

**Upper Communication Unit for Digital Sensor  
SC-GU1-485**

CMJE-SCGU1485 No.0047-31V

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.

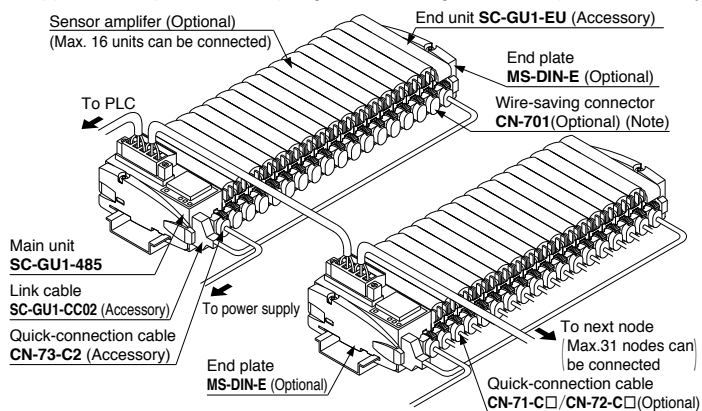


**WARNING** When this product is used for a safety device, construct the system such that the device itself always operates in the safety side.

For details of the communication command etc. of the upper communication unit for digital sensor **SC-GU1-485**, refer to 'Product specification' and 'Communication command specification'.

**1 SYSTEM CONFIGURATION**

- This product enables to connect max. 16 units of applicable amplifier between the main unit (**SC-GU1-485**) and the end unit (**SC-GU1-EU**), and connect max. 31 nodes.
- The main unit can read out / write in the setting contents of the connected applicable amplifier.
- This product enables to output the all output signals of the connected applicable amplifier to PLC (Programmable Logic Controller) etc. collectively.



Note: This is used to control the output signal via signal transmission.

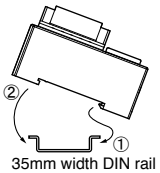
**2 SPECIFICATIONS**

Item	Type	Main unit
	Model No.	<b>SC-GU1-485</b>
Applicable amplifier		Refer to 'Product specification'.
Connectable units		Max. 16 units of sensor amplifier per <b>SC-GU1-485</b>
Connectable nodes		Max. 31 nodes
Supply voltage		24V DC±10% Ripple P-P10% or less
Current consumption		45mA or less (10mA or less for <b>SC-GU1-EU</b> )
Communication method		2 wire half duplex method
Synchronization method		Asynchronous communication method
Electrical characteristic		Conforming to EIA RS-485
Total extension length		Communication cable: Within 100m [ <b>SC-GU1-485</b> (termination) to PLC] Power supply cable: Less than 10m
Ambient temperature		-10 to +55°C (If 4 to 7 amplifiers are connected in cascade: -10 to +50°C, if 8 to 16 amplifiers are connected in cascade: -10 to +45°C) (No condensation or icing allowed), Storage: -20 to +70°C
Ambient humidity		35 to 85% RH, Storage: 35 to 85% RH
Material		Main body enclosure: Heat-resistant ABS
Weight		35g approx. (10g approx. for <b>SC-GU1-EU</b> )
Accessories		<b>SC-GU1-EU</b> (End unit): 1 pc. <b>CN-73-C2</b> [Quick-connection cable (cable length 2m)]: 1 pc. <b>SC-GU1-CC02</b> [Link cable (cable length 0.2m)]: 1 pc.

**3 MOUNTING AND CONNECTION**

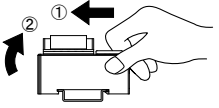
**How to mount**

- ① Fit the rear part of the mounting section of the unit on a 35mm width DIN rail.
- ② 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**

- ① Push the amplifier forward.
- ② Lift up the front part of the amplifier to remove it.

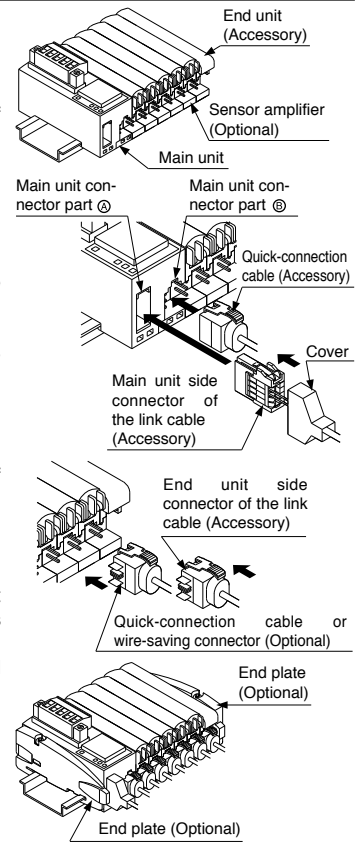


Note: Take care that if the front part is lifted without pushing the amplifier forward, the hook on the rear portion of the mounting section is likely to break.

**How to connect**

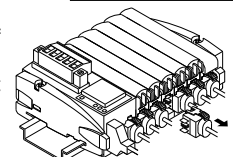
- Be sure that the power supply is off while adding or removing the units and mounting or removing the link cable (**SC-GU1-CC02**), the quick-connection cable and the wire-saving connector (**CN-701**).
- When the amplifiers are mounted in cascade, mount the optional end plates (**MS-DIN-E**) at both ends of the amplifiers to hold them between the flat sides of the plates.
- Up to maximum 16 sensor amplifiers can be connected in cascade between the main unit (**SC-GU1-485**) and the end unit (**SC-GU1-EU**).
- In case two different models of sensor amplifier are mounted in cascade, be sure to mount identical models together.
- Max. 31 nodes connection is possible with this communication unit.
- For the cautions of the sensor amplifiers, refer to the instruction manual enclosed with the amplifiers.

- ① Mount the main unit, the end unit and the sensor amplifier, one by one, on the 35mm DIN rail and set them close to each other.
- ② Insert the main unit side connector of the link cable (accessory) to Ⓐ the side of the main unit, and insert the quick-connection cable (accessory) to the Ⓑ side of the main unit. When inserting them, be sure to hold the connector part.
- ③ Fit the cover to the main unit side connector of the link cable (accessory).
- ④ Insert the quick-connection cable (optional) or the wire-saving connector (optional) to the connector of the sensor amplifier. When inserting them, be sure to hold the connector part.
- ⑤ Insert the end unit side connector of the link cable to the connector of the end unit. When inserting them, be sure to hold the connector part.
- ⑥ Mount the end plates (optional) at both ends to hold the amplifiers between their flat sides.
- ⑦ Tighten the screws to fix the end plates.



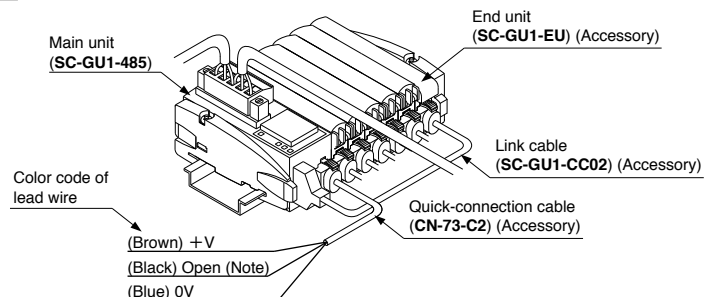
**How to dismantle**

- ① Pressing the projection at the top of each connector, pull out the connector.
- ② Remove the main unit, the end unit and the sensor amplifiers.



Note: Take care that if the connector is pulled out without pressing the projection, the projection may break. Do not use a link cable, quick-connection cable or wire-saving connector whose projection has broken. Furthermore, do not pull by holding the cable, as this can cause a cable-break.

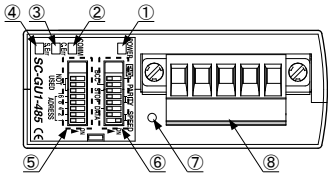
**4 CONNECTION DIAGRAM**



Note: Be sure to insulate it.

## 5 FUNCTIONAL DESCRIPTION

### ● Main unit / SC-GU1-485



Designation	Description																								
① Power indicator (Green)	Lights up when the power is ON.																								
② Communication indicator (Green)	Lights up during communication.																								
③ Upper communication error indicator (Red) (Note)	Blinks when communication error between PLC (Programmable Logic Controller) and Master or Master and Slave, or command error occurs.																								
④ Lower communication error indicator (Red) (Note)	Blinks when communication error between the main unit and sensor amplifiers occur.																								
⑤ DIP switch for address setting	<p>8 7 6 5 4 3 2 1 bit No.</p> <p>ON ▲</p> <p>NOT USED 16 8 4 2 1 ADDRESS (This figure shows the factory setting.)</p> <table border="1"> <thead> <tr> <th>bit No.</th> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>8 to 6</td> <td>—</td> <td>Not used.</td> </tr> <tr> <td>5 to 1</td> <td>Address setting</td> <td>They are used for address setting.</td> </tr> </tbody> </table>	bit No.	Name	Description	8 to 6	—	Not used.	5 to 1	Address setting	They are used for address setting.															
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⑦ Reset switch	Makes the setting change valid.																								
⑧ Terminal block connector	This is used when the upper controller or the main unit is mounted.																								

Note: In case the upper communication error indicator (red) and the lower communication error indicator (red) are mixed, each indicator blinks alternatively.

## 6 CONNECTION WITH UPPER COMMUNICATION CABLE

- Make sure that the power is off while wiring.
- Be sure to use the specified communication cable.
- The communication distance should be within the specification.

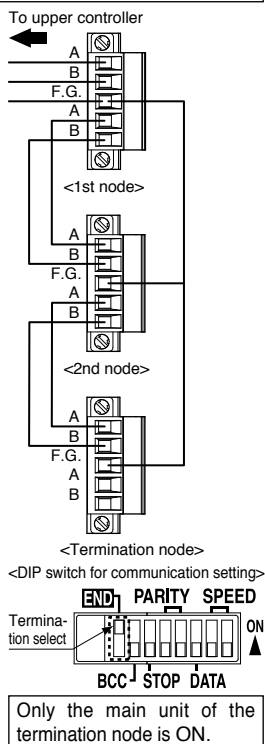
- When the main units (SC-GU1-485) are connected to each other, max. 31 nodes can be connected. Wire them as shown in the right figure.
- The wire process length should be 7mm.



- Do not plate the wire connected to the terminal block connector with solder etc., since the connected wire may come off by loosening screws.
- The tightening torque of the screws for wire fixing should be 0.5N·m or less.
- The screws of the flange part should be tighten as well so that the terminal block connector does not come off from the main body. The tightening torque should be 0.5N·m or less.
- For the communication cable, use a shielded twist-pair cable. Furthermore, the shield should be connect to the frame ground (F.G.).

<Recommended>  
KPEV-S 0.5SQ×1P manufactured by Sumitomo Electric Industries, Ltd.

- Note that the frame ground (F.G.) terminal has not been connected to inside the unit.
- Be sure that the DIP switch/termination select on the main unit in the termination node is set to ON side, and the DIP switch/termination select on the main units other than the termination node is set to OFF side.
- Connect a termination resistance (100Ω) in the termination node.



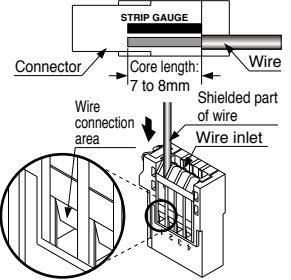
Note: The termination resistance is fit in the main unit.  
Be sure that the DIP switch/termination select on the main unit in the termination node is set to ON side, and the DIP switch/termination select on the main units other than the termination node is set to OFF side.

## 7 HOW TO CHANGE THE LENGTH OF LINK CABLE (SC-GU1-CC02)

- The link cable (SC-GU1-CC02) can be shortened with the desired length. However, the cable cannot be extended.

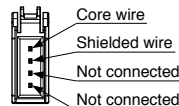
### Procedure

- ① Use a flathead screwdriver (Blade width: 2mm or less) to push the operating lever (white) located at the wire inlet on the main unit side connector of the link cable until it is locked.
- ② Cut the link cable at the desired length.
- ③ Process the core length to 7 to 8mm in accordance with 'STRIP GAUGE' indicated on the side of the connector, and twist the core several times.  
When using shielded wires, be sure to twist the wire to a diameter of  $\phi 1.2\text{mm}$  or less.

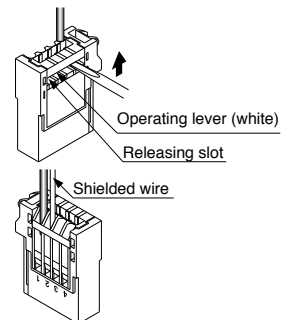


- ④ Insert the wire to the bottom of the wire inlet. Check that the shielded part of the wire is properly inserted into the wire inlet as well as that the core end has passed through the wire connection area as shown in the right figure.

### <Connector pin arrangement>



- ⑤ Place the head of a flathead screwdriver underneath the operating lever (white) through the releasing slot, and lift the screwdriver head.  
If you hear a snap, the operating lever (white) is returned and the wire is fixed.



- ⑥ Slightly pull the wire to ensure that the wire is not loose. Also, check that they are not in contact with each other.
- ⑦ Fit the cover to the connector.

## 8 SETTING

- Follow the procedure given below for setting.

### Procedure

- ① Mount this product and carry out wiring.
- ② Carry out the address setting by using the DIP switch for address setting.
- ③ Carry out the communication-related setting by using the DIP switch for communication setting.
- ④ Turn the power on.

Note: When the setting is changed after the power was turned on, be sure to press the reset switch.

For communication conditions and commands, refer to 'Product specification' and 'Communication command specification'.

## 9 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 wrong wiring will damage the sensor.
- Verify that the supply voltage variation is within the rating including the sensor amplifier.
- 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 (1 sec.) after the power supply is switched on.
- This sensor is suitable for indoor use only.
- Do not use this sensor in places having excessive vapor, dust, etc.
- Take care that the product does not come in contact with water, oil, grease, organic solvents, such as, thinner, etc., or strong acid and alkaline.
- This sensor cannot be used in an environment containing inflammable or explosive gases.
- Never disassemble or modify the sensor.

## 10 INTENDED PRODUCTS FOR CE MARKING

- The models listed under '2 SPECIFICATIONS' come with CE Marking. As for all other models, please contact our office.
- Contact for CE  
Panasonic Marketing Europe GmbH Panasonic Testing Center  
Winsbergring 15, 22525 Hamburg, Germany



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