User's Manual

SMARTDAC+™

Models GX10/GX20/GP10/GP20

Paperless Recorder First Step Guide

vigilantplant.®

Contents

YOKOGAWA
Yokogawa Electric Corporation

IM 04L51B01-02EN
1st Edition

User Registration

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http://www.yokogawa.com/ns/reg/

PRS 108-02E

Introduction

Thank you for purchasing the SMARTDAC+ GX/GP Series Paperless Recorder (hereafter referred to as the GX/GP). This manual explains the basic operation, installation, and wiring of the GX/GP.
To ensure correct use, please read this manual and the following manuals thoroughly before beginning operation.

Paper Manuals

Manual Title	Manual No.
Models GX10/GX20/GP10/GP20 Paperless Recorder First Step Guide	IM 04L51B01-02EN (This manual)
Quick, Easy Steps	IM 04L51B01-04Z1

Electronic Manuals

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

Manual Title	Manual No.
Models GX10/GX20/GP10/GP20 Paperless Recorder First Step Guide	IM 04L51B01-02EN
Models GX10/GX20/GP10/GP20 Paperless Recorder User's Manual	IM 04L51B01-01EN
Models GX10/GX20/GP10/GP20 Communication Command User's Manual	IM 04L51B01-17EN
SMARTDAC+ STANDARD Universal Viewer User's Manual	IM 04L61B01-01EN
SMARTDAC+ STANDARD Hardware Configurator User's Manual	IM 04L61B01-02EN

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.
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Revisions

December 2012 1st Edition

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Safety Precautions

- This instrument conforms to IEC safety class I (provided with terminal for protective grounding), Installation Category II, and EN61326-1 (EMC standard), Measurement Category II (CAT II).*
  * Measurement Category II (CAT II)* is for the analog input modules.
    Measurement category II (CAT II) applies to measuring circuits connected to low voltage installation, and electrical instruments supplied with power from fixed equipment such as electric switchboards.
- This instrument is an EN61326-1 (EMC standard) class A instrument (for use in commercial, industrial, or business environments).
- The general safety precautions described here must be observed during all phases of operation. If the SMARTDAC+ is used in a manner not described in this manual, the SMARTDAC+ safety features may be impaired. Yokogawa Electric Corporation assumes no liability for the customer's failure to comply with these requirements.
- The SMARTDAC+ is designed for indoor use.

■ About This Manual

- Please pass this manual to the end user. We also ask you to store this manual in a safe place.
- This guide is intended for the following personnel:
  Engineers responsible for installation, wiring, and maintenance of the equipment.
  Personnel responsible for normal daily operation of the equipment.
- Read this manual thoroughly and have a clear understanding of the product before operation.
- This manual explains the functions of the product. It does not guarantee that the product will suit a particular purpose of the user.

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

The following safety symbols are used on the product and in this manual.

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

Protective ground terminal

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

Alternating current

Direct current

ON (power)

OFF (power)

- 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.

- **Use the Correct Power Supply**
  Ensure that the source voltage matches the voltage of the power supply before turning ON the power. In the case of a portable type, ensure that it is within the maximum rated voltage range of the provided power cord before connecting the power cord.
- **Use the Correct Power Cord and Plug (Portable Type)**
  To prevent electric shock or fire, be sure to use the power cord supplied by Yokogawa. The main power plug must be plugged into an outlet with a protective earth terminal. Do not disable this protection by using an extension cord without protective earth grounding.
  The power cord is designed for use with this instrument. Do not use the power cord with other instruments.
- **Connect the Protective Grounding Terminal**
  Make sure to connect the protective grounding to prevent electric shock before turning ON the power.
  The power cord that comes with the portable type is a three prong type power cord. Connect the power cord to a properly grounded three-prong outlet.
- **Do Not Impair the Protective Grounding**
  Never cut off the internal or external protective grounding wire or disconnect the wiring of the protective grounding terminal. Doing so invalidates the protective functions of the instrument and poses a potential shock hazard.
- **Do Not Operate with Defective Protective Grounding**
  Do not operate the instrument if the protective grounding might be defective. Also, make sure to check them before operation.
- **Do Not Operate in an Explosive Atmosphere**
  Do not operate the instrument in the presence of flammable gas or vapors. Operation in such an environment constitutes a safety hazard. Prolonged use in a highly dense corrosive gas (H_2S, SOx, etc.) will cause a malfunction.
- **Do Not Remove Covers**
  The cover should be removed by Yokogawa's qualified personnel only. Opening the cover is dangerous, because some areas inside the instrument have high voltages.
- **Ground the Instrument before Making External Connections**
  Connect the protective grounding before connecting to the item under measurement or control unit.
- **Damage to the Protection**
  Operating the instrument in a manner not described in this manual may damage the instrument's protection.
- **Wiring**
  To prevent shock, attach the included terminal cover after wiring. Make sure to use appropriate wires and crimp-on lugs.

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.

■ 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.

■ Software Handling Precautions

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GX10, GX20, GP10, GP20 Paperless Recorder

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Heimdal

The password-management function of the following products uses Heimdal source code for AES authentication key generation.
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SMARTDAC+ STANDARD Universal Viewer

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TCP/IP Software

GX10, GX20, GP10, GP20 Paperless Recorder

The TCP/IP software of GX/GP and the document concerning the TCP/IP software have been developed/ created by Yokogawa based on the BSD Networking Software, Release 1 that has been licensed from University of California.

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GX10, GX20, GP10, GP20 Paperless Recorder

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Handling Precautions of the GX/GP

- 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.
- Keep electrically charged objects away from the signal terminals. Doing so may damage the GX/GP.
- Do not apply volatile chemicals to the display, panel keys, etc. Do not allow rubber and vinyl products to remain in contact with the GX/GP for long periods of time. Doing so may damage the GX/GP.
- When not in use, make sure to turn off the power switch.
- If there are any symptoms of trouble such as strange odors or smoke coming from the GX/GP, immediately turn off the power switch and the power supply source. Then, contact your nearest Yokogawa dealer.

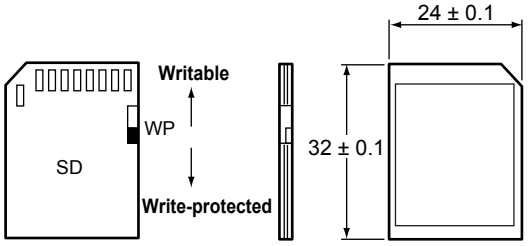
SD Memory Card Handling Precautions

- SD memory cards are delicate and should be handled with caution.
- Yokogawa provides no warranty for damage to, or loss of data recorded on the SD memory card, regardless of the cause of such damage or loss. Please always make backup copies of your data.
- Do not store or use the SD memory card in places with static electricity, near electrically charged objects, or where electrical noise is present. Doing so can result in electric shock or damage.
- Do not disassemble or modify the SD memory card. Doing so can result in damage.
- Do not physically shock, bend, or pinch the SD memory card. Doing so can lead to malfunction.
- During reading/writing of data, do not turn OFF the power, apply vibration or shock, or pull out the card. Data can become corrupt or permanently lost.
- Only use Yokogawa SD memory cards. Operation cannot be guaranteed with other brands of card.
- When inserting the SD memory card into the instrument, make sure you orient the card correctly (face up or down) and that you insert it securely. If not inserted correctly, the card will not be recognized by the instrument.
- Never touch the SD memory card with wet hands. Doing so can lead to electric shock or malfunction.
- Never use the SD memory card if it is dusty or dirty. Doing so can lead to electric shock or malfunction.
- The SD memory card comes formatted.
  SD cards must be formatted according to the standard established by the SD Association (https://www.sdcard.org/home). If you want format the SD memory card, use the instrument’s Format function. If using a PC to perform the formatting, use the SD card formatter software available from the above SD Association.
- You can use SD/SDHC cards (up to 32 GB) on the GX/GP.

SD Memory Card Specifications and Characteristics

Electrical specifications	Operating voltage: 2.7 V to 3.6 V (memory operation) Supports SD 1, 4-bit mode, SPI mode * Compliant with SD PHYSICAL LAYER SPECIFICATION Ver. 3.00.
External dimensions/ weight	H: 32, W: 24, D: 2.1 (mm), weight: approx. 2 g * Compliant with Standard Size SD Card Mechanical Specification Ver. 1.00.
Reliability and durability	* Compliant with SD PHYSICAL LAYER SPECIFICATION Ver. 3.00 and Standard Size SD Card Mechanical Specification Ver. 1.00.
Operating conditions	–25 to 85°C, temp. 25°C, RH=95%, no condensation
Storage conditions	–40 to 85°C, temp. 40°C, RH=93%/500 h, no condensation

Unit: mm



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 name plate on the GX/GP.

NO. (Instrument Number)
When contacting the dealer from which you purchased the instrument, please give them the instrument number.

MODEL and SUFFIX Codes

GX10/GX20

Model	Suffix Code	Optional Code	Description
GX10			Paperless recorder (Panel mount type, Small display)
GX20			Paperless recorder (Panel mount type, Large display)
Type	-1		Standard
Language	E		English, degF, DST (summer/winter time)
Options		/C2	RS-232[1]
		/C3	RS-422/485[1]
		/D5	VGA output[2]
		/FL	Fail output, 1 point
		/MT	Mathematical function (with report function)
		/MC	Communication channel function
		/P1	24 VDC/AC power supply[4]
		/UH	USB Interface (host 2 ports)
		/UC[ ]0	Analog (universal) input module preinstalled (clamp terminal)[3]
		/US[ ]0	Analog (universal) input module preinstalled (M3 screw terminal)[3]
		/CR[ ][ ]	Digital output module, digital input module preinstalled[4]

GP10/GP20

Model	Suffix Code	Optional Code	Description
GP10			Paperless recorder (Portable type, Small display)
GP20			Paperless recorder (Portable type, Large display)
Type	-1		Standard
Language	E		English, degF, DST (summer/winter time)
Power supply	1		100 VAC, 240 VAC
Power cord	D		Power cord UL/CSA standard
	F		Power cord VDE standard
	R		Power cord AS standard
	Q		Power cord BS standard
	H		Power cord GB standard
	N		Power cord NBR standard
Options		/C2	RS-232[1]
		/C3	RS-422/485[1]
		/D5	VGA output[2]
		/FL	Fail output, 1 point
		/MT	Mathematical function (with report function)
		/MC	Communication channel function
		/P1	24 V DC/AC power supply
		/UH	USB interface (host 2 ports)
		/UC[ ]0	Analog (universal) input module preinstalled (clamp terminal)[3]
		/US[ ]0	Analog (universal) input module preinstalled (M3 screw terminal)[3]
		/CR[ ][ ]	Digital output module, digital input module preinstalled[4]

Models in Which I/O Modules Are Preinstalled

Model Suffix Code	Optional Code	Description
GX10 -1E/[ ][ ]		Paperless recorder (panel mount type)
GX20		
GP10 -1E1[ ]/[ ][ ]		Paperless recorder (portable type)
GP20		
Options (analog Input)[3]	/UC10	With analog input module, 10ch (Clamp terminal)
	/UC20	With analog input module, 20ch (Clamp terminal)[6]
	/UC30	With analog input module, 30ch (Clamp terminal)[7]
	/UC40	With analog input module, 40ch (Clamp terminal)[4]
	/UC50	With analog input module, 50ch (Clamp terminal)[4]
	/US10	With 10ch analog input module (M3 screw terminal)
	/US20	With 20ch analog input module (M3 screw terminal)[6]
	/US30	With 30ch analog input module (M3 screw terminal)[7]
	/US40	With 40ch analog input module (M3 screw terminal)[4]
	/US50	With 50ch analog input module (M3 screw terminal)[4]
Options (digital I/O)[3]	/CR01	With digital I/O module (output: 0, input: 16)[7]
	/CR10	With digital I/O module (output: 6, input: 0)[7]
	/CR11	With digital I/O module (output: 6, input: 16)[6, 7]
	/CR20	With digital I/O module (output: 12, input: 0)[5]
	/CR21	With digital I/O module (output: 12, input: 16)[5]
	/CR40	With digital I/O module (output: 24, input: 0)[5]
	/CR41	With digital I/O module (output: 24, input: 16)[5]

1 /C2 and /C3 cannot be specified together.
2 /D5 can be specified only for the GX20/GP20.
3 Only one option can be specified.
4 /UC40, /UC50, /US40, and /US50 cannot be specified for the GX10/GP10.
5 /CR20, /CR21, /CR40, and /CR41 cannot be specified for the GX10/GP10.
6 If /UC20 or /US20 is specified for the GX10/GP10, /CR11 cannot be specified.
7 If /UC30 or /US30 is specified for the GX10/GP10, /CR01, /CR10, and /CR11 cannot be specified.

I/O Modules

GX90XA

Model	Suffix Code	Description
GX90XA		Analog Input Module for GX/GP series
Channels	-10	10 channels
Type	-U2	Universal, Scanner type (3-wire RTD b-terminal common)
-	N	Always N
Terminal type	-3	Screw terminal (M3)
	-C	Clamp terminal
Area	N	General

GX90XD

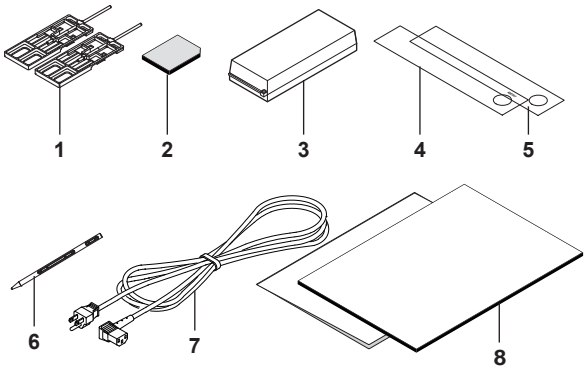
Model	Suffix Code	Description
GX90XD		Digital Input Module for GX/GP series
Channels	-16	16 channels
Type	-11	Open collector/Non-voltage, contact (shared common), Rated 5 VDC
-	N	Always N
Terminal type	-3	Screw terminal (M3)
	-C	Clamp terminal
Area	N	General

GX90YD

Model	Suffix Code	Description
GX90YD		Digital Output Module for GX/GP series
Channels	-06	6 channels
Type	-11	Relay, SPDT(NO-C-NC)
-	N	Always N
Terminal type	-3	Screw terminal (M3)
Area	N	General

Standard Accessories

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



No.	Name	Part Number/Model	Qty.	Notes
1	Mounting bracket	B8740DY	2	GX10/GX20 only
2	SD memory card	773001	1	1GB
3	Dummy cover	B8740CZ		For empty slots
4	Tag plate	B8740FE	1	GX20/GP20
		B8741FE	1	GX10/GP10
5	Sheet	B8740FF	1	GX20/GP20
		B8741FF	1	GX10/GP10
6	Stylus	B8740BZ	1	
7	Power cord	A1074WD	1	D: Power cord UL, CSA st'd
		A1009WD	1	F: Power cord VDE st'd
		A1024WD	1	R: Power cord AS st'd
		A1054WD	1	J: Power cord BS st'd
		A1064WD	1	H: Power cord GB st'd
		A1088WD	1	N: Power cord NBR st'd
8	Manual	IM 04L51B01-02EN	1	First Step Guide
		IM 04L51B01-04Z1	1	Quick, Easy Steps

Optional Accessories (Sold separately)

Name	Part Number/ Model	Minimum. Q'ty	Notes
Mounting bracket	B8740DY	2	GX10/GX20 only
SD memory card	773001	1	1GB
Stylus	B8740BZ	1	
Shunt resistor (for M3 screw terminal)	X010-250-3	1	250 Ω ± 0.1%
	X010-100-3	1	100 Ω ± 0.1%
	X010-010-3	1	10 Ω ± 0.1%
Shunt resistor (for clamp terminal)	438920	1	250 Ω ± 0.1%
	438921	1	100 Ω ± 0.1%
	438922	1	10 Ω ± 0.1%

GX/GP Style Number, Release Number, and Firmware Version Number

Style number: The GX/GP hardware ID number. This number is written on the name plate.

Release number: The GX/GP firmware ID number. This number is written on the name plate. 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: This number appears on the system information screen of the GX/GP. To view the number, see section 2.3, "Displaying Various Types of Information" in the User's Manual, IM 04L51B01-01EN.

Conventions Used in This Manual

- This manual covers information regarding GX/GPs whose display language is English.
- For details on the language setting, see the Paperless Recorder User's Manual, IM04L51B01-01EN.

Unit

K: Denotes 1024. Example: 768K (file size)

k: Denotes 1000.

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 attentions to actions or conditions that could cause light injury to the user or 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 proper operation of the instrument.

Protection of Environment

Control of Pollution Caused by the Product

This is an explanation for the product based on “Control of pollution caused by Electronic Information Products” in the People’s Republic of China.

产品中有毒有害物质或元素的名称及含量

部件名称		有毒有害物质或元素					
		铅(Pb)	汞(Hg)	镉(Cd)	六价铬(Cr6+)	多溴联苯(PBB)	多溴二苯醚(PBDB)
印刷电路		N/A	N/A	N/A	N/A	✓	✓
内部接线材料		N/A	N/A	N/A	N/A	✓	✓
外壳/ 机箱	塑料	N/A	N/A	N/A	N/A	✓	✓
	金属	N/A	N/A	N/A	N/A	✓	✓
I/O 模块外壳	塑料	N/A	N/A	N/A	N/A	✓	✓
电源		N/A	N/A	N/A	N/A	✓	✓
正面边框		N/A	N/A	N/A	N/A	✓	✓
	显示器 (LCD)	N/A	N/A	N/A	N/A	✓	✓
标准附件/ 可选附件	安装支架	N/A	N/A	N/A	N/A	✓	✓
	电源线(GP10/GP20)	N/A	N/A	N/A	N/A	✓	✓
	SD 存储卡	N/A	N/A	N/A	N/A	✓	✓
	分流电阻	N/A	N/A	N/A	N/A	✓	✓

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N/A：表示该部件中至少有一种均质材料中的有毒有害物质或元素的含量超过SJ/TXXX-2006 标准所规定的限量要求。

该标识适用于2006 年2 月28 日颁布的《电子信息产品污染控制管理办法》以及S J / T11364－2006《电子信息产品污染控制标识要求》中所述，在中华人民共和国（除台湾、香港和澳门外）销售的电子信息产品的环保使用期限。

只要您遵守该产品相关的安全及使用注意事项，在自制造日起算的年限内，则不会因产品中有害物质泄漏或突发变异，而造成对环境的污染或对人体及财产产生恶劣影响

Waste Electrical and Electronic Equipment (WEEE), Directive 2002/96/EC

This is an explanation of how to dispose of this product based on Waste Electrical and Electronic Equipment (WEEE), Directive 2002/96/EC. This directive is only valid in the EU.

- Marking
  This product complies with the WEEE Directive (2002/96/EC) marking requirement. This marking indicates that you must not discard this electrical/electronic product in domestic household waste.
- Product Category
  With reference to the equipment types in the WEEE directive Annex 1, this product is classified as a “Monitoring and Control instrumentation” product.
  Do not dispose in domestic household waste.
  When disposing products in the EU, contact your local Yokogawa Europe B.V. office.

How to Dispose the Batteries

This is an explanation about the new EU Battery Directive (DIRECTIVE 2006/66/EC). This directive is only valid in the EU.

Batteries are included in this product. Batteries incorporated into this product cannot be removed by yourself. Dispose them together with this product. When you dispose this product in the EU, contact your local Yokogawa Europe B.V.office. Do not dispose them as domestic household waste.

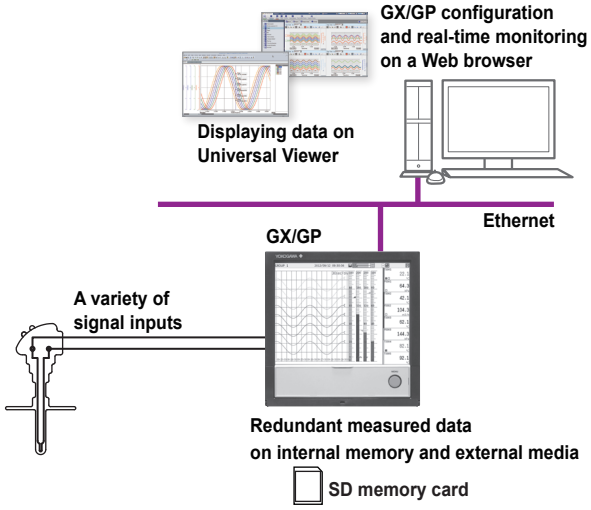
Battery type: Lithium battery

Notice: The symbol (see above) means they shall be sorted out and collected as ordained in ANNEX II in DIRECTIVE 2006/66/EC.

Functional Overview

Overview

The GX/GP is a paperless recorder that can display measured data in real time on its touch screen and save the data in an SD memory card.



A Variety of Source Signals

The GX/GP can connect to DC voltage, TC, RTD, and ON/OFF inputs and measure temperature, flow rate, and other parameters. The GX/GP acquires data by sampling input signals at the set scan interval. The shortest scan interval is 100 ms. Up to four alarm conditions can be specified on each measurement channel.

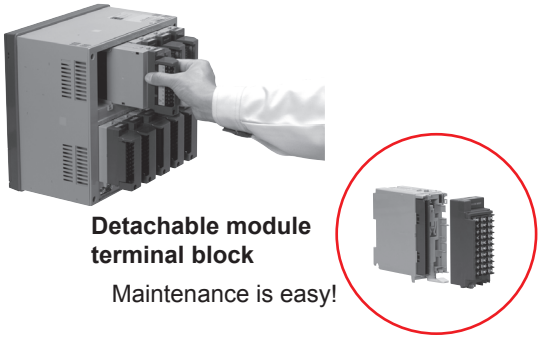
Expandable Module Construction

The I/O section is modular, so you can configure your system according to the input types and number of measurement points.

Modules

Model	Name	Channels
GX90XA	Analog input module	10
GX90XD	Digital input module	16
GX90YD	Digital output module	6

- Up to 10 modules can be installed in the GX20/GP20.
- Up to 3 modules can be installed in the GX10/GP10.
- Different modules can coexist.

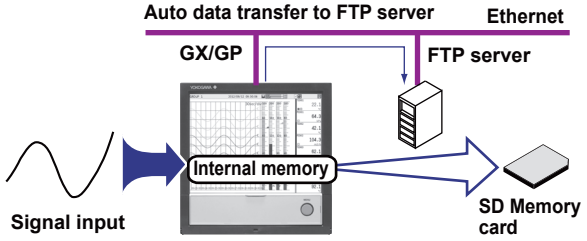


Detachable module terminal block

Maintenance is easy!

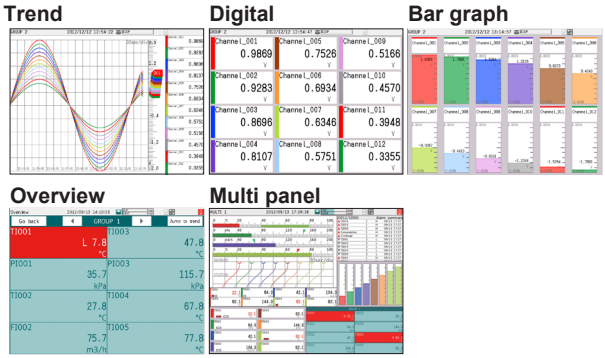
Data Storage

There are two ways to store data. One way is to record measured data at all times (display data and event data). The other way is to record only when events, such as alarms, occur (event data). Measured data is saved to the internal memory at the specified interval. Data in the internal memory can be saved to the SD memory card automatically or manually. Measured data can be transferred automatically to an FTP server over an Ethernet connection.



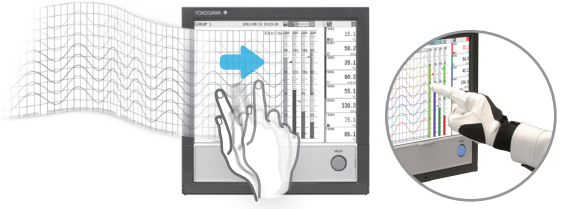
A Variety of Display Functions

Measured data can be displayed in groups as trend waveforms, values, and bar graphs. There is also an overview display that you can monitor all channels on a single screen.

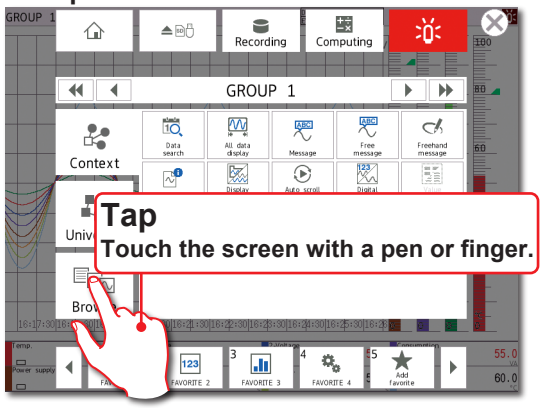


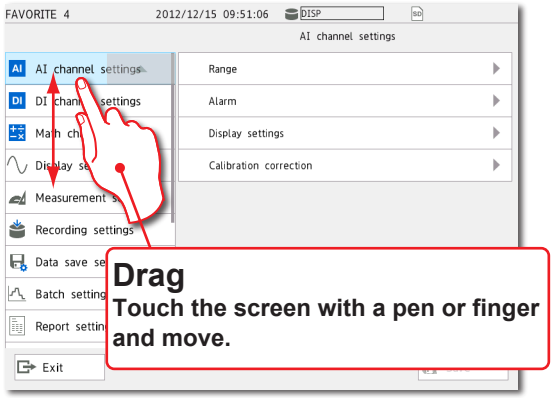
Touch Screen

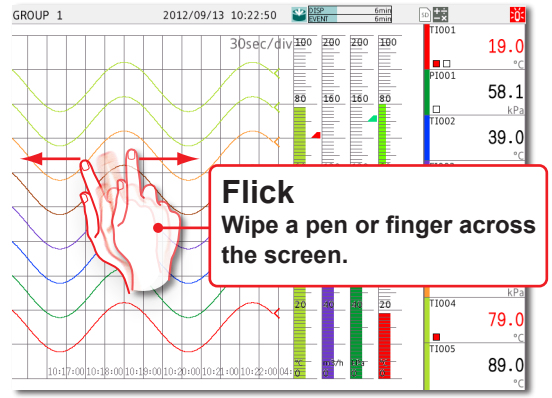
The GX/GP touch screen enables intuitive operation. You can tap the icons of setup and operation items as well as scroll and zoom in on and out of waveforms by directly touching the screen. In addition, when you are working on-site, you can operate the GX/GP with your gloves on.

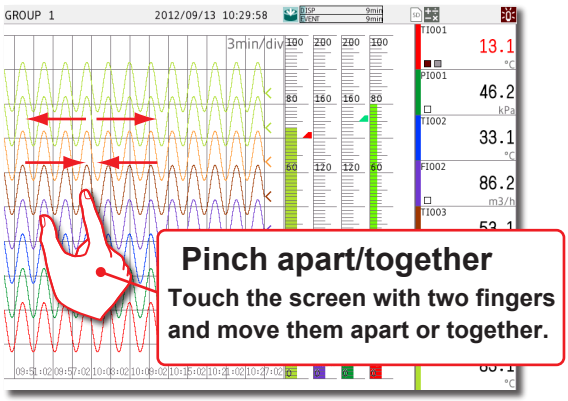


Touch Operations



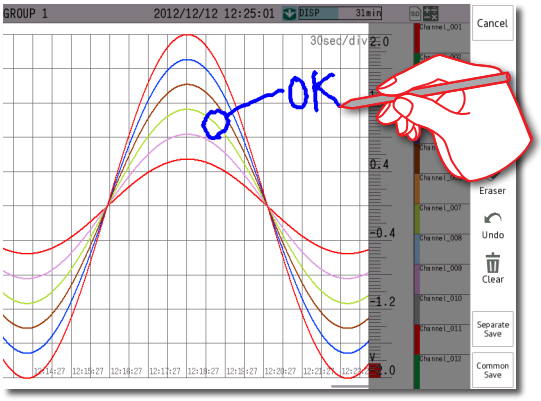






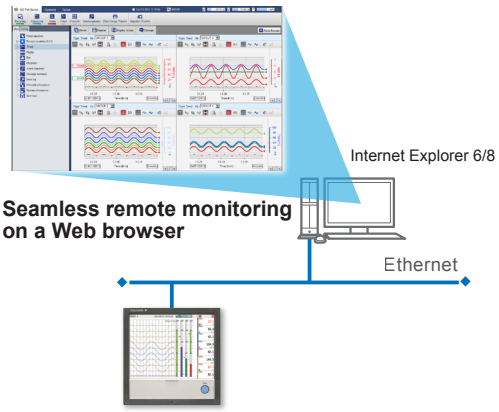
Freehand Messages

You can use the touch pen or your finger to write text and draw marks freely in the waveform area. The messages that you write can easily be displayed from information displays such as the message summary and memory summary.



Versatile Network Functions and Software

The Ethernet interface enables you to monitor the GX/GP from a Web browser. E-mails can be sent through this interface when alarms and other events occur.
In addition, you can use the Modbus protocol to read data from other devices on the network and display it.
As for the software, Universal Viewer can be used to view measured data and convert the data into other data formats.

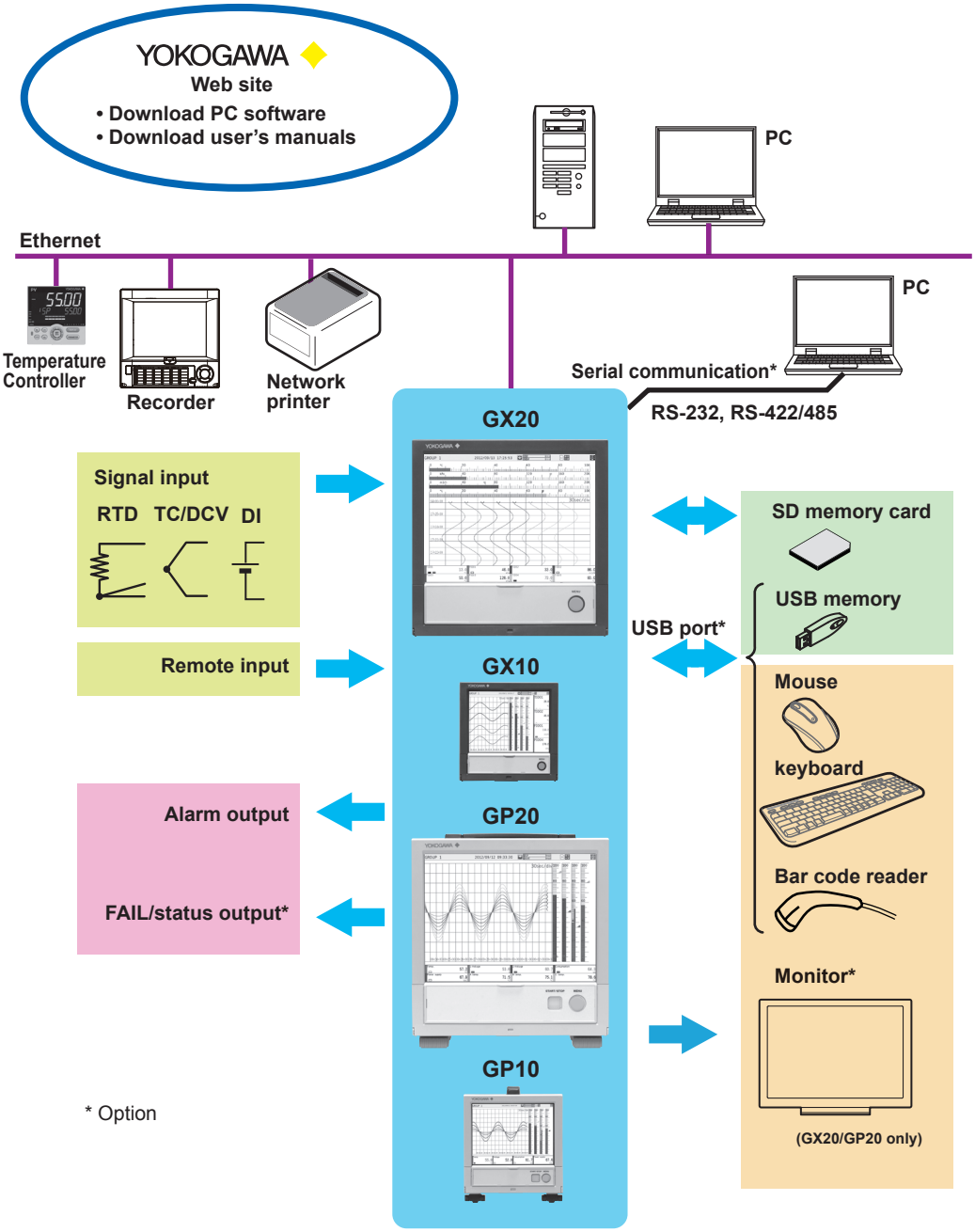


Other Functions

Math function (/MT option)	Expressions can be assigned to math channels to perform various computations.
FAIL output (/FL option)	This function transmits alarms when the GX/GP fails.
Security function	You can allow only registered users to use the GX/GP. In addition, certain operations can be prohibited.
Remote control	This function executes specified operations by combining input modules and the event action function.

System Configuration

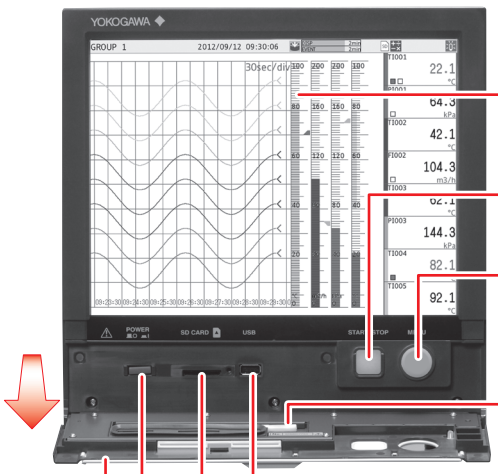
You can configure a GX/GP system as shown below.



Component Names

GX20/GX10

GX20 front panel



LCD
Shows the trend display and other displays and the setup screen

START/STOP key
Starts and stops recording

MENU key
Press this once to show a menu for accessing various screens.

Stylus pen (touch pen)

USB port (/UH option)
USB2.0 compliant. Connect a USB memory device, mouse, keyboard, etc.

SD memory card slot
SD memory card (up to 32 GB)
Format: FAT32 or FAT16
A 1 GB card is included.

Power switch

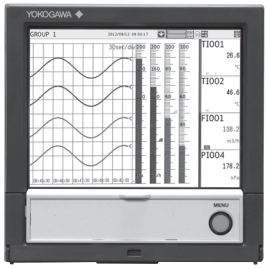
Front door

MENU key

Front door lock mechanism

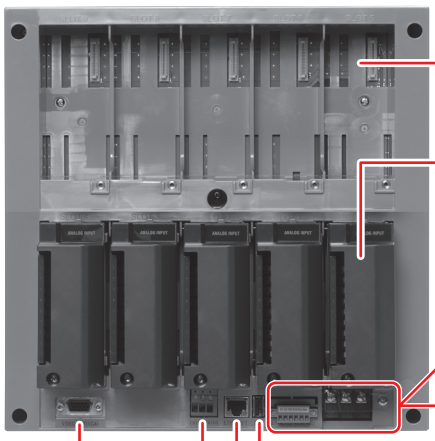
Use an off-the-shelf door lock key.

GX10 front panel



GX10 rear panel

GX20 rear panel



I/O module slot
GX10, GP10: 3 slots (0 to 2)
GX20, GP20: 10 slots (0 to 9)

I/O module
Connect I/O signals.

Power inlet (GP10/GP20)

Serial port (/C2 option)
RS-232 terminal

Power supply terminal and protective ground terminal (GX10/GX20)

Serial port (/C3 option)
RS-422/485 terminal

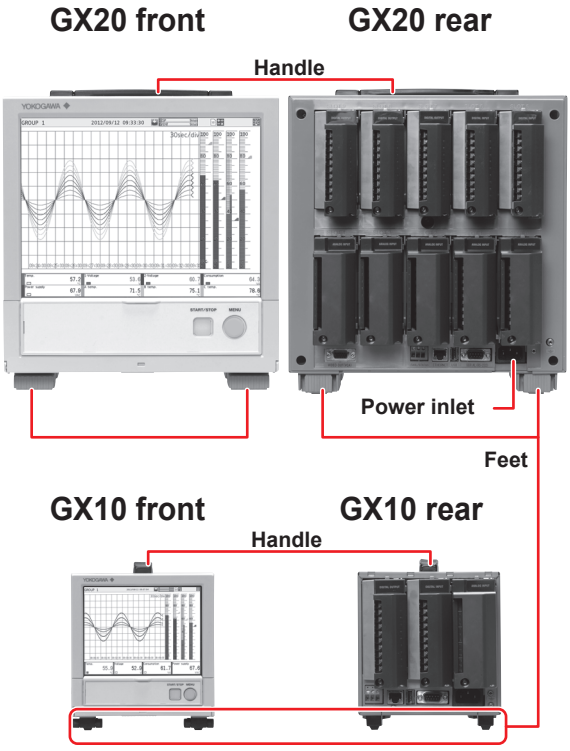
USB port (/UH option)
USB 2.0 compliant. Connect a USB memory device, mouse, keyboard, etc.

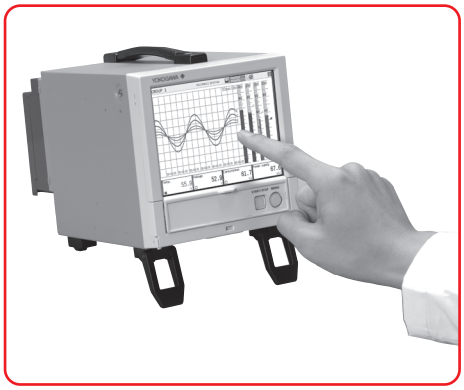
Ethernet port
10BASE-T/100BASE-TX port

FAIL output terminal (/FL option)

VGA output connector (/D5 option)
Connects to an external monitor

GP20/GP10

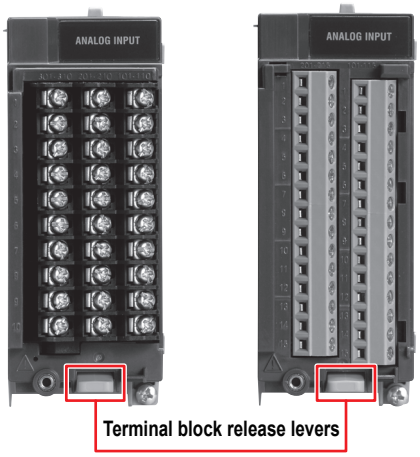




GX90XA/GX90XD/GX90YD

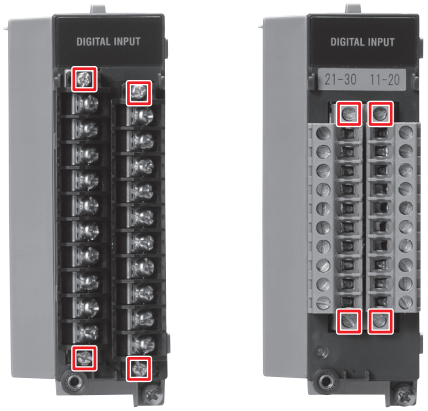
GX90XA Analog Input Module

M3 screw terminal　　Clamp terminal



GX90XD Digital Input Module

M3 screw terminal　　Clamp terminal



☐ Terminal block attachment screws

GX90YD Digital Output Module

M3 screw terminal

☐ Terminal block attachment screws

WARNING

To prevent electric shock when you attach or remove terminal covers or terminal blocks, be sure that the power supply is turned off.

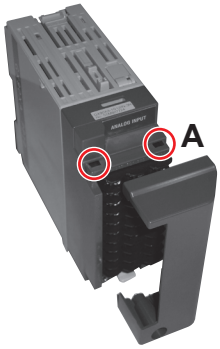
Removing and Attaching a Terminal Cover

Removing the Terminal Cover

Loosen the screw at the bottom section of the terminal cover, and remove the cover.

Attaching the Terminal Cover

1. Insert the two hooks at the top section on the inside of the terminal cover into A, and push the bottom section of the terminal cover.
2. Fasten the screw at the bottom section of the terminal cover to fix the cover in place.
   Recommended tightening torque: 0.6 N•m



The shape of the cover varies depending on the module, but the procedure is the same.

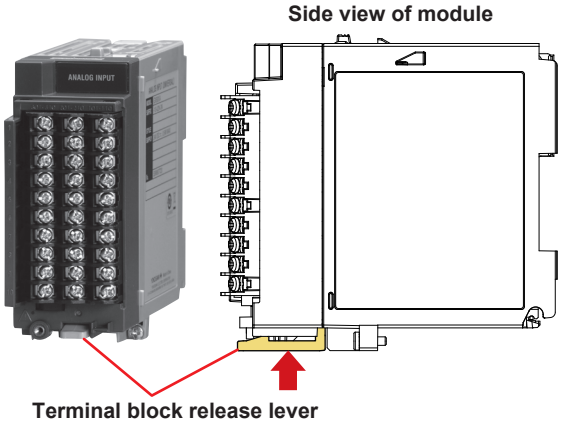
Removing and Attaching a Terminal Block

Removing the GX90XA Terminal Block

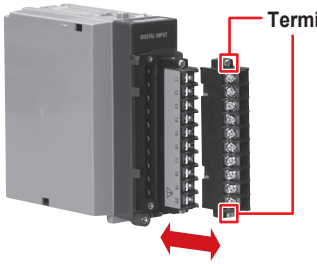
Push down on the lever at the bottom section of the module, and pull the terminal block out.

Attaching the GX90XA Terminal Block

Insert the terminal block into the module, and push the lever firmly against the module (at the position indicated by the arrow in the figure).



For modules other than the GX90XA, you can use the attachment screw to remove and attach them.



Recommended torque for tightening the terminal block attachment screws: 0.1 N•m

When you are using the GX/GP for the first time, following the procedure below to quickly start measuring and recording.

Operating Procedure

Product user's manuals can be downloaded or viewed at the following URL;

URL: www.smartdacplus.com/manual/en/

▶ Manuals for reference

Install modules.

▶ First Step Guide (IM 04L51B01-02EN) "Installation and Wiring"

Not required if preinstalled

▶ First Step Guide (IM 04L51B01-02EN) "Installation and Wiring"

Connect I/O signals and power.

▶ First Step Guide (IM 04L51B01-02EN) "Basic Operations"

Turn on the power.

▶ First Step Guide (IM 04L51B01-02EN) "Reconfiguring the GX/GP"

Make the GX/GP recognize the modules (GX/GP reconfiguration).

▶ First Step Guide (IM 04L51B01-02EN) "Basic Operations"

Set the date and time.

▶ First Step Guide (IM 04L51B01-02EN) "Basic Operations"

Configure signal inputs.

▶ Paperless Recorder User's Manual (IM 04L51B01-01EN)

IM 04L51B01-01EN

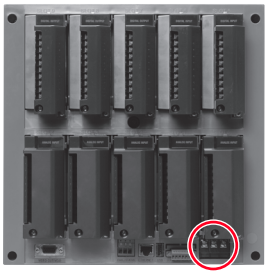
Configure functions as necessary.

▶ First Step Guide (IM 04L51B01-02EN) "Basic Operations"

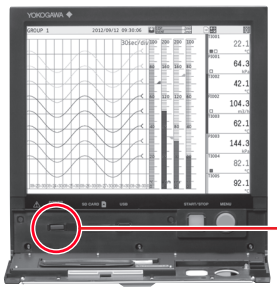
Start measuring/recording.

GX10/GP10: Up to 3 modules can be installed.
GX20/GP20: Up to 10 modules can be installed.

Modules (five types)

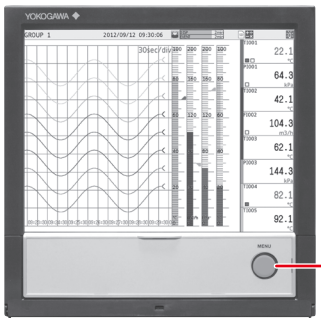


Power inlet on the GP10/GP20



Power switch

If preinstalled, modules are preconfigured. If you rearrange the modules, reconfigure.



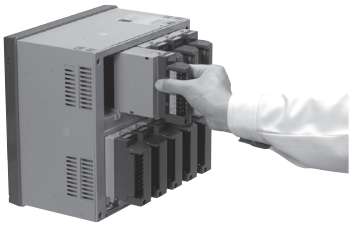
MENU key

1 Modules not installed

Dummy covers are attached to empty slots (with screws).

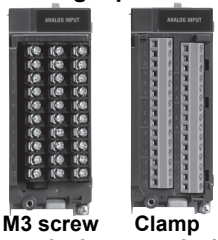
* Recommended tightening torque: 0.6 N•m

2 Insert until a click is heard and fasten with screws.*



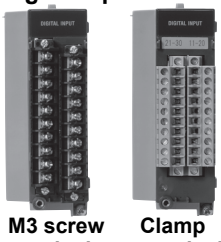
3 Modules installed (10 modules)

GX90XA
Analog input module



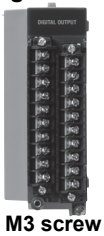
M3 screw terminal | Clamp terminal

GX90XD
Digital input module



M3 screw terminal | Clamp terminal

GX90YD
Digital output module

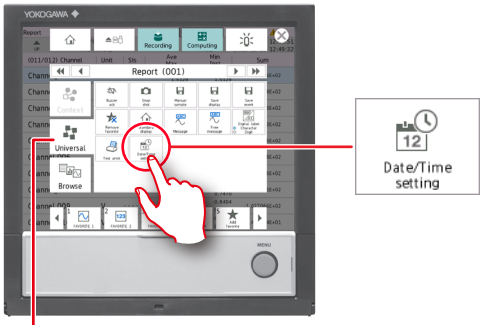


M3 screw terminal

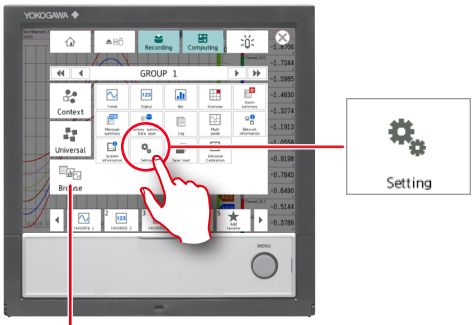
WARNING

To prevent electric shock when wiring, make sure that the power supply is turned off.

Set the date and time.



Configure input and functions.



Start measuring/recording.

or

Recording stopped → Recording in progress

Alternates

Lit in blue
Running

(No alarm)

Lit in red
Alarm activated

Off: Power off

To open, push the front door down and pull it toward you.

Installation and Wiring

Installation Location

Install the GX/GP indoors in an environment that meets the following conditions:

- Instrumentation panel
  The GX10/GX20 excluding the portable type (GP10/GP20) is designed to be installed in an instrumentation panel.
- Well-ventilated location
  To prevent overheating, install the GX/GP in a well-ventilated location. For the panel cut dimensions when arranging multiple GXs, see the next page. When other instruments are installed next to the GX, follow the panel cut dimensions to provide adequate space around the GX. In the case of the portable type, we recommend that you provide at least 50 mm of space from the left, right, and top panels.
- Minimal mechanical vibrations
  Install the GX/GP in a location that has minimal mechanical vibrations. Installing the GX/GP 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.
- Level Location
  Install the GX/GP in a level location so that it is not slanted to the left or the right (however, the GX/GP can be inclined up to 30 degrees backward for panel mounting).

Note

Condensation may form when moving the GX/GP 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 errors. In these kinds of circumstances, wait for at least an hour before using the GX/GP, to acclimate it to the surrounding environment.

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 GX/GP 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 GX/GP. Avoid installing the GX/GP in such locations.
- Near strong magnetic field sources
  Do not bring magnets or instruments that produce electromagnetic fields close to the GX/GP. Operating the GX/GP near strong magnetic fields can cause measurement errors.
- Where the display Is difficult to see
  The GX/GP uses an LCD screen, so it is difficult to view the display from an extreme angle. Install the GX/GP so that the user can view the display directly from the front.

Installation Procedure

Installation Procedure for the GX10/GX20

Use a steel panel that is 2 mm to 26 mm thick.

1. Insert the GX through the front of the panel.
2. Mount the GX to the panel using the included mounting brackets as described below.

- Use two mounting brackets to support the top and bottom or the left and right sides of the case (remove the stickers that are covering the holes before you attach the brackets).
- The recommended tightening torque for the mounting screws is 0.7 to 0.9 N•m.
- Follow the procedure below to mount the GX to the panel.
  - First, attach the two mounting brackets and temporarily tighten the mounting screws.
  - Next, fix the GX in place by tightening the mounting screws with the appropriate torque. When the GX is approximately perpendicular to the panel, press the mounting brackets so that they are in contact with the case, and fully tighten the mounting screws.

CAUTION

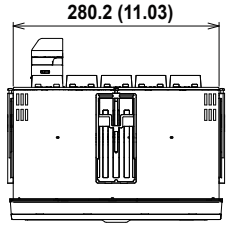
- **Using more than the appropriate torque to tighten the screws can deform the case or damage the brackets.**
- **Be sure not to insert foreign objects or tools into the case through the mounting bracket holes.**
- **When you attach the rubber packing, be sure that no portion of it gets wedged between the GX and the panel. If the rubber packing is not attached properly, you will not be able to achieve sufficient dust proofing or waterproofing.**

Note

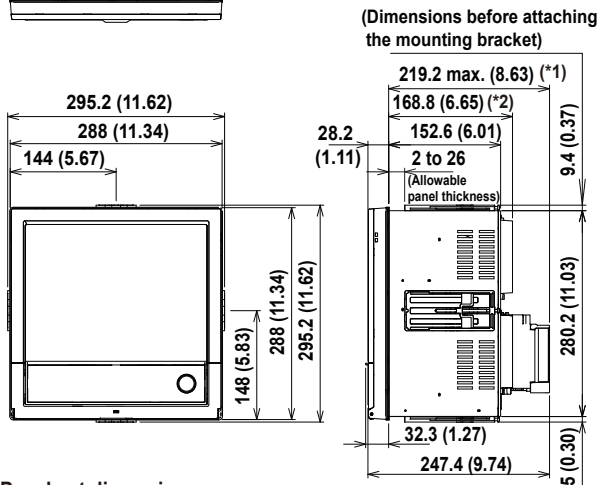
To achieve sufficient dust proofing and waterproofing, mount the GX in the middle of the panel cut out.

External Dimensions and Panel Cut Dimensions

GX20 External Dimensions

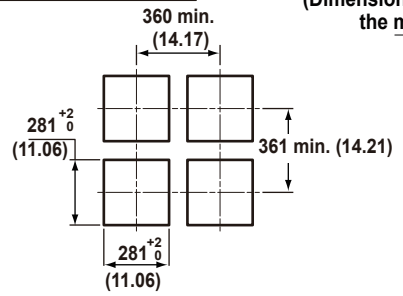


Unit: mm (approx. inch)
Unless otherwise specified, tolerance is ±3% (however, tolerance is ±0.3 mm when below 10 mm).

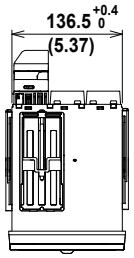


*1: With modules
*2: Without modules

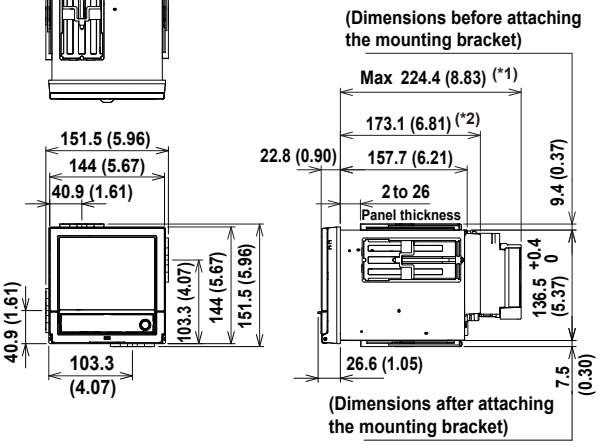
Panel cut dimensions



GX10 External Dimensions



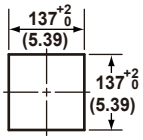
Unit: mm (approx. inch)
Unless otherwise specified, tolerance is ±3% (however, tolerance is ±0.3 mm when below 10 mm).



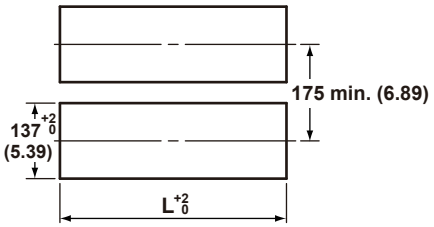
*1: With modules
*2: Without modules

Panel cut dimensions

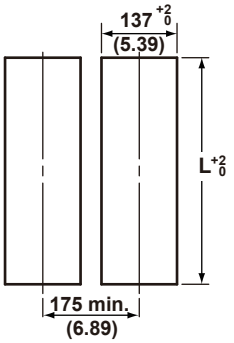
Single-unit mounting



Side-by-side mounting (horizontally)

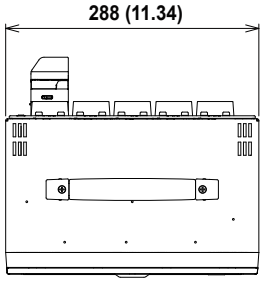


Side-by side mounting (vertically; max. 3 units)

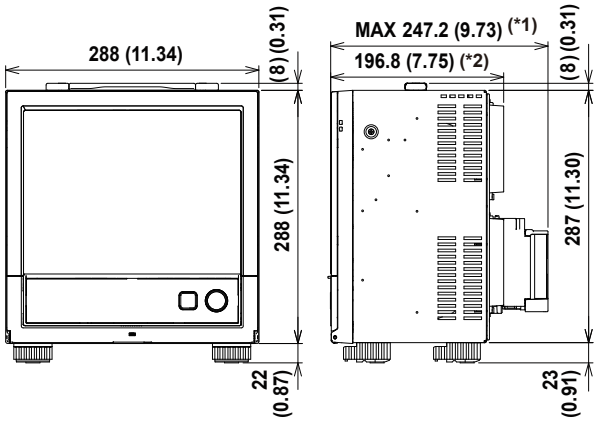


Units	L +2 0
2	282 (11.10)
3	426 (16.77)
4	570 (22.44)
5	714 (28.11)
6	858 (33.78)
7	1002 (39.45)
8	1146 (45.12)
9	1290 (50.79)
10	1434 (56.46)
n	(144×n)-6

GP20 External Dimensions

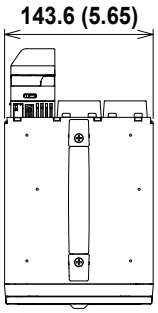


Unit: mm (approx. inch)
Unless otherwise specified, tolerance is ±3% (however, tolerance is ±0.3 mm when below 10 mm).

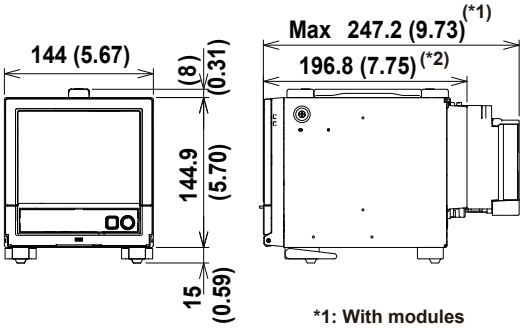


*1: With modules
*2: Without modules

GP10 External Dimensions



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

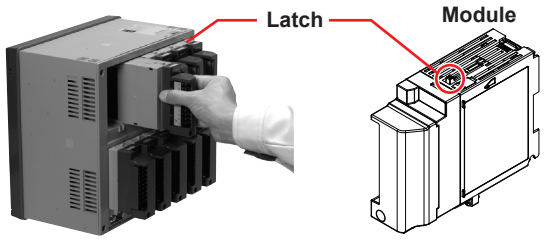


*1: With modules
*2: Without modules

Installing and Removing I/O Modules

Installing a Module

1. As shown below, insert the module into the GX/GP slot.
2. Push the module in until you hear a click. Then, fasten the screw at the bottom section of the module.*



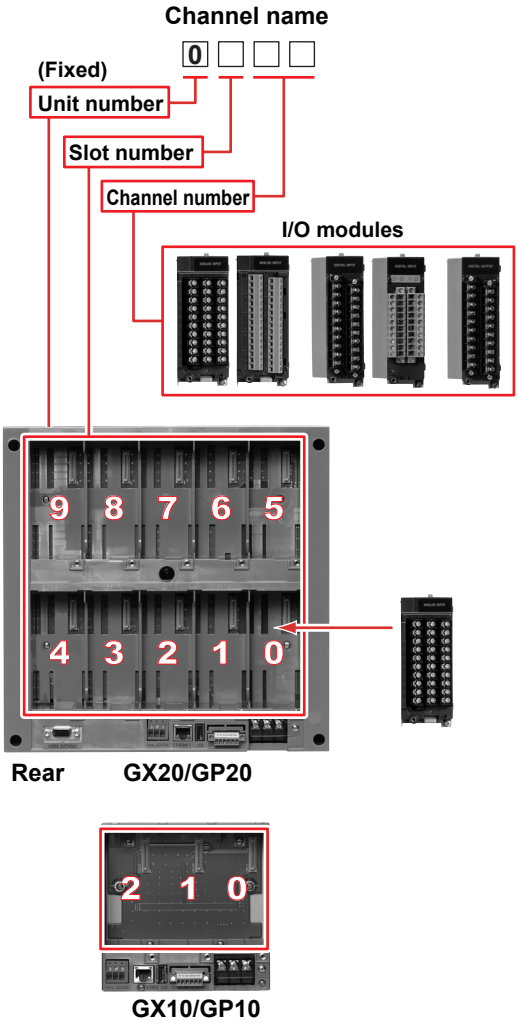
* Recommended torque for tightening the screws: 0.6 N•m

Removing a Module

1. Loosen the screw at the bottom section of the module.
2. While pressing down on the latch at the top of the module, pull the module out.

Channel Names

A channel name consists of a unit number, slot number, and channel number.



Wiring

WARNING

- **To prevent electric shock while wiring, make sure that the power supply is turned off.**
- **If a voltage of more than 30 VAC or 60 VDC is to be applied to the output terminals, use ring-tongue crimp-on lugs with insulation sleeves on all terminals to prevent the signal cables from slipping out when the screws become loose. Furthermore, use double-insulated cables (dielectric strength of 2300 VAC or more) for the signal cables on which a voltage of 30 VAC or 60 VDC or more is to be applied. For all other signal cables, use basic insulated cables (dielectric strength of 1390 VAC). To prevent electric shock, attach the terminal cover after wiring and make sure not to touch the terminals.**
- **Applying a strong tension to the input and output signal cables connected to the GX/GP may damage the cables or the GX/GP terminals. To avoid applying tension directly to the terminals, fix all cables to the rear of the mounting panel.**
- **To prevent fire, use signal cables 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 GX/GP.**

GX90XA
- **Maximum input voltage: ±60 VDC**
- **Maximum common mode voltage: ±60 VDC (under measurement category II conditions)**

GX90XD
- **Maximum input voltage: +10 VDC**
- **Maximum common mode voltage: ±50 VDC**

The GX/GP is an installation category II product.

Precautions to Be Taken While Wiring

Take the following precautions when wiring the input signal cables.

- With a screw terminal, we recommend that you use a crimp-on lug with an insulation sleeve (M4 for power supply wiring, M3 for signal wiring).

Crimp-on lug with an insulation sleeve

Recommended signal wiring crimp-on lug	N1.25-MS3 (JST Mfg. Co., Ltd.)

- With a clamp terminal, we recommend the following wire.

GX90XA	
Cross-sectional area	0.05 mm^2 to 1.5 mm^2 (AWG30 to 16)
Stripped wire length	5 to 6 mm
GX90XD	
Cross-sectional area	0.2 mm^2 to 1.5 mm^2 (AWG24 to 16)
Stripped wire length	9 to 10 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 GX/GP 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 protective ground terminal through minimum resistance (less than 100 Ω).
- When using internal reference junction compensation on the thermocouple input, take measures to stabilize the temperature at the input terminal.
  - Always use the terminal cover.
  - 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.

Wiring Procedure

A terminal cover is screwed in place on the I/O terminal block. A label indicating the terminal arrangement is affixed to the cover.

1. Turn off the GX/GP, and remove the terminal cover.
2. Connect the signal cables to the terminals.

Recommended torque for tightening the screws	Screw terminal (M3)	0.5 to 0.6 N•m
	Clamp terminal	GX90XA: 0.4 N•m
		GX90XD: 0.5 N•m

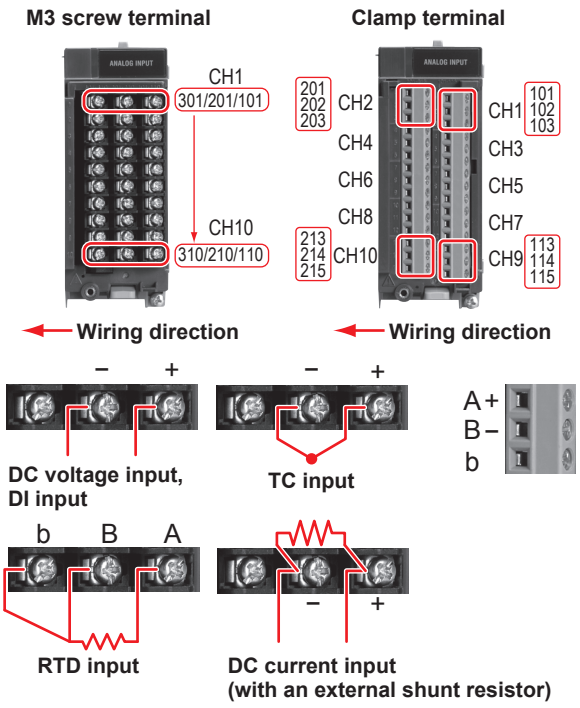
3. Attach the terminal cover and fasten it with screws. The appropriate tightening torque for the screws is 0.6 N•m.

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 GX90XA Analog Input Module

Terminal Diagram



Terminal Arrangement

M3 screw terminal

CH No.	Term. No.	Symbol	Term. No.	Symbol	Term. No.	Symbol
CH1	301	b	201	-/B	101	+/A
CH2	302	b	202	-/B	102	+/A
CH3	303	b	203	-/B	103	+/A
CH4	304	b	204	-/B	104	+/A
CH5	305	b	205	-/B	105	+/A
CH6	306	b	206	-/B	106	+/A
CH7	307	b	207	-/B	107	+/A
CH8	308	b	208	-/B	108	+/A
CH9	309	b	209	-/B	109	+/A
CH10	310	b	210	-/B	110	+/A

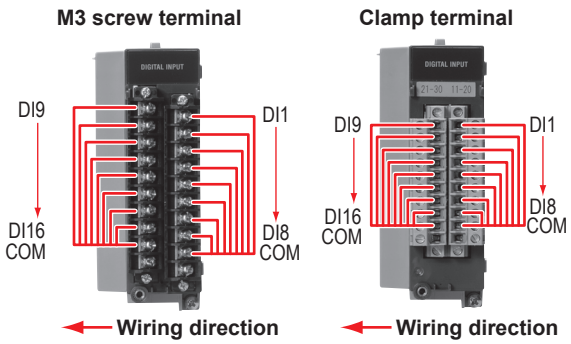
Clamp terminal

CH No.	Term. No.	Symbol	CH No.	Term. No.	Symbol
CH2	201	+/A	CH1	101	+/A
	202	-/B		102	-/B
	203	b		103	b
CH4	204	+/A	CH3	104	+/A
	205	-/B		105	-/B
	206	b		106	b
CH6	207	+/A	CH5	107	+/A
	208	-/B		108	-/B
	209	b		109	b
CH8	210	+/A	CH7	110	+/A
	211	-/B		111	-/B
	212	b		112	b
CH10	213	+/A	CH9	113	+/A
	214	-/B		114	-/B
	215	b		115	b

The RTD b terminal is connected internally.

Wiring to a GX90XD Digital Input Module

Terminal Diagram

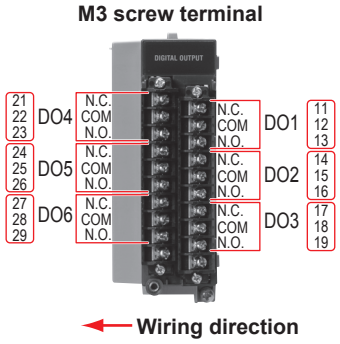


Terminal Arrangement

Term. No.	Symbol	Term. No.	Symbol
21	DI9	11	DI1
22	DI10	12	DI2
23	DI11	13	DI3
24	DI12	14	DI4
25	DI13	15	DI5
26	DI14	16	DI6
27	DI15	17	DI7
28	DI16	18	DI8
29	COM	19	COM
30	-	20	-

Wiring to a GX90YD Digital Input Module

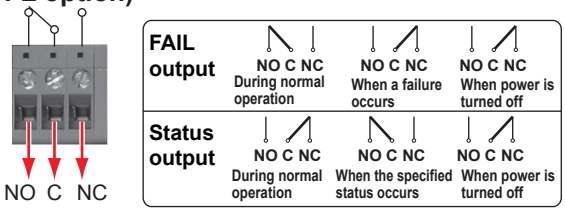
Terminal Diagram



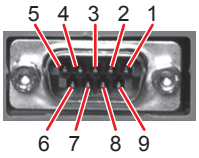
Terminal Arrangement

DO No.	Term. No.	Symbol	DO No.	Term. No.	Symbol
DO4	21	N.C.	DO1	11	N.C.
	22	COM		12	COM
	23	N.O.		13	N.O.
DO5	24	N.C.	DO2	14	N.C.
	25	COM		15	COM
	26	N.O.		16	N.O.
DO6	27	N.C.	DO3	17	N.C.
	28	COM		18	COM
	29	N.O.		19	N.O.
	30	-		20	-

Connecting to the FAIL Output/Status Output (/FL option)



Connecting to the Serial Communication Interface (/C2 option)

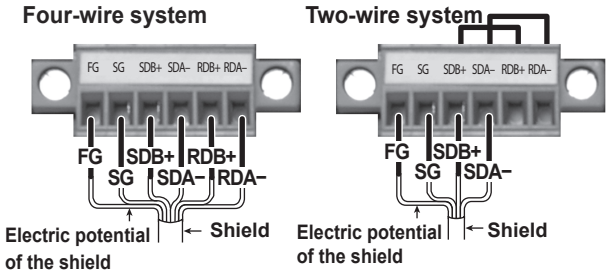


DSUB 9-pin male

2	RD (Received Data)
3	SD (Send Data)
5	SG (Signal Ground)
7	RS (Request to Send)
8	CS (Clear to Send)

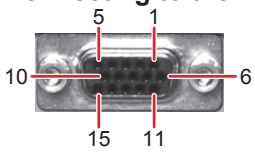
Pins 1, 4, 6, and 9 are not used.

Connecting to the RS-422/485 Connector (/C3 option)



FG (Frame Ground)	Case ground of the GX/GP
SG (Signal Ground)	Signal ground
SDB+ (Send Data B+)	Send data B (+)
SDA− (Send Data A−)	Send data A (–)
RDB+ (Received Data B+)	Receive data B (+)
RDA− (Received Data A−)	Receive data A (–)

Connecting to the VGA Connector (/D5 option)



Pin No.	Signal Name	Specifications
1	Red	0.7 Vp-p
2	Green	0.7 Vp-p
3	Blue	0.7 Vp-p
4	—	
5	—	
6	GND	
7	GND	
8	GND	
9	—	
10	GND	
11	—	
12	—	
13	Horizontal sync signal	Approx. 39.1 kHz, TTL negative logic
14	Vertical sync signal	Approx. 60 Hz, TTL negative logic
15		

CAUTION

- **Only connect the GX/GP to a monitor after turning both the GX/GP and the monitor off.**
- **Do not short the VIDEO OUT connector or apply external voltage to it. Doing so may damage the GX/GP.**

Connecting to a Monitor

1. Turn off the GX/GP and the monitor.
2. Connect the GX/GP and the monitor using an RGB cable.
3. Turn on the GX/GP and the monitor. The GX/GP screen appears on the monitor.

Note

- When the GX/GP is turned on, the VIDEO OUT connector constantly transmits VGA signals.
- The monitor display may flicker if you place the GX/GP or some other device close to it.
- Depending on the type of monitor, parts of the GX/GP display may be cut off.

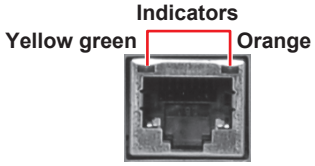
Connecting to the USB Port (/UH option)

A USB2.0 compliant port (see “Component Names”)

Connecting to the Ethernet Port

Checking the Connection and Communication Status

You can use the indicators that are located above the Ethernet port to check the connection status of the Ethernet interface.



Indicator	Connection Status of the Ethernet Interface
Lit (yellow-green)	The Ethernet interface is electrically connected.
Off (yellow-green)	The Ethernet interface is not electrically connected.
Blinking (yellow-green)	Receiving data
Lit (orange)	Connected at 100 Mbps
Off (orange)	Connected at 10 Mbps

Wiring the Power Supply

Use a power supply that meets the following conditions:

Item	Condition (Not /P1)	Condition (/P1)
Rated supply voltage	100 to 240 VAC	24 VDC/AC
Allowable power supply voltage range	90 to 132 VAC, 180 to 264 VAC	21.6 V to 26.4 VDC/AC
Rated power supply frequency	50/60 Hz	50/60 Hz (for AC)
Permitted power supply frequency range	50/60 Hz ± 2%	50/60 Hz ± 2% (for AC)
Maximum power consumption 100 VAC (/P1: 24 VDC)	GX10/GP10: 48 VA GX20/GP20: 90 VA	GX10/GP10: 24 VA GX20/GP20: 48 VA
Maximum power consumption 240 VAC (/P1: 24 VAC)	GX10/GP10: 60 VA GX20/GP20: 110 VA	GX10/GP10: 42 VA GX20/GP20: 76 VA

Note

Do not use a supply voltage of 132 to 180 VAC, as this may have adverse effects on the measurement accuracy.

Precautions to Be Taken When Wiring the Power Supply (GX10/GX20)

Make sure to follow the warnings below when wiring the power supply. Failure to do so may cause electric shock or damage to the instrument.

WARNING

- **To prevent electric shock, ensure that the power supply is turned off.**
- **To prevent fire, use 600 V PVC insulated wires (AWG20 to AWG16; JISC3307) or wires or cables with equivalent or better performance.**
- **Make sure to earth ground the protective earth terminal through a grounding resistance of 100 Ω or less before you turn on the power.**
- **Use crimp-on lugs (designed for 4 mm screws) with insulation sleeves to connect both the power cord and the protective ground.**
- **To prevent electric shock, be sure to close the transparent cover for the power supply wires.**
- **Provide a power switch (double-pole type) on the power supply line to separate the GX/GP from the main power supply. Use labels to indicate that this switch is for cutting off the power supply to the GX/GP and to indicate ON and OFF.**

  Switch specifications

  Steady-state current rating: 1 A or higher (Not /P1), 3 A or higher (/P1)

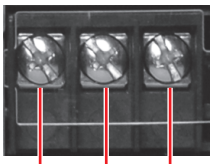
  Inrush current rating: 60 A or higher (Not /P1), 70 A or higher (/P1)

  Must comply with IEC60947-1 and IEC60947-3.

- **Do not add a switch or fuse to the ground line.**

Wiring Procedure (GX10/GX20)

1. Turn off the GX power supply, and then remove the transparent power supply terminal cover.
2. Connect the power cord and the protective ground cord to the power supply terminal. Use ring-tongue crimp-on lugs (for M4 screws) with insulation sleeves. The appropriate tightening torque for the screws is 1.4 to 1.5 N•m.



L **N** **Protective ground**

3. Attach the transparent power supply terminal cover, and fasten it with screws.

Precautions to Be Taken When Connecting the Power Supply (GP10/GP20)

Make sure to follow the warnings below when connecting the power supply. Failure to do so may cause electric shock or damage to the instrument.

WARNING

- **Before connecting the power cord, ensure that the source voltage matches the rated supply voltage of the instrument and that it is within the maximum rated voltage range of the provided power cord.**
- **Connect the power cord after checking that the power switch of the instrument is turned OFF.**
- **To prevent electric shock and fire, be sure to use a power cord purchased from Yokogawa Electric Corporation.**
- **Make sure to connect protective earth grounding to prevent electric shock. Insert the power cord into a grounded three-prong outlet.**
- **Do not use an extension cord without protective earth ground. If you do, the instrument will not be grounded.**

Connection Procedure

1. Check that the GP's power switch is off.
2. Connect the supplied power cord plug to the power inlet on the rear panel of the GP.

3. Ensure that the source voltage is within the maximum rated voltage range of the provided power cord. Then, connect the other end of the cord to the outlet. Use a grounded three-prong outlet.

Basic Operation

Turning the Power On and Off

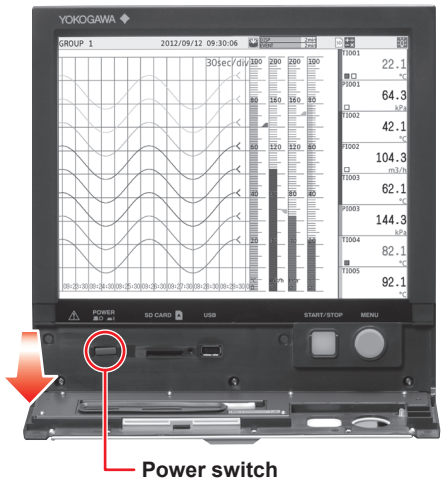
Turning the Power On

CAUTION

Check the following points before turning on the power switch.
- **The power cord or wires are connected properly to the GX/GP.**
- **The GX/GP is connected to the correct power supply.**

If the input wiring is connected in parallel with another instrument, do not turn on or off the GX/GP or other instrument during operation. If you do, measured values may be affected.

1. Open the front door.
2. Turn on the power switch.
   A self-test takes place for a few seconds, and then the operation screen appears.



3. Close the front cover.

CAUTION

- **If nothing appears on the display even when you turn on the power switch, turn off the power switch, and check the wiring and supply voltage. If, after checking these items, the GX/GP still fails to start when you turn on the power switch, it may be malfunctioning. Contact your nearest Yokogawa dealer for repairs.**
- **If an error message appears on the screen, take measures according to the information in chapter 5, “Troubleshooting” in the GX/GP User’s Manual.**
- **After you turn on the power switch, allow the GX/GP to warm up for at least 30 minutes before starting a measurement.**

Turning the Power Off

CAUTION

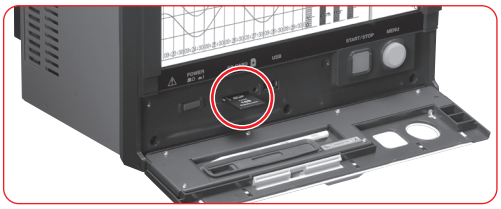
Check the following points before turning off the power switch.
- **The external storage medium is not being accessed (the yellow-green LED is not blinking).**

1. Open the front door.
2. Turn off the power switch.
3. Close the front door.

Setting and Removing SD Memory Cards

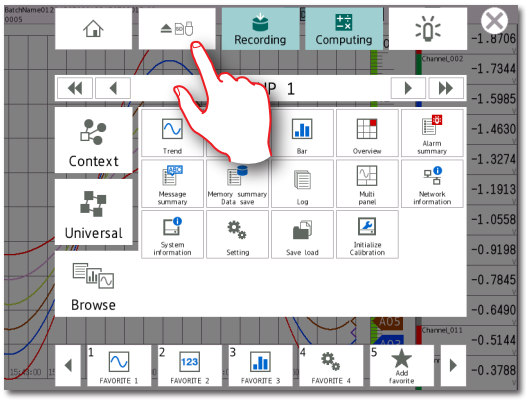
Setting a SD Memory Card

1. Open the front door.
2. Insert an SD memory card into the card slot.



Removing the SD Memory Card

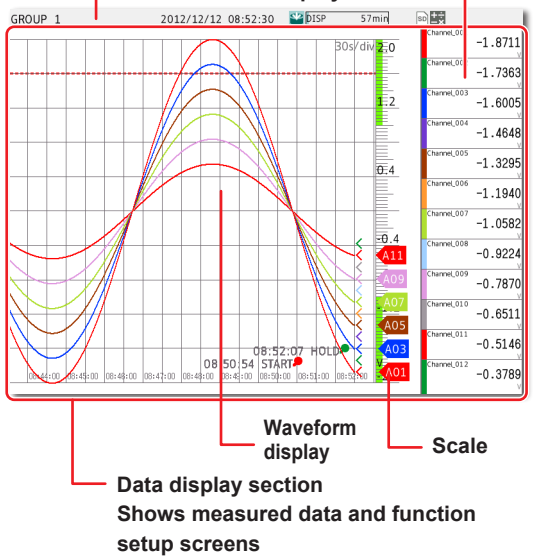
1. Press **MENU**.
2. Tap the media eject icon.



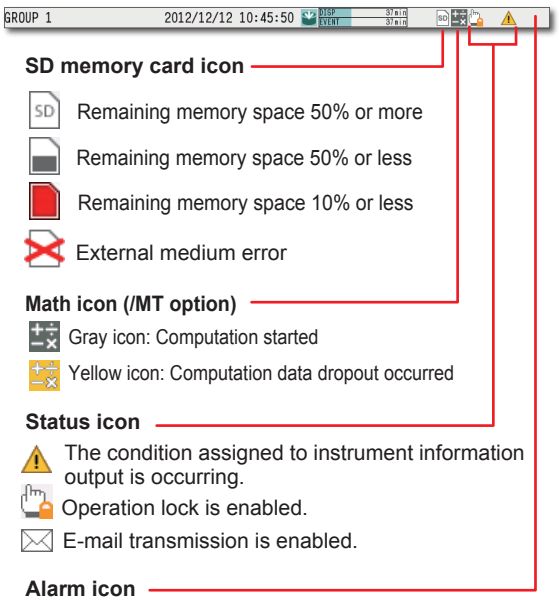
3. On the screen for selecting the type of media, tap **SD**.
4. Remove the SD memory card.

Operation complete

Viewing the Operation Screen (Trend)



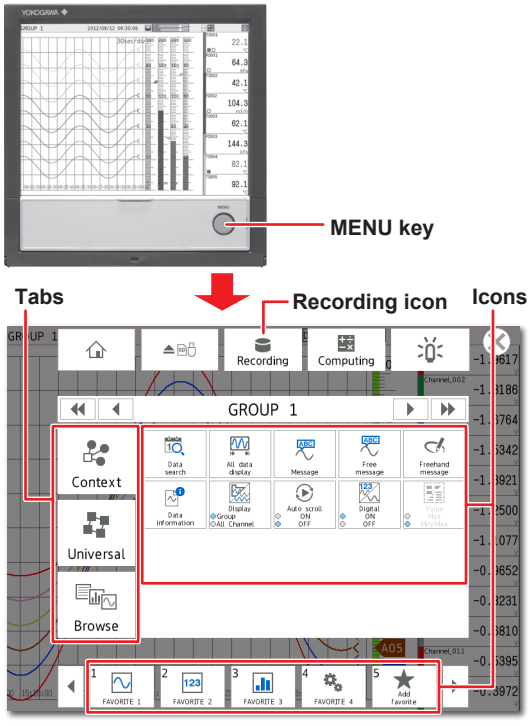
Status Display Section



Displaying the Menu Screen

To change the display between various setup screens and operation screens, display the menu screen.

1 Press **MENU**.
The menu screen appears.

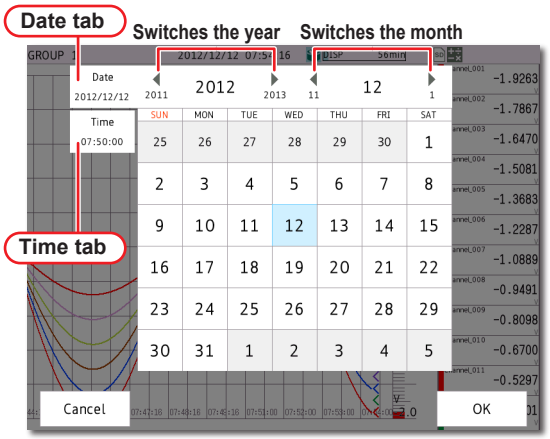


Setting the Date and Time

Set the date using the calendar and the time.

Path **MENU key** > **Universal** tab > **Date/Time settings**

1. Tap the Date tab.
2. Set the month and day with the switch icons.



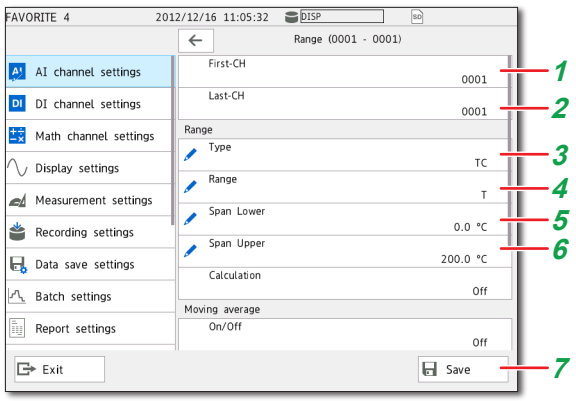
3. Tap the Time tab.
4. Enter the time using the keyboard, and tap **OK**.
   The time is set.

Operation complete

Configuring the Inputs

For channel 1 (0001) of slot 0, set thermocouple type T, 0 to 200°C.

Path **MENU** key > **Browse** tab > **Setting** > Setting menu > **AI channel settings** > **Range**

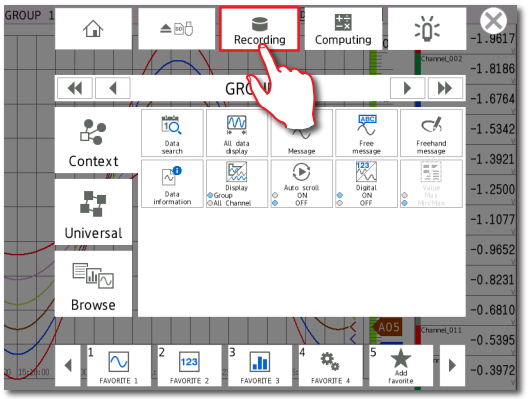


1. Tap **First-CH** > **0001**.
2. Check that Last-CH is 0001.
3. Tap **Type** > **TC**.
4. Tap **Range** > **T**.
5. Tap **Span Lower**, and enter 0.0.
6. Tap **Span Upper**, and enter 200.0.
7. Tap **Save**.

Operation complete

Starting Measurement and Recording

1. Press **MENU**.
   The menu screen appears.



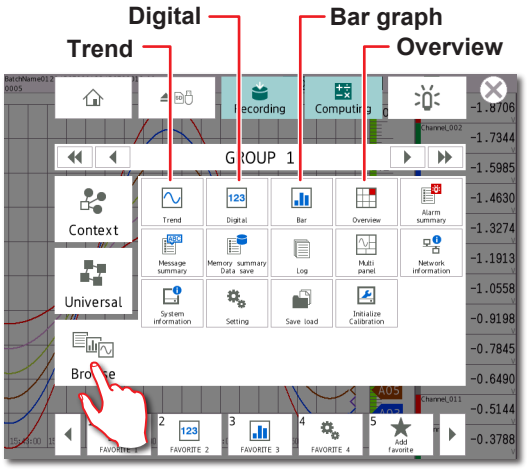
2. Tap the **Recording** icon.
   The record start screen appears.
3. Tap **Record**.
   Recording starts. The recording status icon in the status display section changes to recording in progress.

Operation complete

You can also start recording with the START/STOP key.
You can stop recording in the same way that you start recording.

Switching between Operation Screens

1. Press **MENU**.
   The menu screen appears.



2. Tap the **Browse** tab.
3. Tap the icon of the display that you want to change to.

Operation complete

This section explains how to change various settings.
Before you change settings, stop recording and computation.

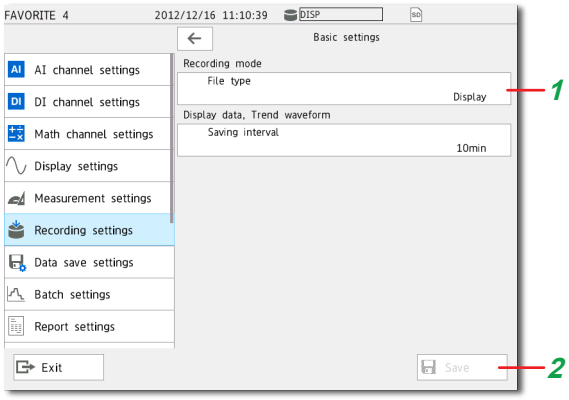
Advanced Operation (Various settings and operation)

Setting Measurement and Recording Conditions

Configuring the type of data to record to display data, the scan interval to 2 s, and the trend interval to 1 min.

Setting the Type of Data to Record

Path **MENU** key > **Browse** tab > **Setting** > Setting menu > **Recording Settings** > **Recording mode** > **Basic settings**

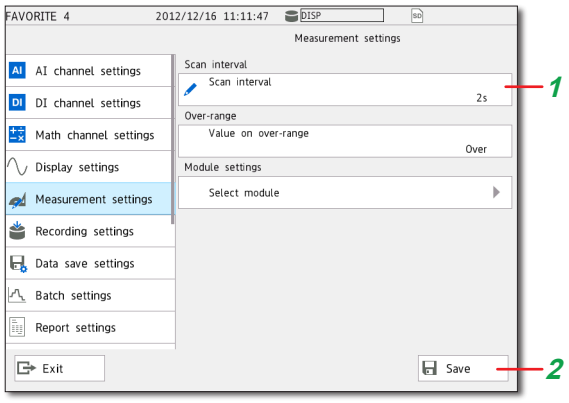


1 Tap **File type** > **Display**.
2 Tap **Save**.

You can set the file type to record only the data that suits your purpose. For example, you can record detailed data or record data only when alarms occur. For details, see the User's Manual (IM 04L51B01-01EN).

Setting the Scan Interval

Path **MENU** key > **Browse** tab > **Setting** > Setting menu > **Display settings** > **Scan interval**

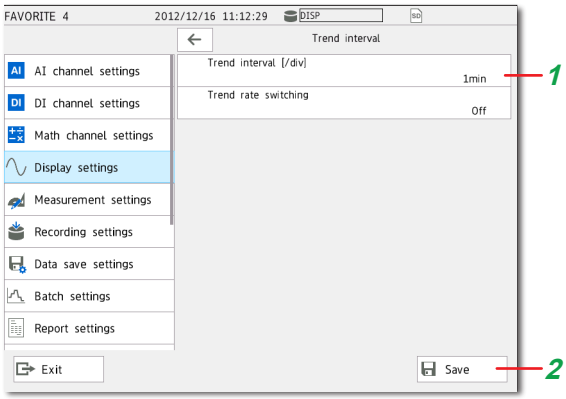


1 Tap **Scan interval** > **2s**.
2 Tap **Save**.

Operation complete

Setting the Trend Interval

Path **MENU** key > **Browse** tab > **Setting** > Setting menu > **Display settings** > **Trend interval**



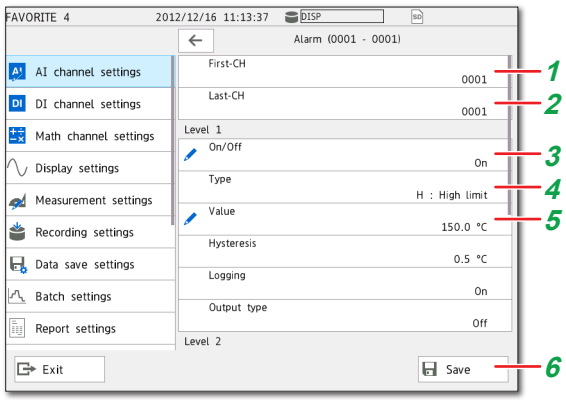
1 Tap **Trend interval [/div]** > **1 min**.
2 Tap **Save**.

Operation complete

Setting Alarms

On channel 1 of slot 0, set the high limit alarm at the alarm value of 150°C.

Path **MENU** key > **Browse** tab > **Setting** > Setting menu > **AI channel settings** > **Alarm**



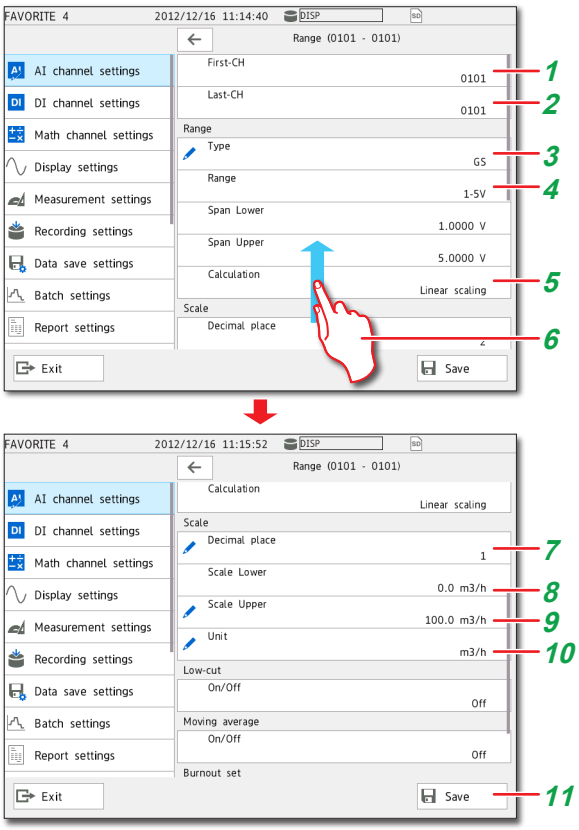
1 Tap **First-CH** > **0001**.
2 Check that **Last-CH** is 0001.
3 Tap **Level1** > **On**.
4 Tap **Type** > **H**.
5 Tap **Value**, and enter 150.0.
6 Tap **Save**.

Operation complete

Using the Scaling Function (Measuring a flow meter)

On channel 1 of slot 1 (0101), measure the input signal ranging from 1 to 5 VDC as 0.0 to 100.0 m^3/h.

Path **MENU** key > **Browse** tab > **Setting** > Setting menu > **AI channel settings** > **Range**



1. Tap **First-CH** > **0101**.
2. Check that **Last-CH** is 0101.
3. Tap **Type** > **GS**.
4. Tap **Range** > **1-5V**.
5. Tap **Calculation** > **Linear scaling**.
6. Drag the screen up.
   Show the setting parameters off the screen at the bottom.
7. Tap **Decimal place** > **1**.
8. Tap **Scale Lower**, and enter 0.0.
9. Tap **Scale Upper**, and enter 100.0.
10. Tap **Unit**, and enter m3/h.
11. Tap **Save**.

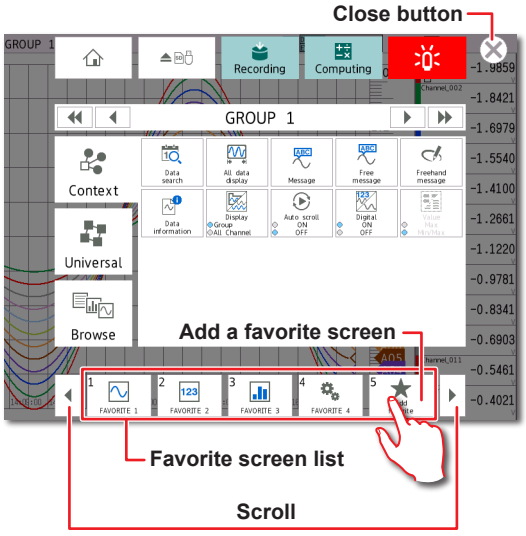
Operation complete

Registering and Deleting Favorite Screens

You can register displays that you use frequently as favorite screens and display them with easy operation. You can register up to 20 displays.

Registering a Favorite Screen

1. Show the display that you want to register as a favorite screen.
2. Press **MENU**.
   The menu screen appears.



3. Tap **Add favorite**.
   A confirmation screen appears.
4. Tap **Favorite name**, and enter the name.
5. Tap **OK**.
   The display is registered.
6. Tap the **Close** icon.
   The screen closes.

Operation complete

Deleting a Favorite Screen

1. Press **MENU**.
2. Tap **Universal** tab > **Remove favorite**.
3. Select the screen to delete, and tap **OK**.
4. Tap the **Close** icon.
   The screen closes.

Operation complete

This section explains what you need to do when you change the module configuration (by installing or removing modules).

Reconfiguring the GX/GP (Module identification)

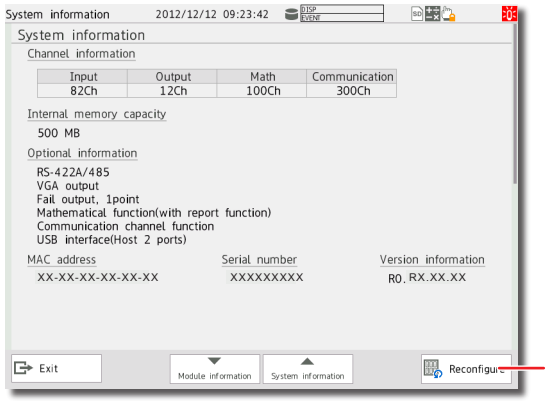
Reconfiguring the GX/GP

When you reconfigure the GX/GP, the installed I/O modules are detected, and the settings are changed accordingly.
Reconfiguration is necessary in the following situations.

- If you specify modules separately
- If you change the modules (change to different modules)
- If you add or remove modules

If you purchased a model with preinstalled modules (/U[][]0 or /CR[][] option), you can start using the GX/GP right away without any reconfiguration. However, if you change modules, add modules, or delete modules, you will need to reconfigure.

1. Press **MENU**.
2. Tap the **Browse** tab.
3. Tap **Initialize Calibration**.
4. Tap **Reconfiguration**.
5. Tap **Execute**.
   The system information appears.



6. Tap **Reconfigure**.
7. Tap **OK**.

Operation complete

Note

Do not carry out the following operations while the GX/GP is reconfiguring.

- Turn the power off and on
- Insert or remove modules

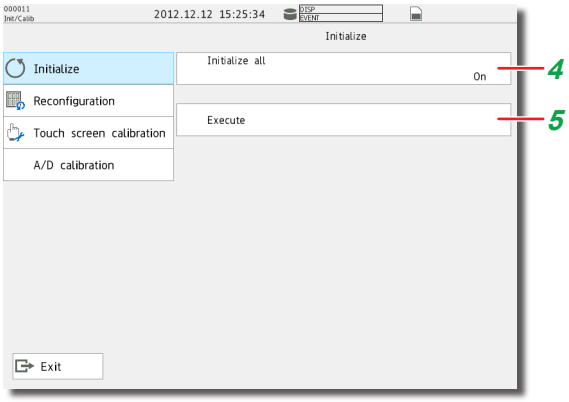
Initializing the GX/GP (Initializing all settings)

Initialize the GX/GP after reconfiguring the GX/GP when channels are not assigned to display groups. Channels are automatically assigned during initialization.
For details, see the User's Manual (IM 04L51B01-01EN).

Note

- This procedure is not necessary if you purchased an I/O module preinstalled model and do not need to change the configuration.
- If you initialize, setting parameters are reset to their factory defaults. We recommend that you back up setting parameters before initialization.

1. Press **MENU**.
2. Tap the **Browse** tab.
3. Tap **Initialize Calibration**.
4. Tap **Initialize all** > **On**.



5. Tap **Execute**.
   A confirmation screen is displayed.
6. Tap **OK**.
   The settings are initialized.

Operation complete

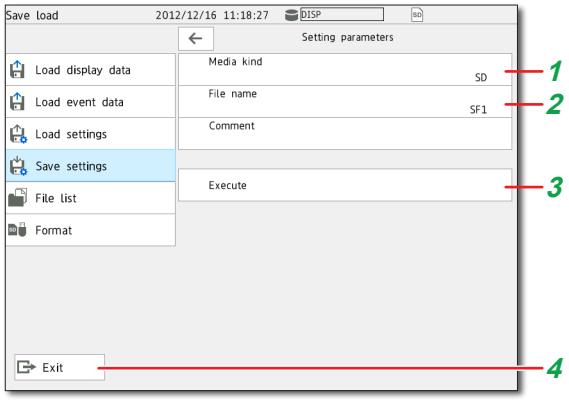
This section explains how to back up setting parameters.
Before you change the module configuration or settings, we recommend that you back up the setting parameters.

Saving and Loading Setting Parameters

Saving Setting Parameters

Save setting parameters to the SD memory card with the file name “SF1.”

Path **MENU** key > **Browse** tab > **Save load** > Menu **Save settings** > Setting parameters



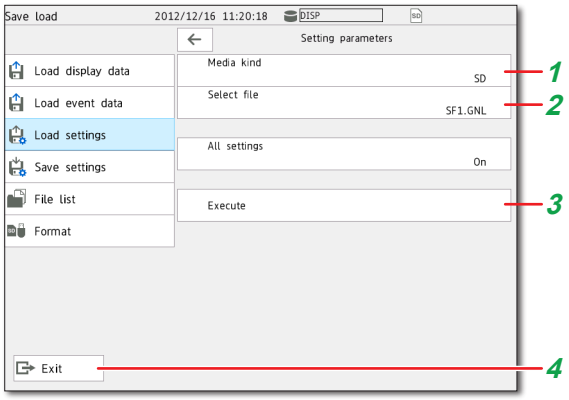
1. Tap **Media kind** > **SD**.
2. Tap **File name**, and enter SF1.
3. Tap **Execute**.
4. Tap **Exit**.

Operation complete

Loading Setup Parameters

Load the setup parameter file “SF1.GNL” from the SD memory card.

Path **MENU** key > **Browse** tab > **Save load** > Menu **Load settings** > Setting parameters



1. Tap **Media kind** > **SD**.
2. Tap **File name** > **SF1.GNL**.
3. Tap **Execute**.
4. Tap **Exit**.

Operation complete

Web Application

You can open the Web application simply by starting a Web browser (IE6 or IE8), and specifying the GX/GP IP address. You do not have to install any software. You can do the following on the Web application.

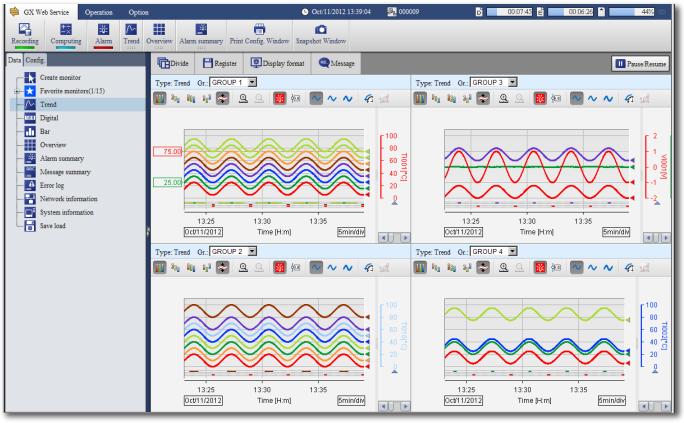
- Operate the GX/GP
- Monitor data
- Changing setting parameters

For details on configuring the environment settings to connect the GX/GP to an Ethernet network and how to use the software, see the User's Manual (IM 04L51B01-01EN).

Starting the Web Application

1 Start the Web browser.

2 In the Address box, enter "http://" followed by the GX/GP IP address.
If DNS is available, you can specify the host name in place of the IP address.
Example: When the IP address is "192.168.1.1," enter
http://192.168.1.1
in the Address box.
The Web application starts, and the screen appears.



Operation complete

Closing the Web Application

When close the Web browser, the Web application also closes.

Application Software

The following software applications are available for the GX/GP.
- SMARTDAC+ STANDARD Universal Viewer
- SMARTDAC+ STANDARD Hardware Configurator

You can use SMARTDAC+ STANDARD Universal Viewer to display on screen and print the following types of data that is generated by recorders.
- Display data files
- Event data files
- Report data files (including hourly, daily, monthly, batch, and daily-custom, and free reports)
- Manual sampled data files

You can attach also convert measured data to ASCII or Excel formats.
You can use SMARTDAC+ STANDARD Hardware Configurator to create and edit setup data for the GX/GP recorder.

You can download the latest software and labels from the following URL.
URL: www.smartdacplus.com/software/en/

You can the labels on the front door of the GX/GP. Enter or print tag names on them for use. You can use Microsoft Office Excel 2003 or later to edit the labels.

You can download the product user's manuals from the following URL.
URL: www.smartdacplus.com/manual/en/

PC System Requirements

OS

OS	Type
Windows XP	Home Edition SP3 (excluding 64-bit editions)
	Professional SP3 (excluding 64-bit editions)
Windows Vista	Home Premium SP2 (excluding 64-bit editions)
	Business Edition SP2 (excluding 64-bit editions)
Windows 7	Home Premium SP1 (32- or 64-bit edition)
	Professional SP1 (32- or 64-bit edition)

CPU and main memory

OS	CPU and main memory
Windows XP Windows Vista	Intel Pentium 4, 3 GHz or faster x64 or x86 processor. At least 2 GB of memory.
Windows 7	32-bit edition: Intel Pentium 4, 3 GHz or faster x64 or x86 processor. At least 2 GB of memory.
	64-bit edition: Intel Pentium 4, 3 GHz or faster x64 processor. At least 2 GB of memory.

Web Browser

Compatible Browser	Version
Windows Internet Explorer Java Runtime Environment 1.6 (Version 6)	Internet Explorer 6 or Internet Explorer 8

Hard disk

Free space of at least 100 MB (depending on the amount of data, you may need more memory).

Display

A video card that is recommended for the OS and a display that is supported by the OS, has a resolution of 1024×768 or higher, and that can show 65,536 colors (16-bit, high color) or more.

Other Operating Conditions

To view the user's manuals, you need to use Adobe Reader 7 or later by Adobe Systems (the latest version recommended).

Installation

To install Universal Viewer or Hardware Configurator, download the installer from the Yokogawa website.

1. Turn on the PC, and start Windows.
   Log onto Windows as an administrator.
2. Double click the installer (**.exe).
   The installer starts. Follow the instructions on the screen to install the software.

Note

- Close all other software applications before installing this software.
- To reinstall the software, uninstall the current software first.

Hardware Configurator
- The "Countries/regions except Japan" selection dialog box appears during installation. Select the country that you will use the software in.
- The HTTP port for using the Web browser is set to 34443. If this port is already in use by another application, you will not be able to start Hardware Configurator even if you install it. In such a case, perform the corrective action on section 1.4 in SMARTDAC+ STANDARD Hardware Configurator User's Manual (IM 04L61B01-02EN).

About the User's Manuals

The user's manual is installed with the software. To view the manual, on the **Help** menu, click **Instruction Manual**. You can also access it from **Start** > **All Programs**.
Use Adobe Reader 7.0 or later to view the manual.
The software and manual are installed for the following languages.

Universal Viewer

Language	Software	User's manual
Japanese	Japanese	Japanese
English	English	English
Chinese	Chinese	Chinese
French	French	English
German	German	
Russian	Russian	
Korean	Korean	

Hardware Configurator

Country Selected at Installation	Software	User's manual
Japanese	Display language selectable: Japanese/English	Japanese
Regions except Japan		English

Starting and Closing Universal Viewer

Starting Universal Viewer

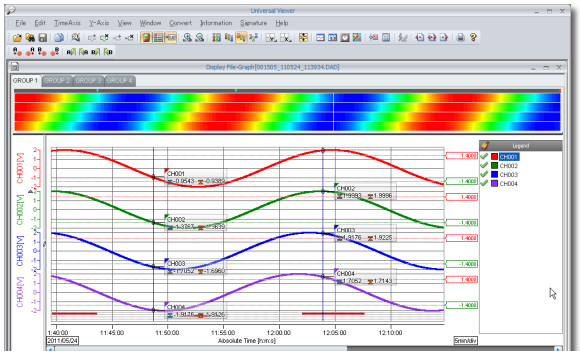
1. From the Start menu, click **All Programs** - **SMARTDAC+ STANDARD** - **Viewer**.
   Universal Viewer starts.

Closing Universal Viewer

1. On the **File** menu, click **Exit**. Or, click the **×** button.

Specifying a File Name and Opening the Data File

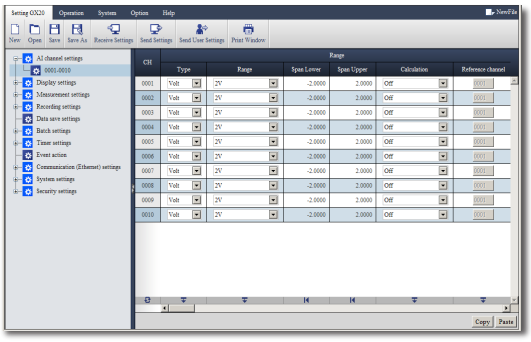
1. On the **File** menu, click **Open**. Or, click **Open** on the toolbar.
   The Open dialog box appears.
2. Select the data file you want to open, and click **Open**. Or, double-click the file.
   The data appears in the window.



Starting and Closing Hardware Configurator

Starting Hardware Configurator

1. From the **Start** menu, select **All Programs** - **SMARTDAC+ STANDARD** - **Hardware Configurator**.
   The first time Hardware Configurator starts after installation, the Windows Security Alert dialog box appears. Click **Unblock**.
   Hardware Configurator starts, and the following window appears.



Note

- Hardware Configurator will not start if Internet Explorer is not installed.
- The default settings are the system configuration of the GX20.

Closing Hardware Configurator

Close Internet Explorer.

1. Click the **Close** button; or on the **File** menu, click **Exit**.

Note

If you change the setup data, the changes are stored and will appear the next time you start the software.

Setup Menu Map

Depending on setting parameter values, some items may be hidden. For details, see the User's Manual (IM 04L51B01-01EN).

- AI channel settings
  - Range
    - First-CH
    - Last-CH
    - **Range**
    - Type
    - Range
    - Span Lower
    - Span Upper
    - Calculation
    - Reference channel
    - Scale
    - Decimal place
    - Scale Lower
    - Scale Upper
    - Unit
    - Low-cut
    - On/Off
    - Low-cut value
    - Low-cut output
    - Moving average
    - On/Off
    - Count
    - RJC
    - Mode
    - Temperature
    - Burnout set
    - Mode
    - Bias
    - Value
  - Alarm
    - First-CH
    - Last-CH
    - Level 1
    - On/Off
    - Type
    - Value
    - Hysteresis
    - Logging
    - Output type
    - Output No.
    - Level 2
    - On/Off
    - Level 3
    - On/Off
    - Level 4
    - On/Off
    - Alarm delay
    - Hour
    - Minute
    - Second
  - Display settings
    - First-CH
    - Last-CH
    - Tag
    - Characters
    - No.
    - Color
    - Color
    - Zone
    - Lower
    - Upper
    - Scale
    - Position
    - Division
    - Bar graph
    - Base position
    - Division
    - Partial
    - On/Off
    - Expand
    - Boundary
    - Color scale band
    - Band area
    - Color
    - Display position Lower
    - Display position Upper
    - Alarm point mark
    - Indicate on Scale
    - Mark kind
    - Alarm 1 color
    - Alarm 2 color
    - Alarm 3 color
    - Alarm 4 color
    - Display characters of each value
    - 0
    - 1
  - Calibration correction
    - First-CH
    - Last-CH
    - Mode
    - Mode
    - Number of set points
    - 1
    - Linearizer input
    - Linearizer output
    - :
    - 12

Setup Menu Map

- DI channel settings
  - Range
    - First-CH
    - Last-CH
    - Range
    - Type
    - Span Lower
    - Span Upper
    - Calculation
    - Reference channel
    - Scale
    - Decimal place
    - Scale Lower
    - Scale Upper
    - Unit
  - Alarm
    - First-CH
    - Last-CH
    - Level 1
    - On/Off
    - Type
    - Value
    - Hysteresis
    - Logging
    - Output type
    - Output No.
    - Level 2
    - On/Off
    - Level 3
    - On/Off
    - Level 4
    - On/Off
    - Alarm delay
    - Hour
    - Minute
    - Second
  - Display settings
    - First-CH
    - Last-CH
    - Tag
    - Characters
    - No.
    - Color
    - Color
    - Zone
    - Lower
    - Upper
    - Scale
    - Position
    - Bar graph
    - Base position
    - Alarm point mark
    - Indicate on Scale
    - Mark kind
    - Alarm 1 color
    - Alarm 2 color
    - Alarm 3 color
    - Alarm 4 color
    - Display characters of each value
    - 0
    - 1

- DO channel settings
  - Range
    - First-CH
    - Last-CH
    - Range
    - Type
    - Span Lower
    - Span Upper
    - Unit
    - Action
    - Energize/De-energize
    - Action
    - Hold
    - Relay Action on ACK
    - Relay deactivated interval
  - Display settings
    - First-CH
    - Last-CH
    - Tag
    - Characters
    - No.
    - Color
    - Color
    - Zone
    - Lower
    - Upper
    - Scale
    - Position
    - Bar graph
    - Base position
    - Display characters of each value
    - 0
    - 1

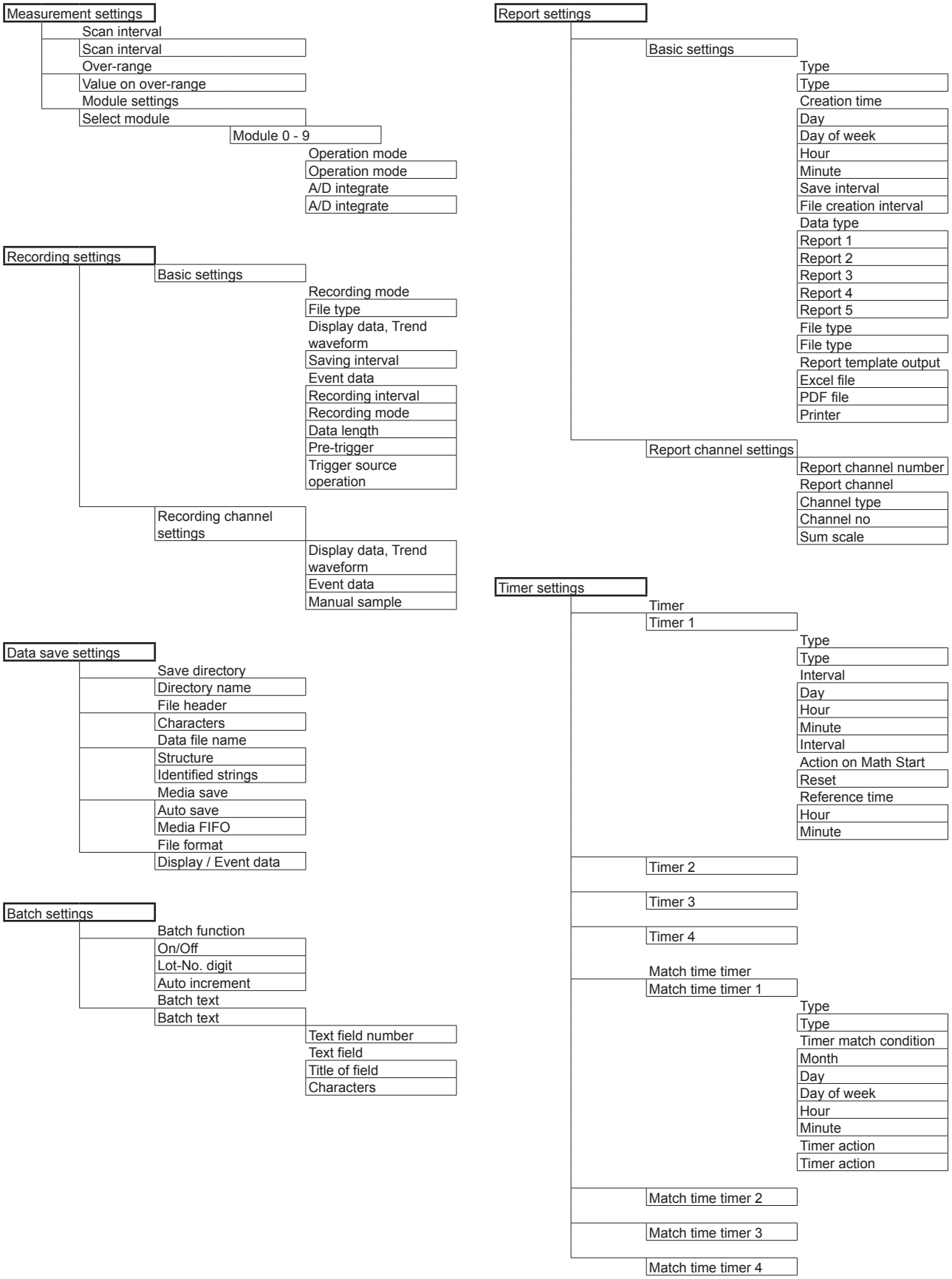
- Math channel settings
  - Calculation expression
    - First-CH
    - Last-CH
    - Math range
    - On/Off
    - Calculation expression
    - Decimal place
    - Span Lower
    - Span Upper
    - Unit
    - TLOG
    - Timer type
    - Timer No.
    - Sum scale
    - Reset
    - Rolling average
    - On/Off
    - Interval
    - Number of samples

Continued on the next page

- Alarm
  - First-CH
  - Last-CH
  - Level 1
    - On/Off
    - Type
    - Value
    - Hysteresis
    - Logging
    - Output type
    - Output No.
  - Level 2
    - On/Off
  - Level 3
    - On/Off
  - Level 4
    - On/Off
  - Alarm delay
    - Hour
    - Minute
    - Second
- Display settings
  - First-CH
  - Last-CH
  - Tag
    - Characters
    - No.
  - Color
    - Color
  - Zone
    - Lower
    - Upper
  - Scale
    - Position
    - Division
  - Bar graph
    - Base position
    - Division
  - Partial
    - On/Off
    - Expand
    - Boundary
  - Color scale band
    - Band area
    - Color
    - Display position Lower
    - Display position Upper
  - Alarm point mark
    - Indicate on Scale
    - Mark kind
    - Alarm 1 color
    - Alarm 2 color
    - Alarm 3 color
    - Alarm 4 color
- Constant
  - Number of constant
  - Constant
    - K001
    - :
- Math action settings
  - Value on Error
  - START/STOP key action
  - Value on Overflow
    - SUM, AVE
    - MAX, MIN, P-P

- Display settings
  - Trend interval
    - Trend interval [/div]
    - Trend rate switching
    - Second interval [/div]
  - Group settings
    - Group number
    - Group settings
      - On/Off
      - Group name
      - Channel set
    - Scale image
      - On/Off
    - Trip line 1
      - On/Off
      - Position
      - Color
      - Line width
    - Trip line 2
      - On/Off
    - Trip line 3
      - On/Off
    - Trip line 4
      - On/Off
  - Message settings
    - Message number
    - Message
      - Message 1
      - :
  - Trend settings
    - Direction
    - Trend clear
    - Trend line
    - Grid
    - Scale
      - Digit
      - Value indicator
      - Digit of mark
    - Partial
      - On/Off
    - Message
      - Write group
      - Power-fail message
      - Change message
  - Screen display settings
    - Bar graph
      - Direction
    - LCD
      - Brightness
    - Backlight saver
      - Mode
      - Saver time
      - Restore
    - Monitor
      - Display background
      - Scroll time
      - Jump default display
    - Calendar display
      - 1st weekday
    - Changing each value from monitoring
      - On/Off

Setup Menu Map



- Event action
  - Event action number
  - Event action
  - On/Off
  - Event
  - Type
  - Number
  - Alarm level
  - Operation mode
  - Action
  - Type
  - Number
  - Detail
  - Group number

- Communication channel settings
  - On/Off, Span
    - First-CH
    - Last-CH
    - On/Off, Span
    - On/Off
    - Decimal place
    - Span Lower
    - Span Upper
    - Unit
    - At power on
    - Value at power on
    - Preset value
    - Preset value
    - Watchdog timer
    - On/Off
    - Timer
    - Value at timer-expired
  - Alarm
    - First-CH
    - Last-CH
    - Level 1
    - On/Off
    - Type
    - Value
    - Hysteresis
    - Logging
    - Output type
    - Output No.
    - Level 2
    - On/Off
    - Level 3
    - On/Off
    - Level 4
    - On/Off
    - Alarm delay
    - Hour
    - Minute
    - Second

- Display settings
  - First-CH
  - Last-CH
  - Tag
  - Characters
  - No.
  - Color
  - Color
  - Zone
  - Lower
  - Upper
  - Scale
  - Position
  - Division
  - Bar graph
  - Base position
  - Division
  - Partial
  - On/Off
  - Expand
  - Boundary
  - Color scale band
  - Band area
  - Color
  - Display position Lower
  - Display position Upper
  - Alarm point mark
  - Indicate on Scale
  - Mark kind
  - Alarm 1 color
  - Alarm 2 color
  - Alarm 3 color
  - Alarm 4 color

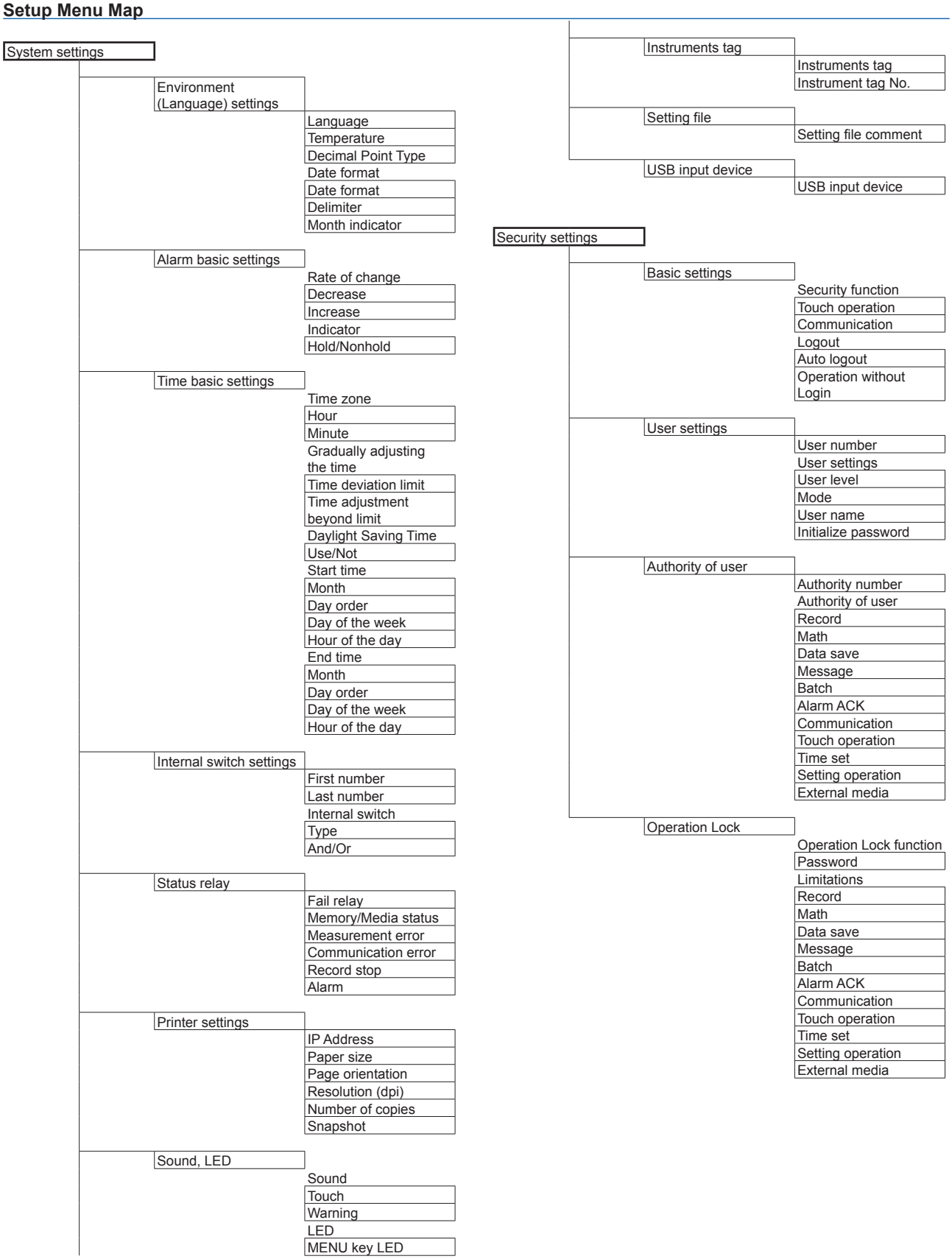
- Communication (Ethernet) settings
  - Basic settings
    - Automatic IP settings
      - Obtain IP address automatically
    - IP Address
      - IP Address
      - Subnet mask
      - Default gateway
    - Automatically DNS settings
      - Obtain DNS address automatically
    - DNS settings
      - Primary DNS server
      - Secondary DNS server
    - Domain suffix
      - Primary domain suffix
      - Secondary domain suffix
    - Host settings
      - Host name
      - Domain name
    - Host name registration
      - Host name registration
  - FTP client settings
    - FTP client function
      - On/Off
    - Transfer file
      - Display & Event data
      - Report
      - Manual sampled data
      - Alarm summary
      - Snap shot
    - Transfer wait time
      - Display & Event data
      - Report
    - FTP connection Primary
      - FTP server name
      - Port number
      - User name
      - Password
      - Directory
      - PASV mode
    - FTP connection Secondary
      - FTP server name
      - Port number
      - User name
      - Password
      - Directory
      - PASV mode
  - SMTP client settings
    - SMTP client function
      - On/Off
    - Authentication
      - Authentication
    - SMTP server
      - SMTP server name
      - Port number
      - User name
      - Password
    - POP3 server
      - POP3 server name
      - Port number
      - User name
      - Password
  - E-mail settings
    - Mail header
      - Recipient 1
      - Recipient 2
      - Sender
      - Subject
    - E-mail contents
      - Header
      - Include source URL
    - Alarm settings
      - Alarm notification
      - Channel set
      - Attach instantaneous data
      - Send alarm action
      - Include tag/ch in Subject
    - Report settings
      - Report notification
    - Scheduled settings
      - Scheduled notification
      - Attach instantaneous data
      - Interval (Recipient 1)
      - Ref. time hour (Recipient 1)
      - Ref. time minute (Recipient 1)
      - Interval (Recipient 2)
      - Ref. time hour (Recipient 2)
      - Ref. time minute (Recipient 2)
    - System settings
      - Media alarm notification
      - Power failure notification
      - System error notification
  - SNTP client settings
    - SNTP client function
      - On/Off
    - SNTP server
      - SNTP server name
      - Port number
    - Query action
      - Ref. time (Hour)
      - Ref. time (Minute)
      - Interval
      - Timeout
      - Time adjust on Start action
  - Modbus client settings
    - Basic settings
      - Modbus client function
        - On/Off
      - Communication
        - Interval
      - Recovery action
        - Wait time
      - Connection
        - Keep connection
        - Connection timeout
    - Modbus server settings
      - Server number
      - Modbus server settings
        - Server name
        - Port number

Continued on the next page

- Command settings
  - Client command number
  - Command settings
    - Type
    - Server
    - Unit No.
    - Data type
    - Register
    - Channel type
    - First-CH
    - Last-CH
- Server settings
  - Sever function
    - Keep alive function
      - On/Off
    - Timeout function
      - On/Off
      - Timeout (minute)
    - FTP server
      - Output Directory Format
    - Modbus server
      - Modbus delay response
  - Allowed Modbus clients
    - Modbus client connect limits function
      - On/Off
    - 1
      - On/Off
      - IP Address
    - :
  - Server list
    - FTP
      - On/Off
      - Port number
    - HTTP
      - On/Off
      - Port number
    - SNTP
      - On/Off
      - Port number
    - MODBUS
      - On/Off
      - Port number
    - GENE
      - On/Off
      - Port number

- Communication(Serial) settings
  - Basic settings
    - Receiver
      - Function
      - Address
    - Data transfer
      - Baud rate
      - Parity bit
      - Stop bit
      - Data length
      - Handshake
  - Modbus master
    - Basic setting
      - Master function
        - On/Off
      - Communication
        - Interval
        - Communication timeout
        - Gap between messages
      - Recovery action
        - Retransmission
        - Wait time
    - Command settings
      - Master command number
      - Command settings
        - Type
        - Slave
        - Data type
        - Register
        - Channel type
        - First-CH
        - Last-CH

Setup Menu Map



YOKOGAWA

YOKOGAWA ELECTRIC CORPORATION

Headquarters
2-9-32, Nakacho, Musashino-shi, Tokyo, 180-8750 JAPAN

Branch Sales Offices
Nagoya, Osaka, Hiroshima, Fukuoka, Sendai, Ichihara, Toyota,
Kanazawa, and Kitakyusyu.

YOKOGAWA CORPORATION OF AMERICA

2 Dart Road, Newnan, Georgia 30265-1094, U.S.A.
Phone : 1-800-888-6400
Fax : 1-770-254-0928

YOKOGAWA EUROPE B. V.

Euroweg 2, 3825 HD Amersfoort, THE NETHERLANDS
Phone:31-88-4641000 Fax:31-88-4641111

Branch Sales Offices / Wien (Austria), Zaventem (Belgium),
Ratingen (Germany), Madrid (Spain), Runcorn (United Kingdom), Milano (Italy),
Velizy-Villacoublay (France), Budapest (Hungary), Stockholm (Sweden),
Sola (Norway), Warszawa (Poland), Vila Nova de Gaia (Portugal),
Bucharest (Romania), Dublin (Ireland)

YOKOGAWA AMERICA DO SUL LTDA.

Praca Acapulco, 31 - Santo Amaro. Sao Paulo/SP - BRAZIL
Phone : 55-11-5681-2400 Fax : 55-11-5681-4434

YOKOGAWA ENGINEERING ASIA PTE. LTD.

5 Bedok South Road, 469270 SINGAPORE
Phone : 65-6241-9933 Fax : 65-6241-2606

YOKOGAWA ELECTRIC KOREA CO., LTD.

14-1, Yangpyongdong-4Ga, Youngdeungpo-Gu, Seoul, 150-866 KOREA
Phone : 82-2-2628-6000 Fax : 82-2-2628-6400

YOKOGAWA AUSTRALIA PTY. LTD.

Tower A, 112-118 Talavera Road, Macquarie Park,
N.S.W.2113, AUSTRALIA
Phone : 61-2-8870-1100 Fax : 61-2-8870-1111

YOKOGAWA INDIA LTD.

Plot No.96 Electronic City Complex, Hosur Road, Bangalore 560100, INDIA
Phone : 91-80-4158-6000 Fax : 91-80-2852-1442

YOKOGAWA CHINA CO., LTD.

3F TowerD Cartelo Crocodile Building
No.568 West Tianshan Road, Shanghai 200335, CHINA
Phone : 86-21-62396262 Fax : 86-21-62387866

June '10

Printed in China