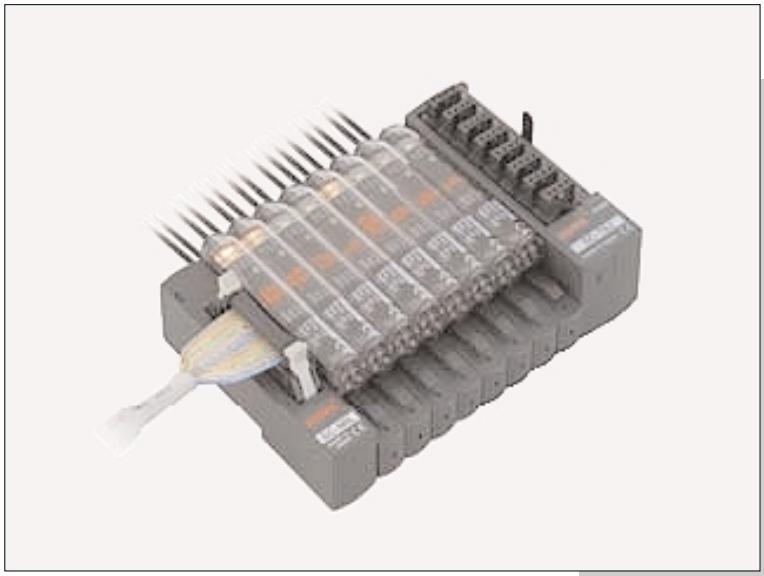
SC SERIES

Sensor-PLC Connection System

New

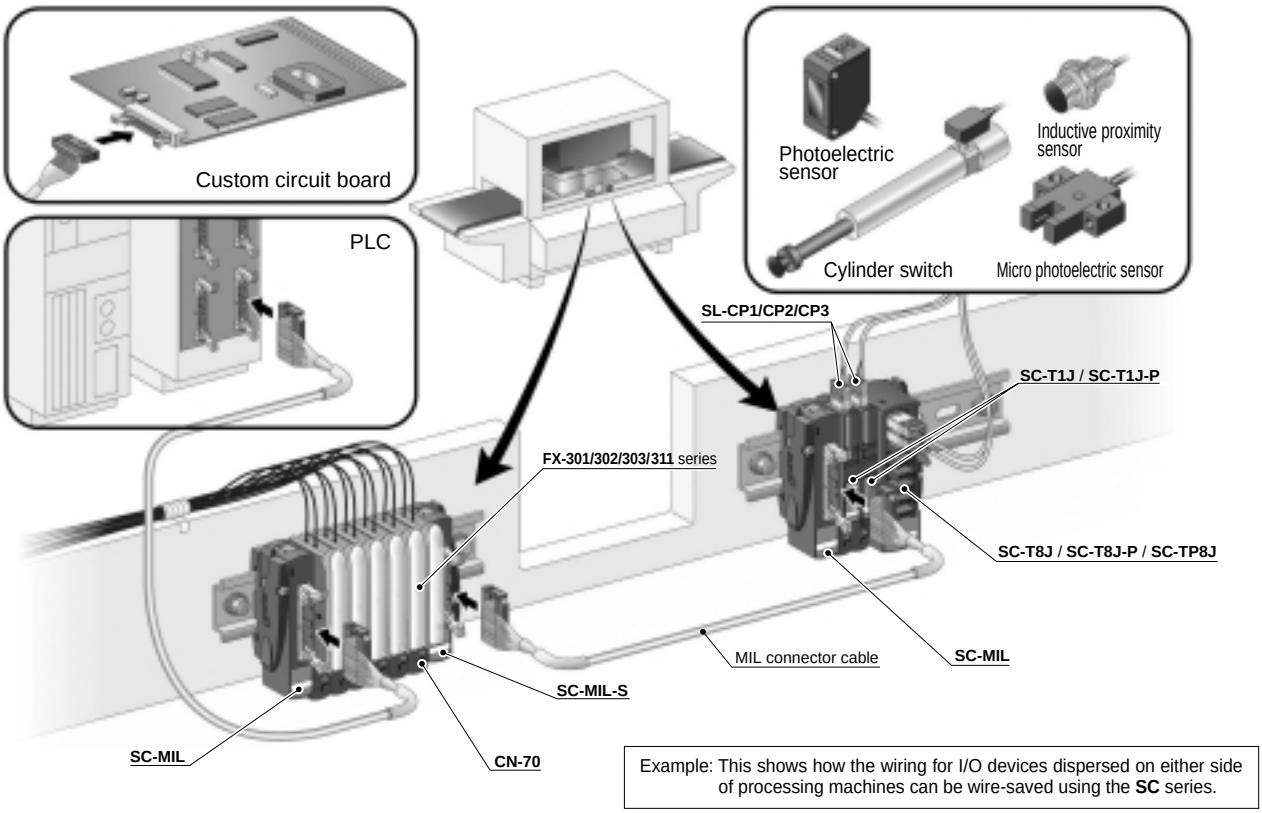


Up to 16 I/O devices can be connected at once using MIL connectors

CE Conforming to EMC Directive

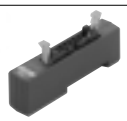
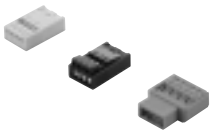
Up to 16 I/O devices can be connected at once using MIL connectors

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.

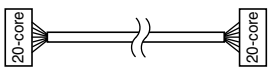
ORDER GUIDE

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 mm² (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 mm² (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 mm² (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.	

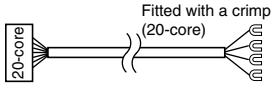
OPTIONS

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.



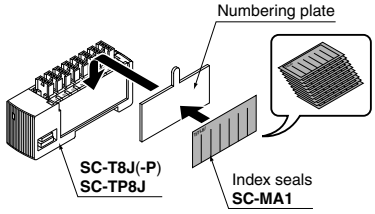
Double-end MIL connector attached cable (20-core)
Matsushita Electric Works, Ltd. AY15840, etc.
PC relay terminal / PC terminal additional mounting cable



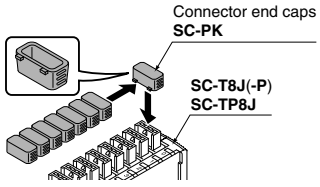
One-end MIL connector attached cable (20-core)
Matsushita Electric Works, Ltd. AY15853, etc.
Multi-core crimp terminal cable for relays

Compatible with Matsushita Electric Works, Ltd. MIL connector relay terminal pin arrangement. Please consult with the maker directly for details.

Index seals
• **SC-MA1**



Connector end caps
• **SC-PK**



SC

SPECIFICATIONS

Sensor units

Item \ Type	Main unit	Separate unit
Model No.	**SC-MIL**	**SC-MIL-S**
Supply voltage	12 to 24 V DC ±10 % (Note 1) (In combination with **SC-TP8J**, the unit can be also used with a power supply of 5 to 24 V DC ±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 ±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
	FX-303P	For PNP output devices
Manually set fiber sensors	**FX-311(B/G)**	For NPN output devices
	FX-311(B/G)P	For PNP output devices
Digital fiber sensors for leak detection fiber / liquid detection fiber	**FX-301-F**	For NPN output devices
	FX-301P-F	For PNP output devices
Bank selection unit	**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

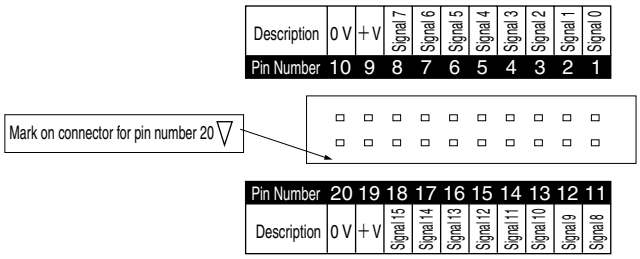
Item \ Type	Connector input extension unit				Connector I/O mixed extension unit
	For NPN output devices		For PNP output devices		
	1 channel	8 channels	1 channel	8 channels	8 channels
Model No.	**SC-T1J**	**SC-T8J**	**SC-T1J-P**	**SC-T8J-P**	**SC-TP8J**
Supply voltage	12 to 24 V DC ±10 %				5 to 24 V DC ±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

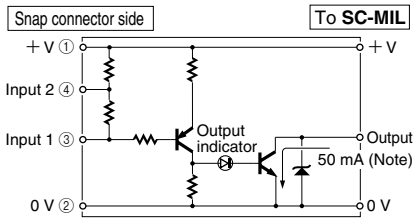


※The MIL connector pin layout is compatible with **SL-BMW** sensor block, which is utilized to simplify wiring and save space.
※ + V (pin No.10 and 20) and 0 V (pin No. 9 and 19) are connected inside the block.

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



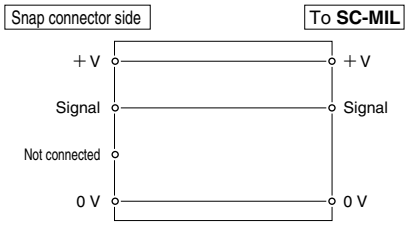
※For DC 2-wire type input device [**SC-T1J**(**-P**) only]
Conditions
• Leak current : 1 mA or less (when the power is OFF)
• Offset voltage : 3 V or less (when the power is ON)
• The product of which the load current range contains 5 to 8 mA.

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

SC-TP8J

Snap male connector pin position

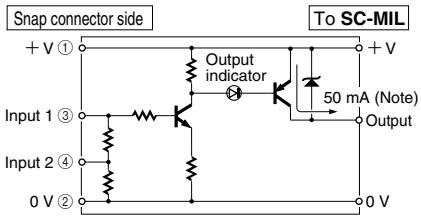
Pin No.	SC-TP8J
1	+ V
2	0 V
3	Signal
4	Not connected



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)

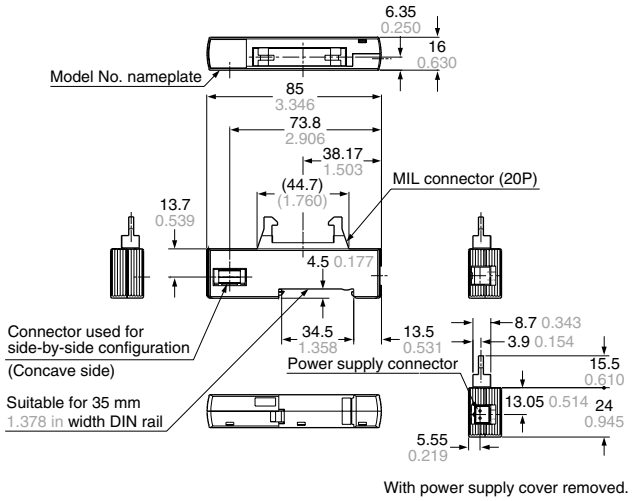
SC

PRECAUTIONS FOR PROPER USE

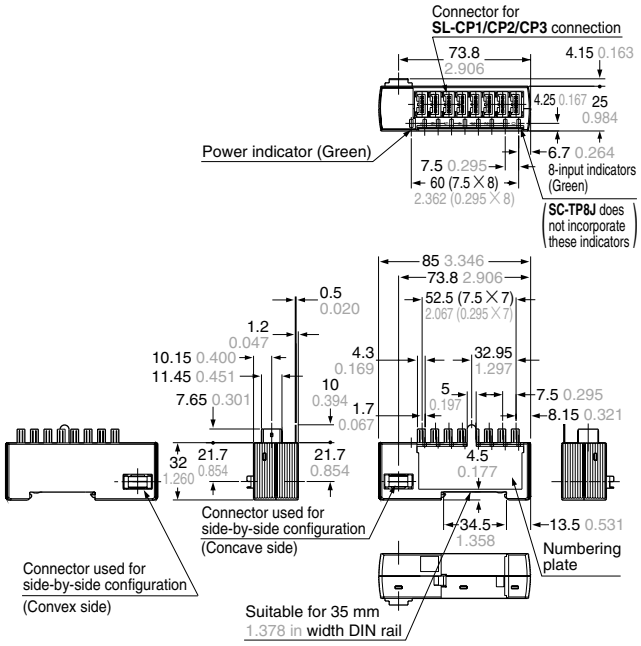
This product does not possess control functions needed for accident prevention or safety maintenance.

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

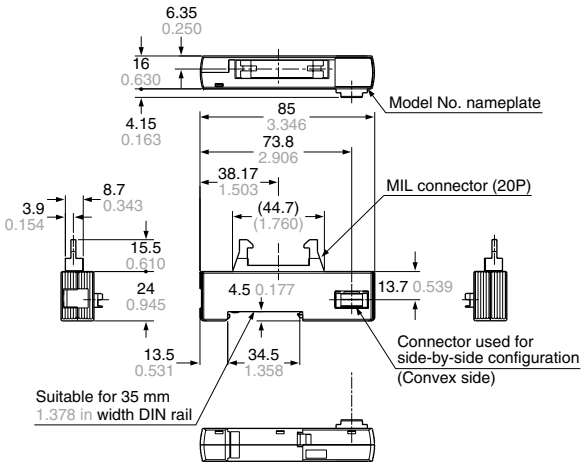
SC-MIL



SC-T8J/TP8J
SC-T8J-P



SC-MIL-S



SC-T1J
SC-T1J-P