User's
Manual

SMARTDAC+

Model GX10/GX20/GP10/GP20/GM10

Multi-batch Function (/BT)
User's Manual

YOKOGAWA
Yokogawa Electric Corporation

IM 04L51B01-03EN
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Introduction

Thank you for purchasing the SMARTDAC+ GX10/GX20/GP10/GP20 (hereafter referred to as the GX or GP) or the GM10 (hereafter referred to as the GM).
This manual describes the operating procedure for the GX/GP/GM Multi-batch function(/BT option). Please use this manual in conjunction with the standard user's manual (IM 04L51B01-01EN (GX/GP) or IM 04L55B01-01EN (GM)).

To ensure correct use, please read this manual thoroughly before beginning operation.
The following manuals are provided for the GX/GP/GM.

● Paper Manuals

Model	Manual Title	Manual No.	Description
GX/GP	Model GX10/GX20/GP10/GP20 Paperless Recorder First Step Guide	IM 04L51B01-02EN	Explains the basic operations of the GX/GP.
	Quick, Easy Steps	IM 04L51B01-04Z1	Explains the operating procedures.
GM	Data Acquisition System GM First Step Guide	IM 04L55B01-02EN	Explains the basic operations of the GM.

● Downloadable Electronic Manuals

You can download the latest manuals from the following website.
www.smartdacplus.com/manual/en/

Model	Manual Title	Manual No.	Description
GX/GP	Model GX10/GX20/GP10/GP20 Paperless Recorder First Step Guide	IM 04L51B01-02EN	This is the electronic version of the paper manual.
	Model GX10/GX20/GP10/GP20 Paperless Recorder User's Manual	IM 04L51B01-01EN	Describes how to use the GX/GP. The communication control commands and some of the options are excluded.
	Model GX10/GX20/GP10/GP20 Advanced Security Function (/AS) User's Manual	IM 04L51B01-05EN	Describes how to use the advanced security function (/AS option).
GM	GM Data Acquisition System First Step Guide	IM 04L55B01-02EN	This is the electronic version of the paper manual.
	GM Data Acquisition System User's Manual	IM 04L55B01-01EN	Describes how to use the GM. The communication control commands and some of the options are excluded.
	GM Data Acquisition System Advanced Security Function (/AS) User's Manual	IM 04L55B01-05EN	Describes how to use the advanced security function (/AS option).
GX/GP GM	Model GX10/GX20/GP10/GP20/GM10 Communication Commands User's Manual	IM 04L51B01-17EN	Describes how to use command control communication functions.
	SMARTDAC+ STANDARD Universal Viewer User's Manual	IM 04L61B01-01EN	Describes how to use Universal Viewer, which is a software that displays GX/GP/GM measurement data files.
	SMARTDAC+ STANDARD Hardware Configurator User's Manual	IM 04L61B01-02EN	Describes how to use the PC software for creating setting parameters for various GX/GP/GM functions.
	Model GX10/GX20/GP10/GP20/GM10 Multi-batch Function (/BT) User's Manual	IM 04L51B01-03EN	Describes how to use the multi-batch function (/BT option).
	Model GX10/GX20/GP10/GP20/GM10 Log Scale (/LG) User's Manual	IM 04L51B01-06EN	Describes how to use the log scale (/LG option).
	Model GX10/GX20/GP10/GP20/GM10 EtherNet/IP Communication (/E1) User's Manual	IM 04L51B01-18EN	Describes how to use the communication functions through the EtherNet/IP (/E1 option).
	Model GX10/GX20/GP10/GP20/GM10 WT Communication (/E2) User's Manual	IM 04L51B01-19EN	Describes how to use WT communication (/E2 option).
	Model GX10/GX20/GP10/GP20/GM10 OPC-UA Server (/E3) User's Manual	IM 04L51B01-20EN	Describes how to use the OPC-UA server function (/E3 option).
	Model GX10/GX20/GP10/GP20/GM10 SLMP Communication (/E4) User's Manual	IM 04L51B01-21EN	Describes how to use SLMP communication function (/E4 option).
	Model GX10/GX20/GP10/GP20/GM10 Loop Control Function, Program Control Function (/PG Option) User's Manual	IM 04L51B01-31EN	Describes how to use the Loop Control Function, Program Control Function (/PG Option).
GX/GP	DXA170 DAQStudio User's Manual	IM 04L41B01-62EN	Describes how to create custom displays (/CG option).

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Notes

- The contents of this manual are subject to change without prior notice as a result of continuing improvements to the software'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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About the Usage of Open Source Software

This product uses open source software.
For details on using open source software, see Regarding the Downloading and Installing for the Software, Manuals and Labels (IM 04L61B01-11EN).

Revisions

December 2015	1st Edition
March 2016	2nd Edition
June 2017	3rd Edition

How to Use This Manual

Recorder Version and Functions Described in This Manual

The contents of this manual apply to the GX/GP/GM10 with the following release numbers (see the STYLE S number) and style numbers (see the STYLE H number).

Model	Release Number	Style Number
GX/GP	4	2
GM10	4	1

What This Manual Explains

This manual mainly explains the Multi Batch function. For details on other settings and procedures, see the *Model GX10/GX20/GP10/GP20 Paperless Recorder User's Manual* (IM 04L51B01-01EN) or *Data Acquisition System GM* (IM 04L55B01-01EN).
For details on communication commands, see *Model GX10/GX20/GP10/GP20/GM10 Communication Command User's Manual* (IM 04L51B01-17EN).

The GX20/GP20/GM10 standard type and large memory type are distinguished using the following notations.

- Standard type: GX20-1/GP20-1/GM10-1
- Large memory type: GX20-2/GP20-2/GM10-2

The following terms are used for references to other manuals:

Notation	Description
GX/GP User's Manual	Model GX10/GX20/GP10/GP20 Paperless Recorder User's Manual Refers to the IM 04L51B01-01EN.
GX/GP First Step Guide	Model GX10/GX20/GP10/GP20 Paperless Recorder First Step Guide Refers to the IM 04L51B01-02EN.
GM User's Manual	GM Data Acquisition System User's Manual Refers to the IM 04L55B01-01EN.
GM First Step Guide	GM Data Acquisition System First Step Guide Refers to the IM 04L55B01-02EN.
Communication Command Manual	Model GX10/GX20/GP10/GP20/GM10 Communication Command User's Manual Refers to the IM 04L51B01-17EN.
Universal Viewer Manual	SMARTDAC+ STANDARD Universal Viewer User's Manual Refers to the IM 04L61B01-01EN.
GX/GP Advanced Security Manual	Model GX10/GX20/GP10/GP20 Advanced Security Function (/AS) User's Manual Refers to the IM 04L51B01-05EN.
GM Advanced Security Manual	Data Acquisition System GM Advanced Security Function (/AS) User's Manual Refers to the IM 04L55B01-05EN.
WT Communication Manual	Model GX10/GX20/GP10/GP20/GM10 WT Communication (/E2) User's Manual Refers to the IM 04L51B01-19EN.
SLMP Communication Manual	Model GX10/GX20/GP10/GP20/GM10 SLMP Communication (/E4) User's Manual Refers to the IM 04L51B01-21EN.
Loop Control Function, Program Control Function Manual	Model GX10/GX20/GP10/GP20/GM10 Loop Control Function, Program Control Function (/PG Option) User's Manual

Conventions Used in This Manual

Unit

K	Denotes 1024. Example: 768K (file size)
k	Denotes 1000.

Notes

⚠	*Improper handling or use can lead to injury to the user or damage to the instrument.* This symbol appears on the instrument to indicate that the user must refer to the user's manual for special instructions. The same symbol appears in the corresponding place in the user's manual to identify those instructions. In the manual, the symbol is used in conjunction with the word "WARNING" or "CAUTION."
Warning	Calls attention to actions or conditions that could cause serious or fatal injury to the user, and precautions that can be taken to prevent such occurrences.
CAUTION	Calls attention to actions or conditions that could cause light injury to the user or cause damage to the instrument or user's data, and precautions that can be taken to prevent such occurrences.
Note	Calls attention to information that is important for the proper operation of the instrument.

Reference Item

▶	Reference to related operation or explanation is indicated after this mark. Example:▶ section 4.1

Conventions Used in the Procedural Explanations

Bold characters	Denotes key or character strings that appear on the screen. Example: **Voltage**
A a # 1	Indicates the character types that can be used.
Procedure **Explanation**	Carry out the procedure according to the step numbers. All procedures are written with inexperienced users in mind; depending on the operation, not all steps need to be taken. Explanation gives information such as limitations related the procedure.
Path **Description**	Indicates the setup screen and explains the settings.

Revision History

Edition	Model	Product	Description
1	GX/GP	Release number 3 (Version 3.01)	New edition
		Style number 1	
	GM	Release number 3 (Version 3.01)	
		Style number 1	
2	GX/GP	Release number 3 (Version 3.02)	Added starting of recording, editing of batch numbers and lot numbers, editing of batch comments, and text field display to the batch single screen display. Added a function for switching the display status of all start/stop.
		Style number 1	
	GM	Release number 3 (Version 3.02) Style number 1	–
3	GX/GP	Release number 4 (Version 4.01)	Support for release number 4.
		Style number 2	
	GM10	Release number 4 (Version 4.01)	
		Style number 1	

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1.1 Features and Benefits

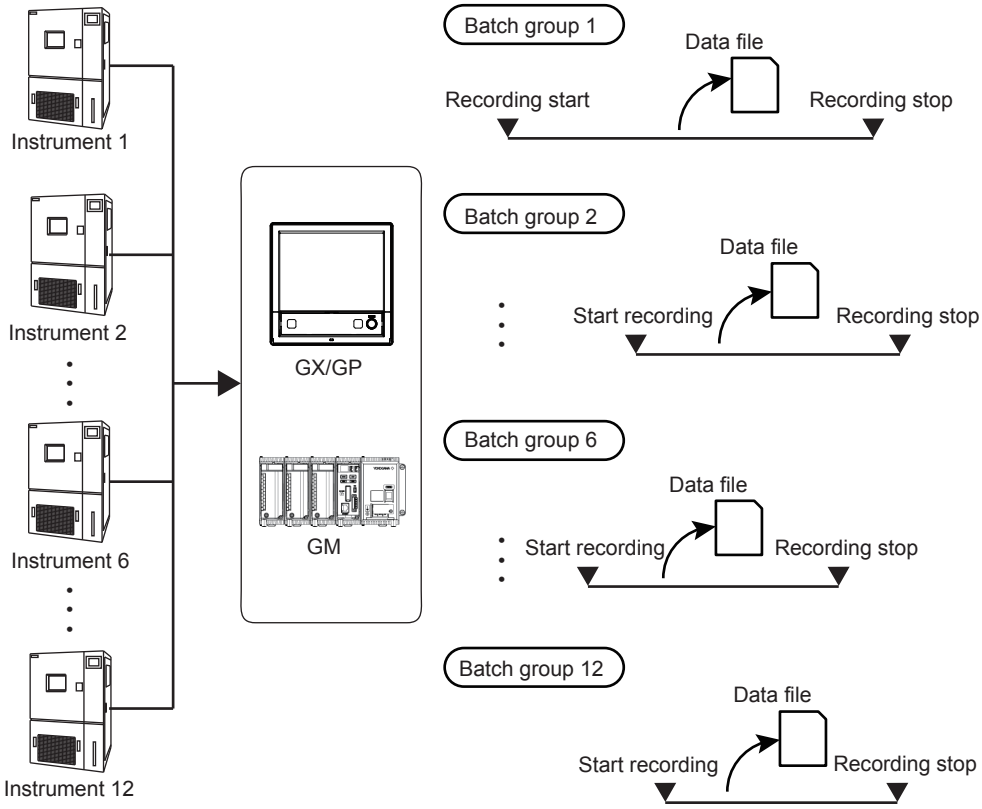
The multi batch function can measure the data of multiple devices operating asynchronously on a single GX/GP/GM and create data files at the batch level.
The function has the following features and benefits.

Features

- Up to 12 batches (large memory type) can be measured and recorded.
- A measurement data file can be created for each batch.
- Recording can be started and stopped, and computation can be restarted for the entire batch or for each batch.
- Batch overview allows monitoring of all batches (batch overview mode or all batch mode (Web application)) or individual batches (batch single mode).

Benefits

- Because multiple devices can be recorded on a single GX/GP/GM, there is no need to install a recorder or data logger for each device. This leads to reduction in equipment costs.
- Centralized monitoring using a single recorder or data logger reduces the labor cost of regularly taking rounds to monitor each device.
- The status of each device (each batch) can be monitored centrally.
- Centralized data facilitates data management.



1.2 Recording and Saving Data

1.2.1 Overview

The multi batch function allows you to record and save the measured data from multiple batches separately (per batch). You can also apply the multi batch function to multiple consecutive processes.

The diagram on the following page gives a general overview of the multi batch function.

Number of Batches Supported

The table below shows the number of batches supported by the GX/GP/GM. Each batch is known as a batch group.

Model	Number of Batches Supported
GX10-1, GX20-1, GP10-1, GP20-1, GM10-1	2 to 6
GX20-2, GP20-2, GM10-2	2 to 12

Recordable Channels

On the trend, digital, and bar graph displays, the data of channels is displayed in groups that are set in advance. These groups are called *display groups*.
The following table shows the number of display groups that can be set in each batch group and the number of channels that can be registered in each display group. Display groups are shared among the trend, digital, and bar graph displays.
For each batch group, the measured data is displayed per display group. The GX/GP/GM records the data from the measurement channels, computation channels, or communication channels (/MC) that are registered in the display groups and recording channels.

Note

If all the display groups in a batch group are set to Off, recording will not start even if you try to start recording because there are no recordable channels.

Model	Number of Display Groups	Number of Channels You Can Register to a Single Display Group
GX10-1, GP10-1	6	10
GX20-1, GP20-1, GM10-1	6	20
GX20-2, GP20-2, GM10-2	12	20

The conditions for recording display or event data (scan interval, recording interval, and data type) apply to all batch groups. Likewise, the conditions for saving data files (file save interval and save destination directory) apply to all batch groups.

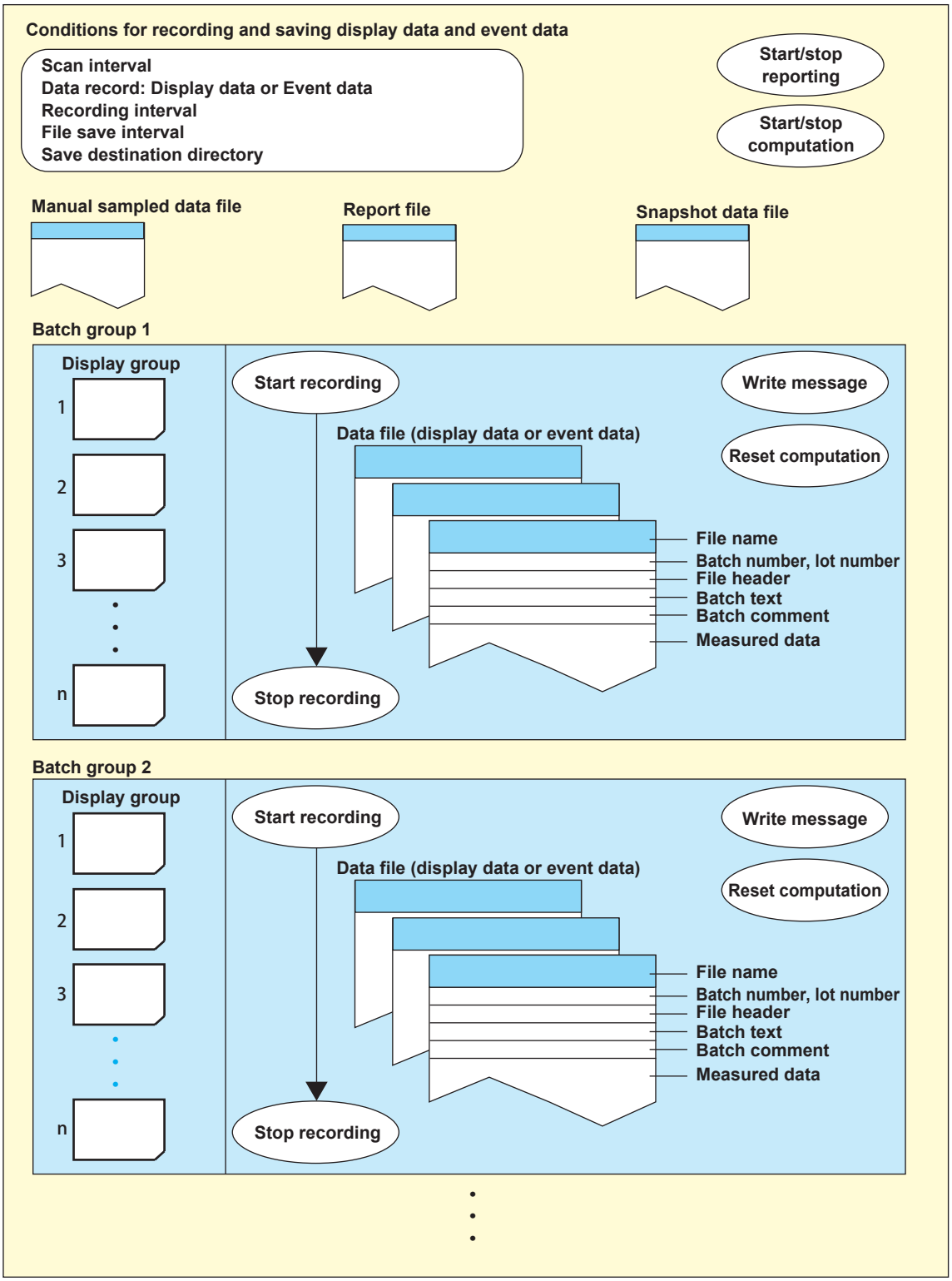
You can start and stop recording for each batch group individually. Other actions such as writing messages and resetting the values calculated on computation channels (/MT option) can also be carried out for each batch group individually.

The computation and report functions (/MT option) each start and stop simultaneously across all batch groups.

Display data and event data are saved per batch group. Batch numbers, lot numbers, file headers, batch text, batch comments, and other batch information are saved to files along with measured data.

Manual sample data, report data, and snapshot data are all saved to their own individual files with no distinction between batch groups.

Multi Batch Function



represents user actions.

1.2.2 Recording and Saving

Starting and Stopping Recording

During Batch Overview Mode

You can start and stop recording for each batch group individually. Or, you can start and stop recording across all batch groups simultaneously.

During Batch Single Mode

You can start and stop recording on a displayed batch group.

Item	Operation Example
Recording	Start and stop batch groups individually Batch group 1: Start, Stop Batch group 2: Start, Stop Batch group 3: Start, Stop
	Simultaneous start and stop Simultaneous start: Start Simultaneous stop: Stop
Report	Start, Stop
Computation	Simultaneous start, stop, and reset Simultaneous start: Start Simultaneous reset: Reset, Reset Simultaneous stop: Stop
	Reset each batch group Batch group 1: Reset, Start, Reset, Stop Batch group 2: Start, Reset, Stop Batch group 3: Start, Reset, Stop
Status relay	Relay output when recording stops Relay output

- **Starting and Stopping a Report (/MT Option)**

  Reporting starts when recording starts on any batch group. Reporting stops when the recording of all batch group stop.

- **Starting and Stopping Computation (/MT Option)**
  - All computations start and stop together at the same time.
  - When computations are stopped, you can start recording and computation at the same time.

Batch Mode	Operation	
Batch overview mode	Starts computing.	
Batch single mode	Recording + computing	Starts computing. The computed values of computation channels [1] in the batch group are not reset.
	Recording + computing (computation reset)	The computed values of computation channels [1] in the batch group that is to start recording are reset. Starts computing.

1 The computation channels registered to that batch group's display group.

  - You can stop computation at any time.
  - The GX/GP's START/STOP key operation math action setting is fixed to Off. Starting and stopping recording using the START/STOP key are the same as those using touch operation.
  - ▶For details on starting and stopping computation using the GM keys, see "Key Operation" on page 3-25.

- **Fail Relay Output When Recording Is Started or Stopped (/FL option) (GX/GP)**

  If FAIL relay operation is set to Record stop on a GX/GP, relay output occurs when recording stops on all batch groups.

▶ Setting: Section 1.23.6, "Setting the FAIL Relay and Instrument Information Output (/FL option)," in the GX/GP User's Manual

- **Recording Status of Each Batch Group**

  You can use each batch group's recording status as variables (REC01 to REC12) in computations (/MT options).

▶ See section 1.8, "Configuring Math Channels (/MT option)," in the GX/GP User's Manual and section 2.9, "Configuring Math Channels (/MT option)," in the GM User's Manual.

Recording Display Data and Event Data

The following recording conditions are common to all batch groups.

▶ See section 1.12, "Setting Recording Conditions (Recording mode, recording interval, saving interval)," in the GX/GP User's Manual or section 2.13, "Setting Recording Conditions (Recording mode, recording interval, saving interval)," in the GM User's Manual.

Item	Description
Scan interval	500 ms, 1 s, 2 s, or 5 s.
Types of data to record	Either display data or event data.
Display data	Recording interval of display data (trend interval).
Event data	Use Free mode to record event data. You cannot select Trigger mode.
	Recording interval of event data.

Recording Manual Sampled Data and Report Data (/MT option)

The settings and behavior of these features are common to all batch groups. See section 1.12.1, “Setting the Type of Data to Record (Display or event data) and Recording Conditions,” in the GX/GP User’s Manual or section 2.13.1, “Setting the Type of Data to Record (Display or event data) and Recording Conditions,” in the GM User’s Manual.

Saving Measured Data to Storage Media

This section briefly how the GX/GP/GM saves various types of measured data to storage media. ▭ sections are the same as with GX/GP/GMs without the multi batch function. ▶ For details, see section 1.14, “Setting the Conditions for Saving Data Files,” and section 1.21.2, “Configuring the FTP Client Function,” in the GX/GP User’s Manual or section 2.15, “Setting the Conditions for Saving Data Files,” or section 2.22.2, “Configuring the FTP Client Function,” in the GM User’s Manual.

Item		Description
Auto save	Display data	Saves the data from all batch groups to the specified save destination directory. The same file save interval for display data is used for all batch groups.
	Event data	Saves the data from all batch groups to the specified save destination directory. The same file save interval for event data (data length) is used for all batch groups.
	Manual sampled data	Saves the data to the specified save destination directory.
	Report data	
Data saving using touch operation (GX/GP) or Web application operation (GM)	Display data save	Saves the source batch group’s display data that the GX/GP/GM is currently recording to files to the SD card or USB memory device (/UH) (GX/GP).
	Event data save	Saves the source batch group’s event data that the GX/GP/GM is currently recording to files to the SD card or USB memory device (/UH) (GX/GP).
	Selected data save	The operation of saving data by displaying a memory summary. See section 2.3.3, “Displaying a List of Data Files in the Internal Memory and Saving Data (Memory summary),” in the GX/GP User’s Manual.
Manual save	Display data	Saves the data from all unsaved batch event data groups to the specified save destination directory.
	Event data	
	Manual sampled data	Saves the unsaved data to the specified save destination directory.
	Report data	
Snapshot (GX/GP)		Saves the screen image data to the SD card or USB memory device (/UH).
Saving data via FTP	Display data and event data	Transfers the data for all batch groups to the specified initial path.
	Report data	Transfers the data to the specified initial path.
	Snapshot data (GX/GP)	
Media FIFO		Performs a FIFO operation only when the following files are saved. Display or event data files for all batch groups, manual sampled data files, report files, and snapshot data files (GX/GP).

Data Files

This section explains the makeup of the data files. ▭ sections are the same as with GX/GP/GMs without the multi batch function.

Item		Description
Display data and event data	Measured data	Saves the data from each batch group to a separate file. Each batch group's alarm and message information is also saved.
	File header	The string specified for each batch group.
	Batch text	The string specified for each batch group.
	Batch comment	The string specified for each batch group.
Manual sampled data	Measured data	The measured data from all source channels.
	File header	Uses batch group 1's file header.
Report data	Report data	The source channel depends on the DX settings.
	File header	Uses batch group 1's file header.
Snapshot data file (GX/GP)		Screen image data.

File name

You can specify a different file name configuration for each batch group. For example, you can specify that batch group 1's file name is in the date configuration, and batch group 2's file name is in the batch name configuration.
The file names for manual sampled data, snapshot data (GX/GP), and report data all follow the same configuration as that specified for batch group 1.

For all file name configurations, the sequence number portion of the file name for display data and event data differs from that used with a GX/GP/GM without the multi batch function. For details on file names, see section 1.14.1, "Setting the Save Directory, File Header, and File Name," in the GX/GP User's Manual or section 2.15.1, "Setting the Save Directory, File Header, and File Name," in the GM User's Manual.

Configuration		Description
Date	Display data	One character in the file name sequence number is allocated to identify the batch group. You can specify a different string to use in the file name per batch group. Other file name details are the same as with a GX/GP/GM without the multi batch function.
	Event data	
	Manual sampled data	The string used in the file name is the one specified for batch group 1 (specified file name). Other file name details are the same as with a GX/GP/GM without the multi batch function.
	Snapshot data (GX/GP)	
	Report data	
Sequence number (This is the "Sequence" file name configuration, it does not refer to the "sequence number" within a file name.)	Display data	One character in the file name sequence number is allocated to identify the batch group. You can specify a different string to use in the file name per batch group. Other file name details are the same as with a GX/GP/GM without the multi batch function.
	Event data	
	Manual sampled data	The string used in the file name is the one specified for batch group 1 (specified file name). Other file name details are the same as with a GX/GP/GM without the multi batch function.
	Snapshot data (GX/GP)	
	Report data	
Batch name	Display data	One character in the file name sequence number is allocated to identify the batch group. A separate batch name for each batch group is used. Other file name details are the same as with a GX/GP/GM without the multi batch function.
	Event data	
	Manual sampled data	The delimiter is the same as with a GX/GP/GM without the multi batch function.
	Snapshot data (GX/GP)	
	Report data	

File name sequence number for display data and event data

Item	Description	
File name sequence number	Consists of 1-character batch group identifier + 5-digit number + 1-character delimiter	
	Batch group identifier	A, B, C, D, E, F, G, H, J, K, L, or M (A is used for batch group 1, B is used for batch group 2, ... M is used for batch group 12).
	Number	A sequence number in chronological order. The number ranges from 00001 to 99999. If the number reaches 99999, it returns to 00000.
	Delimiter	The delimiter is the same as with a GX/GP/GM without the multi batch function. See section 1.14.1, “Setting the Save Directory, File Header, and File Name,” in the GX/GP User’s Manual or section 2.15.1, “Setting the Save Directory, File Header, and File Name,” in the GM User’s Manual.

File name examples

The following are file name examples for display data files.

Configuration	Example File Name for a Display Data File
Date	A00123_AAAAA151224_173524.GDS Batch group 1. The sequence number is “A00123_.” The specified string is “AAAAA.”
Sequence number	B00123_AAAAA.GDS Batch group 2. The sequence number is “B00123_.” The specified string is “AAAAA.”
Batch name	C00123_SAMPLE-000001.GDS Batch group 3. The sequence number is “C00123_.” The batch name is “SAMPLE-000001.”

1.2.3 Operations You Can Perform on Each Batch Group

Writing Messages and Writing Free Messages

You can write different messages for each batch group.

▶ Procedure:
GX/GP: section 3.1.8, “Writing an Additional Message or an Additional Free Message”
GM: section 3.2.8, “Writing an Additional Message or an Additional Free Message”

Writing Freehand Messages (GX/GP)

You can write freehand messages for each batch group.

▶ Procedure: section 3.1.9, “Writing Freehand Messages”

Computation Reset (/MT option)

You can reset the computed result on the computation channels in use for each batch group.

▶ Procedure:
GX/GP: section 3.1.5, “Starting, Stopping, and Resetting Computations (/MT Option)”
GM: section 3.2.5, “Starting, Stopping, and Resetting Computations (/MT Option)”

Text Field Display

You can display text fields for each batch group.

▶ Procedure:
GX/GP: section 3.1.11, “Displaying the Text Field Settings”
GM: section 3.2.10, “Displaying the Text Field Content”

Saving Display Data and Event Data

▶ Procedure:
GX/GP: section 3.1.4, “Starting/Stopping Recording, and Saving Data”
GM: section 3.2.4, “Starting/Stopping Recording, and Saving Data”

Setting the Batch Name Number, Lot Number, Comment, and Batch Text Field

You can set the batch number, lot number, comment, and batch text field (text) at the start of recording.
You can also set comments when recording is in progress and when it is stopped.

▶ Procedure:
GX/GP: section 3.1.4, “Starting/Stopping Recording, and Saving Data”
GM: section 3.2.4, “Starting/Stopping Recording, and Saving Data”

1.2.4 Changes to Features

The following standard features differ between a GX/GP/GM with the multi batch function and a GX/GP/GM without it.

Item	Description
Trend interval switching	When the multi batch function is enabled, you cannot switch the trend interval (you cannot switch to the secondary trend interval).
Trend clear	When the multi batch function is enabled, the GX/GP/GM always clears the displayed waveform when recording starts.
Scan interval	500 ms/1s/2s/5s

1.3 Display

Two display modes are available: **batch overview mode/all batch mode (Web application)** and **batch single mode**. In batch overview mode, information common to all batch groups is displayed. In batch single mode, information for each batch such as measured data and alarms is displayed.

1.3.1 Batch Overview Mode/All Batch Mode (Web application)

The following table shows the displayed items.

Name		Displayed Content	Reference Section	
Status display section		See the items shown in the status display section explained later.	GX/GP	Section 1.3.3, “Setting the Display,” in the GX/GP User’s Manual
			GM	Section 2.1.4, “Starting and Closing the Web Application,” in the GM User’s Manual
Batch overview		The status of all batch groups. See “Batch Overview,” explained later.	GX/GP	section 3.1.2, “Displaying the Batch Overview”
			GM	“Displaying the Batch Overview” on page 3-15
Overview		The status of enabled channels [1] or the status of all batch groups. 1 GX20/GP20: Up to 100 GX10/GP10: Up to 30 GM10: Up to 100 On the Web application, the maximum number of channels for all models is 100.	GX/GP	“Displaying the Overview” on page 3-2
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
Custom display (GX/GP)		Customized display screen.	GX/GP	DAQStudio (IM04L41B01-62EN), or section 2.2, “Displaying Measured Data,” or section 2.2.1, “Displaying Measured Data Using Waveforms, Numeric Values, Bar Graph, or Custom Display (/CG option) (Trend, digital, bar graph, and custom displays),” in the GX/GP User’s Manual
Information	Modbus client (/MC)	The status of the MODBUS client.	GX/GP	Section 2.3.6, “Checking the Command Status of the Modbus Client and Modbus Master,” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
	Modbus master (/MC)	The status of the MODBUS master.	GX/GP	Section 2.3.6, “Checking the Command Status of the Modbus Client and Modbus Master,” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
	Internal switch/ relay	The DO channel and internal switch status.	GX/GP	Section 2.3.7, “Displaying the DO Channel and Internal Switch Status,” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
	Report	Report data in the internal memory.	GX/GP	Section 2.3.4, “Displaying Reports,” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual

Continued on next page

Name		Displayed Content	Reference Section	
Information	Network information	Network information.	GX/GP	Section 2.3.9, “Displaying Network Information,” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
	WT client (/E2)	WT communication status.	GX/GP GM	WT Communication Manual
	SLMP client (/E4)	SLMP client status.	GX/GP GM	SLMP Communication Manual
	Reminder (/AH)	Schedule management information.	GX/GP	Section 1.32, “Using the Aerospace Heat Treatment (/AH option) (Release number 3 and later),” in the GX/GP User’s Manual
			GM	Section 2.32, “Using the Aerospace Heat Treatment (/AH option) (Release number 3 and later),” in the GM User’s Manual
	System information	GX/GP system information.	GX/GP	Section 2.3.8, “Displaying the GX/GP System Information,” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
	Alarm summary (Web application)	Information regarding the alarm that occurred in the target batch group.	GX/GP	Section 2.3.1, “Listing the Log of Alarm Occurrences and Releases,” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
	Message summary (Web application)	Information regarding the messages written for the target batch group.	GX/GP	Section 2.3.2, “Displaying the Log of Written Messages (Message summary),” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
Log	Event	Operation log.	GX/GP GM	Section 2.3.5, “Displaying Logs,” in the GX/GP User’s Manual Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
	Error	Log.		
	General communication			
	FTP			
	Email			
	WEB			
	SNTP			
	DHCP			
	MODBUS (/MC)			
	SLMP (/E4)			SLMP Communication Manual
Control	Control Group	A control group is used to monitor and control the loops in the specified control group.	GX/GP	Section 5.1.1, “Monitoring and Controlling on the Control Group Screen“ in the Loop Control Function, Program Control Function Manual
			GM	Section 6.1.2, “Faceplate Screen and Controller Screen” in the Loop Control Function, Program Control Function Manual
	Tuning	Tuning is used to view the loop status and adjust PID parameter settings.	GX/GP	Section 5.1.8, “Viewing and Adjusting PID and Other Control Parameters (Tuning)“ in the Loop Control Function, Program Control Function Manual
			GM	Section 6.1.6, “Tuning Screen” in the Loop Control Function, Program Control Function Manual
	Control Overview	The control overview screen shows on a single screen the alarm status of all loops.	GX/GP	Section 5.1.4, “Showing the Status of All Loops on a Single Screen (Control Overview)“ in the Loop Control Function, Program Control Function Manual
			GM	Section 6.1.3, “Control Overview Screen” in the Loop Control Function, Program Control Function Manual

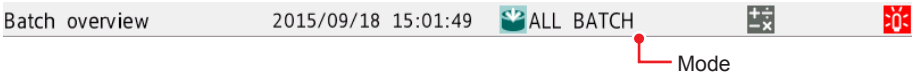
Continued on next page

Name		Displayed Content	Reference Section	
Control	Control Summary	The control summary shows the control history.	GX/GP	Section 5.1.6, “Listing the Control Log (Control summary)“ in the Loop Control Function, Program Control Function Manual
			GM	Section 6.1.4, “Control Summary Screen” in the Loop Control Function, Program Control Function Manual
	Control Alarm Summary	The control alarm summary shows the control alarm history.	GX/GP	Section 5.1.7, “Listing the Log of Alarm Occurrences and Releases (Control alarm summary)“ in the Loop Control Function, Program Control Function Manual
			GM	Section 6.1.5, “Control Alarm Summary Screen” in the Loop Control Function, Program Control Function Manual
	Program Selection	The program selection screen shows the specified program pattern.	GX/GP	Section 5.3.1, “Selecting a Program Pattern“ in the Loop Control Function, Program Control Function Manual
			GM	Section 6.2, “Monitoring and Configuring Program Control” in the Loop Control Function, Program Control Function Manual
	Program Operation	The program operation screen shows the running program pattern.	GX/GP	Section 5.3, “Performing Program Control (recorder option /PG)“ in the Loop Control Function, Program Control Function Manual
			GM	Section 6.2, “Monitoring and Configuring Program Control” in the Loop Control Function, Program Control Function Manual

GX/GP

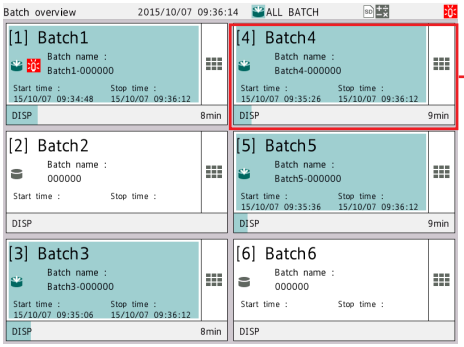
Status display section

With the following exception, items shown in the status display section are the same as with a GX/GP/GM without the multi batch function.

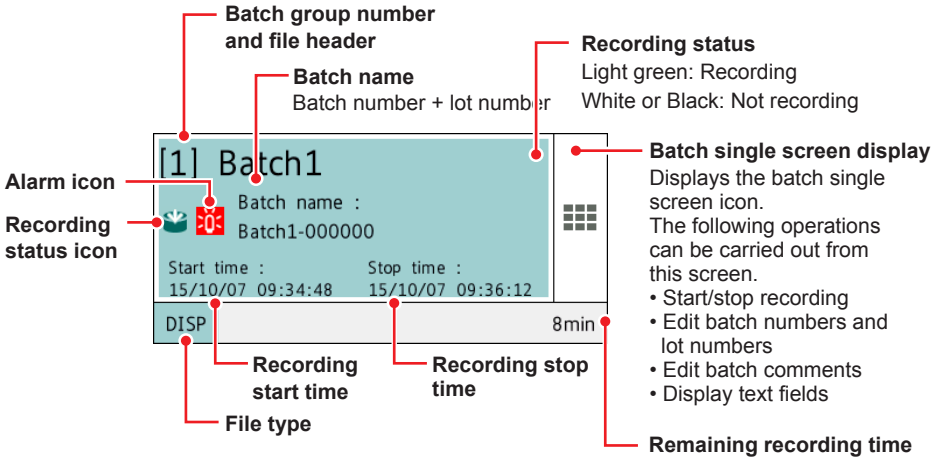


▶ Displayed items: Section 1.3.3, “Setting the Display,” in the GX/GP User’s Manual

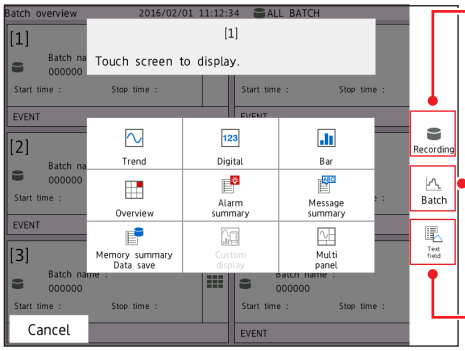
Batch overview



Single batch group
See below.
Sections outside of the range of the number of supported batch groups are displayed in gray.
Tap to display individual batches.



Batch single screen display



Recording
Switches to the same screen as when you press **MENU** and tap **Record** in batch single mode.
The icon color changes according to the recording status.
Recording: light green Not recording: white

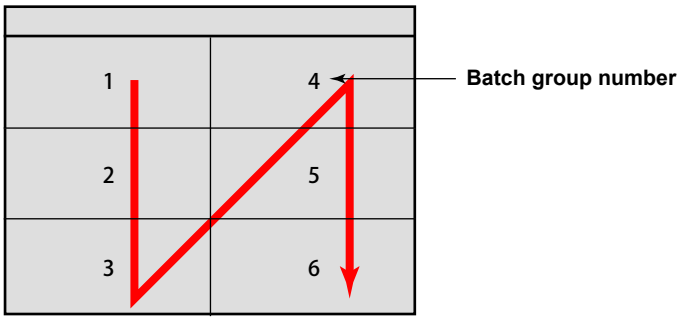
Batch
Switches to the same screen as when you press **MENU** and tap the **Universal** tab and then **Batch** in batch single mode.

Text field
Switches to the same screen as when you press **MENU** and tap the **Universal** tab and then **Text filed** in batch single mode.

Screen Layout

Model	Number of Batch Groups	Screen Layout Vertical × Horizontal
GX10-1, GX20-1, GP10-1, GP20-1	2 to 4	1×4
	5	1×5
	6	2×3
GX20-2, GP20-2	2 to 4	1×4
	5	1×5
	6	2×3
	7 or 8	2×4
	9 or 10	2×5
	11 or 12	2×6

Batch groups are assigned to windows starting with the left column. Batch groups are assigned in ascending order by their group number. The following example shows the case for six batch groups.

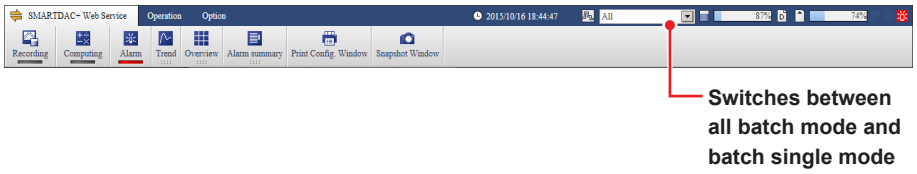


Web Application

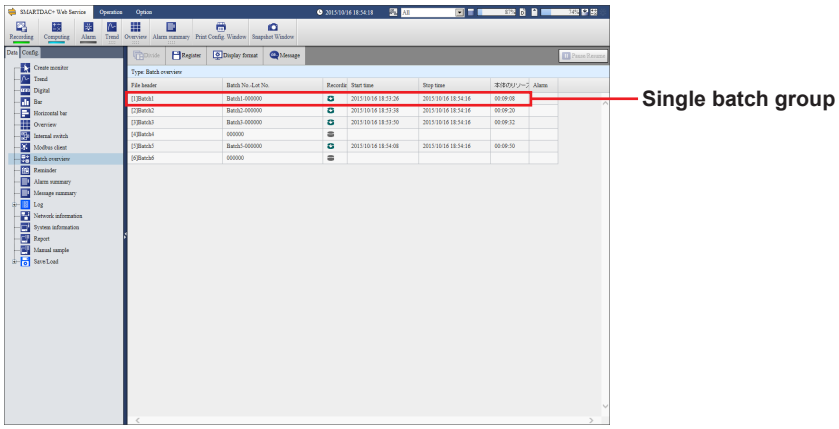
Status Display Section

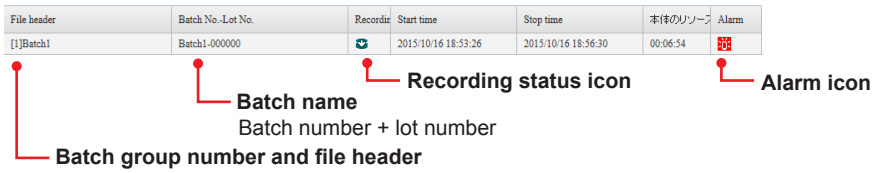
With the following exception, items shown in the status display section are the same as with a GX/GP/GM without the multi batch function.

▶ Displayed content other than batch mode switch: Section 2.1.4, “Starting and Closing the Web Application,” in the GM User’s Manual
Batch mode switch operation: section 3.2.1, “Switching between All Batch Mode and Batch Single Mode”



Batch Overview





1.3.2 Batch Single Mode

The following table shows the displayed items.

Name		Displayed Content	Reference Section	
Status display section		See the items shown in the status display section explained later.	GX/GP	Section 1.3.3, “Setting the Display,” in the GX/GP User’s Manual
			GM	Section 2.4.3, “Setting the Display,” in the GM User’s Manual
Trend		The target batch group’s trend display.	GX/GP	Section 2.2, “Displaying Measured Data,” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
Historical trend		The target batch group’s historical trend display.	GX/GP	Section 2.2.7, “Displaying Previously Measured Data (Historical trend display),” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
Digital		The target batch group’s digital display.	GX/GP	Section 2.2, “Displaying Measured Data,” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
Bar graph		The target batch group’s bar graph display.	GX/GP	Section 2.2, “Displaying Measured Data,” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
Custom display		Customized display screen	GX/GP	DAQStudio (IM04L41B01-62EN), or section 2.2.1, “Displaying Measured Data Using Waveforms, Numeric Values, Bar Graph, or Custom Display (/CG option) (Trend, digital, bar graph, and custom displays),” in the GX/GP User’s Manual
Overview		The status of enabled channels [1] of the target batch group or the status of the target batch group’s display group. 1 GX20/GP20: Up to 100 GX10/GP10: Up to 30 GM10: Up to 100 On the Web application, the maximum number of channels for all models is 100.	GX/GP	section 3.1.3, “Displaying the Overview” Section 2.2.3, “Displaying the Statuses of All Channels on One Screen (Overview Display),” in the GX/GP User’s Manual
			GM	section 3.2.3, “Displaying the Overview”
Multi panel		Multi panel screen	GX/GP	Section 2.2.4, “Displaying the Multi Panel (GX20/GP20 only),” in the GX/GP User’s Manual
Information	Alarm summary	Information regarding the alarm that occurred in the target batch group.	GX/GP	Section 2.3.1, “Listing the Log of Alarm Occurrences and Releases,” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual

Continued on next page

Name		Displayed Content	Reference Section	
Information	Message summary	Information regarding the messages written for the target batch group.	GX/GP	Section 2.3.2, “Displaying the Log of Written Messages (Message summary),” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
	Memory summary	Information regarding data files saved to internal memory for the target batch group.	GX/GP	Section 2.3.3, “Displaying a List of Data Files in the Internal Memory and Saving Data (Memory summary),” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
	Report	Report data in the internal memory.	GX/GP	Section 2.3.4, “Displaying Reports,” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
	Modbus client (/MC)	Modbus client command status	GX/GP	Section 2.3.6, “Checking the Command Status of the Modbus Client and Modbus Master,” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
	Modbus master (/MC)	Modbus master operating status.	GX/GP	Section 2.3.6, “Checking the Command Status of the Modbus Client and Modbus Master,” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
	WT client (/E2)	WT communication status	GX/GP	WT Communication Manual
			GM	
	SLMP client (/E4)	SLMP client status.	GX/GP	SLMP Communication Manual
			GM	
	Reminder (/AH)	Schedule management information.	GX/GP	Section 1.32, “Using the Aerospace Heat Treatment (/AH option) (Release number 3 and later),” in the GX/GP User’s Manual
			GM	Section 2.32, “Using the Aerospace Heat Treatment (/AH option) (Release number 3 and later),” in the GM User’s Manual
	Internal switch/ relay	The DO channel and internal switch status.	GX/GP	Section 2.3.7, “Displaying the DO Channel and Internal Switch Status,” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
	Network information	Network information.	GX/GP	Section 2.3.9, “Displaying Network Information,” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
	System information	GX/GP system information.	GX/GP	Section 2.3.8, “Displaying the GX/GP System Information,” in the GX/GP User’s Manual
			GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
Log	Event	Operation log	GX/GP	Section 2.3.5, “Displaying Logs,” in the GX/GP User’s Manual
	Error	Revisions		
	General communication		GM	Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual
	FTP			
	Email			
	WEB			
	SNTP			
	DHCP			
	Modbus (/MC)			
	SLMP (/E4)			

Continued on next page

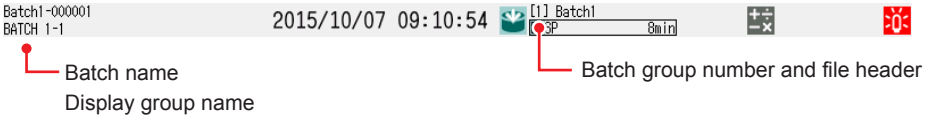
Name		Displayed Content	Reference Section	
Control	Control Group	A control group is used to monitor and control the loops in the specified control group.	GX/GP	Section 5.1.1, “Monitoring and Controlling on the Control Group Screen“ in the Loop Control Function, Program Control Function Manual
			GM	Section 6.1.2, “Faceplate Screen and Controller Screen” in the Loop Control Function, Program Control Function Manual
	Tuning	Tuning is used to view the loop status and adjust PID parameter settings.	GX/GP	Section 5.1.8, “Viewing and Adjusting PID and Other Control Parameters (Tuning)“ in the Loop Control Function, Program Control Function Manual
			GM	Section 6.1.6, “Tuning Screen” in the Loop Control Function, Program Control Function Manual
	Control Overview	The control overview screen shows on a single screen the alarm status of all loops.	GX/GP	Section 5.1.4, “Showing the Status of All Loops on a Single Screen (Control Overview)“ in the Loop Control Function, Program Control Function Manual
			GM	Section 6.1.3, “Control Overview Screen” in the Loop Control Function, Program Control Function Manual
	Control Summary	The control summary shows the control history.	GX/GP	Section 5.1.6, “Listing the Control Log (Control summary)“ in the Loop Control Function, Program Control Function Manual
			GM	Section 6.1.4, “Control Summary Screen” in the Loop Control Function, Program Control Function Manual
	Control Alarm Summary	The control alarm summary shows the control alarm history.	GX/GP	Section 5.1.7, “Listing the Log of Alarm Occurrences and Releases (Control alarm summary)“ in the Loop Control Function, Program Control Function Manual
			GM	Section 6.1.5, “Control Alarm Summary Screen” in the Loop Control Function, Program Control Function Manual
	Program Selection	The program selection screen shows the specified program pattern.	GX/GP	Section 5.3.1, “Selecting a Program Pattern“ in the Loop Control Function, Program Control Function Manual
			GM	Section 6.2, “Monitoring and Configuring Program Control” in the Loop Control Function, Program Control Function Manual
	Program Operation	The program operation screen shows the running program pattern.	GX/GP	Section 5.3, “Performing Program Control (recorder option /PG)“ in the Loop Control Function, Program Control Function Manual
			GM	Section 6.2, “Monitoring and Configuring Program Control” in the Loop Control Function, Program Control Function Manual

GX/GP

Status display section

With the following exception, items shown in the status display section are the same as with a GX/GP/GM without the multi batch function.

▶ Displayed items: Section 1.2.3, “Setting the Display,” in the GX/GP User’s Manual



Web Application

Status display section

▶ See “Batch Overview Mode/All Batch Mode (Web application)” on page 1-10.

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2.1 Configuration

2.1.1 Settings for the Multi Batch Function

Specialized Settings for the Multi Batch Function

- **Multi Batch Function**

  By factory default, the multi batch function is enabled.
  If you change the number of batches to be used or switch the enabled/disabled state of the multi batch function, all settings except the items below are initialized, and the GX/GP/GM restarts.

  Configure the multi batch function first, before reconfiguring or configuring the GX/GP/GM.

  If you disable the multi batch function, the functions that you can use on the GX/GP/GM are the same as those of the standard product.

Communication (Ethernet) settings	Basic settings
	Server settings
Logs	Events
	Errors
	FTP
	Email
	Modbus

- **Settings for Each Batch Group**

  The settings you can change for each batch group are as follows. These items are in the Batch settings menu (Batch settings > Individual batch settings on the GX/GP).

Batch Text	
Group settings	On/Off
	Group name
	Channel set
	Scale image
	Trip line
Data save settings	File header
	Data file name

General Settings Other Than the Specialized Settings for the Multi Batch Function

Items not in the Batch settings menu (Batch settings > Individual batch settings on the GX/GP) are shared among all batch groups.

- **Event Actions**

  When the multi batch function is enabled, a portion of the actions in the event action function requires the designation of a specific batch group. For those types of actions, a box containing all the batch groups for you to select from is displayed.

Actions that require the designation of a specific batch group	Recording start/stop
	Recording start
	Recording stop
	Message
	Save display data
	Save event data
	Math reset
	Switch the display group

- **Fixed Features**

  You cannot change the following settings.

Function	Value
Trend interval switching	Fixed to Off.
Trend clear	Fixed to On.
Confirmation screen	Fixed to On.
START/STOP key action (GX/GP)	Fixed to Off.
Event data recording modes	Fixed to Free.
Batch function On/Off	Fixed to On.

Notes

If even one batch group is recording, the following settings cannot be changed.

- I/O channel range, recording channel settings (excluding manual sample recording channels)
- Calculation expressions of math channels (/MT option), constants, recording channel settings
- Trend interval
- Event data
- Batch text (when the advanced security function is enabled)
- Display group (when the advanced security function is enabled)
- Trip line (when the advanced security function is enabled)
- Scale image (GX/GP) (when the advanced security function is enabled)
- File header (when the advanced security function is enabled)
- File name (when the advanced security function is enabled)

The following settings cannot be changed while their applicable batch group is recording.

- Batch text (when the advanced security function is disabled)

2.1.2 Setting the Multi Batch Function

If the measurement mode is set to High speed or Dual interval, the multi-batch function is disabled (fixed to Off) and cannot be changed. To enable the multi-batch function, set the measurement mode to Normal.

Path

GX/GP: **MENU** key > **Browse** tab > **Initialize Calibration** > Setting menu **Multi batch**
Web application: **Calib** tab > **Multi batch settings**

Description

Setup Item	Selectable Range or Options	Default Value
Multi batch On/Off (Web application)	Off/On	On
Batch operation qty	GX10-1/GX20-1/GP10-1/GP20-1/GM10-1: 2/3/4/5/6 GX20-2/GP20-2/GM10-2: 2/3/4/5/6/7/8/9/10/11/12	[1]

1 GX10-1/GX20-1/GP10-1/GP20-1/GM10-1: 6
GX20-2/GP20-2/GM10-2: 12

Multi batch, On/Off

Set whether to use the multi batch function.

Options	Description
On	Multi batch function is used.
Off	Multi batch function is not used.

Batch operation qty

Set the number of batches to use.

NOTE

- If you change the multi batch function settings, all settings except a portion of the items are initialized.
  (See section 2.1.1, “Settings for the Multi Batch Function,” on page 2-1.)
  If you change the multi batch function settings, you need to reconfigure the settings.
- If you change the multi batch settings (On/Off, quantity) while using the Web application, you need to reload the Web application after restarting the GX/GP/GM.
- If you are using a GM in fixed IP mode, restarting will clear the mode. You need to set it again.
- If you are using automatic IP address assignment, the IP address may change after restarting. If this happens, you need to reload the correct IP address of Web application after restarting.
- You cannot turn on or off the multi-batch function from the Hardware Configurator. Do this from the main unit for the GX/GP or Web application for the GM.
- If the multi-batch function is enabled, the measurement mode is fixed to Normal. To set the measurement mode to High speed or Dual interval, disable the multi-batch function.

2.1.3 Configuring Batch Settings

Batch Function

Path

GX/GP: **MENU** key > **Browse** tab > **Setting** > Setting menu **Batch settings**
Web application: **Config.** tab > **Batch settings** > **Batch function**
Hardware configurator: **Batch settings** > **Batch function**

Description

Batch Function

Setup Item	Selectable Range or Options	Default Value
On/Off	On	On
Lot-No. digit	Off/4/6/8	6
Auto increment	Off/On	On

On/Off

Fixed to On.

Lot-No. digit

Set the number of digits of lot numbers. To disable lot numbers, set this to **Off**.

Auto increment

Options	Description
On	Automatically sets the lot number of the next measurement to the current lot number + 1.
Off	Turns auto increment off.

Batch Text and Text Field

You can enter text fields into a file.

Path

GX/GP: **MENU** key > **Browse** tab > **Setting** > Setting menu **Batch settings** > Individual batch settings **Batch text**
Web application: **Config.** tab > **Batch settings** > **Batch text** > **Batch group number 1 to 12** [1]
Hardware configurator: **Batch settings** > **Batch text** > **Batch group number 1 to 12** [1]

1 GX10-1/GX20-1/GP10-1/GP20-1/GM10-1: 6
GX20-2/GP20-2/GM10-2: 12

Description

Setup Item	Selectable Range or Options	Default Value
Batch group number	GX10-1/GP10-1/GX20-1/GP20-1/GM10-1: 1/2/3/4/5/6 GX20-2/GP20-2/GM10-2: 1/2/3/4/5/6/7/8/9/10/11/12	1
Text field number	1 to 24	1

Batch group number [1]

Select the batch group number for setting a text field.

1 On the Web application and hardware configurator, this is already selected with the path.

Text field number

Select the text field number to assign text to.

Text field

Setup Item	Selectable Range or Options	Default Value
Title of field	Character string (up to 20 characters, Aa#1)	—
Characters	Character string (up to 30 characters, Aa#1)	—

Title of field

Set the title for the text field number you selected.

Characters

Set the characters for the text field number you selected.

Group Settings

Path

GX/GP: **MENU** key > **Browse** tab > **Setting** > Setting menu **Batch settings** > Individual batch settings **Group settings**
Web application: **Config.** tab > **Batch settings** > **Group settings** > **Batch group number 1 to 12** [1]
Hardware configurator: **Batch settings** > **Group settings** > **Batch group number 1 to 12** [1]

1 GX10-1/GX20-1/GP10-1/GP20-1/GM10-1: 6
GX20-2/GP20-2/GM10-2: 12

Description

Setup Item	Selectable Range or Options	Default Value
Batch group number	GX10-1/GX20-1/GP10-1/GP20-1/GM10-1: 1/2/3/4/5/6 GX20-2/GP20-2/GM10-2: 1/2/3/4/5/6/7/8/9/10/11/12	1
Group number	GX10/GP10/GX20-1/GM10-1: 1 to 6 GX20-2/GP20-2/GM10-2: 1 to 12	1

Batch group number [1]

Select the batch group number for setting a group.

1 On the Web application and hardware configurator, this is already selected with the path.

Group number

Select the group number.

Group settings

Setup Item	Selectable Range or Options	Default Value
On/Off	Off/On	Off
Group name	Character string (up to 16 characters, Aa#1)	—
Channel set	GX10/GP10: Up to 10 GX20/GP20/GM10: Up to 20	—

On/Off

Set this to **On** to use the target group number.

Group name

Set the group name.

Channel set

Select from AI channels, DI channels, DO channels, pulse input channels, AO channel, PID channel, math channels (/MT option), and communication channels (/MC option).

Scale Image (GX/GP), Trip Line 1 to 4

▶ See section 1.10.2, “Setting Display Groups” in the GX/GP User’s Manual.
▶ See section 2.11.2, “Setting Display Groups” in the GM User’s Manual.

Data Save Settings

Path

GX/GP: **MENU** key > **Browse** tab > **Setting** > Setting menu **Batch settings** > Individual batch settings **Data save settings**
Web application: **Config.** tab > **Batch settings** > **Data save settings**
Hardware configurator: **Batch settings** > **Data save settings**

Description

Setup Item	Selectable Range or Options	Default Value
Batch group number	GX10-1/GP10-1/GX20-1/GP20-1/GM10-1: 1/2/3/4/5/6 GX20-2/GP20-2/GM10-2: 1/2/3/4/5/6/7/8/9/10/11/12	1

Batch group number

Select the batch group number for setting data saving.

File header

Setup Item	Selectable Range or Options	Default Value
Characters	Character string (up to 50 characters, Aa#1)	—

Characters

Enter a header comment to write into data files.

Data file name

Setup Item	Selectable Range or Options	Default Value
Structure	Batch/Date/Serial	Date
Identified strings	Character string (up to 16 characters, Aa#1)	—

Structure

Sets the structure of the file name when saving data.
For details on file names, see file names in section 1.2.1, “Overview,” on page 1-2.

Options	Description
Date	Serial number + specified string + date
Serial	Serial number + specified string
Batch name	Serial number + batch (when using the batch function)

Identified strings

Set the user-assigned character string.
Characters that cannot be used: ';"*/:<>?\|

Start Recording Screen (GX/GP)

Path

GX/GP: **MENU** key > **Browse** tab > **Setting** > Setting menu **Batch settings**
Web application: **Config.** tab > **Batch settings** > **Batch function**
Hardware configurator: **Batch settings** > **Batch function**

Description

Recording Start Screen

Setup Item	Selectable Range or Options	Default Value
Recording Start Screen	Batch comment/Batch Text field	Text field

Recording Start Screen

Set whether to display a text field or batch comment on the recording start screen when recording is started.

Blank

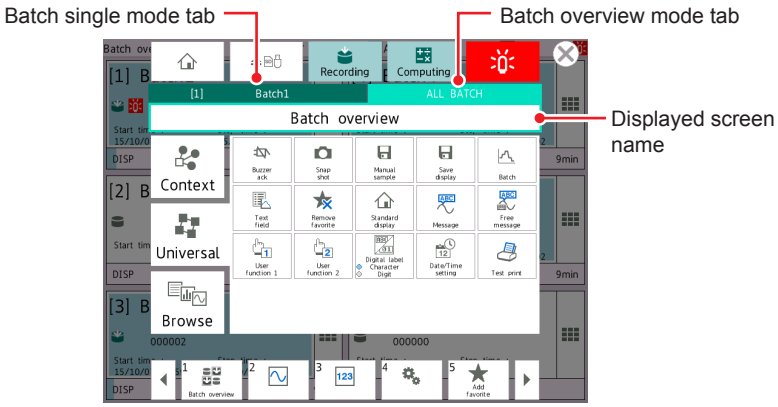
3.1 GX/GP Operation

3.1.1 Switching between Batch Overview Mode and Batch Single Mode

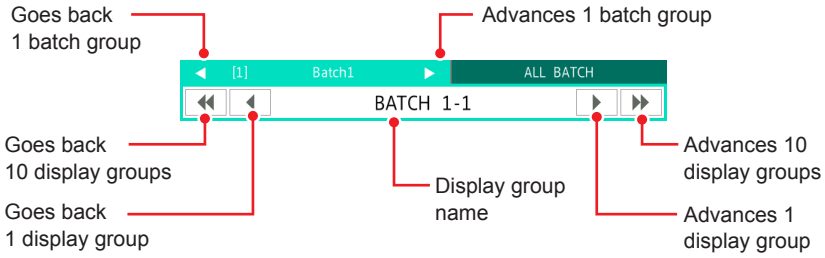
Procedure

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

2. Tap the batch single mode tab (display example: 1) or the **ALL BATCH** tab.
   The light green tab is selected.
   The GX/GP switches to batch overview mode or batch single mode.



Batch single mode tab operation



3. Tap the **Close** icon.
   The screen closes.

Operation complete

3.1.2 Displaying the Batch Overview

Follow the procedure below when the batch overview mode screen is displayed.
Information common to all batch groups is displayed.

▶ See section 1.3.1, “Batch Overview Mode/All Batch Mode (Web application),” on page 1-10.

Procedure

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

2. Tap the **ALL BATCH** tab.

3. Tap **Browse** and then **Batch overview**.
   The batch overview is displayed.

Operation complete

3.1.3 Displaying the Overview

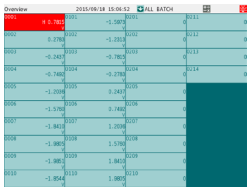
Procedure

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

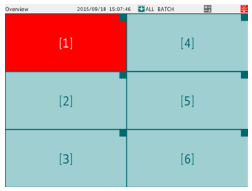
2. 2 Tap **Browse** and then **Overview**.
All channel overview or grouping overview is displayed.
To switch between all channel overview and grouping overview, see section 2.2.3, “Displaying the Statuses of All Channels on One Screen (Overview Display),” in the GX/GP User’s Manual.

During batch overview mode
- Tap a batch group to display show a display group overview.
- Tap a display group to show a Change display screen. Tap OK to switch to batch single mode and show the channel overview.

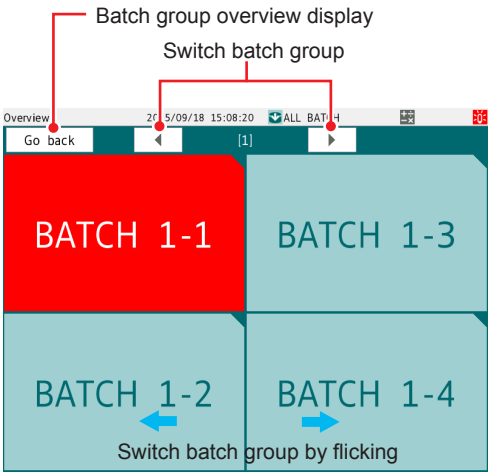
During batch single mode
- Tap a display group to display show a channel overview.



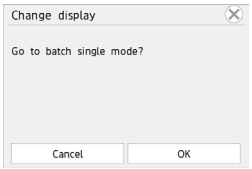
All channel overview

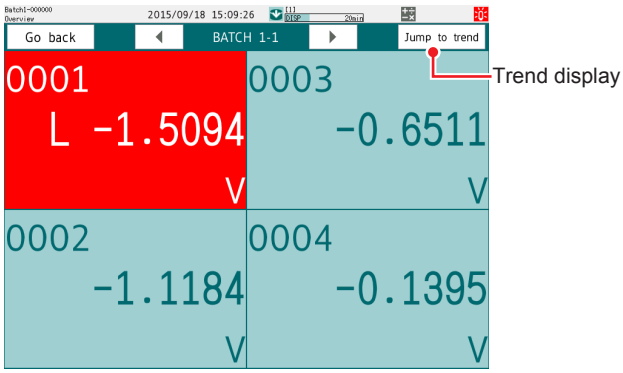


Batch group overview [1]



Display group overview





Channel overview

1 When the batch single mode screen is displayed, the batch group overview and the Change display screen are not available.

Operation complete

3.1.4 Starting/Stopping Recording, and Saving Data

Procedure

Starting Recording from Batch Overview Mode

Follow the procedure below when the batch overview mode screen is displayed.

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

2. Tap **Record**.
A Record start/stop screen appears.

When Selecting a Single Batch Group

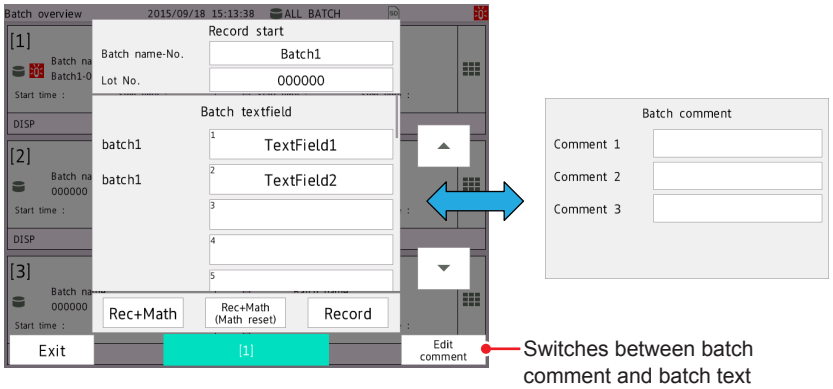
3. Tap **Start** of the batch group you want to start recording on.
A Record start screen appears.

4. Tap the batch number and, if necessary, the lot number to set them.

5. If necessary, tap Batch text field (text) or batch comment to set them.

Tap **Edit textfield** or **Edit comment** to display Batch textfield or Batch comment in the Record start screen.

* The text fields that you specify here will only be saved to the measurement data file that you are about to start recording to. The text fields that you have set in batch settings will not change (see section 2.1.3, “Configuring Batch Settings,” on page 2-4).



6. Tap **Rec+Math**, **Rec+Math (Math reset)**, or **Record**.
Recording starts.

When Selecting All Batch Groups

3. Tap **Start** [1] under **ALL BATCH**.
A Record start screen appears.

1 Not displayed when **All Start/Stop Show Hide** under the **Universal** tab is set to **Hide**.

Tap **Rec+Math**, **Rec+Math (Math reset)**, or **Record**.
Recording starts.

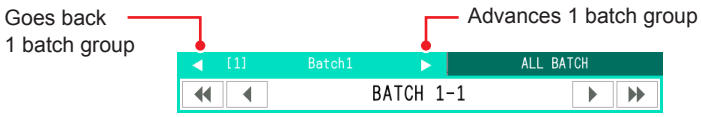
Operation complete

Starting Recording from Batch Single Mode

Follow the procedure below when the batch single mode screen is displayed.

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

2. On the batch single tab, select the batch group you want to start recording on.
The batch group that you selected appears.



3. Tap **Record**.
A Record start screen appears.

4. Tap the batch number and, if necessary, the lot number to set them.

5. If necessary, tap Batch text field (text) or batch comment to set them.

Tap **Edit textfield** or **Edit comment** to display Batch textfield or Batch comment in the Record start screen.

* The text fields that you specify here will only be saved to the measurement data file that you are about to start recording to. The text fields that you have set in batch settings will not change (see section 2.1.3, “Configuring Batch Settings,” on page 2-4).

6. Tap **Rec+Math**, **Rec+Math (Math reset)**, or **Record**.
Recording starts.

Operation complete

Stopping Recording from Batch Overview Mode

Follow the procedure below when the batch overview mode screen is displayed.

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

2. Tap **Record**.
A Record start/stop screen appears.

When Selecting a Single Batch Group

3. Tap **Stop** of the batch group you want to stop recording on.
The record stop screen appears.

4. If necessary, tap batch comment and set it.

5. Tap **Stop**.
Recording stops.

When Selecting All Batch Groups

3. Tap **Stop** [1] under **ALL BATCH**.
The record stop screen appears.

1 Not displayed when **All Start/Stop Show Hide** under the **Universal** tab is set to **Hide**.

Tap **Rec+Math** or **Record**.
Recording stops.

Operation complete

Stopping Recording from Batch Single Mode

Follow the procedure below when the batch single mode screen is displayed.

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

2. On the batch single tab, select the batch group you want to stop recording on.
   The batch group that you selected appears.

3. **Tap Record**.
   The record stop screen appears.

4. If necessary, tap batch comment and set it.

5. Tap **Stop**.
   Recording stops.

Operation complete

Automatically or Manually Saving Data

See section 1.2.2, “Recording and Saving,” on page 1-4.

▶ Setting: Section 1.14.2, “Setting the Save Method to Media (Auto save or manual save) and Media FIFO,” in the GX/GP User’s Manual

Procedure: Section 2.5.1, “Automatically Saving Measured Data,” in the GX/GP User’s Manual
Section 2.5.2, “Manually Saving Measured Data (Collectively saving unsaved data),” in the GX/GP User’s Manual

Saving Selected Data or All Data Stored in Internal Memory by Using Touch Operation

See section 1.2.2, “Recording and Saving,” on page 1-4.

Selective saving is possible only when memory summary is being displayed in batch single mode.

▶ Procedure: Section 2.3.3, “Displaying a List of Data Files in the Internal Memory and Saving Data (Memory summary),” in the GX/GP User’s Manual

3.1.5 Starting, Stopping, and Resetting Computations (/MT Option)

- All computations start and stop together at the same time. You cannot start or stop computations for each batch group separately.
- You can reset the values calculated on computation channels separately for each batch group.

Procedure

Starting Recording and Computation Simultaneously

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

2. Tap **Record**.
   A Record start/stop screen (during batch overview mode) or Record start screen (batch single mode) appears.

When the Batch Overview Mode Screen Is Displayed

3. Tap **Start** [1] under ALL BATCH or single batch.
   A Record start screen appears.
   1 The ALL BATCH **Start** button is not displayed when **All Start/Stop Show Hide** under the **Universal** tab is set to **Hide**.

4. Tap **Rec+Math** or **Rec+Math (Math reset)**.
   Computation starts when recording starts.

When the Batch Single Mode Screen Is Displayed

3. Tap **Rec+Math** or **Rec+Math (Math reset)**.
Computation starts when recording starts.

Operation complete

Starting Only the Computation

Follow the procedure below when the batch overview mode screen is displayed.

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

2. Tap **Math**.
The computation operation screen appears.

3. Tap **Start** under **ALL BATCH**.
A Start computing confirmation screen appears.

4. Tap **OK**.
Computing starts.

Operation complete

Stopping Computation

Follow the procedure below when the batch overview mode screen is displayed.

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

2. Tap **Math**.
The computation operation screen appears.

3. Tap **Stop** under **ALL BATCH**.
A Stop computing confirmation screen appears.

4. Tap **OK**.
Computing stops.

Operation complete

NOTE

When you stop computations, the calculated value for computation channels is retained as the value held immediately prior to computation stopping. When recording, this retained value is recorded.

Resetting Computation

Follow the procedure below when the batch overview mode screen is displayed.
When a batch single mode screen is displayed, this is the same as what is described in “Resetting the Values Calculated on the Selected Batch Group's Computation Channels.”

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

2. Tap **Math**.
The computation operation screen appears.

Resetting the Values Calculated on All Computation Channels

3. Tap **Reset** under **ALL BATCH**.
A Reset computing confirmation screen for all batches appears.

Resetting the Values Calculated on the Selected Batch Group's Computation Channels

3. Tap **Reset** of the batch you want to reset.
A Reset computing confirmation screen for the specified batch appears.

4. Tap **OK**.
The computation of all batches or specified batch is reset.

Operation complete

3.1.6 Using Batch Overview Mode

Follow the procedure below when the batch overview mode screen is displayed.

Procedure

Displaying the Screen

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

2. Tap the **Browse** tab and then the icon of the screen you want to display.

Displaying the control screen
Tap the **Browse** tab > **Contrl** and then the icon of the screen you want to display.

Overview

An overview of all batch groups, a display group overview in the batch group, and the status of the channels registered to the display group are displayed.
▶ section 3.1.3, "Displaying the Overview," on page 3-2

Batch Overview

Information common to all batch groups is displayed.
▶ section 3.1.2, "Displaying the Batch Overview," on page 3-1

Custom Display

The custom display is shown.
▶ Section 2.2.1, "Displaying Measured Data Using Waveforms, Numeric Values, Bar Graph, or Custom Display (/CG option) (Trend, digital, bar graph, and custom displays)," in the GX/GP User's Manual

Report

The report data in the internal memory is displayed.
▶ Section 2.3.4, "Displaying Reports," in the GX/GP User's Manual

Modbus Client (/MC) and Modbus Master (/MC)

Command status of Modbus client and Modbus master is displayed.
▶ Section 2.3.6, "Checking the Command Status of the Modbus Client and Modbus Master," in the GX/GP User's Manual

Internal Switch/Relay Status

The status of DO channels and internal switches is displayed.
▶ Section 2.3.7, "Displaying the DO Channel and Internal Switch Status (Release number 2 and later)," in the GX/GP User's Manual

Log

Various logs are displayed.
▶ Section 2.3.5, "Displaying Logs," in the GX/GP User's Manual

Network Information

GX/GP network information is displayed.
▶ Section 2.3.9, "Displaying Network Information," in the GX/GP User's Manual

System Information

GX/GP system information is displayed.
▶ Section 2.3.8, “Displaying the GX/GP System Information,” in the GX/GP User’s Manual

WT Client (/E2)

WT communication status is displayed.
▶ “Monitoring the WT Collection Status” in the WT Communication Manual

SLMP Client (/E4)

SLMP communication status is displayed.
▶ SLMP Communication Manual

Reminder (/AH)

Schedule management information is displayed.
▶ Section 1.32, “Using the Aerospace Heat Treatment (/AH option) (Release number 3 and later),” in the GX/GP User’s Manual

Save load

A screen for saving and loading settings is displayed.
▶ Section 1.20, “Loading Settings,” and section 1.21, “Saving Settings”

Setting

The setting screen is displayed.
▶ Chapter 1, “Configuring the GX/GP”

Initialize Calibration

The initialize calibration screen is displayed.
▶ Section 1.29, “Initializing and Calibrating the System (Initialization, reconfiguration, touch screen calibration), Setting the Measurement Mode” in the GX/GP User’s Manual

Control Group

A control group is used to monitor and control the loops in the specified control group.
▶ Section 5.1.1, “Monitoring and Controlling on the Control Group Screen”

Tuning

Tuning is used to view the loop status and adjust PID parameter settings.
▶ Section 5.1.8, “Viewing and Adjusting PID and Other Control Parameters (Tuning)”

Control Overview

The control overview screen shows on a single screen the alarm status of all loops.
▶ Section 5.1.4, “Showing the Status of All Loops on a Single Screen (Control Overview)”

Control Summary

The control summary shows the control history.
▶ Section 5.1.6, “Listing the Control Log (Control summary)”

Control Alarm Summary

The control alarm summary shows the control alarm history.
▶ Section 5.1.7, “Listing the Log of Alarm Occurrences and Releases (Control alarm summary)”

Program Selection

The program selection screen shows the specified program pattern.
▶ Section 5.3.1, “Selecting a Program Pattern”

Program Operation

The program operation screen shows the running program pattern.
▶ Section 5.13, “Performing Program Control (recorder option /PG)”

Operation complete

Loading Display Data and Event Data

You can load display or event data and display the corresponding historical trend.
The historical trend of the loaded batch group is displayed.
If in batch overview mode, the GX/GP switches to batch single mode.
If you tap Context and then Exit to finish displaying the historical trend, the GX/GP returns to batch overview mode.

▶ Section 2.8.2, "Loading and Displaying the Measured Data (Display data and event data) from the Storage Medium," in the GX/GP User's Manual

Note

Even if the loaded data is not from batch group 1, the batch single mode indication of data loading will be fixed as batch group 1.
In addition, you cannot switch the batch group while the historical trend is being displayed.

3.1.7 Using Batch Single Mode

Follow the procedure below when the batch single mode screen is displayed. In batch single mode, only the selected batch group's data is displayed.

Procedure

Displaying the Screen

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

2. Tap the **Browse** tab and then the icon of the screen you want to display.

Displaying the control screen
Tap the **Browse** tab > **Contrl** and then the icon of the screen you want to display.

Trend, Digital, Bar, Custom Display

The trend, digital, bar graph, or custom display is shown.

▶ Section 2.2.1, "Displaying Measured Data Using Waveforms, Numeric Values, Bar Graph, or Custom Display (/CG option) (Trend, digital, bar graph, and custom displays)," in the GX/GP User's Manual

Overview

A display group overview and the status of the channels registered to the display group are displayed.

▶ See "Overview" in section 3.1.6, "Using Batch Overview Mode," on page 3-7.

Alarm Summary

An alarm summary of the selected batch group is displayed.

▶ Section 2.3.1, "Listing the Log of Alarm Occurrences and Releases," in the GX/GP User's Manual

Note

On the alarm summary watch mode display, removing a channel on which an alarm is occurring from the group will clear the alarm, but the alarm information will remain.

Message Summary

A message summary of the selected batch group is displayed.

▶ Section 2.3.2, "Displaying the Log of Written Messages (Message summary)," in the GX/GP User's Manual

Memory Summary/Data Save

A memory summary of the selected batch group is displayed.

▶ Section 2.3.3, "Displaying a List of Data Files in the Internal Memory and Saving Data (Memory summary)," in the GX/GP User's Manual

Multi Panel Screen

A multi panel screen is displayed.

▶ Section 2.2.4, "Displaying the Multi Panel (GX20/GP20 only)," in the GX/GP User's Manual

Internal Switch/Relay Status

Internal switch/relay status is displayed.

▶ Section 2.3.7, “Displaying the DO Channel and Internal Switch Status (Release number 2 and later),” in the GX/GP User’s Manual

Report, Modbus Client (/MC), Modbus Master (/MC), Internal Switch/Relay Status, Network Information, System Information, Log, WT Client (/E2), SLMP Client (/E4), Reminder (/AH), Save load, Setting, Initialize Calibration, Control

▶ See “Using Batch Overview Mode” on page 3-7.

Loading Display Data and Event Data

You can load display or event data and display the corresponding historical trend.
The historical trend of the loaded batch group is displayed.

▶ Section 2.8.2, “Loading and Displaying the Measured Data (Display data and event data) from the Storage Medium,” in the GX/GP User’s Manual

Operation complete

Note

Even if the loaded data is not from batch group 1, the batch single mode indication of data loading will be fixed as batch group 1.
In addition, you cannot switch the batch group while the historical trend is being displayed.

3.1.8 Writing an Additional Message or an Additional Free Message

You can write messages to batch groups.

Setting How Messages and Free Messages Are to Be Written

Path

GX/GP: **MENU** key > **Browse** tab > **Setting** > Setting menu **Display settings** > **Trend settings**
Web application: **Config.** tab > **Display settings** > **Trend settings**
Hardware configurator: **Display settings** > **Trend settings**

Description

Message

Set the display group to write messages to.

Setup Item	Selectable Range or Options	Default Value
Write group	Common, Separate	Common

Write group

Batch Mode	Options	Description
Batch single mode	Common	Writes to all the display groups for the batch group currently displayed.
	Separate	Writes to the display group for the batch group currently displayed.
Batch overview mode	Common	Writes to all the display groups for the selected batch group.
	Separate	

Setting Messages

▶ See section 1.10.3, “Setting Messages,” in the GX/GP User’s Manual.

Writing a Message When the GX/GP Recovers from a Power Failure

Messages are written to all display groups of all batch groups that are recording.

▶ See section 1.10.4, “Setting Trend Display Conditions,” in the GX/GP User’s Manual.

Procedure

During batch overview mode

Writing Messages

1. Press **MENU**.
   The menu screen appears.
2. Tap the **Universal** tab and then **Message**.
   A Message screen is displayed.
3. Tap the Message icon of the batch group you want to write a message to.
   A message list appears.
4. Select the message to write, and tap **OK**.
   The message is written.

Operation complete

Writing Free Messages

1. Press **MENU**.
   The menu screen appears.
2. Tap the **Universal** tab and then **Free message**.
   A Free message screen is displayed.
3. Tap the Free message icon of the batch group you want to write a message to.
   A message list appears.
3. Tap the number of the message you want to write.
   A keyboard appears.
4. Set the message to write, and tap **OK**.
   The message that you entered is written.

Operation complete

During batch single mode

Writing Messages

1. Press **MENU**.
   The menu screen appears.
2. On the batch single tab, select the batch group and display group.
3. Tap the **Universal** tab and then **Message**.
   A message list appears.
4. Select the message to write, and tap **OK**.
   The message is written.

Operation complete

Writing Free Messages

1. Press **MENU**.
   The menu screen appears.
2. On the batch single tab, select the batch group and display group.
3. Tap the **Universal** tab and then **Free message**.
   A free message list appears.
3. Tap the message you want to write.
   A keyboard appears.
4. Set the message to write, and tap **OK**.
   The message that you entered is written.

Operation complete

3.1.9 Writing Freehand Messages

Follow the procedure below when the batch single mode screen is displayed.

Write group

Write group	Description
Separate Save	Writes to the display group currently displayed for the batch group currently displayed.
Common Save	Writes to all the display groups for the batch group currently displayed.

▶ Procedure: Section 2.2.6, “Writing Freehand Messages,” in the GX/GP User’s Manual

3.1.10 Using the Favorite Screen

▶ See section 2.4.6, “Using, Registering, and Deleting Favorite Screens,” in the GX/GP User’s Manual.

3.1.11 Displaying the Text Field Settings

Procedure

Procedure in Batch Overview Mode

1. Press **MENU**.
   The menu screen appears.
2. Tap the **Universal** tab and then **Text field**.
   A batch text field screen appears.
3. Tap the Textfield icon of the batch group to display the text field in.
   A batch text field appears.
4. Tap **Close** to return to the batch text field screen.
5. Tap **Close** to return to the menu screen.
6. Tap the **Close** icon to close the menu screen.

Operation complete

Procedure in Batch Single Mode

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

2. Tap the **Universal** tab and then **Text field**.
   A batch text field appears.

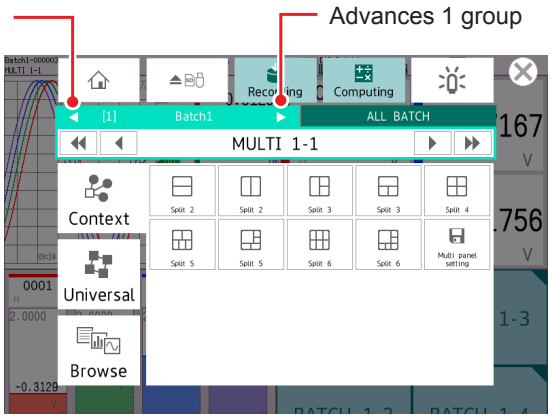
3. Tap **Close** to return to the menu screen.

4. Tap the **Close** icon to close the menu screen.

   Operation complete

3.1.12 Displaying the Multi Panel (GX20/GP20 only)

For each batch group, you can divide the screen into several areas and assign the displays of your choosing to the areas.
On the batch single tab, you can select the batch group.



Other settings are the same as the standard multi panel.
▶ For the procedure, see section 2.2.4, “Displaying the Multi Panel (GX20/GP20 only),” in the GX/GP User’s Manual.

3.1.13 Saving Data to USB Flash Memory (/UH option)

You can save the following data to the USB flash memory.
For the procedure, ▶see section 2.3.3, “Displaying a List of Data Files in the Internal Memory and Saving Data (Memory summary),” in the GX/GP User’s Manual.

Options	Description
All save	Saves all the saved data in internal memory.
Selective save [1]	Saves the selected measured data on the memory summary of the selected batch group.
Display/event data save	Saves all display data and event data in internal memory.
Manual sampled data save	Saves the manual sampled data
Report data save	Saves the report data

1 When the batch single mode screen is displayed

3.1.14 Loading Settings

You can load multi batch settings. ▶section 2.1.2, “Setting the Multi Batch Function,” on page 2-3
However, the setting files that you can load are those containing all the settings saved with **All above**.
For details on saving all settings, see ▶ section 1.26.7, “Saving Setting Parameters, Scale Images, Report Templates, Trusted Certificates (Release number 2 and later), Custom Display (/CG option) (Release number 2 and later) , Program pattern (/PG option) (Release number 4 and later) at Once,” in the GX/GP User’s Manual.

Procedure

1. Press **MENU**.
   The menu screen appears.
2. Tap the **Browse** tab, **Save load** > **Load settings** > **All above**.
3. Tap **Select folder** to select the folder containing the setting file, and tap **OK**.
4. Tap **Load multi-batch settings** to select **On**.
5. Tap **Execute**.
   The setting file is loaded.

Operation complete

Note

When you load multi batch settings, all settings except the log are initialized first. Then all the settings are loaded, and the system is restarted.

3.1.15 Switching the Display Status of All Start/Stop

You can select whether to display the all batch group (ALL BATCH) **Start/Stop** button on the screen that appears when you press **MENU** and tap **Record** in batch overview mode.

Procedure

1. Press **MENU**.
   The menu screen appears.
2. Tap the **Universal** tab and then **All Start/Stop Show Hide**.
   The display status of the all batch group **Start/Stop** button changes.
   Each time you tap All Start/Stop Show Hide, the setting toggles between show and hide.

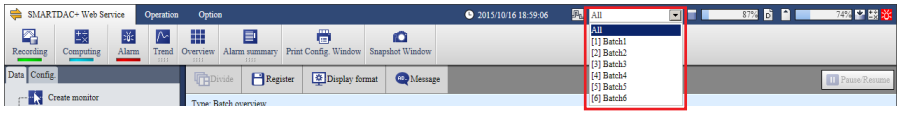
Operation complete

3.2 GM Operation

3.2.1 Switching between All Batch Mode and Batch Single Mode

Procedure

1. Select the batch mode selection list box in the status area.
A pull-down menu appears.



2. Select **All** or a batch group number from [1] to [12] [1] of the batch single mode.
The GM switches to all batch mode or batch single mode.

1 Depends on the specified number of batches.
GM10-1: 2 to 6
GM10-2: 2 to 12

Operation complete

3.2.2 Displaying the Batch Overview

Follow the procedure below when the all batch mode screen is displayed.
Information common to all batch groups is displayed.
▶ See section 1.3.1, “Batch Overview Mode/All Batch Mode (Web application),” on page 1-10.

Procedure

1. Select the batch mode selection list box in the status area.
A pull-down menu appears.

2. Select **All**.

3. On the **Data** tab, select **Batch overview**.
The batch overview is displayed.

Operation complete

3.2.3 Displaying the Overview

Procedure

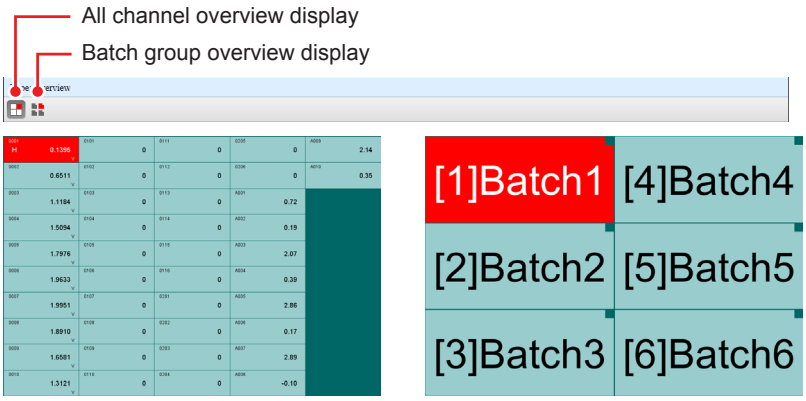
1. On the **Data** tab, select **Overview**.
The overview is displayed.

During All Batch Mode

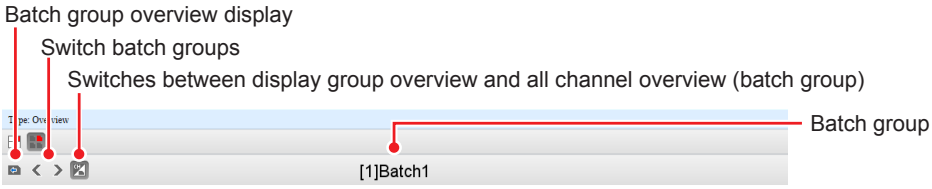
- All channel overview and batch group overview are displayed.
  Select a batch group in batch group overview to display the all channel overview and display group overview of the display group.
  Select a display group to display an overview of the channels registered in the display group.

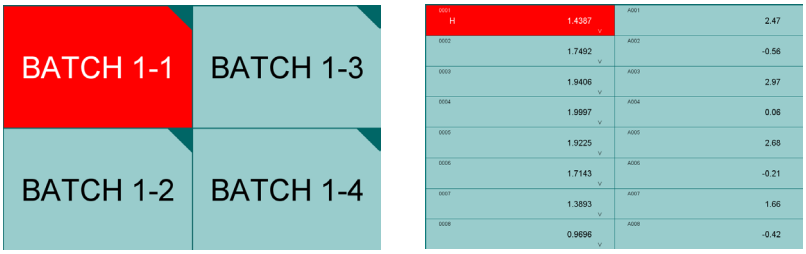
During batch single mode

- You can display the display group overview and channel overview of the selected batch group.



All channel overview　　Batch group overview





Display group overview　　All channel overview (batch group)

Operation complete

3.2.4 Starting/Stopping Recording, and Saving Data

Procedure

Starting Recording from All Batch Mode

Follow the procedure below when the all batch mode screen is displayed.

1. On the **SMARTDAC+ Web Service** tab, select **Recording**.
   A Select batch dialog box appears.

When Selecting a Single Batch Group

2. Select the batch group you want to start recording on.
   A Recording dialog box appears.

3. Enter the batch number, lot number, batch comment, text field (string), and so on.

   * The text fields that you specify here will only be saved to the measurement data file that you are about to start recording to. The text fields that you have set in batch settings will not change (see section 2.1.3, “Configuring Batch Settings,” on page 2-4).

4. Select **Start recording**, **Start recording and computing**, or **Start recording and computing (MathRST)**.
   Recording starts.

When Selecting All Batch Groups

2. Select **All**.
   A Recording dialog box appears.

   Select **Start recording**, **Start recording and computing**, or **Start recording and computing (MathRST)**.
   Recording starts.

   Operation complete

Starting Recording from Batch Single Mode

Follow the procedure below when the batch single mode screen is displayed.

1. On the **SMARTDAC+ Web Service** tab, select **Recording**.
   A Recording dialog box appears.

2. Enter the batch number, lot number, batch comment, text field, and so on.

   * The text fields that you specify here will only be saved to the measurement data file that you are about to start recording to. The text fields that you have set in batch settings will not change (see section 2.1.3, “Configuring Batch Settings,” on page 2-4).

3. Select **Start recording**, **Start recording and computing**, or **Start recording and computing (MathRST)**.
   Recording starts.

   Operation complete

Stopping Recording from All Batch Mode

Follow the procedure below when the all batch mode screen is displayed.

1. On the **SMARTDAC+ Web Service** tab, select **Recording**.
   A Select batch dialog box appears.

When Selecting a Single Batch Group

2. Select the batch group you want to stop recording on.
   A Recording dialog box appears.
3. Select **Stop recording** or **Stop recording and computing**.
   Recording stops.

When Selecting All Batch Groups

2. Select **All**.
   A Recording dialog box appears.
3. Select **Stop recording** or **Stop recording and computing**.
   Recording stops.

Operation complete

Stopping Recording from Batch Single Mode

Follow the procedure below when the batch single mode screen is displayed.

1. On the **SMARTDAC+ Web Service** tab, select **Recording**.
   A Recording dialog box appears.
2. Select **Stop recording** or **Stop recording and computing**.
   Recording stops.

Operation complete

3.2.5 Starting, Stopping, and Resetting Computations (/MT Option)

- All computations start and stop together at the same time. You cannot start or stop computations for each batch group separately.
- You can reset the values calculated on computation channels separately for each batch group.

Procedure

Starting Recording and Computation Simultaneously

When the All Batch Mode Screen Is Displayed

1. On the **SMARTDAC+ Web Service** tab, select **Recording**.
   A Select batch dialog box appears.
2. Select the batch group you want to start recording on or **All**.
   A Recording dialog box appears.
3. Select **Start recording and computing** or **Start recording and computing (MathRST)**.
   Computation starts when recording starts.

Operation complete

When the Batch Single Mode Screen Is Displayed

1. On the **SMARTDAC+ Web Service** tab, select **Recording**.
   A Recording dialog box appears.

2. Select **Start recording and computing** or **Start recording and computing (MathRST)**.
   Computation starts when recording starts.

   Operation complete

Starting Only the Computation

Follow the procedure below when the all batch mode screen is displayed.

1. On the **SMARTDAC+ Web Service** tab, select **Computing**.
   A Computing dialog box appears.

2. Tap **Start computing** or **Start computing (MathRST)**.
   Computing starts.

   Operation complete

Stopping Computation

Follow the procedure below when the all batch mode screen is displayed.

1. On the **SMARTDAC+ Web Service** tab, select **Computing**.
   A Computing dialog box appears.

2. Select **Stop computing**.
   Computing stops.

   Operation complete

Resetting Computation

When the All Batch Mode Screen Is Displayed

1. On the **SMARTDAC+ Web Service** tab, select **Computing**.
   A Computing dialog box appears.

2. Select **Reset computing**.
   A Select batch dialog box appears.

   Resetting Computation of All Batches

3. Select **All**.
   The computation of all batches is reset.

   Resetting Computation of a Specific Batch

3. Select the batch group you want to reset.
   The computation of the specified batch is reset.

   Operation complete

When the Batch Single Mode Screen Is Displayed

1. On the **SMARTDAC+ Web Service** tab, select **Computing**.
   A Computing dialog box appears.

2. Select **Reset computing**.
   The computation of the selected batch is reset.

   Operation complete

3.2.6 Using All Batch Mode and Batch Single Mode

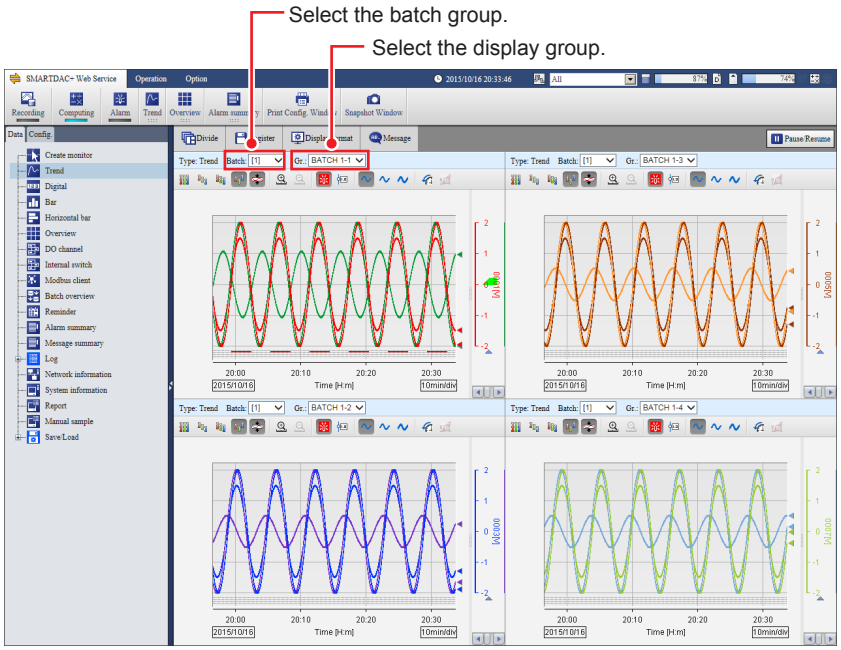
Procedure

Displaying the Screen

1. From the **Data** tab, select the item you want to display.

Trend, Digital, Bar Graph, and Horizontal Bar Graph

- When the All Batch Mode Screen Is Displayed
  Select the batch group and display group you want to display.



- When the Batch Single Mode Screen Is Displayed
  The data of the selected batch group is displayed.
  Select a display group.

▶ Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual

Overview

- When the All Batch Mode Screen Is Displayed
  The status of the following is displayed.
  - Status of all channels
  - Status of all batch groups
  - Status of all channels for the selected batch group
  - Status of the selected batch group and display group
  - Status of the channels registered in the selected batch group and display group

- When the Batch Single Mode Screen Is Displayed
  The status of the following is displayed.
  - Status of all channels for the selected batch group
  - Status of the selected batch group and display group
  - Status of the channels registered in the selected batch group and display group

▶ section 3.2.3, “Displaying the Overview,” on page 3-16

Batch Overview

Follow the procedure below when the all batch mode screen is displayed.
▶ section 3.2.2, “Displaying the Batch Overview,” on page 3-15

Report

▶ Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual

Modbus Client and Modbus Master

▶ Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual

Internal Switch/Relay Status

▶ Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual

Log

▶ Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual

Network Information

▶ Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual

System Information

▶ Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual

WT Client

▶ “Monitoring the WT Collection Status” in the WT Communication Manual

SLMP Client

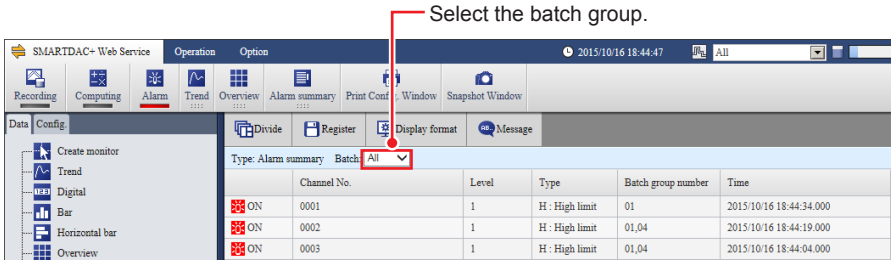
▶ SLMP Communication Manual

Reminder (/AH)

Schedule management information is displayed.
▶ Section 2.32, “Using the Aerospace Heat Treatment (/AH option) (Release number 3 and later),” in the GM User’s Manual

Alarm Summary

- When the All Batch Mode Screen Is Displayed
  Select the batch group you want to display.



- When the Batch Single Mode Screen Is Displayed
  An alarm summary of the selected batch group is displayed.

▶ Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual

Message Summary

- When the All Batch Mode Screen Is Displayed
  Select the batch group you want to display.
- When the Batch Single Mode Screen Is Displayed
  A message summary of the selected batch group is displayed.

▶ Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual

Memory Summary/Save

This is applicable only when the batch single mode screen is displayed.
A memory summary of the displayed batch group is displayed.

▶ Section 3.1.2, “Monitoring the GM Data and Controlling the GM from the Monitor Screen,” in the GM User’s Manual

Control Group

A control group is used to monitor and control the loops in the specified control group.

▶ Section 6.1.2, “Faceplate Screen and Controller Screen” in the Loop Control Function, Program Control Function Manual

Tuning

Tuning is used to view the loop status and adjust PID parameter settings.

▶ Section 6.1.6, “Tuning Screen” in the Loop Control Function, Program Control Function Manual

Control Overview

The control overview screen shows on a single screen the alarm status of all loops.

▶ Section 6.1.3, “Control Overview Screen” in the Loop Control Function, Program Control Function Manual

Control Summary

The control summary shows the control history.

▶ Section 6.1.4, “Control Summary Screen” in the Loop Control Function, Program Control Function Manual

Control Alarm Summary

The control alarm summary shows the control alarm history.

▶ Section 6.1.5, “Control Alarm Summary Screen” in the Loop Control Function, Program Control Function Manual

Program Selection

The program selection screen shows the specified program pattern.

▶ Section 6.2, “Monitoring and Configuring Program Control” in the Loop Control Function, Program Control Function Manual

Program Operation

The program operation screen shows the running program pattern.

▶ Section 6.2, “Monitoring and Configuring Program Control” in the Loop Control Function, Program Control Function Manual

Operation complete

3.2.7 Loading Settings

When the multi batch function is enabled, you can load multi batch (On/Off, quantity) settings.
However, the setting files that you can load are those containing all the settings saved with **Save all settings**.
▶ For details on saving all settings, see section 2.28.4, “Saving Setting Parameters, Report Templates, and Trusted Certificates,” in the GM User’s Manual.

Procedure

1. Select the Data tab > Save/Load > File list(Save all/Load all).
2. Select and open the folder saved using Save all settings.
3. Select **Load all settings**.
   A Load all settings dialog box appears.
4. Select the **Load multi batch settings also** check box and then **O+K**.
   The settings are loaded.

Operation complete

3.2.8 Writing an Additional Message or an Additional Free Message

Procedure

1. Select **Message**.
   A bar appears where you can set the message to write.

   The Message button appears when monitor content is displayed.
   It does not appear when network information, system information, report, manual sampling, or Save load is displayed.
2. Select **Preset** or **Free**.

   Preset: Select a message from the list.
   Free: Select a message number from the list, and enter the message string in the text box.
3. From the **Write to** list, select the batch group (when in all batch mode) and display group to write to.
4. Select **Write**.
   The message is written.

Operation complete

3.2.9 Writing Batch Comments While Recording

Procedure

When the All Batch Mode Screen Is Displayed

1. On the **Operation** tab, select **Batch**.
   A Select batch dialog box appears.
2. Select the batch to write the batch comment to.
   A Batch dialog box appears.
3. Enter the batch comment, and select **Update**.
   The batch comment is written.

Operation complete

When the Batch Single Mode Screen Is Displayed

1. On the **Operation** tab, Select **Batch**.
   A Batch dialog box appears.
2. Enter the batch comment, and select **Update**.
   The batch comment is written.

Operation complete

3.2.10 Displaying the Text Field Content

Procedure

When the All Batch Mode Screen Is Displayed

1. On the **Operation** tab, select **Batch**.
   A Select batch dialog box appears.

   During Single Batch Mode
   A text field appears in the Batch dialog box.
2. Select the batch for displaying the text field.
   A text field appears in the Batch dialog box.
3. Selecting Cancel closes the Batch dialog box.

Operation complete

When the Batch Single Mode Screen Is Displayed

1. On the **Operation** tab, select **Batch**.
   A text field appears in the Batch dialog box.
2. Selecting Cancel closes the Batch dialog box.

Operation complete

3.2.11 Key Operation

The GM key operations when the multi batch function is enabled are as follows.

Key Type	Operation Description
START	Start recording on all batches [hold down][1]
	Starting computing [press]
STOP	Stop recording on all batches [hold down][2]
	Stop computing [press]
	Clear errors [press]
USER1	Execute a specified action (event action function)
USER1	

1 If the report function is enabled, reporting also starts. (When recording on all batches is stopped)
2 If reporting is in progress, it is also stopped.

NOTE

You cannot start or stop recording on specific batches using the START or STOP key.

REC Status Indication When the Multi Batch Function Is Enabled

LED	Description
On	Recording on one or more batches is in progress.
Blinking	Recording is being stopped (blinks even if other batches are recording).
Off	Recording is stopped on all batches.

Blank

Appendix 1 Using the Event Action Function

Event action is used to execute specified actions when certain events occur. For example, it can be used to write a message when an alarm occurs. When the multi batch function is in use, you need to specify the target batch group that the action is to be executed on. For example, you need to specify that a message is to be written to batch group 2 when an alarm occurs. On screens for setting these sort of actions, a box for selecting a batch group is displayed.

Example of Starting/Stopping the Recording on Batch Group 2

Recording on batch group 2 will be started and stopped using remote control input to channel 0201 of the DI module. Event action number 1 will be used.

Setup Items

DI Channel Settings

- Setup Screen

GX/GP: **MENU** > **Browse** tab > **Setting** > **DI channel settings** > **Range**
Web application: **Config.** tab > **DI channel settings** > [0201-0216] > Range

- Setup Items

Setup Item		Value
First-CH, Last-CH		0201
Range	Type	DI
	Span Lower	0
	Span Upper	1
	Math	Off

Unit Settings

- Setup Screen

GX/GP: **MENU** > **Browse** tab > **Setting** > **Measurement settings** > Select unit **Main unit** or **Module2 [GX90XD-16-11]**
Web application: **Config.** tab > **Measurement settings** > **Module operation settings** > **Module2**

- Setup Items

Setup Item		Value
Operation mode	Operation mode	Remote

Event Action Settings

GX/GP: **MENU** > **Browse** tab > **Setting** > **Event action**
Web application: **Config.** tab > **Event action** > **1-20**

Setup Item		Value
Event action number		1
Event action	On/Off	On
Event	Type	Alarm - I/O channel
	Number	0001
	Event details	Alarm level 1
	Operation mode	Rising/Falling edge
Action	Type	Recording start/stop
	Batch group number	2

<Operation>

Recording on batch group 2 will be started and stopped according to the input signal to channel 0201.

Blank