Panasonic

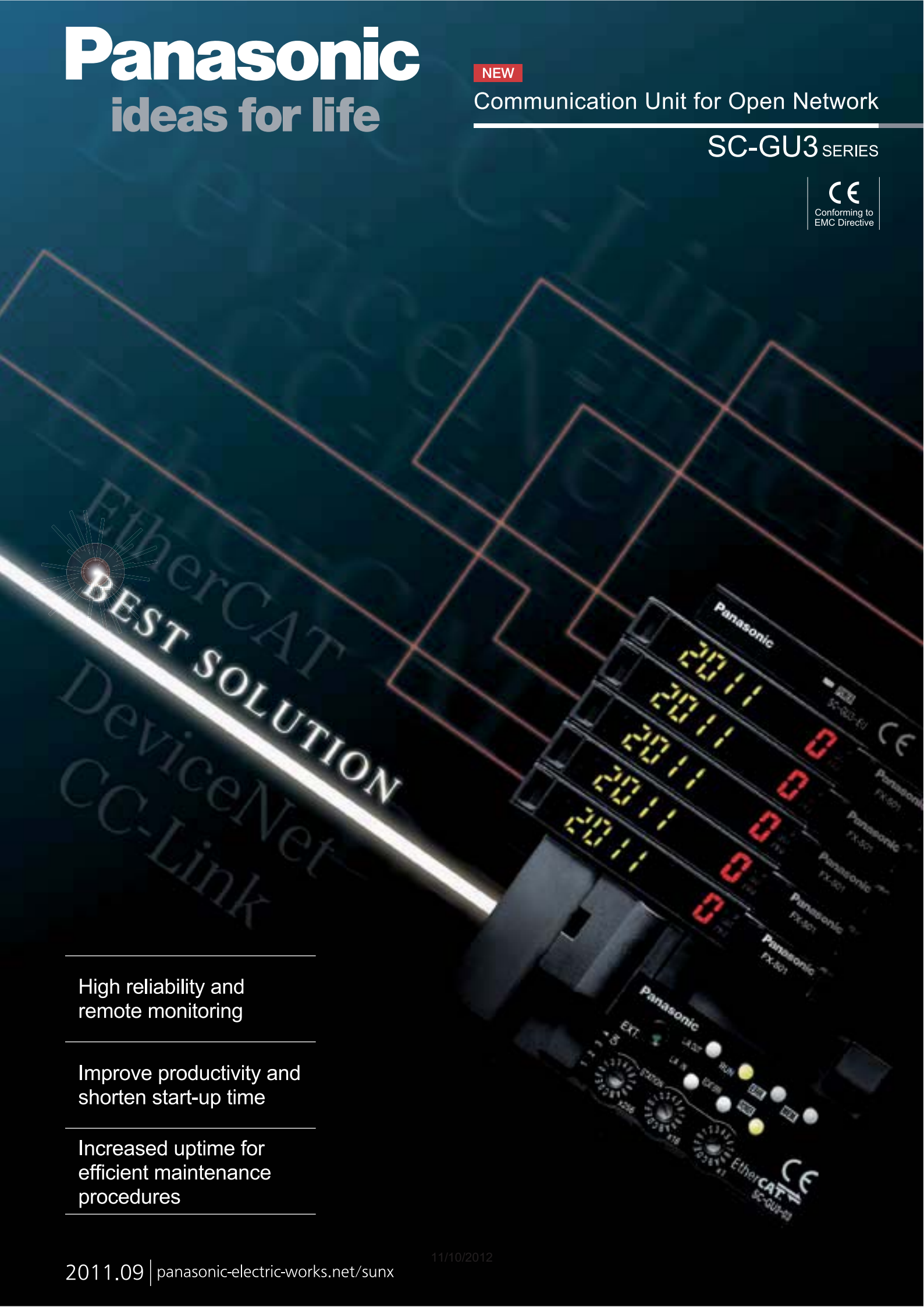
ideas for life

NEW

Communication Unit for Open Network

SC-GU3 SERIES

CE Conforming to EMC Directive



High reliability and remote monitoring

Improve productivity and shorten start-up time

Increased uptime for efficient maintenance procedures

2011.09 | panasonic-electric-works.net/sunx

Traditional methods of maintaining and remotely monitoring sensors are tedious and complex.

"Isn't there some way that sensors in **remote areas**, such as clean rooms, can be checked without having to go where they are installed?"

"Is there some way that we can **remotely change** the sensor threshold values?"

"We manufacture many different kinds of items, so we want to be able to automatically change the threshold settings to **reduce onsite setup labor**."

"We want to implement **preventative maintenance** so that we can use open networks to check sensor information."

"Is there a way to reduce **the enormous amount of wiring** required?"

"We are using analog output pressure sensors in conventional devices, but they take a lot of work to maintain and they are **affected by noise**. Isn't there a better way to do this?"

"We want to be able to send and use pressure sensor information **over an open network**."

SC-GU3-Compatible Sensors

Digital communication supporting sensors (optical communication compatible)

Fiber sensors	**FX-501**, **FX-502**, **FX-301** (those produced after June 2004), **FX-305**
Laser sensor	**LS-403**
Pressure sensors	**DPS-401**, **DPS-402**
Sensor input unit	**SC-T1JA** (in combination with **SC-71**)

Sensors that only output information (not optical communication compatible)

Fiber sensors	**FX-301** (those produced up to May 2004) **FX-301** (**B/G/H**), **FX-301-HS**
Manually set fiber sensors	**FX-411**, **FX-412**, **FX-311** (**B/G**)
Fiber sensors for leaks/ liquid fibers	**FX-301-F**, **FX-301-F7**
Laser sensor	**LS-401**
Compact inductive proximity sensor	**GA-311**
1-channel connector input extension unit	**SC-T1J** (in combination with **SC-71**)
8-channel connector input unit	**SC-T8J** (those produced from June 2011, in combination with **SC-BU**)

3 Benefits of the SC-GU3 Series

Benefit 1 **Improved productivity and shorten start-up time**

- Wire-saving using connectors for connections
- Construction-saving using batch reading of settings
- Uses digital sensor setting data

Benefit 2 **High reliability and remote monitoring**

- Remote monitoring via a network
- Saves settings for traceability control
- Stores error history

Benefit 3 **Increased uptime for efficient maintenance procedures**

- Simplified maintenance using memory function
- Remote maintenance via a network
- Regular acquisition of current readings for preventative maintenance

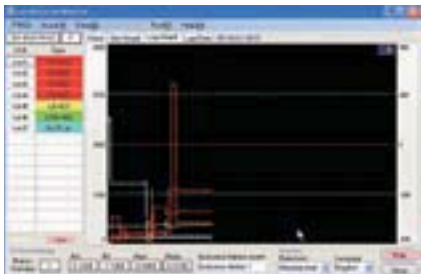
The SC-GU3 Series is easy to install and enables flexible remote operation over a network.

BEST SOLUTION

Solve your problems by combining the **SC-GU3** with digital sensors!

Sensor information can be checked and changed via an open network.

The status of sensors in remote locations can now be checked via an open network. Digital readings are also acquired periodically and displayed in graph form to facilitate preventative maintenance.



The ability to communicate with sensors allows for the batch transfer of threshold value changes from a remote location to improve productivity.

Wire-saving construction greatly reduces labor.

Connectors are used to attach sensors. This eliminates the need to use connection cables, thus reducing the labor required for wiring.

Analog output information from pressure sensors, etc. can also be used over an open network.

Combine the **SC-GU3** Series and the **DPS-400** Series to check and change sensor information over an open network. The transmitted signal is also converted from analog to digital to reduce the sensitivity to noise in the circuit.

11/10/2012

FEATURE

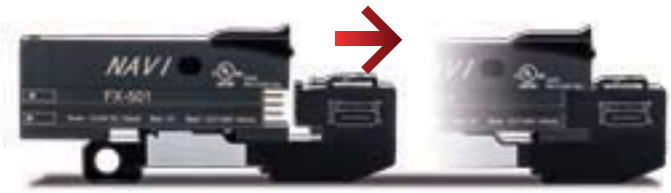
SC-GU3 Series Features

Sensors are easily replaced without removing adjacent sensor amplifiers.

Sensors are removed by simply sliding the sensor amplifier sideways while pressing on the connection unit lever.
Install new sensors by simply sliding the amplifier into the array without requiring the removal of the adjascent sensors.

Effortless Installation

One-touch connectors are used to install sensor amplifiers, for a simple installation while avoiding the need for tools.

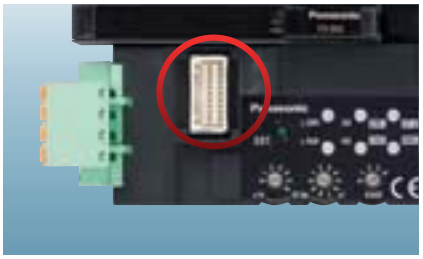


Installation made easy by the adoption of optical communication

Installation and maintenance workability have been improved by switching from a link cable to optical communication for communication from the end unit.

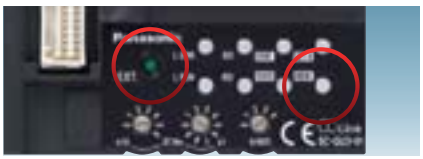
Connectors for parallel output acquisition

The output signals from the sensor units are acquired in real time using connectors for parallel output acquisition.



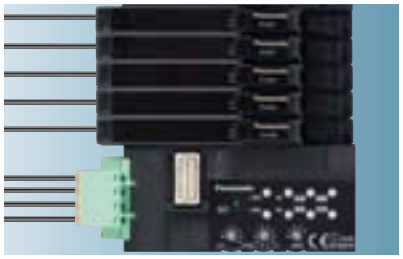
Built-in memory function

The communication unit stores the settings of the connected digital sensors and can transmit these settings when required to restore the sensor settings. This can also be used to reset the original sensor settings when a sensor unit is replaced.



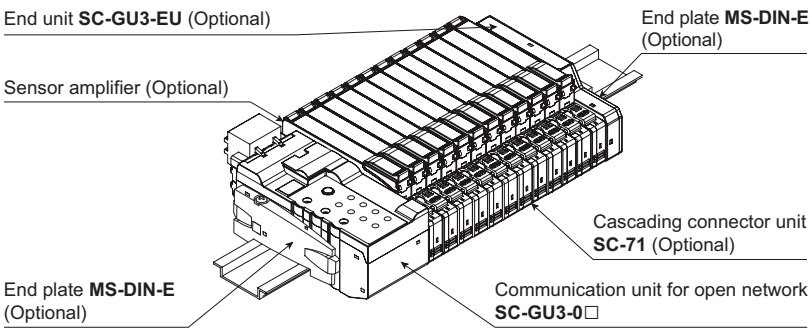
Cable lead-outs grouped on the left side of the product

Installation space is efficiently used by grouping the cable lead-outs on the left side of the product.



SYSTEM COMPOSITION

If optical communication is to be used in a system that includes models not compatible with optical communication, connect the incompatible models after the **SC-GU3-EU**.
A maximum of 12 units can be connected to the **FX-500** Series, and a maximum of 16 units can be connected to the other sensor amplifiers.



ORDER GUIDE

Designation	Appearance	Model No.	Description
Communication unit for EtherCAT	 Upcoming product	**SC-GU3-03**	This is a communication unit, which can convert the output signal of a sensor amplifier into communication data for EtherCAT.
Communication unit for DeviceNet		**SC-GU3-02**	This is a communication unit, which can convert the output signal of a sensor amplifier into communication data for DeviceNet.
Communication unit for CC-Link		**SC-GU3-01**	This is a communication unit, which can convert the output signal of a sensor amplifier into communication data for CC-Link.
End unit		**SC-GU3-EU**	This end unit can change and check the settings of sensor amplifiers that allow optical communication and monitor operation status.
Cascading connector unit		**SC-71**	This one-touch connector is used to connect the following devices to **SC-GU3-0**□: The **FX-500/400/300** fiber sensor, the **LS-400** laser sensor, the **DPS-400** digital pressure sensor, **SC-T1J** and **SC-T1JA**, etc.

OPTIONS

Designation	Appearance	Model No.	Description
Compatible installation tool for SC		**SC-BUX10**	This tool is used to install units for the **SC-GU2** Series. **SC-T8J** manufactured since June 2011 can be used. 10 pcs. per set
End plate		**MS-DIN-E**	After installing **SC-GU3-0**□, sensor amplifier, **SC-GU3-EU** etc. in cascade on a DIN rail, these end plates clamp the units into place on both sides. Be sure to use this product. 2 pcs. per set
Computer software for CC-Link		**SC-PC1**	This software makes it possible to use a computer to monitor current sensor readings, save setting information to a CSV file, display log data, save log data to a CSV file, etc.
Cable with connector on one end		**CN-M20-C2**	This cable has a connector for linking to the parallel output signal.

Sample program for CC-Link　SC-GU3-01

Easy configuration of all connected sensors

CC-Link/DeviceNet not only monitors the readings currently being received from digital sensors, such as incident light intensity or pressure values, but also transmits changes to sensor settings.

* CC-Link has publicized the communication commands for checking sensor current readings and settings and for changing the settings.

The downloadable sample program shown at right (screen and ladder) includes a method for checking basic threshold and display values and a sensor amplifier basic setting method that can be used to simplify program development. The sample program display language can be switched between English and Japanese.

- **Display unit made by Mitsubishi Electric**
  For GOT1000 Series (SC-GU3-01)
- **Programmable display unit made by Digital Electronics**
  For GP/ST Series (SC-GU3-01)

【 Example screens 】

Setting screen　Press the Channel button!　Initial screen　Press the Graph button!　Graph display

Example for digital fiber sensors
- Change in threshold value
- Output operation settings (L-on/D-on)
- Response speed/hysteresis variation

* Screens for digital pressure sensors and digital laser sensors are also provided.

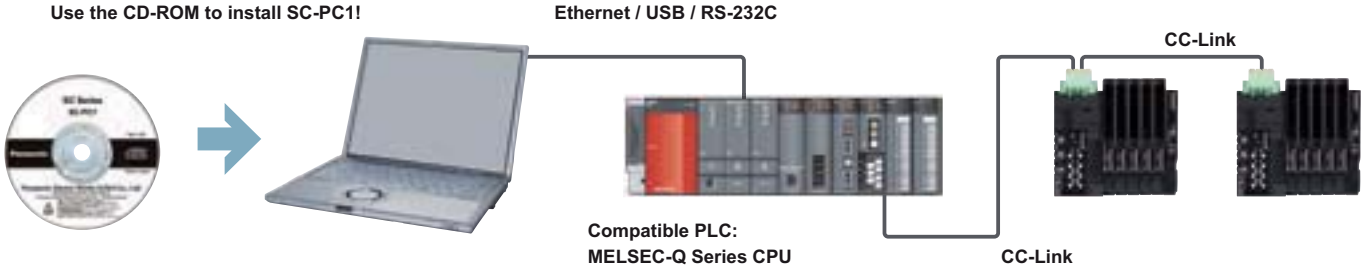
- The channel display is linked to the sensor output, and the color changes.
- Displays a list of threshold values.
- Displays the current readings.

- Change in current values can be plotted to easily show the amount of change over time.

* Data can be stored on a CF card.

Dedicated CC-Link-compatible configuration software for the communication unit　SC-PC1

A program is not required to become proficient at using the SC-GU3-01.



1 Check the sensor status from the computer.

Status checks and fine adjustments can be easily performed during maintenance or installation and setup.

2 Connected sensors can be batch-configured using a CSV data file.

Factory settings can be saved to a settings file (CSV) to greatly reduce the time required to set sensors and eliminate setting mistakes. When creating the same device, just read the saved settings into the mobile unit to complete the task of setting configuration. The settings of linked sensors can be easily compared when a problem occurs. There is a “Compare” sub-menu accessible from the main menu with functions for comparing setting statuses.

SPECIFICATIONS

Designation / Item / Model No.	Communication unit for CC-Link				
	SC-GU3-01				
Number of connectable units	Max. 16 units per **SC-GU3-01** (Max. 12 units for **FX-500** Series)				
Supply voltage	24 V DC $^{+10}_{-15}$ % Ripple P-P 10 % or less				
Current consumption	120 mA or less (excluding connected sensor amplifiers)				
Allowable passing current	Wire-saving connector 2 A (Note 1), supply connector 6 A (Note 2)				
Communication method	CC-Link Ver.1.10				
Number of occupied station	Switchable 1 or 4 station				
Baud rate	10 Mbps	5 Mbps	2.5 Mbps	625 kbps	156 kbps
Total extension length	100 m 328.1 ft	150 m 492.1 ft	200 m 656.2 ft	600 m 1968.5 ft	1,200 m 3937 ft
Communication cable	Specified cable (twist pair cable with shield) (Note 3)				
Station No. setting	1 to 64 (0 and 65 or more: Error)				
Remote station type	Remote device station				
Ambient temperature	–10 to +55 °C +14 to +131 °F (If 4 to 7 units are connected in cascade: –10 to +50 °C +14 to +122 °F, if 8 to 16 units are connected in cascade : –10 to +45 °C +14 to +113 °F) (No dew condensation or icing allowed), Storage: –20 to +70 °C –4 to +158 °F				
Ambient humidity	35 to 85 % RH, Storage: 35 to 85 % RH				
Material	Enclosure: Polycarbonate				
Weight	Net weight: 80 g approx., Gross weight: 120 g approx.				

Notes: 1) Be sure to check that total current consumption of sensor amplifiers connected in cascade does not exceed allowable passing current.
2) In case of supplying power to other devices, be sure to set the current less than allowable passing current.
3) Use the CC-Link-specified cable.

Designation / Item / Model No.	Communication unit for DeviceNet		
	SC-GU3-02		
Number of connectable units	Max. 16 units per **SC-GU3-02** (Max. 12 units for **FX-500** Series)		
Supply voltage	11 to 25 V DC Ripple P-P 10 % or less		
Current consumption	80 mA or less (at 24 V) (excluding connected sensor amplifiers)		
Allowable passing current	Wire-saving connector 2A (Note 1)		
Communication method	DeviceNet compliant		
Baud rate	500 kbps	250 kbps	125 kbps
Total extension length	100 m 328.1 ft (thick cable)	250 m 820.2 ft (thick cable)	500 m 1640 ft (thick cable)
	100 m 328.1 ft (thin cable)	100 m 328.1 ft (thin cable)	100 m 328.1 ft (thin cable)
Communication cable	Complies with DeviceNet standards (Note 2)		
Address setting	0 to 63 (64 or more: Error)		
Supported functions	I/O communication (Poll), Explicit message communication		
Ambient temperature	–10 to +55ºC +14 to +131ºF (If 4 to 7 units are connected in cascade: –10 to +50ºC +14 to +122ºF, if 8 to 16 units are connected in cascade: –10 to +45ºC +14 to +113ºF) (No condensation or icing allowed), Storage: –20 to +70ºC –4 to +158ºF		
Ambient humidity	35 to 85 % RH, Storage: 35 to 85 % RH		
Material	Enclosure: Polycarbonate		
Weight	Net weight: 75 g approx., Gross weight: 120 g approx.		

Notes: 1) Be sure to check that total current consumption of sensor amplifiers connected in cascade does not exceed allowable passing current.
2) Use a special cable for DeviceNet that complies with the DeviceNet standards.

Designation / Item / Model No.	Communication unit for EtherCAT
	SC-GU3-03
Number of connectable units	Max. 16 units per **SC-GU3-03** (Max. 12 units for **FX-500** Series)
Supply voltage	24 V DC ±10 % Ripple P-P 10 % or less
Compliance standard	IEEE802.3u
Baud rate	100 Mbps
Communication cable	Category 5e
Communication ports	RJ45×2
EtherCAT communication standards	Process data communication, Mailbox communication

Designation / Item / Model No.	End unit
	SC-GU3-EU
Number of connectable units	1 unit for 1 of **SC-GU3-0**□
Supply voltage	11 to 25 V DC Ripple P-P 10 % or less
Current consumption	25 mA or less
Power indicator	Green LED (Lights up when the power is ON)
Ambient temperature	–10 to +55ºC +14 to +131 °F (If 4 to 7 units are connected in cascade: –10 to +50ºC +14 to +122 °F, if 8 to 16 units are connected in cascade: –10 to +45ºC +14 to +113 °F) (No dew condensation or icing allowed), Storage: –20 to +70ºC –4 to +158 °F
Ambient humidity	35 to 85 % RH, Storage: 35 to 85 % RH
Material	Enclosure: Polycarbonate
Weight	Net weight: 20 g approx., Gross weight: 20 g approx.

Designation / Item / Model No.	Cascading connector unit
	SC-71
Number of connectable units	Max. 16 units per **SC-GU3-02**
Ambient temperature	–10 to +55ºC +14 to +131 °F (If 4 to 7 units are connected in cascade: –10 to +50ºC +14 to +122 °F, if 8 to 16 units are connected in cascade: –10 to +45ºC +14 to +113 °F) (No dew condensation or icing allowed), Storage: –20 to +70ºC –4 to +158 °F
Ambient humidity	35 to 85 % RH, Storage: 35 to 85 % RH
Material	Enclosure: Polycarbonate, Metal plate: Aluminum
Weight	Net weight: 10 g approx., Gross weight: 25 g approx.

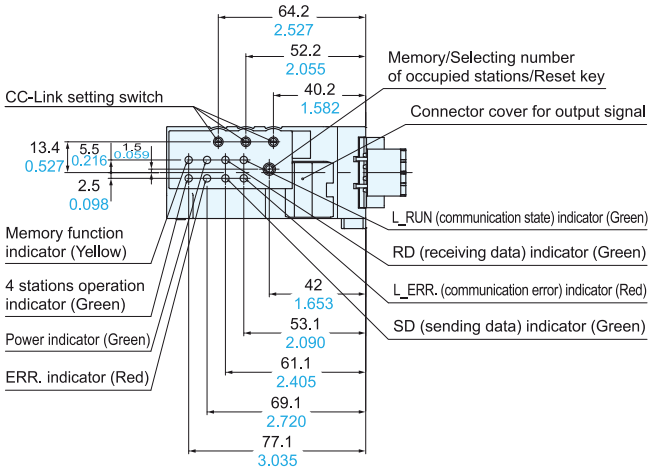
PRECAUTIONS FOR PROPER USE

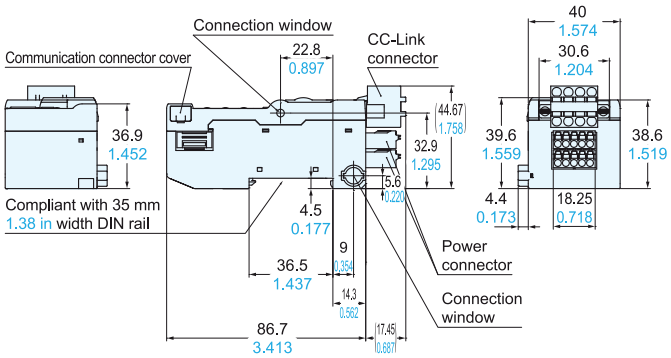
- Never use this product in a device for personnel protection.
- In case of using sensing devices for personnel protection, use products which meet laws and standards, such as OSHA, ANSI or IEC etc., for personnel protection applicable in each region or country.

DIMENSIONS (Unit: mm in)

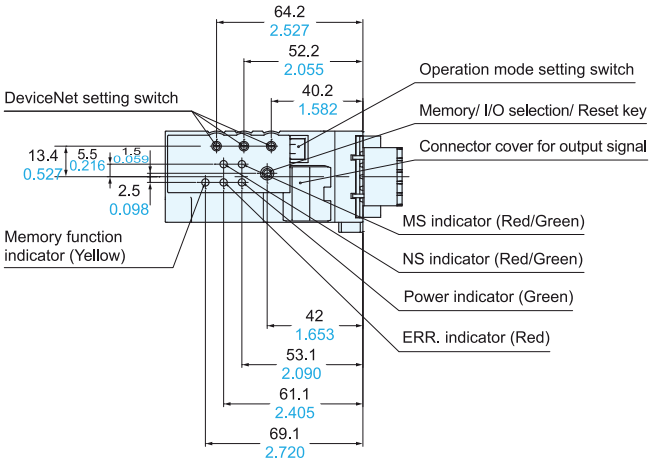
The CAD data in the dimensions can be downloaded from our website

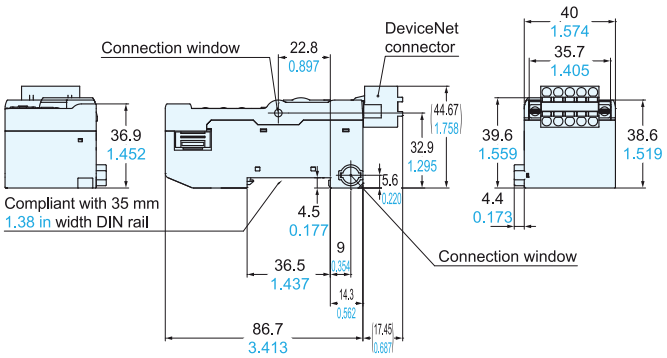
SC-GU3-01 Communication unit for CC-Link



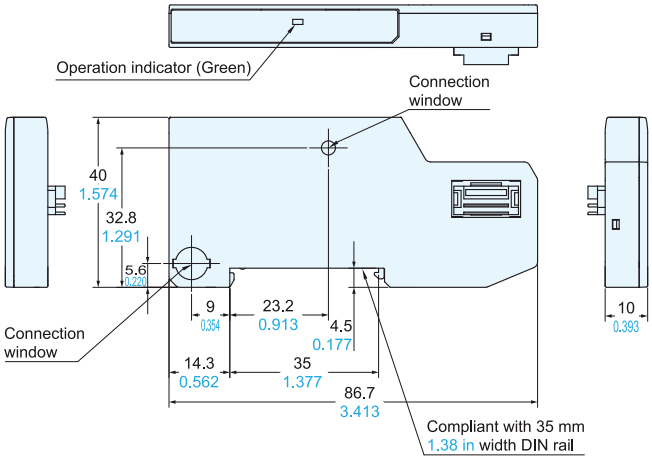


SC-GU3-02 Communication unit for DeviceNet

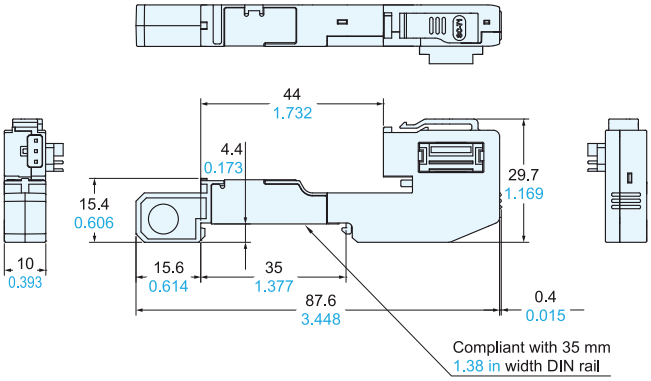




SC-GU3-EU End unit



SC-71 Cascading connector unit



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