User's Manual

**Model GX70SM
Wireless Input Unit
First Step Guide
(Notes about Using This Product)**

SMARTDAC+™

IM 04L57B01-02EN

Introduction

Thank you for purchasing the SMARTDAC+ GX70SM Wireless Input Unit. This manual explains the precaution on the use, installation, and wiring of the GX70SM.

For details on the wireless settings, input settings, and maintenance of the GX70SM, see the Wireless Input Unit User's Manual (IM 04L57B01-01EN) (Electronic Manual).

This manual denotes devices with their product names or model (e.g. GX70SM).
To ensure correct use, please read this manual and the following manuals thoroughly before beginning operation.

Paper Manuals

Manual Title	Manual No.
Model GX70SM Wireless Input Unit First Step Guide (Notes about Using This Product)	IM 04L57B01-02EN (this manual)

Electronic Manuals and General Specifications

Manual Title	Manual No.
Model GX70SM Wireless Input Unit Users Manual	IM 04L57B01-01EN

Genaral Specifications

Title	General Specifications No.
Model GX70SM Wireless Input Unit (For the US)	GS 04L57B01-01EN
Model GX70SM Wireless Input Unit (For the Republic of Korea)	GS 04L57B01-43EN

You can download these documents from the following web page:
http://www.smartdacplus.com/manual/en/

Application software

To configure the wireless input unit, generate logging data files, perform maintenance, and automatic combine of GX/GP/GM recording data file (event data) and wirelessly retrieved data file, you need a software application exclusive to the wireless input unit, "**Wireless Input Unit Tool**".
Download it from the following website.
http://www.smartdacplus.com/software/en/

User Registration Request

Thank you for purchasing YOKOGAWA products.
Please register to the following Customer Portal Member Site.
You can use various services such as confirmation of purchased product information, download of related materials, and newsletter.

https://myportal.yokogawa.com/

Notes

- The contents of this manual are subject to change without prior notice as a result of continuing improvements to the instrument's performance and functions.
- Every effort has been made in the preparation of this manual to ensure the accuracy of its contents. However, should you have any questions or find any errors, please contact your nearest YOKOGAWA dealer.
- Copying or reproducing all or any part of the contents of this manual without YOKOGAWA's permission is strictly prohibited.
- This manual explains the functions of the product. It does not guarantee that the product will suit a particular purpose of the user.
- This manual is part of this product. Keep this manual on safe place for future reference.

Revisions

June 2018	1st Edition	September 2018	2nd Edition
March 2019	3rd Edition	November 2019	4th Edition
July 2020	5th Edition	March 2021	6th Edition
January 2023	7th Edition		

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Patent Marking

Covered by one or more claims of patents: http://sipcollc.com/patent-list/ and http://intusiq.com/patent-list/.

QR code

The product has a QR Code pasted for efficient plant maintenance work and asset information management.
It enables confirming the specifications of purchased products and user's manuals.
For more details, please refer to the following URL.
https://www.yokogawa.com/qr-code

QR Code is a registered trademark of DENSO WAVE INCORPORATED.

Safety Precautions

- This instrument conforms to IEC/CSA/UL 61010, Overvoltage Category I, Pollution Degree 2, Measurement Category O (other)(Excluding area suffix code: K). Measurement Category O products are for measuring circuits that are not directly connected to the main power supply. Please do not use this instrument to measure locations corresponding to Measurement Category II, III, or IV.

  Standards Compliance
  • US: FCC Part15 Subpart C compliant (15.247)
  • Korea: KC Mark KS X 3124/3125, KS C9811,KS C9610-6-2
  • Wireless communication standard: IEEE 802.15.4g
  • CSA C22.2 No. 61010-1, CSA-C22.2 No. 61010-2-030 Overvoltage Category I [1], Pollution Degree 2 [2], Measurement Category O [3]
  • UL 61010-1, UL Std. No. 61010-2-030 (CSA NRTL/C) Overvoltage Category I [1], Pollution Degree 2 [2], Measurement Category O [3]

  1 Overvoltage Category
  Describes a number which defines a transient overvoltage condition. It implies the regulation for impulse withstand voltage.
  Applies to electrical equipment which is supplied from fixed installations like distribution boards.
  2 Pollution Degree
  Describes the degree to which a solid, liquid, or gas which deteriorates dielectric strength or surface resistivity is adhering.
  "2" applies to normal indoor atmosphere.
  Normally, only non-conductive pollution occurs.
  3 Measurement Category O (other)
  This category applies to electric equipment that measures a circuit connected to a low-voltage facility and receives power from stationary equipment such as electric switchboards.

- The general safety precautions described here must be observed during all phases of operation. If the GX70SM is used in a manner not described in this manual, the GX70SM safety features may be impaired. Yokogawa Electric Corporation assumes no liability for the customer's failure to comply with these requirements.
- The GX70SM is designed for indoor use.

Precautions Related to the Protection, Safety, and Alteration of the Product

- Improper handling or use can lead to injury to the user or damage to the instrument. This symbol appears on the instrument to indicate that the user must refer to the user's manual for special instructions. The same symbol appears in the corresponding place in the user's manual to identify those instructions. In the manual, the symbol is used in conjunction with the word "WARNING" or "CAUTION."

⚠ "Handle with care." To avoid injury and damage to the instrument, the operator must refer to the explanation in the manual.

⏚ Functional ground terminal (do not use this terminal as a protective ground terminal.)

⎓ Direct current

- For the protection and safe use of the product and the system in which this product is incorporated, be sure to follow the instructions and precautions on safety that are stated in this manual whenever you handle the product. Take special note that if you handle the product in a manner that violates these instructions, the protection functionality of the product may be damaged or impaired. In such cases, Yokogawa does not guarantee the quality, performance, function, and safety of product.
- When installing protection and/or safety circuits such as lightning protection devices and equipment for the product and control system or designing or installing separate protection and/or safety circuits for fool-proof design and fail-safe design of the processes and lines that use the product and the control system, the user should implement these using additional devices and equipment.
- If you are replacing parts or consumable items of the product, make sure to use parts specified by Yokogawa.
- This product is not designed or manufactured to be used in critical applications that directly affect or threaten human lives. Such applications include nuclear power equipment, devices using radioactivity, railway facilities, aviation equipment, air navigation facilities, aviation facilities, and medical equipment. If so used, it is the user's responsibility to include in the system additional equipment and devices that ensure personnel safety.
- Do not modify this product.

Notes on 920 MHz Wireless Communication

- 920 MHz wireless communication can be used only in the US (Area suffix code: A) or Republic of Korea (Area suffix code: K).
- Only US FCC standards and UL standards are supported. (Area suffix code: A)
- Only Korea KC mark standards are supported.(Area suffix code: K)
- This product has obtained FCC certification or KC mark conformity. As such, the following acts may be punishable by law.
  - Disassembling or altering the product
  - Removing the certification label
  - Using an antenna other than the specified option
- Communication may not be possible in the following locations due to radio signal reflection.
  - Where strong magnetic field, static electricity, or radio interference occurs
  - Rooms with metallic walls (including concrete containing metal reinforcement material), inside cabinets, etc.
- If another wireless device using the same radio frequency band as this product is present in the communication area of this product, data rate degradation or communication errors may occur, preventing normal communication.
- Because this product uses radio signals, bear in mind that communication may be intercepted by third parties.
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines.
  This equipment has very low levels of RF energy that is deemed to comply without testing of specific absorption rate(SAR).
- Communication errors can occur when wireless communication is temporarily interrupted due to environmental factors such as radio interference.
- When several GX70SMs perform wireless communication with a single coordinator, there is a slight possibility that data loss may occur due to collision of data transmitted simultaneously from the GX70SMs to the coordinator.
  In addition, communication errors may occur due to operating environment conditions such as electromagnetic interference from other devices.

⚠ **WARNING**

- **Do Not Operate in an Explosive Atmosphere**
  Do not operate the instrument in the presence of flammable gas, vapors, or combustible dust. Operation in such an environment constitutes a safety hazard. Prolonged use in a highly dense corrosive gas (H2S, SOx, etc.) will cause a malfunction.
- **Do Not Remove Covers**
  The cover should be removed by Yokogawa's qualified personnel only.
- **Damage to the Protection**
  Operating the instrument in a manner not described in this manual may damage the instrument's protection.
- **Installation and Wiring**
  • To prevent electric shock, do not apply voltages that exceed the ratings to the input terminals.
  • Make sure to use appropriate wires, and torque. To prevent electric shock due to damage, prevent strong tension from being applied to the cords.
- **Using 920 MHz wireless communication**
  • Do not install or use inside aircrafts or hospitals or in areas where the use of wireless devices is prohibited.
  • Do not install or use near automatic doors, fire alarms, and other automatically controlled equipment.
  The radio signals from this product may affectthe equipment and may cause a malfunction.

- **Do not install or use near cardiac pacemakers or electronic devices that involve highly accurate control or minute signals.**
  Doing so may cause them to malfunction.
- **Do not use the product in medical equipment or other applications that require high level of safety or in systems (e.g., trunk line communication equipment, computer systems) that require extremely high reliability.**
  Malfunction or failure may cause life-threatening accidents or great social disruption.

⚠ CAUTION

This instrument is a Class A product.
Operation of this instrument in a residential area may cause radio interference, in which case the user is required to take appropriate measures to correct the interference.

해당 무선설비는 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없습니다

A 급 기기 (업무용 방송통신기자재)
이 기기는 업무용(A 급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

■ Exemption from Responsibility
- YOKOGAWA makes no warranties regarding the product except those stated in the WARRANTY that is provided separately.
- YOKOGAWA assumes no liability to any party for any loss or damage, direct or indirect, caused by the user or any unpredictable defect of the product.

■ Product Disposal
The instrument should be disposed of in accordance with local and national legislation/regulations.

■ How to Dispose the Batteries
Dispose of the batteries according to the rules of your local government.

Handling Precautions
- Use care when cleaning this instrument, especially its plastic parts. Use a soft dry cloth. Do not use organic solvents, such as benzene or thinner, or other cleansers. They may cause discoloring and deformation.
  If the product is installed with the /RH option, it may cause the degradation of the humidity sensor.
- Keep electrically charged objects away from the signal terminals. Doing so may damage the GX70SM.
- Do not apply volatile chemicals to the GX70SM. Do not allow rubber and vinyl products to remain in contact with the GX70SM for long periods of time. Doing so may damage the GX70SM.
- If you are not using the product for a long time, be sure to remove the batteries and store them properly.
- If there are any symptoms of trouble such as strange odors or smoke coming from the product, immediately remove the batteries.
  Then, contact your nearest YOKOGAWA dealer.

Checking the Package Contents
After receiving the product and opening the package, check the items described below. If the wrong items have been delivered, if items are missing, or if there is a problem with the appearance of the items, contact your nearest YOKOGAWA dealer.
Check that the product that you received is what you ordered by referring to the model name and suffix code given on the nameplate on the GX70SM.

No. (Instrument number)
When contacting the dealer from which you purchased the instrument, please give them the instrument number. The number is inscribed on the nameplate.

MODEL and SUFFIX Codes

GX70SM

Model	Suffix Code			Optional Code	Description
GX70SM					Wireless Input Unit
Channels	-2				2 channels
Type		-L0			Universal input, Scanner type (isolated between channels)
-			N		Always N
Terminal type			-C		Clamp terminal
Area				A	For US, FCC standards are supported
				K	For Republic of Korea, KC mark are supported
Optional features				/DB	Enhanced data backup function
				/RH	Built-in humidity sensor, 1 channel

Standard Accessories

The instrument is shipped with the following accessories. Make sure that all accessories are present and undamaged.

  * Batteries (CR123A, CR17345) are not included. Please obtain them separately (recommended battery manufacturer: Panasonic).

No.	Name	Part Number/Model	Qty.	Notes
1	Manual	IM 04L57B01-02EN	1	This manual.

Optional Accessories (Sold separately)

Name	Part Number/Model	Minimum. Q'ty	Notes
Sleeve antenna	A1061ER	1	indoor use
Roof top antenna	A1062ER	1	indoor/outdoor use, cable length: 2.5 m
Input terminal	A2226JT	1	

GX70SM Style Number, Release Number, and Firmware Version Number

Style number: The GX70SM hardware ID number. This number is written on the nameplate (H column).

Release number: The GX70SM firmware ID number. This number is written on the nameplate (S column). This number matches with the integer part of the firmware version number.

Example: If the firmware version number is 1.01, the release number is 1.

Firmware version number:
You can check this number on the Wireless Input Unit Configurater.
For the procedure, see the User's Manual (IM 04L57B01-01EN).

Firmware Version of Connectable Coordinator and Router (Repeater) Wireless Modules

Firmware version: v 4.2.0 and later

Note) If the firmware version of the coordinator or router (repeater) wireless module is not compatible with the wireless input unit, you need to update it.

Download it from the following website.
http://www.smartdacplus.com/software/en/

Conventions Used in This Manual

• This manual covers information regarding GX70SMs whose display language is English.

The notes and cautions in this manual are indicated using the following symbols.

⚠️

Improper handling or use can lead to injury to the user or damage to the instrument. This symbol appears on the instrument to indicate that the user must refer to the user's manual for special instructions. The same symbol appears in the corresponding place in the user's manual to identify those instructions. In the manual, the symbol is used in conjunction with the word "WARNING" or "CAUTION."

WARNING
Calls attention to actions or conditions that could cause serious or fatal injury to the user, and precautions that can be taken to prevent such occurrences.

CAUTION
Calls attention to actions or conditions that could cause light injury to the user or cause damage to the instrument or user's data, and precautions that can be taken to prevent such occurrences.

Note
Calls attention to information that is important for the proper operation of the instrument.

Overview of the Wireless Input Unit

The GX70SM is a compact, battery-driven analog input unit that uses 920 MHz specified low power radio.
Because it is battery-driven, it can collect data in a variety of locations. It connects to a SMARTDAC+ GX20, GP20, or GM10 coordinator over a multi-hop wireless link, and allows data collection and status display on the GX20/GP20/GM10.

Master
(GX/GP/GM)
Wireless Netwok
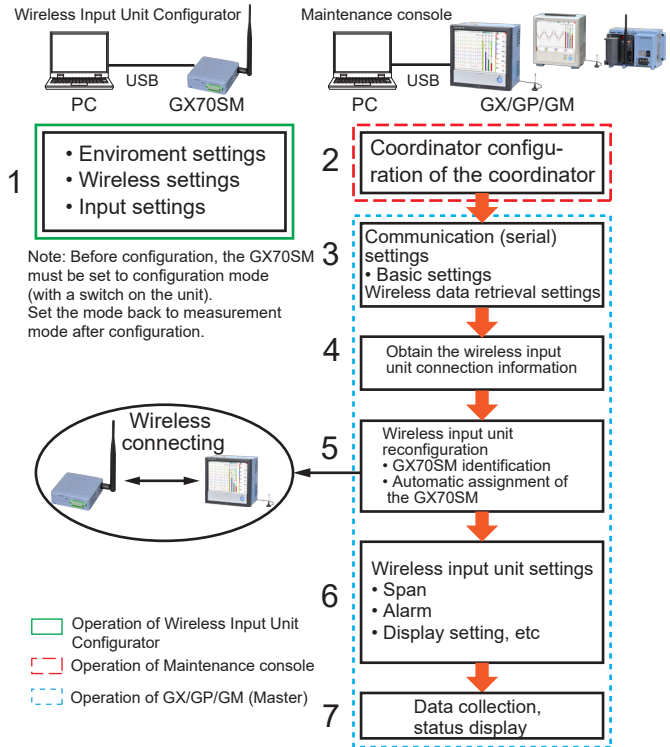(PAN)
GX70SM
GX70SM
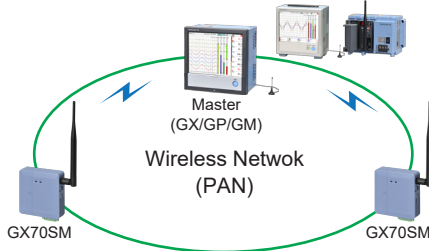
Operating Procedure

This section describes how to connect the GX70SM to a GX/GP/GM, collect data, and display the status.
For details, see the Wireless Input Unit User's Manual (IM 04L57B01-01EN).
For details on the configuration of the GX/GP/GM (coordinator), see the 920 MHz Wireless Communication User's Manual (IM 04L51B01-41EN).
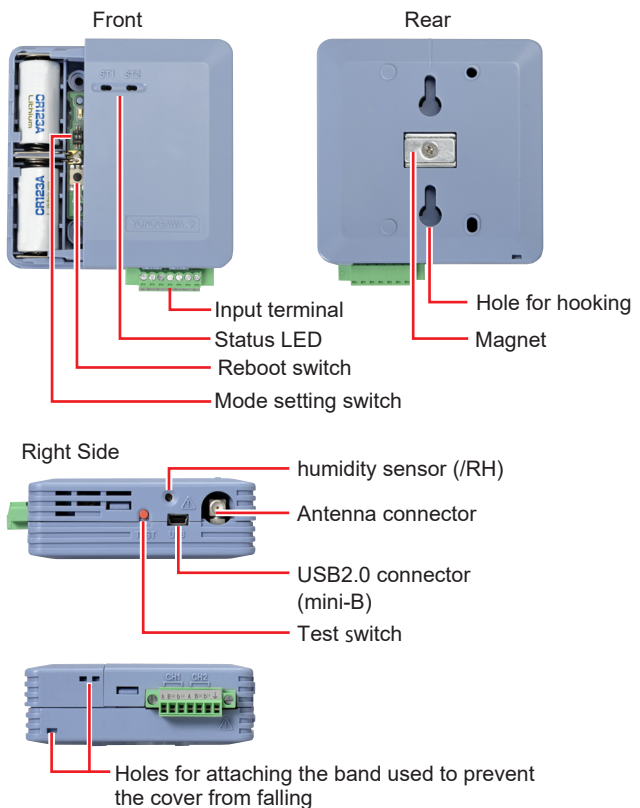
Items to Prepare

Item	Description
1. GX70SM	Wireless Input Unit
2. GX20/GP20/GM10	Master (Coordinator) (R4.02.01 and later)
3. PC	For configuring the wireless input unit and coordinator * Microsoft .Net Framework 4.6.1 or later is required.
4. USB cable	Connector type: mini B * With a power supply function.
5. Wireless Input Unit Configurator	Setting software for wireless input unit
6. Maintenance console	Setting software for master (Coordinator) (made by Oki Electric Industry Co., Ltd.)

Procedure

1 From the Wireless Input Unit Configurator, configure the environment (COM port, password, etc.) for connecting to the GX70SM, and configure the wireless and input settings of the wireless input unit.
2 From the maintenance console, configure the coordinator settings of the GX/GP/GM (coordinator).
3 On the GX/GP/GM, under Basic configuration of Communication (Serial) settings, set the receiver function to Wireless Input Unit. Set the wireless data retrieval* (R4.09 and later).
   * If the advanced security function is enabled and the multi-batch function is disabled and the firmware version of the wireless communication module is v4.4.0 or later.
4 On the GX/GP/GM, obtain the connection information of the wireless input unit.
   The assignable GX70SM is displayed.
5 On the GX/GP/GM, reconfigure the wireless input unit.
   The GX70SM is automatically assigned.
6 Using the Wireless Input Unit Configurator of the GX/GP/GM, set the span, alarm, display, and the like of the data to obtain from the GX70SM.
7 The GX/GP/GM is now ready to collect data and display the status.

Wireless Input Unit Configurator

Maintenance console

USB
PC   GX70SM

USB
PC   GX/GP/GM

1 • Enviroment settings
   • Wireless settings
   • Input settings

Note: Before configuration, the GX70SM must be set to configuration mode (with a switch on the unit).
Set the mode back to measurement mode after configuration.

2 Coordinator configuration of the coordinator

3 Communication (serial) settings
   • Basic settings
   Wireless data retrieval settings

4 Obtain the wireless input unit connection information

Wireless connecting

5 Wireless input unit reconfiguration
   • GX70SM identification
   • Automatic assignment of the GX70SM

6 Wireless input unit settings
   • Span
   • Alarm
   • Display setting, etc

7 Data collection, status display

☐ Operation of Wireless Input Unit Configurator
☐ Operation of Maintenance console
☐ Operation of GX/GP/GM (Master)

Component Names

Front   Rear

Input terminal
Status LED
Reboot switch
Mode setting switch
Hole for hooking
Magnet

Right Side

humidity sensor (/RH)
Antenna connector
USB2.0 connector (mini-B)
Test switch

Holes for attaching the band used to prevent the cover from falling

Installation

Installation Location

Install the GX70SM indoors in an environment that meets the following conditions:

- Ambient temperature range between -20 to 70°C (However, 0 to 70°C when measuring humidity).
- Ambient humidity between 0 to 90%RH. No condensation should be present.
- Altitude 2000 m or less

Note
> Condensation may form when moving the GX70SM from a low temperature or humidity environment to a high temperature or humidity environment, or when there is a sudden change in temperature. Temperature or humidity changes may also result in thermocouple measurement , humidity measurement errors. In these kinds of circumstances, wait for at least an hour before using the GX70SM, to acclimate it to the surrounding environment.

- Minimal mechanical vibrations
Install the GX70SM in a location that has minimal mechanical vibrations. Installing the GX70SM in a location that is subject to large levels of mechanical vibration will not only put added stress on its components, it may also impede ordinary measurement.

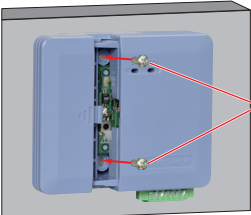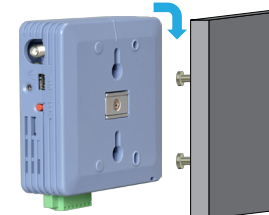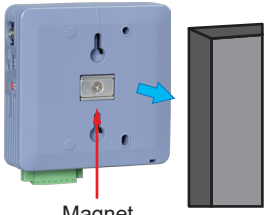Do Not Install the Instrument in the Following Places
- Outdoors
- In direct sunlight or near heat sources
Install the GX/GP in a place that is near room temperature (23°C) and that is not subject to large temperature fluctuations. Placing the GX70SM in direct sunlight or near heat sources can cause adverse effects on the internal circuitry.
- Where an excessive amount of soot, steam, moisture, dust, or corrosive gases are present Soot, steam, moisture, dust, and corrosive gases will adversely affect the GX70SM. Avoid installing the GX70SM in such locations.
- Near strong magnetic field sources
Do not bring instruments that produce electromagnetic fields close to the GX70SM. Operating the GX70SM near strong magnetic fields can cause measurement errors.
- When with built-in humidity sensor (/RH option)
If the environment contains volatile organic compounds (such as tapes, adhesive agents, and packaging materials that release solvent vapors and gas) nearby, it may cause the degradation of the humidity sensor.

Installation Procedure

The GX70SM can be used on a desktop or floor, mounted on a wall, affixed with the magnet, or hooked on a wall.

Note
> Be careful not to bring a magnet close to electronic devices because it may hinder proper operation or cause a malfunction.

On a desktop or floor	Mounted on a wall
The GX70SM can be placed on a desk, floor, or the like as shown in the following figure.	Mount the GX70SM on a wall using screws. Screw size: M3, Thread: 12 mm or more Torque: 0.6 to 0.7 N•m
Hooked on a wall	**Attach with the magnet**
Put a screw into a wall for hooking the GX70SM. Hook the GX70SM on the screw. The length below the neck of the screw must be at least 10 mm.	Attach the GX70SM with the magnet to a metal surface. Attach to a metal object with an installation surface of at least 70 mm × 70 mm.

External Dimensions Unit: mm (approx. inch)

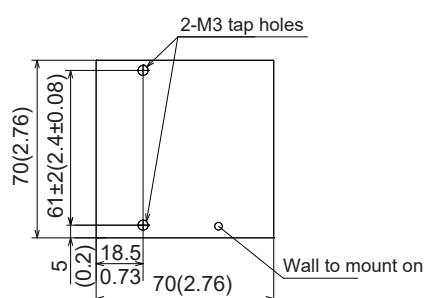Unit: mm (approx. inch)
Unless otherwise specified, tolerance is ±3%
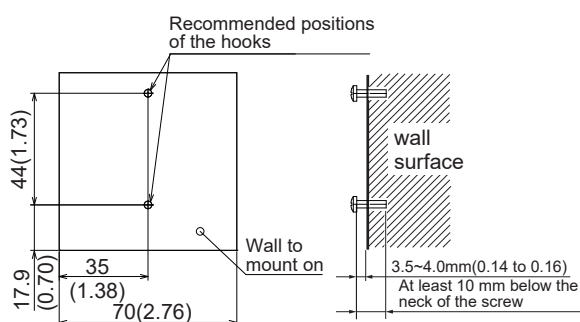 (however, tolerance is ±0.3 mm when below 10 mm).

90(3.54)
9.55 (0.38)
90(3.54)
32(1.26)
ST1 ST2
YOKOGAWA
TEST USB
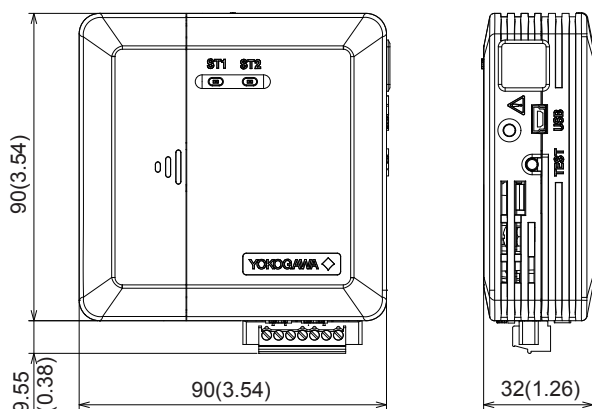
* For the dimensions when the external antenna is installed, see "Dimensions" (SD 04L57B01-01EN).

Wall Mount Dimensions

Mounted on a wall

2-M3 tap holes
70(2.76)
61±2(2.4±0.08)
5 (0.2)
18.5
0.73
70(2.76)
Wall to mount on

Hooked on a wall

Recommended positions of the hooks
44(1.73)
17.9 (0.70)
35 (1.38)
70(2.76)
Wall to mount on
wall surface
3.5~4.0mm(0.14 to 0.16)
At least 10 mm below the neck of the screw

Wiring

⚠ WARNING

- **Applying a strong tension to the input signal cables connected to the GX70SM may damage the cables or the GX70SM terminals.**
  Make sure that pulling force is not directly applied to the terminals of this product.
- **To prevent fire, use signal cables for GX70SM with a temperature rating of 70°C or more.**
- **Do not apply voltages that exceed the following values to the input terminals. Doing so may damage the instrument.**
  • Allowable input voltage:
  ±10 VDC for thermocouple, DC voltage (200 mV range or lower), RTD, DI (contact input)
  ±30 VDC for voltage (2 V range or higher), DI (level)

Precautions to Be Taken While Wiring

Take the following precautions when wiring the input signal cables.
- We recommend the following wire.

  Cross-sectional area: 0.08 mm^2 to 2.08 mm^2 (AWG28 to 14)

  Stripped wire length: 5 to 6 mm

- Take measures to prevent noise from entering the measurement circuit.
  - Move the measurement circuit away from the power cable (power circuit) and ground circuit.
  - Ideally, the object being measured should not generate noise. However, if this is unavoidable, isolate the measurement circuit from the object.
    Also, ground the object being measured.
  - Shielded wires should be used to minimize the noise caused by electrostatic induction. Connect the shield to the ground terminal of the GX70SM as necessary (make sure you are not grounding at two points).
  - To minimize noise caused by electromagnetic induction, twist the measurement circuit wires at short, equal intervals.
  - Make sure to earth ground the functional ground terminal through minimum resistance.
- Do not allow static electricity to be applied to the terminals.
  - When wiring the terminals, remove static electricity so that static electricity is not applied.
  - If static electricity or similar high-voltage transient noise is applied to the signal line, the system may break.
- When using internal reference junction compensation on the thermocouple input, take measures to stabilize the temperature at the input terminal.
  - Do not use thick wires which may cause large heat dissipation (we recommend a cross sectional area of 0.5 mm^2 or less).
  - Make sure that the ambient temperature remains reasonably stable. Large temperature fluctuations can occur if a nearby fan turns on or off.

- Connecting the input wires in parallel with other devices can cause signal degradation, affecting all connected devices. If you need to make a parallel connection, then
  • Turn the burnout detection function off.
  • Ground the instruments to the same point.
  • Do not turn ON or OFF another instrument during operation. This can have adverse effects on the other instruments.
  • RTDs cannot be wired in parallel.

Installing and Removing Batteries

1. Remove the battery case cover by sliding the cover while pressing on the A in the following figure.
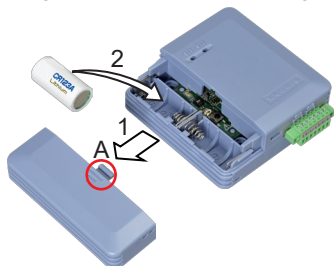
2. Insert two batteries (CR123A, CR17345 (Lithium primary battery, 3.0 V/1,400 mAh or more)) into the battery case, or remove them.
   (Batteries are not included. Please obtain them separately.)
   * Pay attention to the polarities and static electricity when inserting batteries.
   * Electric double-layer capacitors are used in this instrument. When batteries are removed, the instrument continues to operate until the energy charged in the capacitors are used up.
3. Slide and attach the battery case cover.

Attaching and Detaching the Terminal Block

The terminal block can be attached and detached. This makes it easy to wire the terminal block.
1. Loosen the terminal block attachment screws.
2. Pull out the terminal block.
3. When you are attaching the terminal block, tighten the attachment screws.
   Recommended torque for tightening the terminal block attachment screws: 0.1 N•m

Terminal block attachment screws

Wiring Procedure

A label indicating the terminal arrangement is affixed to the input terminal.
1. First, loosen the screw terminal using a flat-blade screwdriver.
2. Insert a wire in the connection port, and tighten the screw terminal.
   Recommended torque for tightening clamp terminal: Approx. 0.2 N•m

Flat-blade screwdriver
Wire (Stripped wire)
Connection port
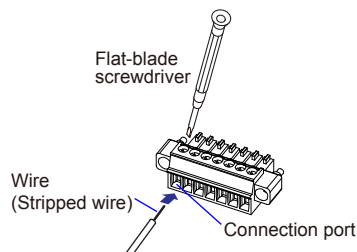
Note

With a clamp terminal, if you use a single wire whose diameter is 0.3 mm or less, you may not be able to clamp the wire securely to the terminal. Take measures to securely clamp the wire such as by folding the conductor section that will be connected to the clamp terminal in half.

Wiring to a input terminal

Terminal Diagram
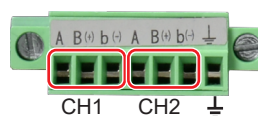
CH1   CH2

Terminal Arrangement

	CH1			CH2		
Symbol	A	B (+)	b (−)	A	B (+)	b (−)

The resistance RTD A terminal of each channel is connected internally in the device and is not isolated between channels.

Wiring Diagram

DC voltage/DI input	TC input
+ −	
RTD input	**DC current input (with an external shunt resistor)**
A B b	+ −

Functional ground terminal

Functional ground terminal ⏚
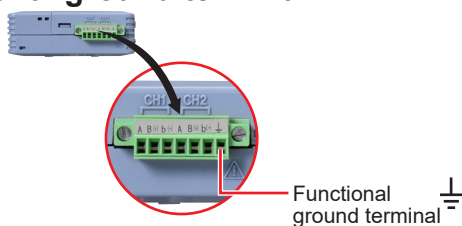
Note

Notes on the Functional Ground Terminal
- To reduce noise, use a shielded cable for wiring. Connect the shield to the functional ground terminal or the ground terminal of the GX70SM.
- Do not wire the protective grounding cord to the functional ground terminal.
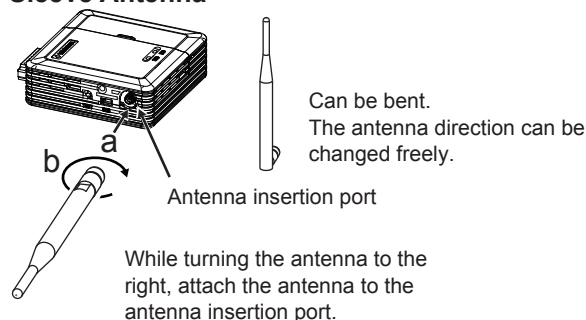
Connecting to the USB Port

A USB2.0 port (Compatible USB AC/DC adapter: 5 VDC ± 5 %/500 mA, Connector: mini B type).
Connect to a PC using a USB cable.1
Use this port to configure the input and wireless settings of the GX70SM, perform maintenance, and so on with the Wireless Input Unit Configurator.
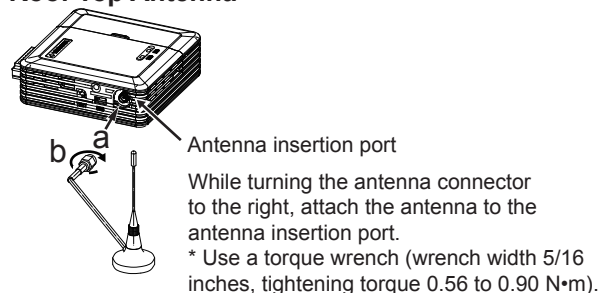
1 When configuring the GX70SM, use a powered USB cable.

Connecting an External Antenna
Sleeve Antenna

Can be bent.
The antenna direction can be changed freely.

Antenna insertion port

While turning the antenna to the right, attach the antenna to the antenna insertion port.

Roof Top Antenna

Antenna insertion port

While turning the antenna connector to the right, attach the antenna to the antenna insertion port.
* Use a torque wrench (wrench width 5/16 inches, tightening torque 0.56 to 0.90 N•m).

Note

- To bring out the full performance of the antenna, install it on top of a metal rectangle board that is at least 10 x 20 cm long.
- Install antennas as far as possible from metal objects and other obstacles. The communication quality may deteriorate if they are close.
- When installing the antenna, make sure no foreign matter gets caught between the bottom side of the antenna and the installation plane.
- Do not bend the antenna cable more than the allowable bend radius of 3 cm.
- When installing the antenna in an area subject to lightning, be sure to install the antenna at a position safe from lightning and at a position lower than the height of other cases.

Wireless Input Unit Configurator

For Installing, see Wireless Input Unit User's Manual (IM 04L57B01-01EN) (Electronic Manuals)
Required Microsoft .NET Framework 4.6.1 or more, to connect and operate the wireless input unit.

LED Indication

Configuration modes, data transmission, and battery status are indicated with green and red LEDs.

Green   Red

Status		LED
Configuration mode		Green and red blinking in sync at 2 second intervals
Configuration change and during calibration		Green and red blinking quickly in sync
During measurement or data transmission	When network is normal	Green blinking (about 0.2 second intervals), red off
	Not joined the network	Red blinking (about 0.2 second intervals), green off
Low battery warning		Green lit (0.1 seconds), all off (1.9 seconds) Red lit (0.1 seconds), all off (1.9 seconds) The above sequence is repeated twice, and then the LEDs are off for 10 seconds.
Input error		Red lit for 0.1 seconds at about 5 second intervals, green off
Mode setting error [1]		Repeats the sequence of green and red lit in sync (0.1 seconds) and all off (0.9 seconds) three times, turns off for 2 seconds, and repeats the entire sequence.
1 For example, configuring in a mode other than measurement mode when there is no USB connection.		

Setting the Operation Mode

The GX70SM has two operation modes: measurement and configuration. Change the operation mode accordingly.

Operation mode	Description
Measurement mode	Use this mode to make measurements.
Setting mode	Use this mode to configure, retrieve data, perform maintenance, and so on.

1. Slide and remove the battery case cover. (See "Installing and Removing Batteries.")

Operation mode switch

Supply power through USB (when changed to configuration mode)

Reboot switch
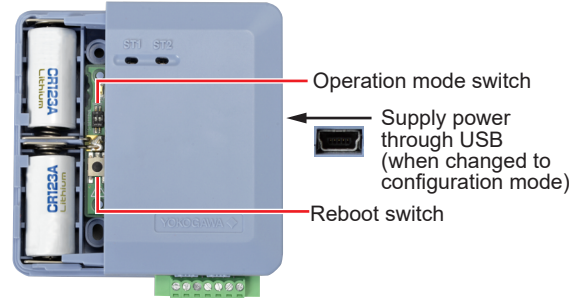
2. Set the operation mode switch to measurement or configuration.
   Note: When switching to configuration mode, supply power through USB.

Operation mode switch

Operation Mode	SW1
Measurement mode	OFF
Setting mode	ON

Wireless Function [1]	SW2
On	OFF
Off	ON

1 You can use the GX70SM as a standalone data logging device by setting the wireless function to off.

3. Press the reboot switch.

4. The GX70SM changes to the specified operation mode.

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