

CC-Link IE Field / CC-Link Communication Unit

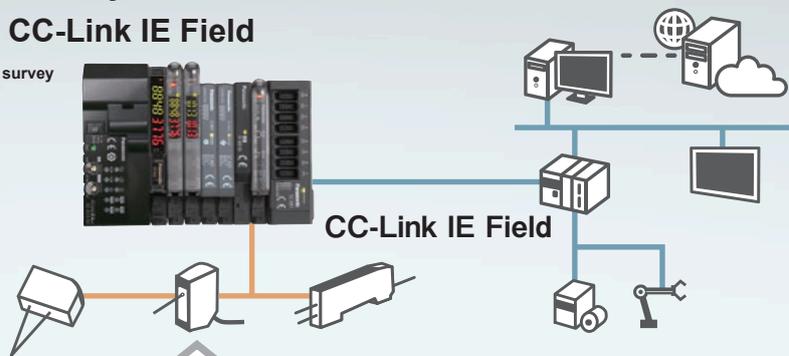
SC-GU3-04 / SC-HG1-CEF
SC-GU3-01 / SC-HG1-C



Connect Fiber Sensors and Displacement Sensors to CC-Link IE Field for High-Speed Control

Introducing the industry's first* communication units
compatible with CC-Link IE Field

* As of March 2017, in-company survey



Real-time communication for various sensors



Head-separated digital
pressure sensor
DPS-400 SERIES



Digital Fiber Sensor
FX-500 SERIES



Digital Laser Sensor
LS-500 SERIES



Micro Laser Distance
Sensor
HG-C SERIES



Rectangular-shaped
Inductive Proximity Sensor
(amplifier built-in)
GX-F/H SERIES



Compact Inductive Proximity
Sensor (amplifier-separated)
GA-311 SERIES



Micro Photoelectric
Sensor
PM SERIES



Contact-type Digital Displacement
Sensor
HG-S SERIES



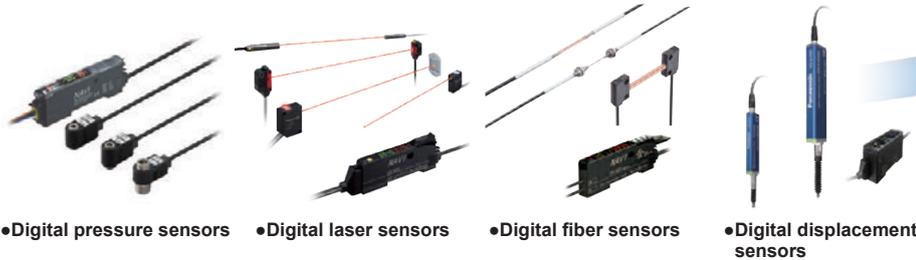
Thru-beam Type Digital
Displacement Sensor
HG-T SERIES

Visualize collected sensor data to launch IoT initiatives!

Conditions surrounding the manufacturing industry are rapidly changing as production processes are advancing dramatically based on keywords such as IoT and Industry 4.0. To respond to the IoT trend, "visualization" is the first step to take. Panasonic Industry offers sensors and communication units that achieve the acquisition and visualization of sensor data.

Panasonic Industry's sensors can connect to both!

CC-Link IE Field
CC-Link



Communication Unit for Open Network SC series

Connection of various sensors to the network

Each SC-GU3 series unit can be connected with up to 16 sensors*.

* Up to 12 units when the system is configured with FX-500 / LS-500 series

Communication unit for
CC-Link IE Field
SC-GU3-04



CC-Link IE Field

Communication speed: 1 Gbps

Communication unit for
CC-Link
SC-GU3-01



CC-Link

Communication speed: 10 Mbps (max.)

* CC-Link IE Field and CC-Link are trademarks of Mitsubishi Electric Corporation, and are controlled by the CC-Link Partner Association.

Transmission of digital (numerical) data from pressure sensors, fiber sensors, laser sensors, displacement sensors, and the like to the network

Setting of sensor threshold values and operation / confirmation of current values can be performed on the network. This eliminates the need to directly operating individual sensor units.

Head-separated digital pressure sensor

DPS-400 SERIES
DPH-100 SERIES

Units with a pressure range of 0 to +1 MPa, ±100 kPa and 0 to -101 kPa are available.



Digital fiber sensor
FX-500 SERIES

More than 100 types of fiber heads, including a heat-resistant type, chemical-resistant type and lens-equipped type, are available.



Digital laser sensor
LS-500 SERIES

Four types of sensor heads, such as a thru-beam type, coaxial reflective type and coaxial retroreflective type, are available.



Micro laser distance sensor*

HG-C SERIES

The CMOS laser sensors offer repeatability of 10 μm 0.394 mil to ensure stable detection.



Transmission of ON/OFF data of proximity sensors and micro photoelectric sensors to the network

The ON/OFF data of sensors can be centrally managed on the network. Should an abnormality occur, the problem cause can be easily identified and located.

Compact inductive proximity sensor (amplifier-separated)

GA-311/GH SERIES

Five types of IP67G sensor head models are available, including an ultra-compact unit with a diameter of 2.8 mm 0.110 in and a sputter-resistant unit.



Rectangular-shaped inductive proximity sensor (amplifier built-in)*

GX-F/H SERIES

These inductive proximity sensors have a large stable detection range to provide an ample detection distance.

The integrally molded construction realizes IP68G protection.



Micro photoelectric sensor*

PM SERIES

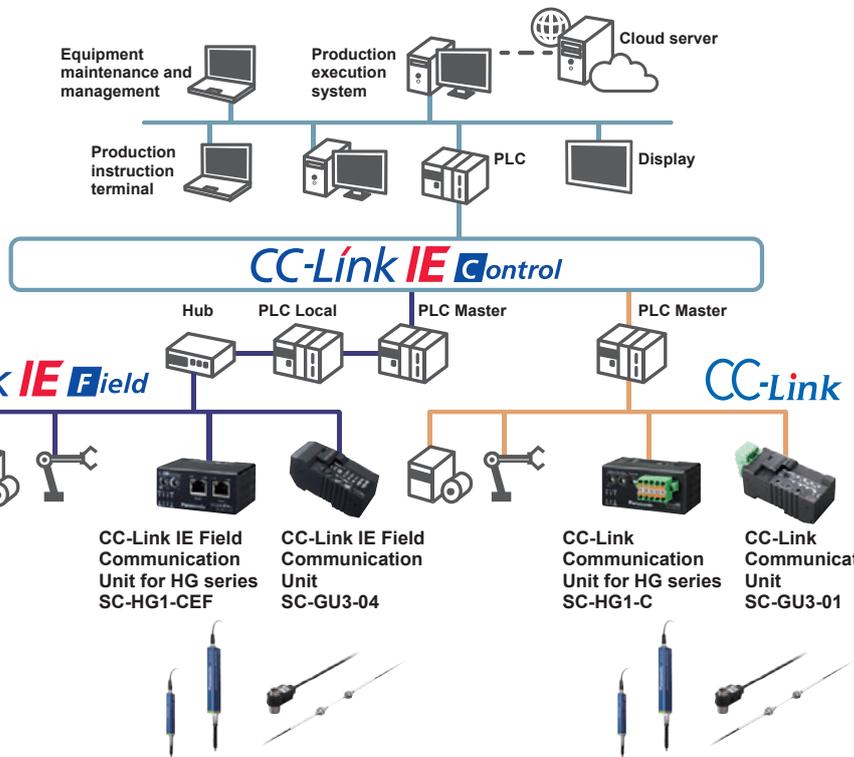
These compact units feature three protective circuits. A large, easy-to-see multi-angle indicator is provided.



* SC-A01 analog voltage input unit or SC-A02 analog current input unit is also required.

* SC-E1 e-CON 1-channel connector input extension unit or SC-E81 / SC-E82 e-CON 8-channel connector input extension unit is also required.

Communication unit for direct connection of sensors to the network!



Use of the communication unit enables the connection of various Panasonic Industry sensors to a CC-Link network for the real-time acquisition of digital data and ON/OFF data. This allows you to change sensor settings via the network and also log data for predictive maintenance purposes.

Connection of displacement sensors to the network

Each SC-HG1 series unit can be connected with up to 15 displacement sensors.

CC-Link IE Field Communication Unit
SC-HG1-CEF

CC-Link IE Field

Communication speed: 1 Gbps

Connectable digital displacement sensors:
HG-S series, HG-T series



CC-Link Communication Unit
SC-HG1-C

CC-Link

Communication speed: 10 Mbps (max.)

Connectable digital displacement sensors:
HG-S series, HG-T series

IQSS compatible



Transmission of digital (numerical) data from digital displacement sensors to the network

The SC-HG1 series achieves programless transmission of high-precision data. Internal settings of multiple units can also be changed in a batch via the network.



Contact-type digital displacement sensor

HG-S SERIES

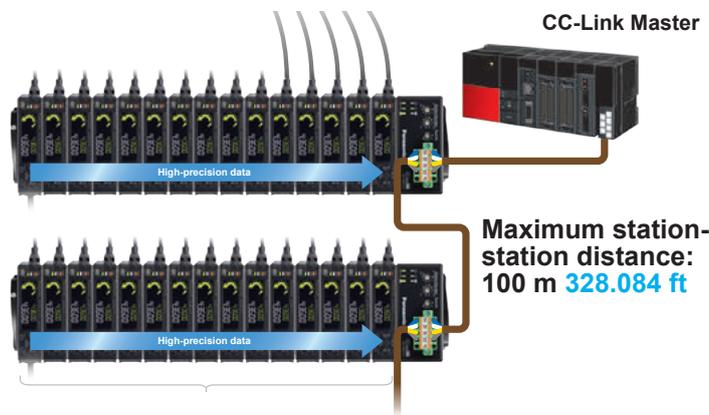
The robust and slim unit body contributes to long service life. The series uses the optical absolute system to eliminate the problems of "value skipping" and "missing zero point."



Thru-beam type digital displacement sensor

HG-T SERIES

The industry's highest-class* measurement accuracy is now yours. * As a thru-beam type sensor. As of September 2023, in-company survey.



Connection of 1 master unit and up to 14 slave units

Compatible with self-monitoring function that is ideal for production lines

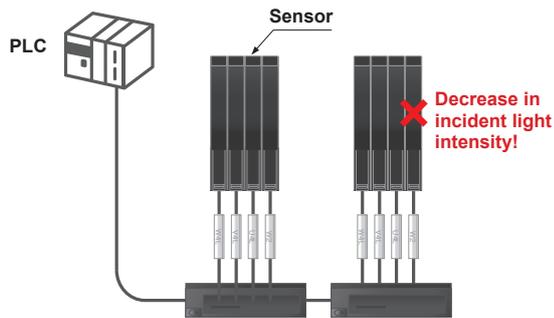
The HG-S / HG-T series with a self-monitoring function diagnoses its own state and notifies when readjustment of settings / setup is required or when maintenance is needed.

For more details, please refer to the catalogs of the HG-S / HG-T series.

Batch saving of sensor settings at equipment startup!

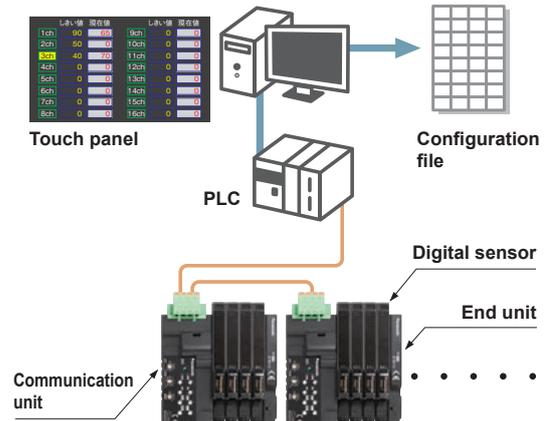
Without communication unit

When multiple sensor units are used, if one of the sensors generates a malfunction, it is necessary to check the settings of the individual sensors. This requires many man-hours.



With communication unit

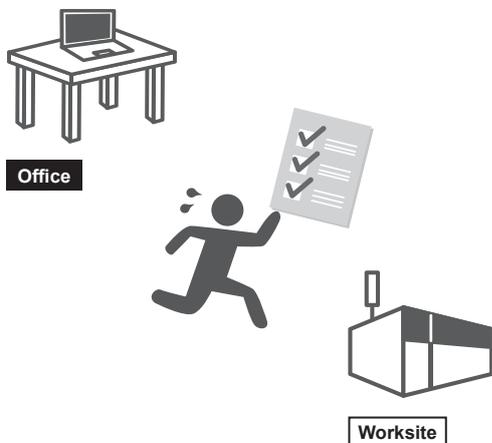
When a sensor malfunction occurs, a list of all sensor statuses is displayed, so the problem can be easily identified. By obtaining the data of the individual sensors and saving it in a settings file, system restoration work becomes easier and input / setting errors can be prevented.



Remote equipment monitoring / operation

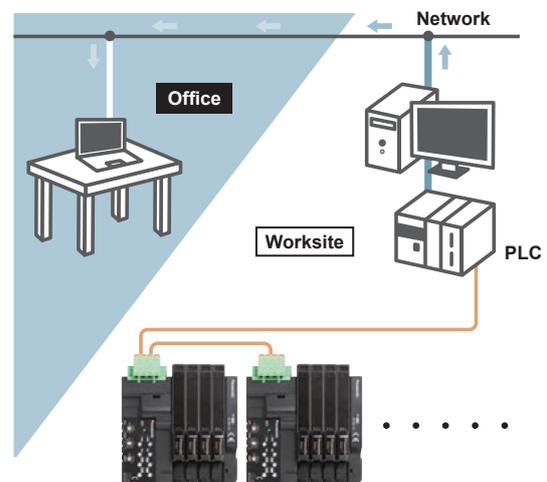
Without communication unit

When a problem occurs, it is necessary to go back and forth between the office and worksite for the confirmation of the settings and other data.



With communication unit

The communication unit connected to the existing network enables the conformation of the settings of the sensors installed in the production equipment without leaving the office. The communication unit enables quick acquisition of status information.

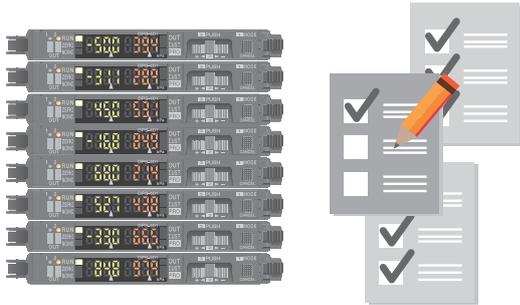


Confirmation from a distant location!

Logging of the current values of digital sensors for use in predictive maintenance!

Without communication unit

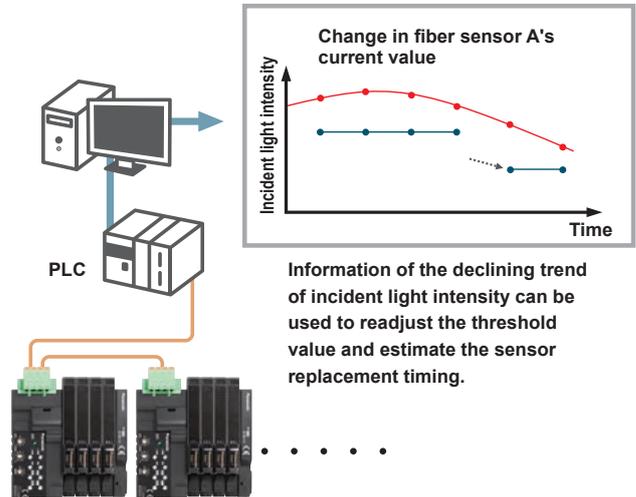
It is difficult to grasp long-term sensor fluctuations only by pre-operation inspection. Manual recording of data also takes time and is cumbersome.



Handwritten daily inspection records

With communication unit

A graph plotted using obtained numerical data allows easy confirmation of the long-term fluctuation trend, thus enabling the prediction of sensor fluctuations to facilitate preventive maintenance.



Communication unit contributes to the reduction of wiring and installation work!

Without communication unit

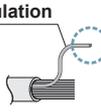
Construction procedures

- (1) Affix mark tubes
- (2) Wiring

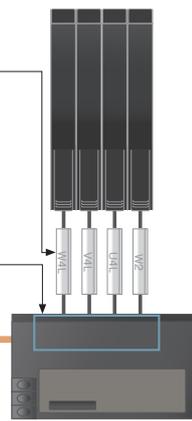
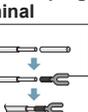
Construction procedures

- (1) Remove cable insulation
- (2) Crimp on terminal
- (3) Clamp screw onto terminal block
- (4) In the case of connector terminal block, process the connector for every sensor

Remove insulation



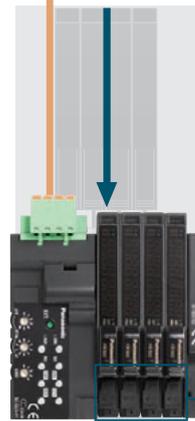
Affix crimping terminal



With communication unit

Cascade connection by connector

- ⊙ No need for cable processing
- ⊙ No need to clamp screw onto terminal block
- ⊙ No need for mark tubes
- ⊙ Easy removal without any tools
- ⊙ Reduction in installation space
- ⊙ No wasted material when replacing sensors



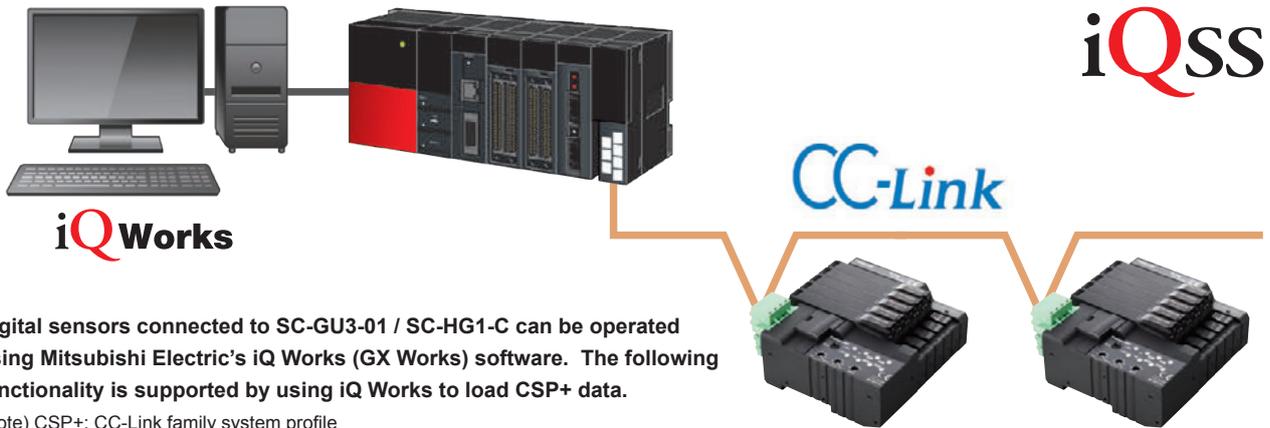
Easy replacement of a sensor without separating the adjacent sensor amplifier

*SC-GU3 series

Sensors are detachable simply by pushing down the lever of cascading connector unit and sliding the sensor amplifier sideways.



The SC-GU3-01 and SC-HG1-C Communication Units for CC-Link are compatible with Mitsubishi Electric's iQ Sensor Solution (iQSS) and can be used in combination with products that support iQSS, for example Mitsubishi Electric's MELSEC series.



Digital sensors connected to SC-GU3-01 / SC-HG1-C can be operated using Mitsubishi Electric's iQ Works (GX Works) software. The following functionality is supported by using iQ Works to load CSP+ data.

(Note) CSP+: CC-Link family system profile

- 1 CC-Link configuration information can be used to easily check the configuration of devices (sensor types: fiber, pressure, cascading configuration, number of units) connected to SC-GU3-01 / SC-HG1-C.
- 2 A list of sensor-specific parameter data (write / read) can be acquired and changed.
- 3 Allocation of the devices connected to SC-GU3-01 / SC-HG1-C can be displayed by loading CSP+ data.
 - * The confirmation process of the specifications and user manual for SC-GU3-01 / SC-HG1-C can be significantly reduced.

* You can perform functions such as "easy startup," "sensor monitoring," "parameter read/write," "backup/restore," and more. Requires Mitsubishi Electric's GX Works 2 sequencer engineering software Ver. 1.492 or later.

Sensors can be added simply by dragging and dropping their icons

Settings for each device can be read and written

Model information is displayed using sensor icons

Device Reference(CC-Link) - Master Station Start I/O No.: 0010 Station No.: 0

Remote Input(RI)				Remote Output(RO)				Remote Register(RW)				Remote Register(Rw)			
Refresh Device	STA#	Link Device	Explanation	Refresh Device	STA#	Link Device	Explanation	Refresh Device	STA#	Link Device	Explanation	Refresh Device	STA#	Link Device	Explanation
X0000	R00	DPS-401 sensor_output		Y0000	RV0	Free_unit_setting_SP0		D0000	RW0	Unit1_Data		D0200	RW0		
X0001	R01	DPS-402 sensor_output		Y0001	RV1	Free_unit_setting_SP1		D0001	RW1	Unit2_Data		D0201	RW1		
X0002	R02	DPS-401 sensor_output		Y0002	RV2	Free_unit_setting_SP2		D0002	RW2	Unit3_Data		D0202	RW2		
X0003	R03	DPS-401 sensor_output		Y0003	RV3	Free_unit_setting_SP3		D0003	RW3	Unit4_Data		D0203	RW3		
X0004	R04	DPS-401 sensor_output		Y0004	RV4	Free_unit_setting_SP4		D0004	RW4	Unit5_Data		D0204	RW4		
X0005	R05	DPS-401 sensor_output		Y0005	RV5	Free_unit_setting_SP5		D0005	RW5	Unit6_Data		D0205	RW5		
X0006	R06	DPS-401 sensor_output		Y0006	RV6	Free_unit_setting_SP6		D0006	RW6	Unit7_Data		D0206	RW6		
X0007	R07	DPS-401 sensor_output		Y0007	RV7	Free_unit_setting_SP7		D0007	RW7	Unit8_Data		D0207	RW7		
X0008	R08	Unit8_output_S08		Y0008	RV8	Free_unit_setting_SP8		D0008	RW8	Unit9_Data		D0208	RW8		
X0009	R09	Unit9_output_S09		Y0009	RV9	Free_unit_setting_SP9		D0009	RW9	Unit10_Data		D0209	RW9		
X000A	R00A	Unit10_output_S10		Y000A	RVA	Free_unit_setting_SP10		D0010	RWA	Unit11_Data		D0210	RWA		
X000B	R00B	Unit12_output_S12		Y000B	RVB	Free_unit_setting_SP12		D0011	RWB	Unit12_Data		D0211	RWB		
X000C	R00C	Unit13_output_S13		Y000C	RVC	Free_unit_setting_SP13		D0012	RWC	Unit13_Data		D0212	RWC		
X000D	R00D	Unit14_output_S14		Y000D	RVD	Free_unit_setting_SP14		D0013	RWD	Unit14_Data		D0213	RWD		
X000E	R00E	Unit15_output_S15		Y000E	RVE	Free_unit_setting_SP15		D0014	RWE	Unit15_Data		D0214	RWE		
X000F	R00F	Unit16_output_S16		Y000F	RVF	Free_unit_setting_SP16		D0015	RWF	Unit16_Data		D0215	RWF		
X0010	R000	Send_completion		Y0010	RV10	Send_req									
X0011	R001			Y0011	RV11	All_req_req									
X0012	R002	Freezealarm_req_and_req		Y0012	RV12	Freezealarm_req_and_req									
X0013	R003	SV_InvldReq_and_req		Y0013	RV13	SV_InvldReq_and_req									
X0014	R004	MEMORY_Ok_and_req		Y0014	RV14	MEMORY_Ok_and_req									
X0015	R005	MEMORY_Ok_and_req		Y0015	RV15	MEMORY_Ok_and_req									
X0016	R006	Change_end		Y0016	RV16	Change_req									
X0017	R007	Change_flg		Y0017	RV17										
X0018	R008			Y0018	RV18										
X0019	R009			Y0019	RV19										
X001A	R00A			Y001A	RV1A										
X001B	R00B			Y001B	RV1B										
X001C	R00C			Y001C	RV1C										
X001D	R00D			Y001D	RV1D										
X001E	R00E	ETPFCR_state		Y001E	RV1E										
X001F	R00F	No_EM		Y001F	RV1F										
X0020	R020	Command_response		Y0020	RV20	Send_command									
X0021	R021			Y0021	RV21	Send_command									
X0022	R022			Y0022	RV22	Send_command									
X0023	R023			Y0023	RV23	Send_command									

RX, RY, Rwr, and Rww device allocations can be displayed in GX Works 2



By using the SC-PC1 PC software setting, communication commands can be transmitted via the MELSEC series for the ladderless manipulation of information (including sensor data) for the SC-GU3-04 / SC-GU3-01 units connected to CC-Link.

SC-PC1 + **EZSocket**



* iQ Works, CC-Link, CC-Link IE Field, iQ Sensor Solution and EZSocket are registered trademarks of Mitsubishi Electric Corporation.

List of connected devices

Station Number	Station count	Device Code	Manufacturer	Remote Input (Ri)	Remote Output (Rv)
1	1	SC-GU3 / GU3	Panasonic Industri...	0000 0000	0000 0000
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					

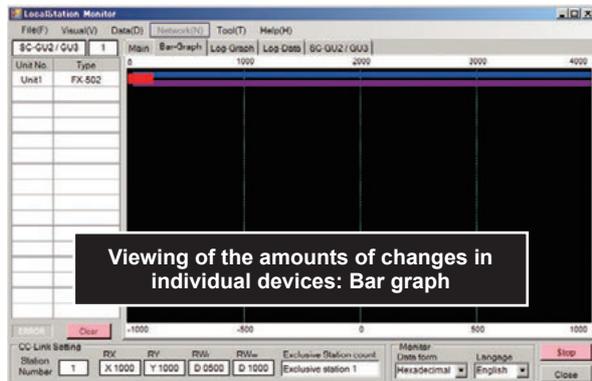
Acquisition of a list of slave units (The numbers of stations used by other manufacturers' products are also displayed.)

List of information about connected sensors

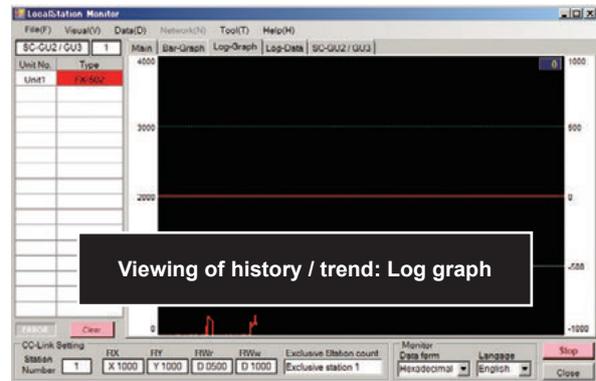
Unit No.	Type	Comment	Threshold1	Threshold2	Detect value	Output-1	Output-2	Information
Unit1	FX-502		000E	001E	0000	OFF	OFF	

Viewing of the basic data of sensors connected to SC-GU3-04 / SC-GU3-01, and change of settings

Graph display



Viewing of the amounts of changes in individual devices: Bar graph



Viewing of history / trend: Log graph

Sensor settings backup

The SC-PC1 software can load sensor settings information. * The loaded data can be saved in the CSV format. Furthermore, cross-checking with the settings data of sensors connected to the SC-PC1 is possible. This function is useful when you want to store the sensor settings data before sending out the devices or when you want to check the sensor settings in the event a problem occurs.

Item	Unit1
Device Address	X1000
Sensor type	FX-502
Out1 Threshold...	40
Out2 Threshold...	40
Out1 Output op...	0
Out2 Output op...	0
Key lock	0
Pressure hyst...	3
Response time	3
Hysteresis	1
Stability	
Smoothing power	2
Smoothing level	100
Backlit	0
Interference pt...	0
Adjust lock	0
Custom mode	0
Differential span	3
Manual gain s...	
Emission	1
Cycle	0
Base	0
Record	0
Start	
Alphabet	0
Display shif...	

Check

Save



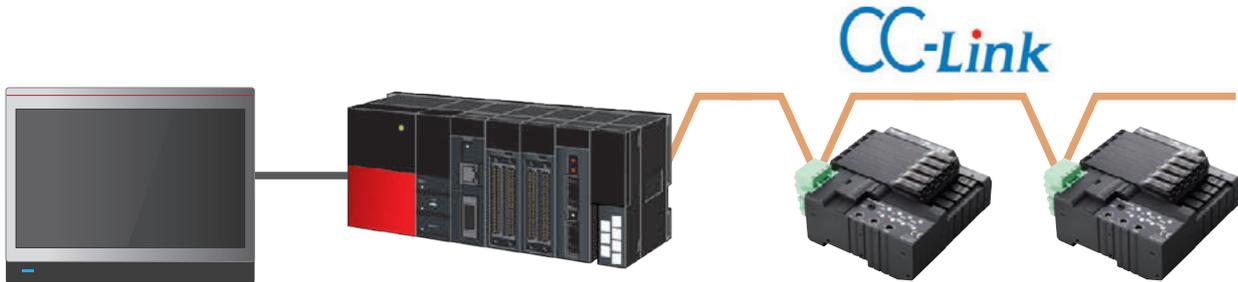
Item	Unit1
Device Address	X1000
Sensor type	FX-502
Out1 Threshold...	40
Out2 Threshold...	40
Out1 Output op...	7
Out2 Output op...	7
Key lock	0
Pressure hyst...	3
Response time	3
Hysteresis	1
Stability	
Smoothing power	2
Smoothing level	100
Backlit	0
Interference pt...	0
Adjust lock	0
Custom mode	0
Differential span	3
Manual gain s...	
Emission	1
Cycle	0
Base	0
Record	0
Start	
Alphabet	0
Display shif...	

Different settings are indicated by the change of color.

Sample program for the display of data for when using PLC and display device*

The sample program enables the monitoring of digital sensors, such as incident light intensity and pressure, as well as the writing of data for the change of sensor settings.

The sample program (display screen, ladder) includes a process for the confirmation of threshold values / displayed values and the basic settings for sensor amplifiers. It facilitates the development of original programs. The display language of the sample program can be switched to Japanese or English.



Sample program for the SC-GU3-4 /SC-GU3-01

Setting screen

Sample program for a digital fiber sensor

Setting screen



- Change threshold values and output operating settings.
- Change timer types and times.
- Setting of response time, light emitting amount level, hysteresis, etc.

Initial screen



- The colors of channels change according to the sensor outputs.
- A list of threshold values is displayed.
- Current values are displayed.

Graph display



- The change in current value is plotted, so the amount of change can be checked on the timeline.
- Data can be written to a CF card.

Sample program for a digital pressure sensor



- Change threshold values.
- Configure sensing operation and NO / NC settings.
- Setting of response time, hysteresis, etc.

Sample program for a digital laser sensor



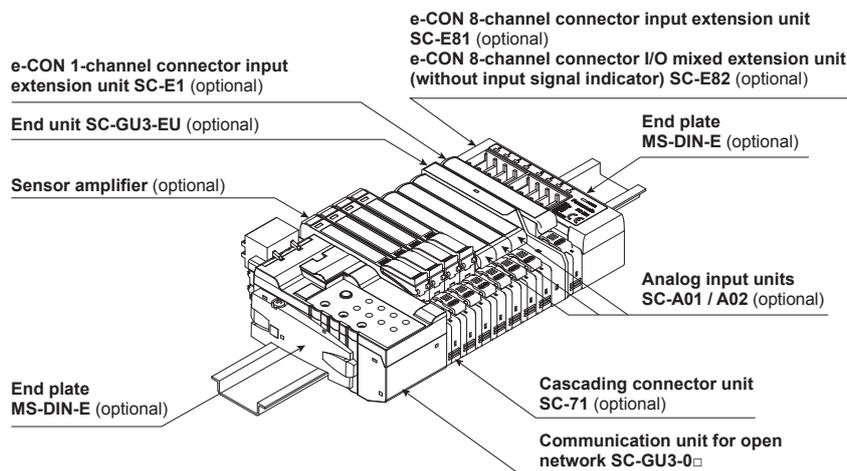
- Change threshold values and output operating settings.
- Change timer types and times.
- Setting of response time, receiving light sensitivity, hysteresis, etc.

*: The screen image is of the GOT1000 series manufactured by Mitsubishi Electric Corporation.

Display	PLC	Free downloads
GOT1000 series (Mitsubishi Electric Corporation)	Mitsubishi Electric Corporation MELSEC-Q series MELSEC-L series	Available for download from the Mitsubishi Electric and Panasonic Industry websites
GOT2000 series (Mitsubishi Electric Corporation)	Mitsubishi Electric Corporation MELSEC iQ-R series	Available for download from the Panasonic Industry website

SC-GU3-0 □ Example of System Configuration

SC-GU3-0 □



* When optical communication is used in a system connected with product models not compatible with optical communication, connect the incompatible units after the SC-GU3-EU.
 A maximum of 12 units can be connected if the system is connected with a FX-500 / LS-500 series unit.
 A maximum of 16 sensor amplifiers can be connected.

Designation	Appearance	Model No.	Description
Communication unit for CC-Link IE Field		SC-GU3-04	This is a communication unit, which can convert the output signal of a sensor amplifier (NPN output type) into communication data for CC-Link IE Field.
Communication unit for CC-Link		SC-GU3-01	This is a communication unit, which can convert the output signal of a sensor amplifier (NPN output type) into communication data for CC-Link.
End unit		SC-GU3-EU	This end unit can change and check the settings of sensor amplifiers (NPN output type) 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-500/550/410/300/311 fiber sensor, the LS-500/400 laser sensor, the DPS-400 digital pressure sensor, SC-E1, SC-A01 and SC-A02, etc.
e-CON 1-channel connector input extension unit		SC-E1	This extension unit can be connected to commercially available devices (Note) including an NPN output type or DC 2-wire type sensor. Includes power and input signal indicators (for one channel). When using in combination with the SC-GU3 series, use with the SC-71.
e-CON 8-channel connector input extension unit		SC-E81	This extension unit can be connected to eight NPN output type devices. Includes power and input signal indicators (for eight channels).
e-CON 8-channel connector input extension unit		SC-E82	This extension unit can be connected to eight NPN output type devices. Includes a power indicator. (Does not include an input signal indicator)
Analog voltage input unit		SC-A01	This extension unit can be connected to NPN output type devices or analog voltage output type devices. When using in combination with the SC-GU3 series, use with the SC-71.
Analog current input unit		SC-A02	This extension unit can be connected to NPN output type devices or analog voltage output type devices. When using in combination with the SC-GU3 series, use with the SC-71.
End plate		MS-DIN-E	After SC-GU3-0 □, a sensor amplifier, an analog input unit or an end unit are connected on a DIN rail, make sure to install the end plates in such a way that they hold the unit in place at both ends. Two pcs. per set
Computer software for CC-Link IE Field / CC-Link		SC-PC1	Through a Mitsubishi Electric Corporation PLC (MELSEC series) on a PC, it is possible to monitor sensor current values, extract setting contents in CSV format, display log data, and extract log data in CSV format. • Compatible communication units: SC-GU3-04, SC-GU3-01, SC-HG1-CEF, SC-HG1-C • Compatible OS: Microsoft Windows® 7 (32 bit) Japanese version • Required HDD capacity: 50 MB or more Order end date: September 30, 2024
Cable with connector on one end		CN-M20-C2	This cable has a connector for linking to the parallel output signal.

Notes: 1) Conditions of connectable DC 2-wire type input device
 • Leak current: 1 mA or less (when the power is OFF), Offset voltage: 3 V or less (when the power is ON)
 • Product whose load current range includes 5 to 8 mA
 2) Microsoft and Windows are registered trademarks or trademarks of Microsoft Corporation in the United States.

SPECIFICATIONS

Designation		Communication unit for CC-Link IE Field
Item	Model No.	SC-GU3-04
Applicable regulations and certifications		CE Marking [EMC Directive (Note 1), RoHS Directive], UKCA Marking [EMC Regulations (Note 1), RoHS Regulations]
Compatible sensor units		Sensor amplifiers (NPN output type) that can connect to the SC-71 cascading connector unit (optional)
Number of units connectable		Maximum of 16 units can be connected to one SC-GU3-04 unit (Max. 12 units when FX-500 / LS-500 series is connected)
Supply voltage		24 V DC ⁺¹⁰ / ₋₁₅ % Ripple P-P 10 % or less
Current consumption		200 mA or less (excluding connected sensor amplifiers)
Allowable passing current		2 A or less (Note 2)
Communication method		CC-Link IE Field
Remote station type		Remote device station
Network No. setting		1 to 239 (decimal) [1 to EF (hex)] (0 and 240 or higher result in an error) (Note 3)
Station No. setting		1 to 120 (decimal) (0 and 121 or higher result in an error)
Communication speed		1 Gbps
Maximum overall cable distance		100 m 328.084 ft
Ambient temperature		-10 to +50 °C +14 to +122 °F (8 to 16 units connected: -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
Communication cable		Ethernet cable that satisfies 1000BASE-T standard Category 5e or higher (Double-shielded / STP, straight cable) (Note 4)
Material		Enclosure: Polycarbonate
Weight		Net weight: 100 g approx., Gross weight: 150 g

- Notes: 1) Ground the shield wire of the Ethernet cable at a higher-level device in order to comply with the EMC Directive on CE Marking and the EMC Regulations on UKCA Marking. This product is not provided with a grounding terminal. For details, refer to the CC-Link IE Field Network Cable Installation Manual published by the CC-Link Partner Association.
- 2) Take care that the total consumption current of connected sensor amplifiers and other devices does not exceed the allowable passing current.
- 3) For the network number setting on this product, convert the network number to hex and set the hex value.
- 4) Use CC-Link Partner Association recommended cable.

Designation		Communication unit for CC-Link				
Item	Model No.	SC-GU3-01				
Applicable regulations and certifications		CE Marking (EMC Directive, RoHS Directive), UKCA Marking (EMC Regulations, RoHS Regulations)				
Compatible sensor units		Sensor amplifiers (NPN output type) that can connect to the SC-71 cascading connector unit (optional)				
Number of units connectable		Maximum of 16 units can be connected to one SC-GU3-01 unit (Max. 12 units when FX-500 / LS-500 series is connected)				
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				
Communication speed		10 Mbps	5 Mbps	2.5 Mbps	625 kbps	156 kbps
Total extension length		100 m 328.084 ft	150 m 492.126 ft	200 m 656.168 ft	600 m 1,968.504 ft	1,200 m 3,937.008 ft
Communication cable		Specified cable (twist pair cable with shield) (Note 3)				
Station No. setting		1 to 64 (0 and 65 or higher result in an error)				
Remote station type		Remote device station				
Ambient temperature		-10 to +55 °C +14 to +131 °F (No dew condensation or icing allowed), 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 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				

- Notes: 1) Take care that the total consumption current of connected sensor amplifiers and other devices does not exceed the 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 only a special-use communication cable that is approved by the CC-Link Partner Association.

Models that can be connected to the SC-GU3-0□

(Use in combination with **SC-71**, with the exception of certain models)

Sensors capable of communicating internal digital values (Models that support optical communications)

<p>■ Digital fiber sensors (NPN output type)</p>  <p>FX-501 FX-502</p>	<p>■ Digital laser sensors (NPN output type)</p>  <p>LS-501 LS-403</p>	<p>■ Digital pressure sensors (NPN output type)</p>  <p>DPS-401 DPS-402</p>	<p>■ Analog input units</p>  <p>SC-A01 SC-A02</p>
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Sensors capable of communicating output information (ON/OFF) only (No optical communications)

(Use in combination with **SC-71**, with the exception of certain models)

Digital fiber sensors	FX-551,FX-301(B/G/H)
Digital fiber sensors for manual setting	FX-411,FX-412,FX-311(B/G)
Digital fiber sensors for leak / liquid fiber	FX-301-F,FX-301-F7
Digital laser sensors	LS-401
Compact inductive proximity sensors	GA-311
1-channel connector input extension unit	SC-E1,SC-T1J
8-channel connector input extension unit	SC-E81
8-channel connector input extension unit (without an input signal indicator)	SC-E82

■ Cascading connector unit



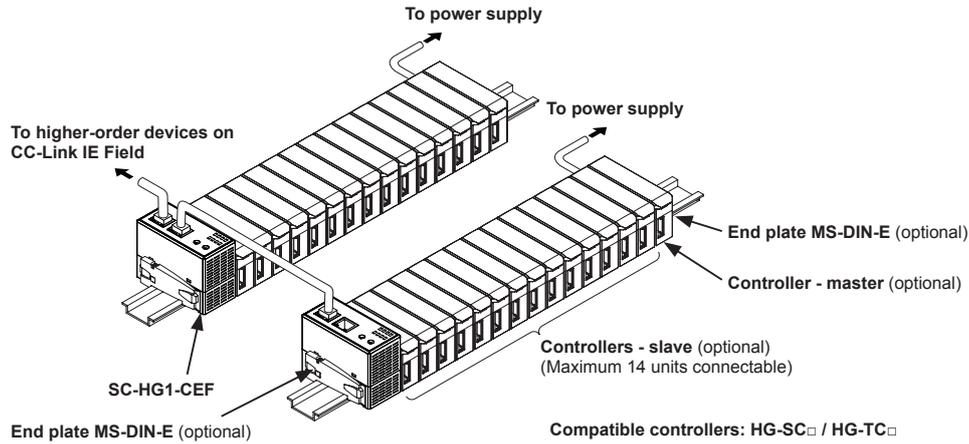
SC-71

Except for some models, please use in combination with the connecting connector unit **SC-71**.

<p>■ e-CON 1-channel connector input extension unit</p>  <p>SC-E1</p>	<p>■ e-CON 8-channel connector input extension unit</p>  <p>SC-E81</p>	<p>■ e-CON 8-channel connector input extension unit (without an input signal indicator)</p>  <p>SC-E82</p>	 <p>+</p>
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SC-HG1-□ Example of System Configuration

SC-HG1-□



Designation	Appearance	Model No.	Description
CC-Link IE Field communication unit for digital displacement sensor		SC-HG1-CEF	This communication unit converts the output data from digital displacement sensors to data that can be communicated via CC-Link IE Field.
CC-Link communication unit for digital displacement sensor		SC-HG1-C	This communication unit converts the output data from digital displacement sensors to data that can be communicated via CC-Link.
End plate		MS-DIN-E	After a communication unit and controllers are connected on a DIN rail, make sure to install the end plates in such a way that they hold the unit in place at both ends. Two pcs. per set
Computer software for CC-Link IE Field / CC-Link		SC-PC1	Through a Mitsubishi Electric Corporation PLC (MELSEC series) on a PC, it is possible to monitor sensor current values, extract setting contents in CSV format, display log data, and extract log data in CSV format. • Compatible communication units (Note 1): SC-HG1-CEF, SC-HG1-C • Compatible OS: Microsoft Windows® 7 (32 bit) Japanese version • Required HDD capacity: 50 MB or more Order end date: September 30, 2024

Notes: 1) When the thru-beam type digital displacement sensor **HG-T** series is connected, it cannot be used.
2) Microsoft and Windows are registered trademarks or trademarks of Microsoft Corporation in the United States.

SPECIFICATIONS

Designation		CC-Link IE Field Communication Unit
Item	Model No.	SC-HG1-CEF
Applicable regulations and certifications		CE Marking (EMC Directive, RoHS Directive), UKCA Marking (EMC Regulations, RoHS Regulations)
Compatible controller		HG-SC□ / HG-TC□
Number of units connectable		Maximum of 15 units (one master, 14 slaves) per SC-HG1-CEF unit
Supply voltage (Note 2)		24V DC ±10%, including 0.5V ripple (P-P) (Note 1)
Current consumption		200 mA or less
Communication method		CC-Link IE Field
Remote station type		Remote device station
Network No. setting		1 to 239 (decimal) [1 to EF (hex)] (0 and 240 or higher result in an error) (Note 3)
Station No. setting		1 to 120 (decimal) (0 and 121 or higher result in an error)
Communication speed		1 Gbps
Transmission line types		Line, star (mixing of line and star types is possible), ring
Maximum overall cable distance		100 m 328.084 ft
Ambient temperature		-10 to +45 °C +14 to +113 °F (No dew condensation or icing allowed) Storage: -20 to +60 °C -4 to +140 °F
Ambient humidity		35 to 85 % RH, Storage: 35 to 85 % RH
Material		Enclosure: Polycarbonate
Communication cable		Ethernet cable that satisfies 1000BASE-T standard Category 5e or higher (Double-shielded / STP, straight cable) (Note 4)
Weight		Net weight: 100 g approx., Gross weight: 150 g

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were ambient temperature +20 °C **+68 °F**.
2) Power is supplied from a connected controller / master controller.
3) For the network number setting on this product, convert the network number to hex and set the hex value.
4) Use CC-Link Partner Association recommended cable.

Designation		CC-Link Communication Unit				
Item	Model No.	SC-HG1-C				
Applicable regulations and certifications		CE Marking [EMC Directive (Note 2), RoHS Directive], UKCA Marking [EMC Regulations (Note 2), RoHS Regulations]				
Compatible controller		HG-SC□ / HG-TC□				
Number of units connectable		Maximum of 15 units (one master, 14 slaves) per SC-HG1-C unit				
Supply voltage (Note 3)		24V DC ±10%, including 0.5V ripple (P-P) (Note 1)				
Current consumption		80 mA or less				
Communication method		Switchable CC-Link Ver.1.10 or 2.00				
Remote station type		Remote device station				
Number of occupied station		CC-Link Ver.1.10: 4 stations, CC-Link Ver.2.00: Switchable 2 or 4 stations				
Station No. setting		1 to 64 (0 and 65 or higher result in an error)				
Communication speed		10 Mbps	5 Mbps	2.5 Mbps	625 kbps	156 kbps
Total extension length		100 m 328.084 ft	160 m 524.934 ft	400 m 1,312.336 ft	900 m 2,952.756 ft	1,200 m 3,937.008 ft
Ambient temperature		-10 to +45 °C +14 to +113 °F (No dew condensation or icing allowed) Storage: -20 to +60 °C -4 to +140 °F				
Ambient humidity		35 to 85 % RH, Storage: 35 to 85 % RH				
Material		Enclosure: Polycarbonate				
Communication cable		Specified cable (twist pair cable with shield) (Note 4)				
Weight		Net weight: 80 g approx., Gross weight: 130 g				

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were ambient temperature +20 °C **+68 °F**.
2) If our product will be incorporated in a customer product that will comply with the EMC Directive on CE Marking and the EMC Regulations on UKCA Marking, install our product in a conductive box in accordance with "PLC User's Manual [Published by Mitsubishi Electric Corporation]".
3) Power is supplied from a connected controller / master controller.
4) Use only a special-use communication cable that is approved by the CC-Link Partner Association.

Other open-network communication units

Compatible with various sensors



DeviceNet

Communication unit for DeviceNet
SC-GU3-02

Order end date: September 30, 2024



EtherCAT

Communication unit for EtherCAT
SC-GU3-03

Compatible with displacement sensors



RS-485 Communication Unit
SC-HG1-485

* Connectable digital displacement sensors:
HG-S series, HG-T series



EtherCAT

EtherCAT Communication Unit
SC-HG1-ETC

* Connectable digital displacement sensors:
HG-S series, HG-T series

Disclaimer

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