

For details of the communication commands etc. of the communication unit for DeviceNet **SC-GU3-02**, refer to "Product Specification" or "Communication Command Specification."

1 CE MARKED PRODUCT

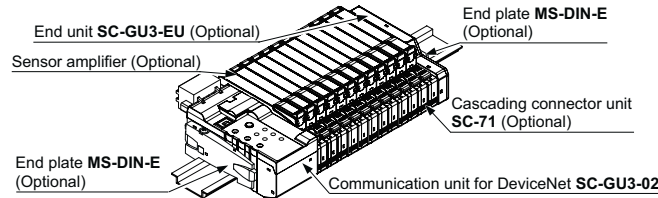
- The models listed under "8 SPECIFICATIONS" come with CE Marking. As for all other models, please contact our office.
- Contact for CE



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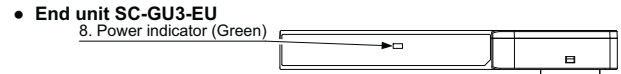
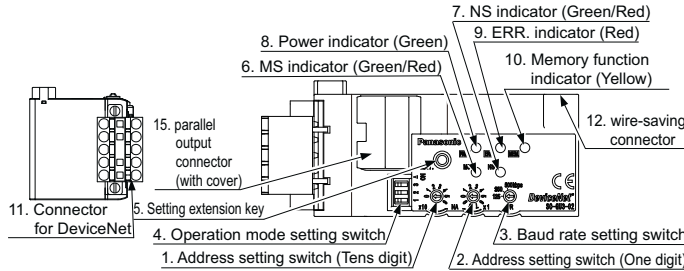
2 OUTLINE

- Communication unit **SC-GU3-02** can output the output signal (in case of 2-output type, only the output 1) of a sensor amplifier (NPN output type) that is connectable to cascading connector unit **SC-71** (optional), as the communication data of **DeviceNet**.
- SC-GU3-02** enables to connect max. 16 units of sensor amplifier (**FX-300** series or **LS-400** series, etc.). In case of **FX-500** series, max. 12 units of sensor amplifier can be connected.
- This product can output all the output signals of the connected sensor amplifiers to PLC (Programmable Logic Controller) etc. in one time.
- By using end unit **SC-GU3-EU**, settings and control of the connected optically communicable sensor amplifier (**FX-500** series, **LS-403** or **DPS-400** series) can be done.



3 FUNCTIONAL DESCRIPTION

- Communication unit for DeviceNet **SC-GU3-02**



Designation	Function
1 Address setting switch (Tens digit) (Note 3) (Factory setting is 0)	To set address of DeviceNet. Setting is possible in the range of 0 to 63 (64 or more: Error)
2 Address setting switch (One digit) (Note 3) (Factory setting is 1)	As for number displays on switches, refer to each switch.
3 Baud rate setting switch (Note 3) (Factory setting is 500kbps)	To set baud rate of DeviceNet(bps) from 125K, 250K or 500K
4 Operation mode setting switch (with cover) (Factory setting is simple mode)	Data amount of I/O message can be changed by this setting.
5 Setting extension key (Note 3)	Used for memory function (Note 1), teaching and light intensity adjustment (Note 2). Also, used for canceling communication error.
6 MS indicator (Green/Red)	Displays whether this product is operating properly or not • Green LED lights up: Normal operation condition • Lights off: Power OFF For the detail of the error, refer to "7 ERROR INDICATOR".
7 NS indicator (Green/Red)	Displays whether this product is communicating properly with DeviceNet or not • Green LED lights up: Normal operation condition • Lights off: Power OFF For the detail of the error, refer to "7 ERROR INDICATOR".
8 Power indicator (Green)	Lights up when power is ON.
9 ERR. indicator (Red)	Blinks when an optical communication error occurs.
10 Memory function indicator (Yellow)	Lights up when using memory function. Blinks when connecting a sensor amplifier whose set contents are different from the ones that are storing in this product.

Notes: 1) In case using the memory function, **SC-GU3-EU** is required. Refer to "Communication Command Specification" for detail of memory function.
2) For the teaching and memory function, refer to "Communication Command Specification".
3) For changing the setting, use a flat-head screwdriver etc.

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

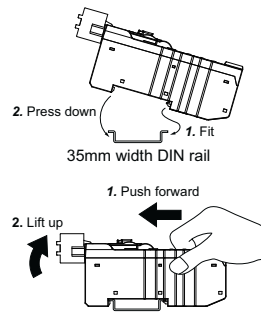
- Never use this product in a device for personnel protection.
- In case of using devices for personnel protection, use products which meet laws and standards, such as OSHA, ANSI or IEC etc., for personnel protection applicable in each region or country.

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11 Connector for DeviceNet	<table border="1"> <thead> <tr> <th>Terminal No.</th> <th>Description</th> </tr> </thead> <tbody> <tr><td>1</td><td>V- connecting terminal (2 systems for cascade wiring)</td></tr> <tr><td>2</td><td>CAN-L connecting terminal (2 systems for cascade wiring)</td></tr> <tr><td>3</td><td>Drain connecting terminal (2 systems for cascade wiring)</td></tr> <tr><td>4</td><td>CAN-H connecting terminal (2 systems for cascade wiring)</td></tr> <tr><td>5</td><td>V+ connecting terminal (2 systems for cascade wiring)</td></tr> </tbody> </table>	Terminal No.	Description	1	V- connecting terminal (2 systems for cascade wiring)	2	CAN-L connecting terminal (2 systems for cascade wiring)	3	Drain connecting terminal (2 systems for cascade wiring)	4	CAN-H connecting terminal (2 systems for cascade wiring)	5	V+ connecting terminal (2 systems for cascade wiring)																																																				
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4 MOUNTING AND CONNECTION

How to mount

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



How to remove

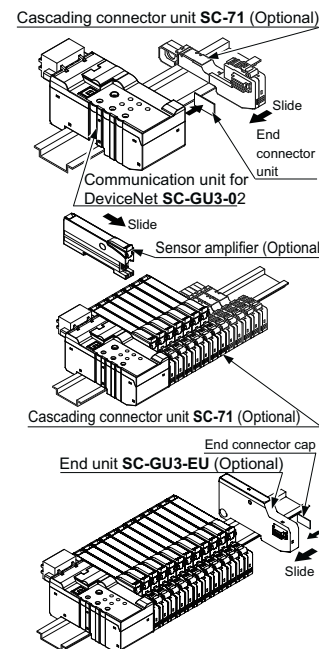
- Push the unit forward.
- Lift up the front part of the unit to remove it.

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

How to connect

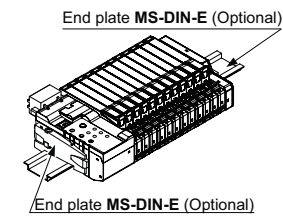
- Be sure that the power supply is OFF while adding / removing units.
- When the units are mounted in cascade, mount the end plates **MS-DIN-E** (optional) at the both ends of the units to hold them between the flat sides of the plates.
- Up to maximum 16 sensor amplifiers can be connected in cascade. (In case of **FX-500**, up to maximum 12 sensor amplifiers can be connected in cascade.)
- In case two different models of sensor amplifier are mounted in cascade, be sure to mount identical models together.
- For the cautions of the sensor amplifiers, refer to the instruction manuals enclosed with the amplifiers.

- Mount communication unit **SC-GU3-02** on DIN rail. When mounting, remove the end connector cap which is attached to the connector area.
- Mount cascading connector unit **SC-71** (optional) one by one on the DIN rail. And slide them to side of **SC-GU3-02**.
- Insert sensor amplifiers (optional) to **SC-71**.



- In case using end unit **SC-GU3-EU** (optional), mount **SC-GU3-EU** on DIN rail. And slide it to side of the sensor amplifiers. Attach the end connector cap which is removed in the step 1 to the connector area for cascading of the last unit.

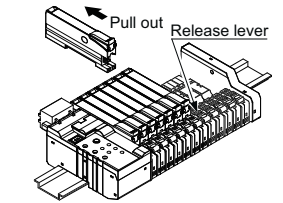
- Mount the end plates **MS-DIN-E** (optional) at both ends to hold the amplifiers between their flat sides.
- Tighten the screws of **MS-DIN-E** to fix the end plates.



How to remove sensor amplifiers

- Press down release lever of **SC-71** and pull out the sensor amplifier. (Note) In state of cascading, the sensor amplifiers can be pulled out.

Note: Be sure that the release lever is broken without pressing down release lever when pulling out the sensor amplifiers. Do not use the cascading connector unit that the release lever is broken.



How to remove units

- Loosen screws of **MS-DIN-E**.
- Remove **MS-DIN-E**.
- Slide **SC-71** to disconnect the connection.
- Remove each units.

5 MEMORY FUNCTION

- Memory function can be used only when connecting the optically communicable sensor amplifier (**FX-500** series, **LS-403** or **DPS-400** series) and the end unit **SC-GU3-EU** (optional).
- This function enables to store the set contents of connected sensor amplifiers in the communication unit **SC-GU3-02** by each channel and send the stored contents to newly connected sensor amplifiers by each channel.

When storing set contents

- Turn ON the power in the condition that the sensor amplifiers are connected to **SC-GU3-02**.
- Storing starts after pressing the setting extension key down for approx. 2 sec.
- When the storing to **SC-GU3-02** is complete, the memory function indicator (yellow) lights up.

Note: To cancel the memory function, press the setting extension key for approx. 2 sec. again.

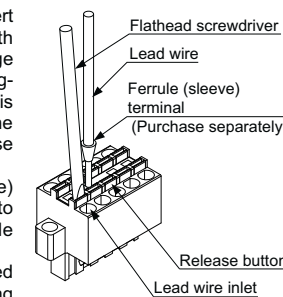
When sending the stored set contents

- Turn OFF the power of **SC-GU3-02**.
- Remove the sensor amplifiers that are connected to **SC-GU3-02** and mount new sensor amplifiers to which the set contents are transmitted to **SC-71**.
- When turning ON the power of **SC-GU3-02**, memory function indicator (yellow) blinks.
- However, if the setting contents of the connected sensor amplifiers are same as the one that are stored in **SC-GU3-02**, it lights up.
- When pressing the setting extension key, transmission of the set contents is started.
- When the transmission is complete, the memory function indicator (yellow) turns to light up from blinking.

6 CONNECTION WITH UPPER COMMUNICATION

- 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 connecting to the terminal block, insert a solid wire or twisted wire (lead wire) with a ferrule (sleeve) terminal (please arrange separately) into the hole as shown in the figure at the right. The wire is locked when it is properly inserted. However, do not to pull the wire with excessive force, as this can cause a cable break.
- When connecting the twisted wire (lead wire) without a ferrule (sleeve), insert the wire to the innermost of the connecting hole while pressing the release button.
- When releasing the solid wire or the twisted wire (lead wire), pull the wire while pressing the release button.
- The following solid wire and twisted wire (lead wire) 0.2 to 2.5mm² (AWG 24 to 12) are recommended.
- Use the DeviceNet specified cable. Make sure to ground the shielded cable.
- When mounting the DeviceNet connector, the tightening torque should be 0.2N·m or less.



7 ERROR INDICATOR

In case of errors, attempt the following measures.

Indicator	State	Cause	Corrective action
Error indicator (Red)	Blinks	Optical communication does not work properly.	Check the connection status of the connected sensor amplifiers or sensor unit and connection of end unit. Check the optical communication command and the transmitted data. For details, refer to "Product specification" or "Communication command specification." By pressing down the setting extension key, error indicator turns off.
MS indicator (Green/Red)	Green blinks Red lights up Red blinks	State of "Stand by" SC-GU3-02 may be broken. Communication setting of SC-GU3-02 has problem.	Check the connection of communication cable and termination resistor. Contact our sales office. Check address setting, baud rate and operation mode setting switch. After the confirmation, restart SC-GU3-02 .
NS indicator (Green/Red)	Green blinks Red lights up	Network wiring is done properly however cannot communicate with master unit Address is overlapped.	Be sure SC-GU3-02 is registered in the master unit. Be sure that the address is not overlapped with other unit.
	Red blinks	One or more connection is in state of communication time out.	Check network wiring and setting. After the confirmation above, restart SC-GU3-02 again.

8 SPECIFICATIONS

Designation	Communication unit for DeviceNet
Model No.	SC-GU3-02
Applicable sensor amplifier	Sensor amplifier (NPN output type) that can connect the cascading connector SC-71 (optional)
Number of connectable units	Max. 16 units per 1 of SC-GU3-02 (Max. 12 units for FX-500 series)
Supply voltage	11~25V DC Ripple P-P10% or less
Current consumption	80mA or less at 24V source voltage (excluding connected sensor amplifiers, etc.)
Allowable passing current (Note)	Total: 2A or less
Communication method	DeviceNet compliant
Compliant functions	I/O message (Poll), Explicit message
Baud rate	125kbps, 250kbps, 500kbps (set by SC-GU3-02)
Address setting	0 to 63 (64 or more is error)
Ambient temperature	-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: Polycarbonate
Weight	Net weight: Approx. 75g

Note: It is the value that can supply to **SC-GU3-02** or the sensor units connected to **SC-GU3-02**, etc.

End unit SC-GU3-EU

Designation	End unit
Model No.	SC-GU3-EU
Applicable sensor amplifier	• Communication unit for DeviceNet SC-GU3-02 • Between SC-GU3-01 to SC-GU3-EU : FX-500 series, LS-400 series etc.
Number of connectable units	1 unit for 1 of SC-GU3-02
Supply voltage	11 to 25V DC±10% Ripple P-P10% or less
Current consumption	25mA or less
Ambient temperature	-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: Polycarbonate
Weight	Approx. 20g

Cascading connector unit SC-71

Designation	Cascading connector unit
Model No.	SC-71
Applicable sensor amplifier	• Communication unit for DeviceNet SC-GU3-02 • Communication end unit SC-GU3-EU • Between SC-GU3-02 to SC-GU3-EU : FX-500 series, LS-400 series etc.
Number of connectable units	Max. 16 units per 1 of SC-GU3-02 (Max. 12 units for FX-500 series)
Ambient temperature	-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: Polycarbonate, Metal plate: aluminum
Weight	Approx. 10g

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 product.
- 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 (2 sec.) after the power supply is switched on. In case using memory function or not using a **SC-GU3-EU**, be sure that transient time after the power supply is switched on becomes longer
- This product is suitable for indoor use only.
- This product cannot be used in an environment containing inflammable or explosive gases.
- Never disassemble or modify the product.
- For the wiring of this product, refer to "DeviceNet Installation Manual" by ODVA
- Any protective devices or safety circuits against system malfunction should be designed to be external to the system.