Upper Communication Input Unit SC Series For analogue For analogue

voltage input SC-A01

current input SC-A02

CMJE-SCA01 No.0029-79V

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 in a detection device for personnel protection.

Be sure to use this product in combination with SC-GU-3-0□ SC-GU1-485 and SC-GU2-C (optional). This product cannot be used alone

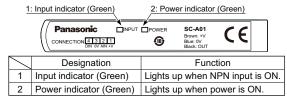
For details, refer to the instruction manual enclosed with SC-GU-3-0□, SC-GU1-485, SC-GU2-C.

#### 1 OUTLINE

- This product is an input/output unit which can be used in combination with the upper communication unit (SC-GU3-0□, SC-GU1-485, SC-GU2-C).
- An output device of NPN output type or analogue voltage/current output type can be connected to this product.
- This product has resolution of 1/4,000 (12 bits).
- The analogue input range is 1 to 5V for SC-A01, and 4 to 20mA for SC-A02.

#### 2 PART DESCRIPTION

<SC-A01, SC-A02>



#### 3 MOUNTING

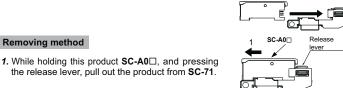
#### Mounting method

Removing method

1. Press down the rear part of the mounting section of the joint connector unit SC-71 (optional) on the DIN rail, and fit the front part of the mounting section into the DIN rail.

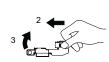


2. Insert this product SC-A0 into SC-71.



2. Push the rear part of the mounting section of SC-71

3. Lift up the front part of the unit to remove it.



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

#### 4 CONNECTION

<Connection of the connector CN-EP2 (enclosed)>

- Make sure to connect or disconnect the connector CN-EP2 in the power supply off condition.
- Names of connector (enclosed) parts



<Terminal arrangement>

Terminal No.	Terminal name
1	+V
2	Analogue input
3	0V
4	Digital input

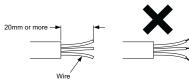
- Applicable wire
- 0.1 to 0.5mm<sup>2</sup> (AWG27 to 20)

Note that the wire sheath diameter should be  $\phi 1.0$  to  $\phi 1.15$ mm

#### Precautions for wire connection

- Do not peel off the wire sheath.
- Check the connection terminal arrangement before wiring.

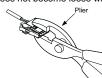
1. Process the cable as illustrated below. Do not peel off the sheath.



2. Insert the wire to the wire inlet of the connector, until the tip of the wire contacts the innermost wall



- 3. Pressure weld the connector using a plier or the like.
- · For pressure welding, make sure to apply the plier in parallel with the connector, from the direction indicated below
- · Pay attention not to damage the wire with the plier while pressure welding.
- Make sure that the wire does not become loose while pressure welding.



4. Slightly pull the wire to ensure that wire is not loose

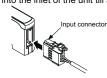


Note: Do not reuse a connector after pressure welding. Specifications cannot be guaranteed Purchase an optional connector CN-EP2 (five pieces) or a reco <Recommended connector>

[Made by Tyco Electronics Japan G.K.]

#### Connection method

1. Insert the input connector into the inlet of the unit till a click is felt.



#### Disconnection method

1. Pressing the release lever at the top of the input connector, pull out the connector.



Note: Take care that if the connector is pulled out without pressing the release lever, the release lever may break. Do not use an input connector whose release lever has broken. Further, do not pull by holding the cable, as this can

#### 5 WIRING

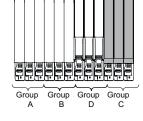
Make sure to turn OFF the power before connecting or disconnecting the quick-

	Terminal No.	Terminal name
1 3	1	+V
2 - ]	2	Output
3	3	0V

• For how to handle the quick-connection cable or wire-saving connector, refer to the enclosed instruction manual

#### 6 CASCADING UNITS

- Make sure to add or remove the units in the power supply off condition.
- · Make sure to check the allowable ambient temperature, as it depends on the number of units connected in cascade.
- In case 2 or more units are connected in cascade, make sure to mount them on a DIN rail.
- Up to maximum 16 units can be added.
- When this product and other products (e.g. fiber sensor amplifiers, laser sensor amplifiers, etc.) are connected together in cascade, install those products so that they are in order of Group A, B, D and C as shown in the right figure. This product is included in Group C
- · Within each group, identical models should be connected in a lump



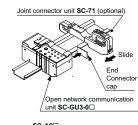
Communication direction

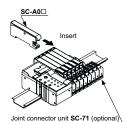
Group	Applicable Model
Α	FX-301□ (conventional version) FX-301B□/G□/H□, LS-401□
В	FX-301□ (modified version) FX-305□
С	LS-403□, DPS series SC-A0□, SC-T1JA
D	FX-500 series

Connector or cable to be used varies depending on the upper communication unit (SC-GU3-0□, SC-GU1-485, or SC-GU2-C) to be used in combination with the product. For details, refer to the instruction manual enclosed with the upper communica tion unit

#### Cascading method

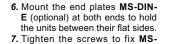
- Below is indicated an example of using the upper communication unit (SC-GU3-0□).
- 1. Mount the communication unit SC-GU3-0□ to the DIN rail When doing this, remove the end connector cap from the joint connector part of this product.
- 2. Mount the joint connector unit SC-71 one by one to the DIN rail, and slide them toward the SC-GU3-0□
- 3. Insert this product SC-A0□ into SC-71





End connector

- 4. Mount the end unit SC-GU3-EU (optional) to the DIN rail, and slide it toward the sensor ampli-
- 5. Attach the end connector cap, which was removed in 1 above, to the joint section of the unit a the final end.





End unit SC-GU3-EU (optional)

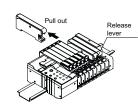
# End plate MS-DIN-E (optional)

#### Dismantling method

- 1. Loosen the screws of MS-DIN-E.
- 2. Remove MS-DIN-E.

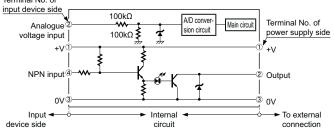
DIN-E.

- 3. Slide SC-71 one by one, and remove the connector.
- 4. Remove each unit.

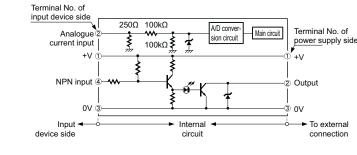


#### 7 I/O CIRCUIT DIAGRAM

#### <SC-A01> Terminal No. of



#### <SC-A02>



#### 8 CAUTIONS

- This product has been developed / produced for industrial use only.
- Make sure that the power supply is OFF while wiring and adding the units.
- Take care that if a voltage exceeding the rated range is applied, or if an AC power
- supply is directly connected, the product may get burnt or damaged. • Make sure to check the wiring as wrong wiring can damage or burn the product.
- 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
- The specification may not be satisfied in a strong magnetic field.
- 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.
- Take care that if noise is applied to the analogue voltage input, the product may malfunction.
- Make sure to use an insulation transformer for DC power supply. If an auto-transformer (single winding transformer) is used, the main body or the power supply
- may get damaged. • In case a surge is generated in the used power supply, connect a surge absorber to the supply and absorb the surge
- Do not use the unit during the initial transient time (approx. 0.5 sec.) after the power supply is switched on.
- In order to reduce noise, make the wiring as short as possible
- · This product is suitable for indoor use only
- · Avoid dust, dirt, and steam
- Take care that the product does not come in contact with oil, grease, organic solvents, such as thinner, etc., strong acid or alkaline.
- This product cannot be used in an environment containing inflammable or explosive gases.
- · Never disassemble or modify the product.

#### 9 SPECIFICATIONS

Designation	Upper Commun	Upper Communication Input Unit		
Model No.	SC-A01	SC-A02		
Supply voltage	12 to 24V DC±10% R	12 to 24V DC±10% Ripple P-P 10% or less		
Current consumption	Max. 25mA or less (when all indicator	Max. 25mA or less (when all indicators light up and 24V is applied) (Note 1)		
Analogue voltage input (Input impedance)	1 to 5V DC (Approx. 200kΩ)	4 to 20 mA DC (Approx. 250Ω)		
Communication data (Note 2)	Analogue ⇔ Communication data Communication data: 0 to 4,000 digits (within the range of 1 to 5V) Zero point : Within 0 digit ±0.5% F.S. Span : Within 4,000 digits ±0.5% F.S. Linearity : Within ±0.5% F.S.	Analogue ⇔ Communication data Communication data: 0 to 4,000 digits (within the range of 4 to 20mA) Zero point : Within 0 digit ±0.5% F.S. Span : Within 4,000 digits ±0.5% F.S. Linearity : Within ±0.5% F.S.		
Input	Connectable device: Output type of NPN open-collector transistor Supply current for input device: 100mA or less Input impedance: Approx. 17 kQ Operating voltage: 17V or more at ON voltage (between input and +V at 24V) 4V or less at OFF voltage (between input and +V at 24V)			
Output	NPN open-collector transistor Maximum sink current: 50mA (Note 3)  • Applied voltage : 30V DC or less (between output and 0V)  • Residual voltage : 1.5V or less (at 50mA sink current) (Note 4)			
Ambient temperature (Note 6)	-10 to +55°C (if 4 to 7 units are connected in cascade: -10 to +50°C, if 8 to 16 units are connected in cascade: -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: Flam	Enclosure: Flame retardant PBT		
Weight	Appro	Approx. 15g		
Accessory	Input connector: 1 pc.			

Notes: 1) The current consumption and input current of ected input units are not included.

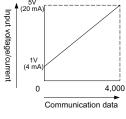
Relationship between communication data and input voltage and input current is as shown in

the right figure.
3) 25mA, when cascading 5 or more units.
4) This is the value to which the quick-connection cable CN-71- (optional) is attached. Not in-

cable UN-11-L) (optional) is attached. Not in-cluding extension of the cable.

5) The above specified values are applied to the product itself. As for an output device that is used in combination with this product, refer to the instruction manual enclosed with the output Connected in cascade means number of units

for SC-GU3-0□, it not means number connect



#### 10 INTENDED PRODUCTS FOR CE MARKING

• The models listed under "SPECIFICATIONS" come with CE Marking

Contact for CE

<Until June 30, 2013>

tor input for SC-A0

Panasonic Industrial Devices Sales Central Europe AG Rudolf-Diesel-Ring 2, D-83607 Holzkirchen, Germany <From July 1, 2013>

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