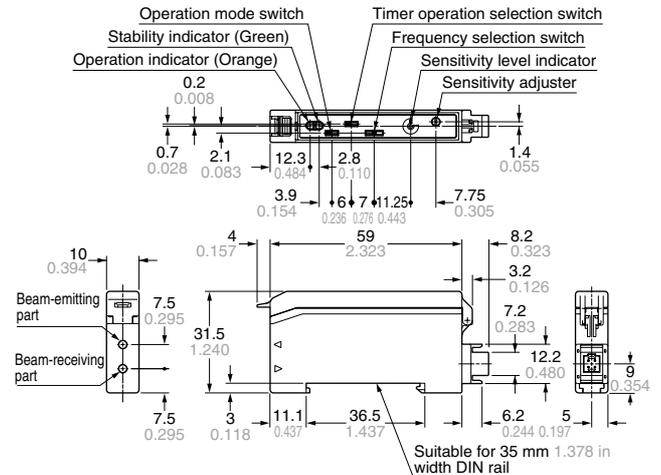
DIMENSIONS (Unit: mm in) The CAD data in the dimensions can be downloaded from the SUNX website: <http://www.sunx.co.jp/>

FX-A1J FX-A1GJ FX-A1PJ Plug-in unit (Fiber sensor)



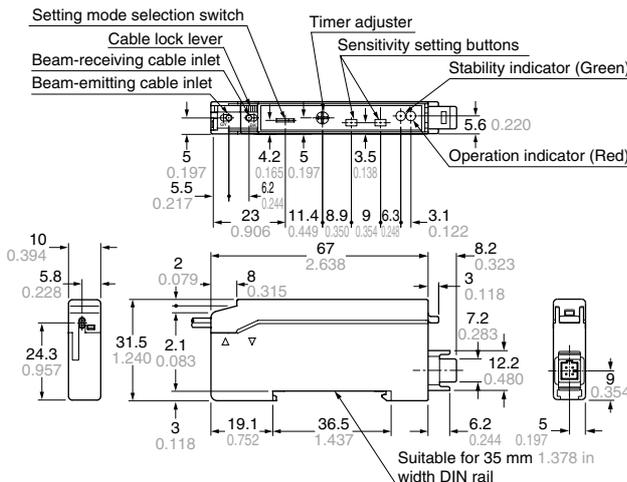
Note: The top view is shown without the cover.

FX-M1J FX-M1GJ FX-M1PJ Plug-in unit (Fiber sensor)



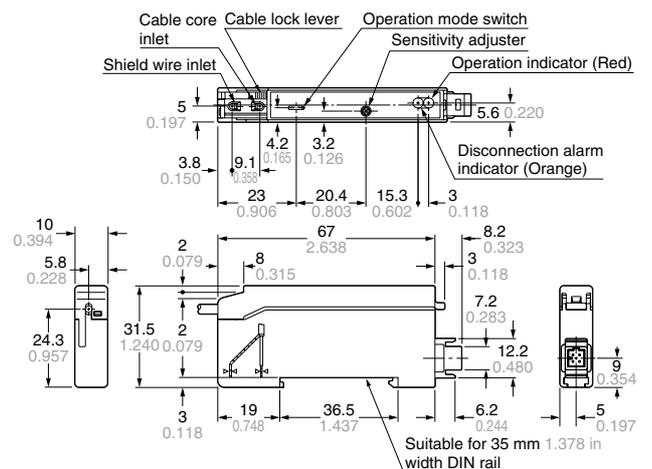
Note: The top view is shown without the cover.

SU-7J Plug-in unit (Amplifier-separated photoelectric sensor)



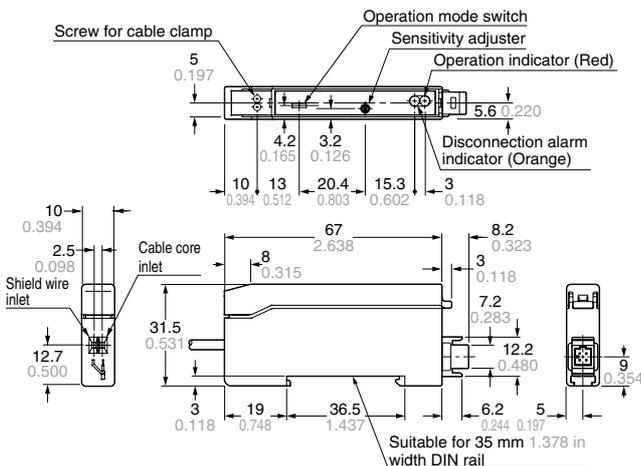
Note: The top view is shown without the cable and the cover.

GA-14J Plug-in unit (Amplifier-separated inductive proximity sensor)



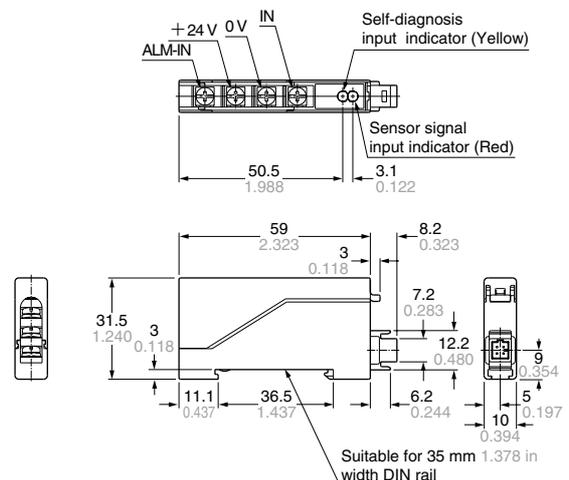
Note: The top view is shown without the cable and the cover.

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.

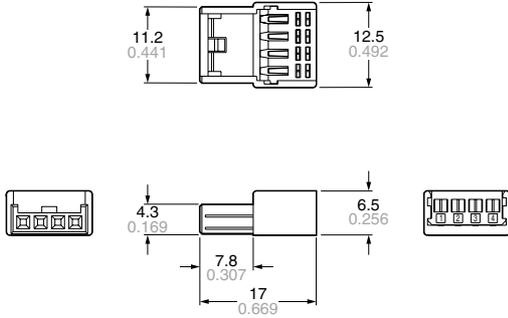
SL-BMW/BW

DIMENSIONS (Unit: mm in) The CAD data in the dimensions can be downloaded from the SUNX website: <http://www.sunx.co.jp/>

SL-CJ1
SL-CJ2

Snap-female connector

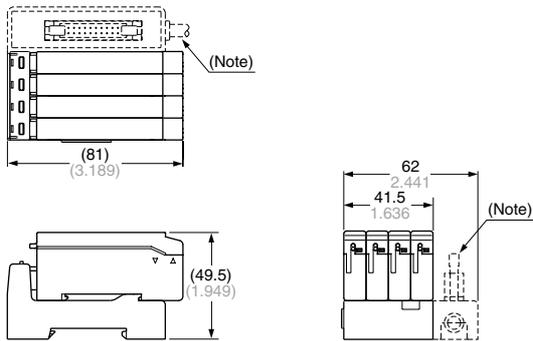
After hook-up



Sensor block +
Plug-in unit

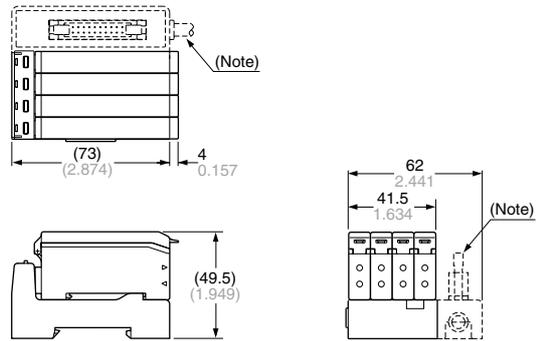
Assembly dimensions of plug-in unit block + plug-in units

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.