Panasonic® **INSTRUCTION MANUAL**

RS-485 Communication Unit SC-HG1-485

MJE-SCHG1485 No.0090-71V

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.

For communication commands and other detailed information about the RS-485 Communication Unit **SC-HG1-485**, refer to the "**SC-HG1-485 User's Manual**"(our Website: https://panasonic.net/id/pidsx/global).

⚠WARNING

- Never use this product as a device for personnel protection.
- For personnel protection, use only products that meet the laws and standards for personnel protection that apply in each region or country, such as OSHA, ANSI and IEC.

1 REGULATIONS AND STANDARDS

- This product complies with the standards / regulations below.

<Conformity Directives / Conforming Regulations>
EU Law : EMC Directive 2014/30/EU
British Legislation : EMC Regulations 2016/1091

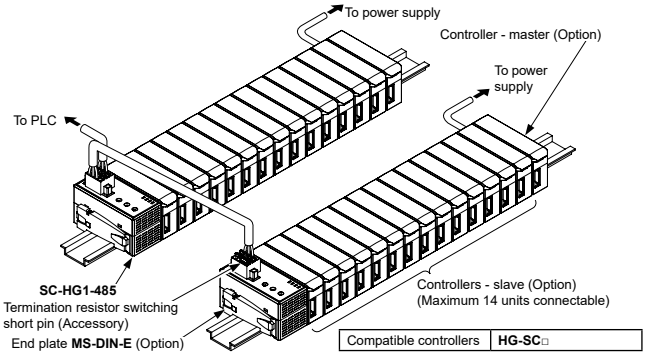
– **Applicable Standards**
EN 61000-6-4 : 2007 +A1:2011,EN 61000-6-2 : 2005

2 CONTENTS OF PACKAGE

- ☐ Main unit: 1 pc.
- ☐ Termination resistor switching short pin: 1 pc.
- ☐ Instruction Manual (English / Japanese, Chinese / Korean): 1 pc. each
- ☐ General Information for Safety, Compliance, and Instructions 1 pc.

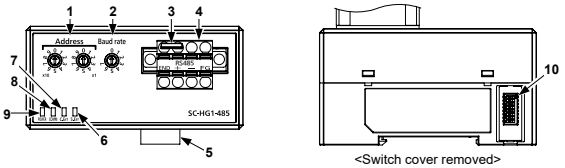
3 SYSTEM CONFIGURATION

- This product can be connected to a maximum of 15 controllers (one master controller, 14 slave controllers).
- This product is an interface unit that is used to monitor measured values and ON / OFF states of outputs on controllers connected via a host controller (PLC), and turn inputs ON / OFF. This product can also be used to read and change controller settings.
- You can select MODBUS (RTU mode / ASCII mode) or MEWTOCOL for the communication protocol.
- The power that drives this product is supplied from a connected controller / master controller.

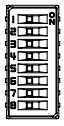


Compatible controllers	HG-SC□

4 DESCRIPTION OF PARTS



<Switch cover removed>

	Name	Function
1	Address setting switch	MODBUS: 01 (station 1) to 99 (station 99), MEWTOCOL: 01 (station 1) to 64 (station 64) [Factory setting: 01 (station 1)] (00: Prohibited)
2	Baud rate setting switch	0: 19,200 bps, 1: 38,400 bps, 2: 57,600 bps, 3: 115,200 bps, 4: 1,200 bps 5: 2,400 bps, 6: 4,800 bps, 7: 9,600 bps [Factory setting: 19,200 bps]
3	Termination resistor switching short pin	Use to enable the termination resistor incorporated in the product.
4	Communication connectors	Connect to a host device or other **SC-HG1-485**.
5	Male connector	Connect to a master controller or slave controller.
6	Lower communication error indicator (Red)	Lights up when a communication error occurs between the **SC-HG1-485** and a controller.
7	Upper communication error indicator (Red)	Lights up when a command error or communication error occurs between the PLC and the communication unit.
8	Communication indicator (Green)	Lights up during communication.
9	Power indicator (Green)	Lights up when power is supplied.
10	Communication switch	

SW No.	Name	Function (0: OFF, 1: ON)	Factory default state
1	Communication protocol setting	0: MODBUS, 1: MEWTOCOL	MODBUS
2	MODBUS: Transmission mode setting	0: RTU, 1: ASCII	RTU
	MEWTOCOL: Data bit setting	0: 8 bits, 1: 7 bits	8 bits
3	Parity check setting (SW3: Upper / SW4: Lower)	00: Even 01: Odd 10: None 11: Prohibited	Even
4			
5	Stop bit length setting (Note)	0: 1 bit, 1: 2 bits	1 bit
6 to 8	Not used.		

Note: Only valid when MEWTOCOL is used.

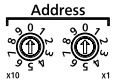
5 COMMUNICATION SETTINGS

- After changing the settings, always turn the power OFF and then ON.
- For the communication conditions and commands, refer to the "**SC-HG1-485 User's Manual**"(our Website: https://panasonic.net/id/pidsx/global).

- Follow the procedure below to configure settings.

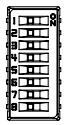
Procedure

1. Set the address with the address setting switches.



2. Set the communication speed with the baud rate setting switch

3. Set the communication settings (communication protocol, transmission mode / data bit, parity check, stop bit length) with the communication switches.
When you have completed the communication switch settings, attach the switch cover.

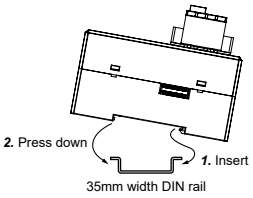


6 MOUNTING AND CONNECTIONS

Mounting procedure

1. Hook the rear of the mounting part onto the 35mm width DIN rail.

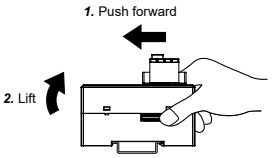
2. While pressing the rear of the mounting part down on the 35mm width DIN rail, fit the front of the mounting part onto the DIN rail.



Removal procedure

1. Grasp the product and push forward.

2. Lift the front to remove.



Note: If you attempt to lift the front without pushing the product forward, you may bend the hook on the back of the mounting part.

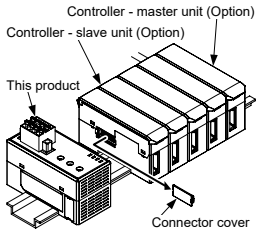
Connection procedure

- This product must be connected to a controller.
- Up to 15 controllers (one master controller and 14 slave controllers) can be connected to the product.

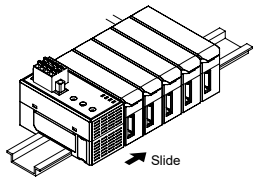
- Always shut OFF the power before connecting the product to or disconnecting the product from from a controller. Risk of damage to the product and controller if connected with the power ON.
- Insert the male connector firmly into the female connector. Risk of damage to the product and controller if not connected completely.
- To connect the product to a controller, the units must be mounted on a DIN rail. Attach end plates **MS-DIN-E** (option) or commercially available fittings so as to enclose the connected units at the ends.
- For cautions on using controllers, refer to the manual for the controller.

1. Mount the product on a 35mm width DIN rail.

2. Remove the connector cover from the controller. (Note 1)

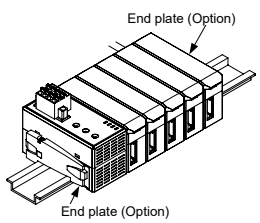


3. Slide the product so that it directly contacts the controller.



4. Attach end plates (option) with the flat side facing in so as to enclose the connected units at the ends. (Note 2)

5. Tighten the screws to fasten the end plates.

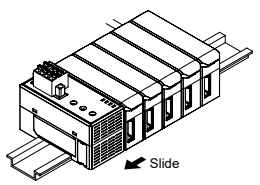


Notes: 1) Be sure to keep the connector cover you removed from the controller.
2) Be sure to configure the communication switch settings on the side of the product before attaching the end plates.

Removal procedure

1. Loosen the screws on the end plates and remove the end plates.

2. Slide and remove the product and controllers.

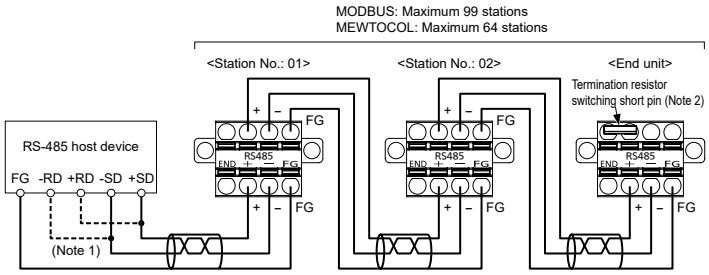


7 CONNECTING AN EXTERNAL DEVICE

- Make sure that the power supply is OFF while performing wiring work.
- Use only the specified communication cable.
- The communication distance must be within the specified range.

Connecting the host communication cable

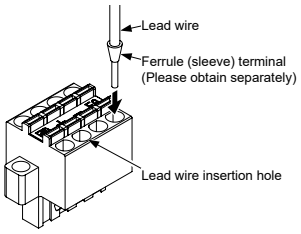
- When two **SC-HG1-485** units are connected together, up to 99 stations can be connected when using MODBUS, or up to 64 stations when using MEWTOCOL. Connect as shown below.
- Make there is no duplication when setting addresses.



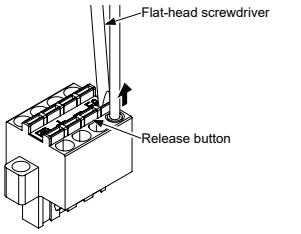
Notes: 1) Connect in accordance with the device specifications.
2) A termination resistor is incorporated in this product. Be sure to attach the termination resistor switching short pin (provided) on the end **SC-HG1-485**.
3) Wire communication routes using transition wiring.

<Terminal block connection procedure>

- When connecting the terminal block, use solid wires, or stranded wires (lead wires) with a ferrule (sleeve) terminal (please obtain separately) attached as shown at right, and insert sufficiently into the connection hole.
- When inserted correctly, the wire is locked and cannot be pulled out. Take care not to pull with excessive force, as the wire may break.



- To connect stranded wire (lead wire) to the terminal block without using a ferrule (sleeve) terminal, insert sufficiently into the connection hole while pressing the release button.
- To disconnect solid wire or stranded (lead) wire, pull out the wire while pressing the release button.

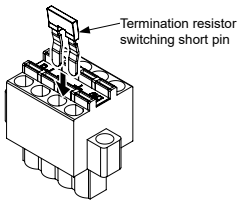


- The following solid wire or stranded wire (lead wire) is recommended.
  0.2 to 2.5mm^2 (AWG 24 to 12)
- For the communication cable, use the specified cable (shielded twisted pair cable).
  <Recommended cable>
  Taiyo Cabletec Corporation: Sunlight SX-1P-0.2
- When attaching the connector, tighten to a torque of no more than 0.2N·m.

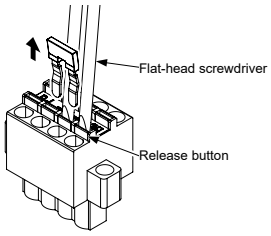
Attachment and removal of termination resistor switching short pin

- Be sure to attach the termination resistor switching short pin (accessory) on the end **SC-HG1-485**.
- Attach the termination resistor switching short pin to "END" and "+" on the communication connector.
- To remove the termination resistor switching short pin, press the release buttons (x2).

<Mounting>



<Removal>



8 SPECIFICATIONS

Designation	RS-485 Communication Unit
Model No.	**SC-HG1-485**
Compatible controllers	**HG-SC**□
Number of units connectable	Maximum of 15 controllers (one master, 14 slaves) per **SC-HG1-485** unit
Number of blocks	MODBUS: Maximum 99 stations, MEWTOCOL: Maximum 64 stations
Supply voltage (Note)	24V DC ±10%, Ripple P-P 10% or less
Current consumption	40mA or less
Communication method	Two-wire half duplex communication
Synchronization method	Start-stop synchronization
Communication protocol	MODBUS (RTU / ASCII) / MEWTOCOL-COM
Communication speed	1,200bps / 2,400bps / 4,800bps / 9,600bps / 19,200bps / 38,400bps / 57,600bps / 115,200bps
Electrical characteristics	Conforms to EIA RS-485
Stop bit length	1 bit / 2 bits
Parity check	Even / Odd / None
Data bit length	8 bits / 7 bits
Total extension distance	Communication cable: 1,200m or less between **SC-HG1-485** (terminal) and PLC
Ambient temperature	-10 to +45°C (No condensation or icing), Storage: -20 to +60°C
Ambient humidity	35 to 85% RH, Storage: 35 to 85% RH
Material	Unit case: PC
Weight	Approx. 75g

Note: Power is supplied from a connected controller / master controller.

9 Cautions

- This product has been developed / manufactured for industrial use only.
- Verify that fluctuations of power input supply voltage do not exceed the rating, including controllers.
- When 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 ground.
- Do not use during the initial transient time (1s) after the power supply is switched ON.
- Make sure that the power is OFF while performing wiring or connection work.
- Risk of damage and burning if the load is incorrectly wired or short-circuiting occurs.
- Do not wire in parallel with a high-voltage line or power line, or run through the same conduit. Risk of malfunctioning due to induction.
- This product is suitable for indoor use only.
- Avoid dust, dirt, and steam.
- Do not use in locations where there are corrosive or other harmful gases.
- Ensure that the product does not come into contact with organic solvents such as thinner.
- Ensure that the product does not come into contact with strong acid or alkaline.
- Ensure that the product does not come into contact with oil or grease.
- This product cannot be used in an environment that contains flammable or explosive gases.
- Performance may not be satisfactory in a strong electromagnetic field.
- Do not drop or otherwise subject to shock. Risk of product damage.
- Never attempt to disassemble, repair, or modify the product.
- When the product becomes unusable or unneeded, dispose of the product appropriately as industrial waste.

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