

Sensor-PLC Connection System **SC Series**

Main unit **SC-MIL**    Separate unit **SC-MIL-S**    Non-line connector **CN-70**

CMJE-SCMIL No.0033-69V

Thank you very much for purchasing Panasonic products. Read this Instruction Manual carefully and thoroughly for the correct and optimum use of this product. Kindly keep this manual in a convenient place for quick reference.

**WARNING**

Never use this product with a device for personnel protection.

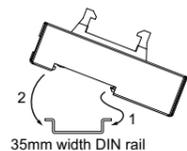
**1 OUTLINE**

- When the non-line connector **CN-70** is connected to 1-channel connector input extension unit **SC-T1J(-P)** or the horizontal connection connector type fiber sensor **FX-300** series, it becomes possible to connect the main unit **SC-MIL**, the separate unit **SC-MIL-S**, 8-channel connector input extension unit **SC-T8J(-P)** and 8-channel connector I/O mixed extension unit **SC-TP8J** in cascade.
- The main unit **SC-MIL** is incorporated with a MIL connector which allows the signal of I/O unit (max. 16 channels) to be input / output in a batch to / from the PLC (programmable logic controller), etc. using a cable with 20-pin MIL connector.
- The separate unit **SC-MIL-S** is a remote unit to connect a group of basic units which led by **SC-MIL** and a group of other units existing at a place away.
- A cable with 20-pin MIL connector is used between **SC-MIL** and **SC-MIL-S**, to supply the power supply, and to transfer the signal.

**2 MOUNTING**

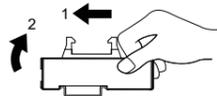
**How to mount the unit**

- Fit the rear part of the mounting section of the unit on a 35mm width DIN rail.
- Press down the rear part of the mounting section of the unit on the 35mm width DIN rail and fit the front part of the mounting section to the DIN rail.



**How to remove the unit**

- Push the unit forward.
- Lift up the front part of the unit to remove it.



Note: Take care that if the front part is lifted up without pushing the unit forward, the hook on the rear part of the mounting section is likely to break.

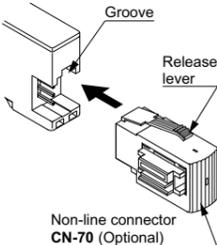
**3 CONNECTION**

**<Connection of non-line connector CN-70>**

- Make sure to connect or disconnect the non-line connector **CN-70** in the power supply off condition.
- Use the non-line connector **CN-70** for connection of 1-channel connector input extension unit **SC-T1J(-P)** and horizontal connection connector type fiber sensor **FX-300** series.

**Connection method**

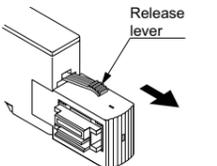
- Holding the **CN-70**, align its release lever with the groove at the top portion of **SC-T1J(-P)** or **FX-300** series.
- Insert the **CN-70** till a click is felt.



**Disconnection method**

- Pressing the release lever at the top portion of **CN-70**, pull out the connector.

Note: Take care that if the **CN-70** is pulled out without pressing the release lever, the release lever may break. Do not use the **CN-70** whose projection has broken.



**4 CASCADING UNITS**

- Make sure to add or remove the units in the power supply off condition.
- After mounting all units in cascade, make sure to mount the end plates **MS-DIN-E** (optional) at both ends to hold the units between their flat sides.
- The sensor-PLC connection system **SC** series can be connected up to 16 channels (max.).
- When connecting the extension unit **SC-T1J(-P)**, **SC-T8J(-P)** or **SC-TP8J** to the horizontal connecting connector type fiber sensor **FX-300** series in cascade, make sure to mount identical models together.

For mounting and removing the amplifier, refer to "2 MOUNTING."

**Cascading method**

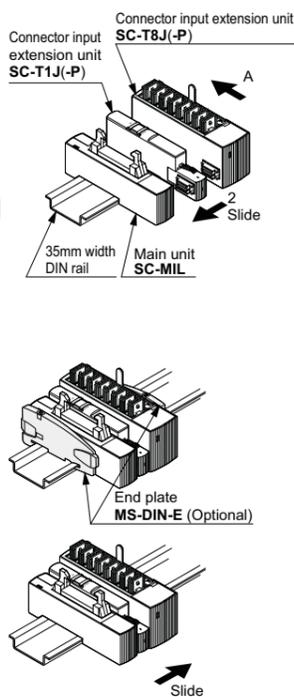
- Mount **SC-MIL** with the extension unit, **FX-300** series and / or **SC-MIL-S**, as required, to the 35mm width DIN rail. When attaching these units, be sure that the **SC-MIL** is located to the left-most position as shown in the diagram right.  
(For details of **SC-T1J(-P)**, **SC-T8J(-P)**, **SC-TP8J** and **FX-300** series, refer to the instruction manual enclosed with each product.)
- Slide the extension unit, **FX-300** series and / or **SC-MIL-S**, installed in the direction of **SC-MIL** at step 1 and mount each connector closely without any gap between them.

Note: Pressing the units towards direction "A" in the diagram shown right makes them easier to slide.

- Mount the end plates **MS-DIN-E** (optional) at both ends to hold the units between their flat sides.
- Tighten the screws to fix **MS-DIN-E**.

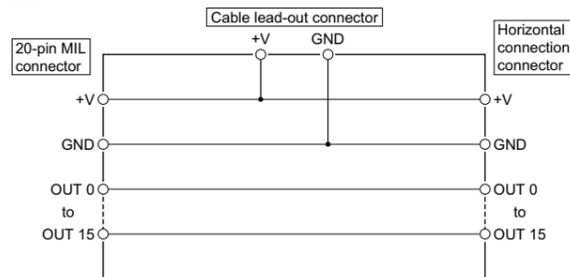
**Dismantling method**

- Loosen the screws of **MS-DIN-E**. Slide the extension unit, **FX-300** series and **SC-MIL-S** and remove them one by one.



**5 I/O CIRCUIT DIAGRAMS**

**<SC-MIL>**

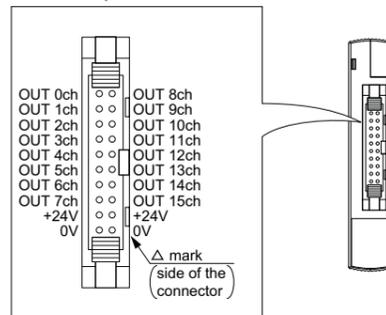


**<SC-MIL-S>**



**6 TERMINAL ARRANGEMENT FOR 20-PIN MIL CONNECTOR**

- The terminal arrangement is shown in the diagram below. Please note that +V and GND of 20-pin MIL connector is connected inside the body.



\* Applicable 20-pin MIL connector: conforming to MIL-C-83503

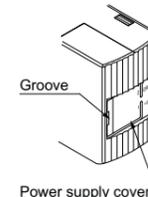
Note: Wire in accordance with the  $\Delta$  mark indicated on the side of 20-pin MIL connector.

**7 CABLE LEAD-OUT CONNECTOR (SC-MIL only)**

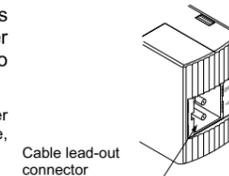
- The main unit **SC-MIL** incorporates with a cable lead-out connector in addition to the MIL connector, which allows to receive the supply voltage from the separate power supply.

**How to remove the power supply cover**

- Insert a flathead screwdriver into the groove of the power supply cover attached to the side of the main unit **SC-MIL**.



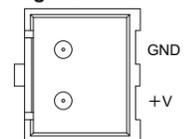
- When the flathead screwdriver inserted is tilted toward the unit, the power supply cover is broken, allowing the power supply cover to be removed.



Note: Such case may occur as that the power supply cover is only bent but unable to be removed. In this case, separate the power supply cover securely.

Note that it is unable to re-attach the power supply cover once it is detached. When the cable lead-out connector is not used after removing the power cover, execute the insulation treatment.

- Terminal arrangement diagram for the cable lead-out connector



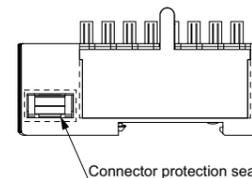
\* Applicable connector: 51067-0200 (manufactured by MOLEX Co. LTD.)

\* Applicable solder-less terminal: 50217-9101 (manufactured by MOLEX Co. LTD.)

**8 CONNECTOR PROTECTION SEAL**

Make sure to stick the connector protection seal on the connector located at the final end of unit connected.

- Take the proper protective measure, so that the metal, etc. should not make contact with the non-line connector **CN-70**, and other connector arranged on side of 8-channel connector input extension unit **SC-T8J(-P)** and 8-channel connector I/O mixed extension unit **SC-TP8J**.



**9 SPECIFICATIONS**

**<SC-MIL, SC-MIL-S>**

Item	Type	Main unit	Separate unit
	Model No.	SC-MIL	SC-MIL-S
Supply voltage		12 to 24V DC $\pm 10\%$ (Note 1)	Depends on the supply voltage from <b>SC-MIL</b>
Allowable through current		2A or less (Note 2)	1A or less (Note 3)
Signal channel No.		Connectable up to 16 channels (Note 4)	
Max. distance between units		10m or less (the distance between <b>SC-MIL</b> and PLC and that between <b>SC-MIL</b> and <b>SC-MIL-S</b> put together) (Note 5)	
Ambient temperature		-10 to +45°C (No dew condensation or icing allowed) Storage: -20 to +70°C	
Ambient humidity		35 to 85% RH, Storage: 35 to 85% RH	
Material		Enclosure: Heat-resistant ABS	
Weight		Approx. 25g	Approx. 20g
Accessory		Connector protection seal: 1 pc.	

- Notes: 1) In combination with **SC-TP8J**, the unit can be also used with a power supply of 5 to 24V DC  $\pm 10\%$ . When connecting the **FX-300** series, set the power voltage to 12 to 24V DC  $\pm 10\%$  ripple to P-P 10% or less.  
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 2A or less, adjust the current to the smallest value.  
3) Same as maximum permissible current consumption of all units connected to the **SC-MIL**, or permissible current amount of general cable with MIL connector. When the permissible current amount of cable with MIL connector to connect is 1A or less, adjust it to the specification.  
4) The signal of up to 16th point (counting from unit adjacent to **SC-MIL**), of all unit connected to **SC-MIL**, is transferred, however, the signal thereafter is not transferred. Note that the **SC-MIL-S** does not occupy any signal point.  
5) The value is for the total extension distance of the power line including the distance between **SC-MIL** and PLC and between **SC-MIL** and **SC-MIL-S**. (The power line from the power port for cable lead-out is also included.)

**<CN-70>**

Item	Type	Non-line connector
	Model No.	CN-70
Applicable unit		<b>SC-T1J(-P)</b> , <b>FX-300</b> series
Supply voltage		Depends on the supply voltage from <b>SC-MIL</b> (Note)
Supply current for units		100mA or less
Signal channel No.		1 channel
Ambient temperature		-10 to +45°C (No dew condensation or icing allowed) Storage: -20 to +70°C
Ambient humidity		35 to 85% RH, Storage: 35 to 85% RH
Material		Enclosure: ABS
Accessory		Approx. 4g

Note: In case **FX-300** series is connected in cascade, the supply voltage should be 12 to 24V DC  $\pm 10\%$  ripple P-P 10% or less.

**10 CAUTIONS**

- This product has been developed / produced for industrial use only.
- Make sure that the power supply is off while wiring and cascading.
- Take care that wrong wiring will damage the product.
- Verify that the supply voltage variation, even for the connected input device or I/O device, is within the rating.
- In case noise generating equipment (switching regulator, inverter motor, etc.) is used in the vicinity of this product, connect the frame ground (F.G.) terminal of the equipment to an actual ground.
- Do not use during the initial transient time (0.5 sec.) after the power supply is switched on.
- This sensor is suitable for indoor use only.
- When the units are used in a condition that the connector part of the unit located at the final end in cascade connection is exposed, there may be malfunction or electric shock. Therefore, make sure to stick the enclosed connector protection seal on the connector part of the unit at the final end.

**11 INTENDED PRODUCTS FOR CE MARKING**

- The models listed under "9 SPECIFICATIONS" come with CE Marking. As for all other models, please contact our office.
- Contact for CE  
<Until June 30, 2013>  
Panasonic Electric Works Europe AG  
Rudolf-Diesel-Ring 2, D-83607 Holzkirchen, Germany  
<From July 1, 2013>  
Panasonic Marketing Europe GmbH Panasonic Testing Center  
Winsbergring 15, 22525 Hamburg, Germany

**Panasonic Industrial Devices SUNX Co., Ltd.**

http://panasonic.net/id/pidsx/global

Overseas Sales Division (Head Office)  
2431-1 Ushiyama-cho, Kasugai-shi, Aichi, 486-0901, Japan  
Phone: +81-568-33-7861 FAX: +81-568-33-8591

About our sale network, please visit our website.

PRINTED IN JAPAN

© Panasonic Industrial Devices SUNX Co., Ltd. 2012