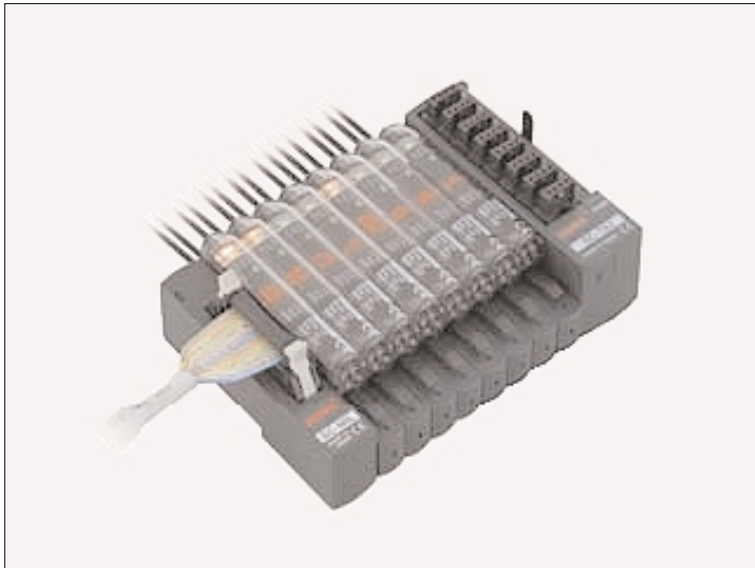


SC SERIES

Sensor-PLC Connection System

New

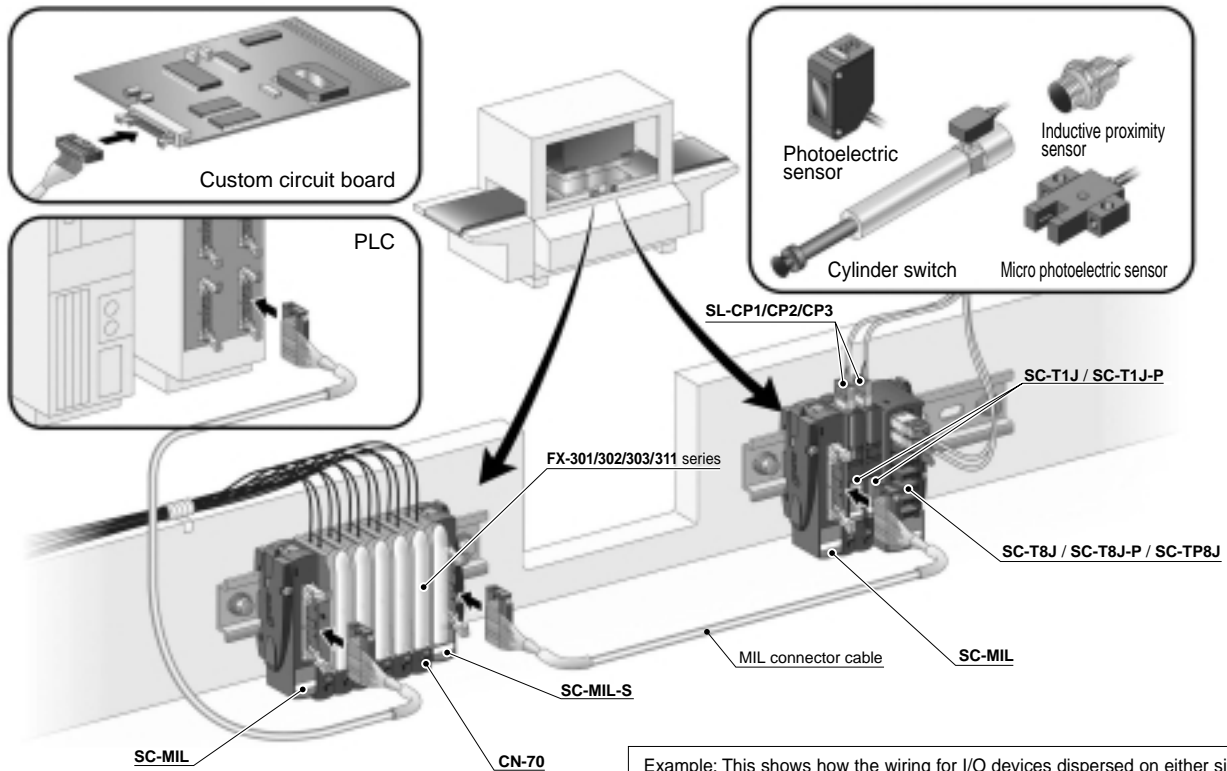


Up to 16 I/O devices can be connected at once using MIL connectors





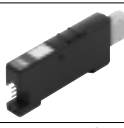



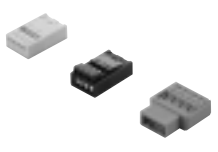
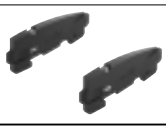
Up to 16 I/O devices can be connected at once using MIL connectors

Up to 16 fiber sensors, like the **FX-301/302/303/311** series, can be connected side-by-side configuration without tools in a main unit. Also, dispersed mounting is possible using a separate unit. In addition, using the connector input / output extension unit, photoelectric sensors, micro photoelectric sensors, inductive proximity sensors, pressure sensors, or any other type of sensor or switch can be one-touch connected to an output device.



Example: This shows how the wiring for I/O devices dispersed on either side of processing machines can be wire-saved using the SC series.

ORDER GUIDE

Designation	Appearance	Model No.	Description	
Main unit		SC-MIL	The MIL connector allows up to 16 input / output device connections to a PLC or custom circuit board, in a single step.	
Separate unit		SC-MIL-S	Distributed installations are possible through the use of a main unit and MIL connectors.	
1-channel connector input extension unit		SC-T1J	For NPN output devices	Allows the connection of input device, such as sensor or switch. Incorporates a power indicator and an input signal indicator (1 ch).
		SC-T1J-P	For PNP output devices	
8-channel connector input extension unit		SC-T8J	For NPN output devices	Allows the connection of input devices, such as sensors or switches. Incorporates a power indicator and input signal indicators (8 ch).
		SC-T8J-P	For PNP output devices	
8-channel connector I/O mixed extension unit		SC-TP8J	Allows the connection of a variety of input and output devices. This unit does not contain input / output signal indicators.	
Non-line connector		CN-70	This one-touch connector is used to connect the main unit to the following devices: The FX-301/302/303/311 series fiber sensors, the FX-CH series bank selection unit and the SC-T1J(-P) 1-channel connector input extension unit.	
4-pin type snap male connector		SL-CP1 (White) 10 pcs. per set	For 0.08 to 0.2 mm ² (Conductor cross-section area) Wire diameter: φ0.7 to φ1.2 mm φ0.028 to 0.047 in	Snap male connectors are utilized to connect input / output devices to both the 1-channel and the 8-channel connector input units, as well as to the 8-channel connector combined input / output unit. The 1-channel connector input extension unit includes one SL-CP1 .
		SL-CP2 (Black) 10 pcs. per set	For 0.3 mm ² (Conductor cross-section area) Wire diameter: φ1.1 to φ1.6 mm φ0.043 to 0.063 in	
		SL-CP3 (Greenish blue) 10 pcs. per set	For 0.5 mm ² (Conductor cross-section area) Wire diameter: φ1.7 to φ2.5 mm φ0.067 to 0.098 in	
End plates		MS-DIN-E Two pcs. per set	After the SC series units have been attached to the DIN rail, all these devices must be secured firmly together by placing end plates at each of the ends and sandwiching the devices in between. Ensure that these end plates are used for this purpose.	

OPTIONS

Designation	Model No.	Description
Index seals	SC-MA1 10 sheets per set	An identifier for each connector should be marked on each seal, then the seals should be applied to the number plates attached to both the 8-channel connector input unit and the 8-channel connector input / output unit.
Connector end caps	SC-PK 8 pcs. per set	Connector end caps are utilized to protect the unconnected ends of connectors, for both the 8-channel connector input unit and the 8-channel connector input / output unit.

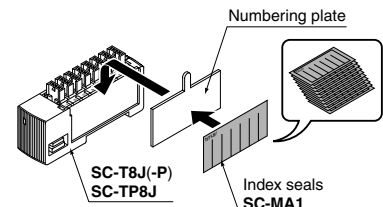
Note: For device connections, using the Matsushita Electric Works, Ltd. MIL connector attached cable is most recommended. Connect in a way so that the 20-core connector links up with the 16-channel unit. Please consult with the maker directly for details.



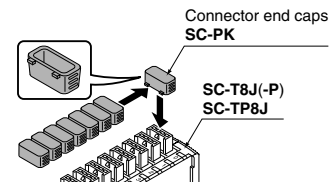
Double-end MIL connector attached cable (20-core)
Matsushita Electric Works, Ltd. AY15840, etc.
PC relay terminal / PC terminal additional mounting cable
Compatible with Matsushita Electric Works, Ltd. MIL connector relay terminal pin arrangement. Please consult with the maker directly for details.

One-end MIL connector attached cable (20-core)
Matsushita Electric Works, Ltd. AY15853, etc.
Multi-core crimp terminal cable for relays

Index seals
• SC-MA1



Connector end caps
• SC-PK



SPECIFICATIONS

Sensor units

Item	Type	Main unit	Separate unit
	Model No.	SC-MIL	SC-MIL-S
Supply voltage		12 to 24 V DC \pm 10 % (Note 1) (In combination with SC-TPBJ , the unit can be also used with a power supply of 5 to 24 V DC \pm 10 % .)	Depends on the supply voltage from SC-MIL
Allowable through current (Note 2)		2 A or less (Same as maximum permissible current consumption of all units connected to SC-MIL .)	1 A or less (Same as maximum permissible current consumption of all units connected to SC-MIL-S .)
Signal channel No.		Connectable up to 16 channels (The signal from up to 16th point (counting from unit adjacent to SC-MIL) of all units connected to SC-MIL is transferred.) However, the signal thereafter is not transferred. Note that SC-MIL-S does not occupy any signal point.)	
Max. distance between units		10 m 32.808 ft or less (the distance between SC-MIL and PLC and that between SC-MIL and SC-MIL-S put together)	
Pollution degree		3 (Industrial environment)	
Ambient temperature		- 10 to + 45 °C + 14 to + 113 °F (No dew condensation or icing allowed), 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	
Weight		25 g approx.	20 g approx.
Accessory		Connector protection seal: 1 pc.	

Notes: 1) The plug-in sensor main unit **SC-MIL** incorporates a cable lead-out connector in addition to the MIL connector, which allows to receive the supply voltage from the separate power supply.

2) Same as maximum permissible current consumption of all units connected to **SC-MIL**. When either the permissible current amount of power supply unit or the permissible current amount of cable to be connected is 2 A or less, adjust the current to the smallest value.

Non-line connector

Item	Type	Non-line connector
	Model No.	CN-70
Applicable unit		Refer to the list of 'Applicable unit of non-line connector'
Supply voltage		Depends on the supply voltage from SC-MIL (Note)
Supply current for units		100 mA or less
Signal channel No.		1 channel
Ambient temperature		- 10 to + 45 °C + 14 to + 113 °F (No dew condensation or icing allowed) Storage: - 20 to + 70 °C - 4 to + 158 °F
Ambient humidity		35 to 85 % RH, Storage: 35 to 85 % RH
Material		Enclosure: ABS
Weight		4 g approx.

Note: In case the **FX-301/302/303/311** series is connected in cascade, the supply voltage should be 12 to 24 V DC \pm 10 % ripple P-P 10 % or less.

Applicable unit of non-line connector

Designation	Model No.	Description
1-channel input extension units	SC-T1J	For NPN output devices
	SC-T1J-P	For PNP output devices
Digital fiber sensors (Note)	FX-301(B/G/H)	For NPN output devices
	FX-301(B/G/H)P	For PNP output devices
	FX-302	For NPN output devices
	FX-302P	For PNP output devices
	FX-303	For NPN output devices
Manually set fiber sensors	FX-303P	For PNP output devices
	FX-311(B/G)	For NPN output devices
Digital fiber sensors for leak detection fiber / liquid detection fiber	FX-311(B/G)P	For PNP output devices
	FX-301-F	For NPN output devices
Bank selection unit	FX-301P-F	For PNP output devices
	FX-CH	For NPN input devices
	FX-CH-P	For PNP input devices

Note: For details, refer to the **FX-301** series on p.66~, the **FX-302(P)** on p.116~, the **FX-303(P)** on p.128~, the **FX-311** series on p.152~, the **FX-301(P)-F** on p.598~ and the **FX-CH(-P)** on p.144~.

SPECIFICATIONS

Connector extension units

Item	Model No.	Connector input extension unit				Connector I/O mixed extension unit
		For NPN output devices		For PNP output devices		
		1 channel	8 channels	1 channel	8 channels	
		SC-T1J	SC-T8J	SC-T1J-P	SC-T8J-P	SC-TP8J
Supply voltage		12 to 24 V DC $\pm 10\%$				5 to 24 V DC $\pm 10\%$ (Note 1)
Current consumption (Note 2)		20 mA or less (when all indicators light up)	60 mA or less (when all indicators light up)	20 mA or less (when all indicators light up)	60 mA or less (when all indicators light up)	7 mA or less
Signal channel No.		1 input	8 inputs (Note 3)	1 input	8 inputs (Note 3)	8 inputs / outputs (Note 4)
Connectable device		NPN open-collector, or DC 2-wire output type sensor, or switch etc.	NPN open-collector output sensor or switch etc. (Note 5)	PNP open-collector, or DC 2-wire output type sensor, or switch etc.	PNP open-collector output sensor or switch etc. (Note 5)	Commercial I/O device
Supply current for units (Note 6)		100 mA or less	800 mA or less (At a total of 8 channels)	100 mA or less	800 mA or less (At a total of 8 channels)	800 mA or less (At a total of 8 channels)
Power indicator		Green LED (Lights up when the power is ON)				
Input indicator		Green LED [SC-T8J(-P)]: 8 Nos.] (Lights up when each channel input is ON)				—
Ambient temperature		- 10 to + 45 °C + 14 to + 113 °F (No dew condensation or icing allowed), 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				
Weight		10 g approx.	40 g approx.	10 g approx.	40 g approx.	40 g approx.
Accessories		SL-CP1 (Snap male connector): 1 pc.	SC-MA1 (Index seal): 1 pc.	SL-CP1 (Snap male connector): 1 pc.	SC-MA1 (Index seal): 1 pc.	

- Notes: 1) It depends on the power supply from **SC-MIL**.
 2) The current consumption and input current of the input unit connected are not included.
 3) The signal for 8 channels is occupied regardless of number of input units connected.
 4) The signal for 8 channels is occupied regardless of number of I/O units connected.
 5) DC 2-wire type sensor and switch etc. cannot be connected.
 6) Set the maximum current passing through input / output line to 50 mA or less.

I/O CIRCUIT AND WIRING DIAGRAMS

**SC-MIL
SC-MIL-S**

Pin layout diagram for MIL connector pins

Description	0 V	+ V	Signal 7	Signal 6	Signal 5	Signal 4	Signal 3	Signal 2	Signal 1	Signal 0
Pin Number	10	9	8	7	6	5	4	3	2	1

Mark on connector for pin number 20



Pin Number	20	19	18	17	16	15	14	13	12	11
Description	0 V	+ V	Signal 15	Signal 14	Signal 13	Signal 12	Signal 11	Signal 10	Signal 9	Signal 8

- ※The MIL connector pin layout is compatible with **SL-BMW** sensor block, which is utilized to simplify wiring and save space.
- ※ + V (pin No.10 and 20) and 0 V (pin No. 9 and 19) are connected inside the block.

**SC-T1J
SC-T8J**

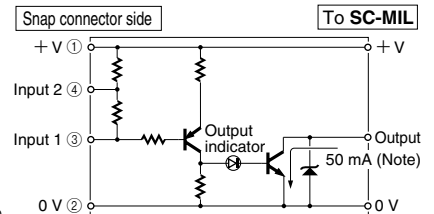
Snap male connector pin position

Pin No.	SC-T1J(-P) SC-T8J(-P)	SC-TP8J
1	+ V	+ V
2	0 V	0 V
3	Input 1	Input
4	※Input 2	Not connected

※For DC 2-wire type input device [SC-T1J(-P) only]

Conditions

- Leak current : 1 mA or less (when the power is OFF)
- Offset voltage : 3 V or less (when the power is ON)
- The product of which the load current range contains 5 to 8 mA.

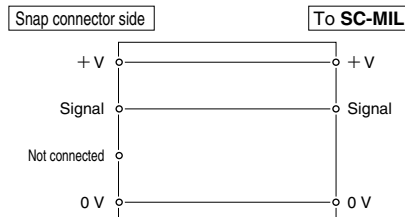


Note: Residual voltage: 1 V or less (at 50 mA sink current)

SC-TP8J

Snap male connector pin position

Pin No.	SC-TP8J
1	+ V
2	0 V
3	Signal
4	Not connected



**SC-T1J-P
SC-T8J-P**

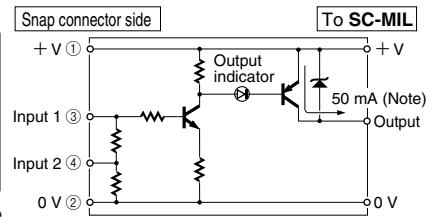
Snap male connector pin position

Pin No.	SC-T1J(-P) SC-T8J(-P)	SC-TP8J
1	+ V	+ V
2	0 V	0 V
3	Input 1	Input
4	※Input 2	Not connected

※For DC 2-wire type input device [SC-T1J(-P) only]

Conditions

- Leak current : 1 mA or less (when the power is OFF)
- Offset voltage : 3 V or less (when the power is ON)
- The product of which the load current range contains 5 to 8 mA.



Note: Residual voltage: 1 V or less (at 50 mA source current)

SC

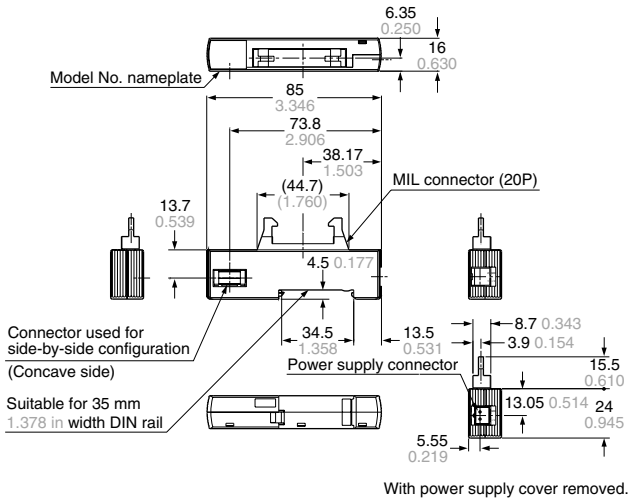
PRECAUTIONS FOR PROPER USE



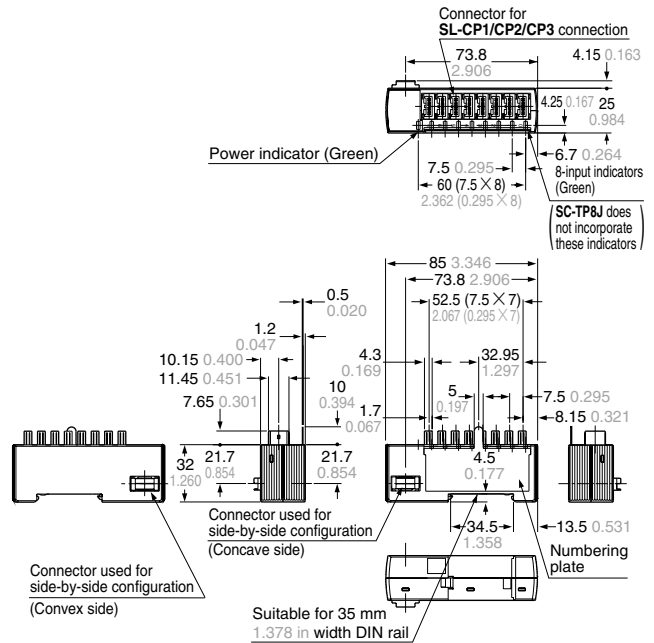
This product does not possess control functions needed for accident prevention or safety maintenance.

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

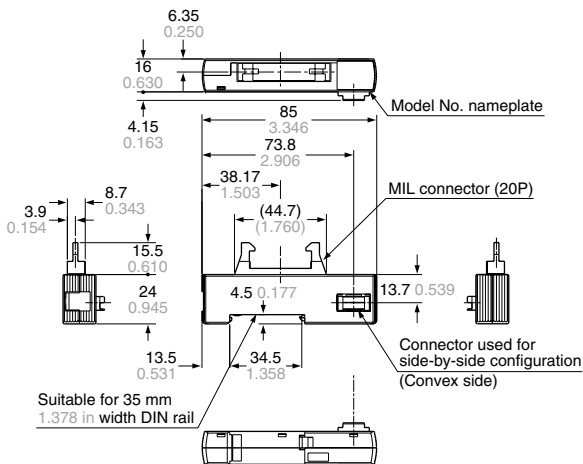
SC-MIL



SC-T8J/TP8J SC-T8J-P



SC-MIL-S



SC-T1J SC-T1J-P

