

Manual for Insulation Monitoring System Display
of MELSEC-Q Series
(Insulation Monitoring Module QE82LG)

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1. Revision History

1.1 Instruction

Revision Date	* Control Number	Content
May 27, 2011	SAM-0015	First edition
May 18, 2012	SAM-0015-A	Second edition: added supplementary explanation of the I/O number change to Section 2.3

* Control number is on the right bottom corner.

1.2 Device List

Revision Date	* Control Number	Content
May 27, 2011	SAM-0016	First edition

* Control number is on the right bottom corner.

1.3 Screen Data

Revision Date	Project Data	* GT Designer3	Content
May 13, 2011	SDS-0015.GTW	1.23Z	First edition

* The version of the screen design software that was used when creating the project data.
When you use the project data, make sure to use the same or a newer version of the software.

2. Overview

This document describes GOT sample screens and a sample ladder program for insulation monitoring system using the MELSEC-Q Series QE82LG Insulation Monitoring Module.

Refer to the supplementary material (SAM-0016) for details of devices used in the sample.

2.1 Applicable Devices

The following table provides a list of devices to which the sample screens and sample ladder program apply.

Table 2-1 Applicable devices

No.	Model	Model Name
1	GOT1000 Series GT16 Model *1	GT1695M-XTBA/D, GT1685M-STBA/D, GT1675M-STBA/D GT1675M-VTBA/D, GT1675-VNBA/D, GT1672-VNBA/D GT1665M-STBA/D, GT1665M-VTBA/D, GT1662-VNBA/D GT1665HS-VTBD, GT1655-VTBD
2	GOT1000 Series GT15 Model *1, *2	GT1595-XTBA/D, GT1585V-STBA/D, GT1585-STBA/D GT1575V-STBA, GT1575-STBA/D, GT1575-VTBA/D GT1575-VNBA/D, GT1572-VNBA/D, GT1565-VTBA/D GT1562-VNBA/D, GT1555-VTBD
3	MELSEC-Q Series Universal Model *3	Q00UCPU, Q01UCPU, Q02UCPU, Q03UD/UDECPU Q04UDH/UDEHCPU, Q06UDH/UDEHCPU, Q10UD/UDEHCPU Q13UDH/UDEHCPU, Q20UDH/UDEHCPU, Q26UDH/UDEHCPU Q50UDEHCPU, Q100UDEHCPU
4	MELSEC-Q Series Insulation Monitoring Module	QE82LG

*1: The GOT sample screens have been prepared for the GT16**-V (640×480).

If used with another model or resolution, change the model setting at GT Works3. It is recommended to use GOT models that support 65,536 colors.

*2: An optional function board is required when using the GT15 Series of function version C and prior.

*3: The sample ladder program has been prepared for the Q03UDECPU.

If used with another model, change the model setting at GX Developer.

Please note that the following CPUs have no memory card interface to support an SRAM card, and therefore caution is advised if increasing the file register usage area with an SRAM card. Refer to “Chapter 13 SETTING THE PARAMETERS” of the “GX Developer Version 8 Operating Manual” for details on how to change the file register usage area.

Table 2-2 CPUs with no memory card interface to support SRAM cards

No.	Model	Model Name
1	MELSEC-Q Series Universal Model	Q00UCPU, Q01UCPU

2.2 Applicable Software

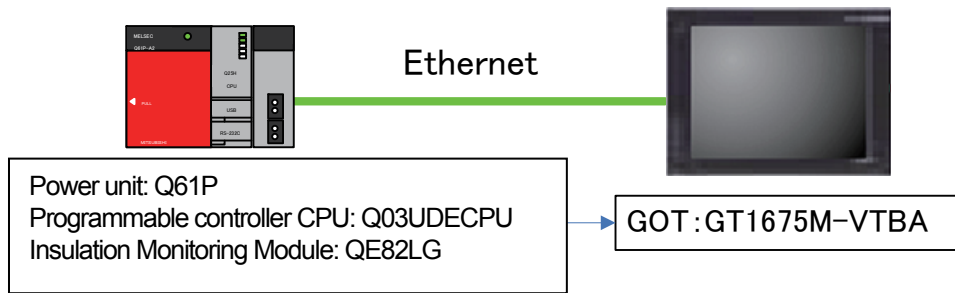
The software applicable to the sample screens and sample ladder program is as follows.

Table 2-3 Applicable software

No.	Software	Details
1	MELSEC programmable controller programming software	GX Developer Ver.8.94Y or later
2	GOT screen creation software	GT Works3 Ver.1.23Z or later (Communication driver: Ethernet (MELSEC)) (Optional function: object script)

2.3 System Configuration

The system configuration is as follows.



* Use a programmable controller for which the first 5 digits of the serial no. are "10102" or higher.

* Alarm history is saved to a CompactFlash card, and therefore a CompactFlash card should be prepared for GOT.

* The first I/O number of an insulation monitoring module is specified as "0". If you change the number, be sure to also change values of the offset device (ZR17100) for the first I/O number of the insulation monitoring module and the offset device (ZR17101) for the first I/O number of the intelligent function module device (U□¥G□).

Example: If you change the first I/O number to 20 (H), also change ZR17100 to 20 (H) and ZR17101 to 2 (H)

2.4 Precautions When Changing the Time

The sample ladder program gathers data such as time and electric current continuously, stores this data in a designated file register, and performs cumulative calculations.

Consequently, all the information obtained will be reset if the time data is changed.

It is recommended to change the time data in the Clock Setting Screen on the GOT, not using GX Developer. For more details, refer to Section 3.5 Parameter Setting Monitor.

2.5 Restrictions on Data Collection

In the Graph Display Monitor, the graph display is updated in a cycle of 10 seconds.

If the power is off at the update timing, the graph display is updated at the next update timing.

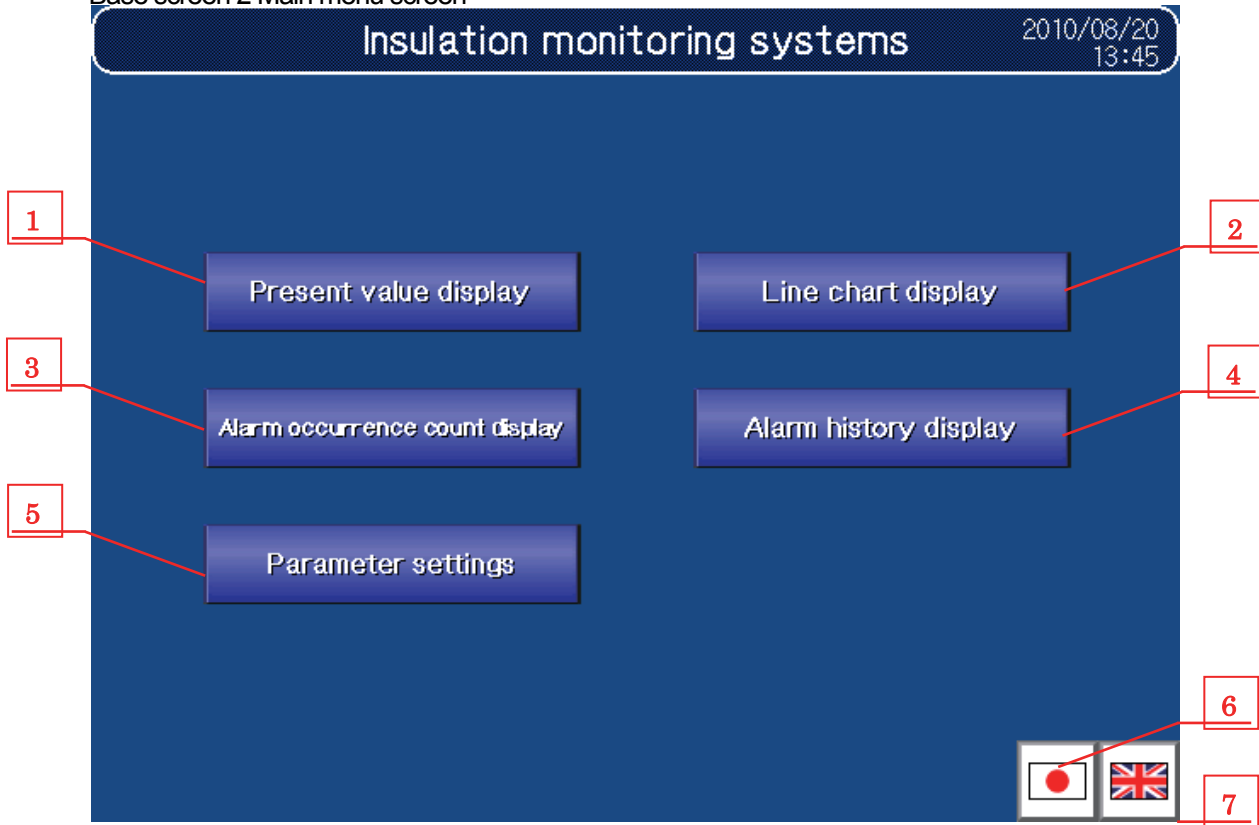
3. GOT Sample Screens

This section provides specifications of GOT sample screens for the insulation monitoring system.

3.1 Main Menu

All processes are selected from this menu screen.

Base screen 2 Main menu screen



(1) Function details

Details of each function are shown in “Table 3-1-1 Function details”.

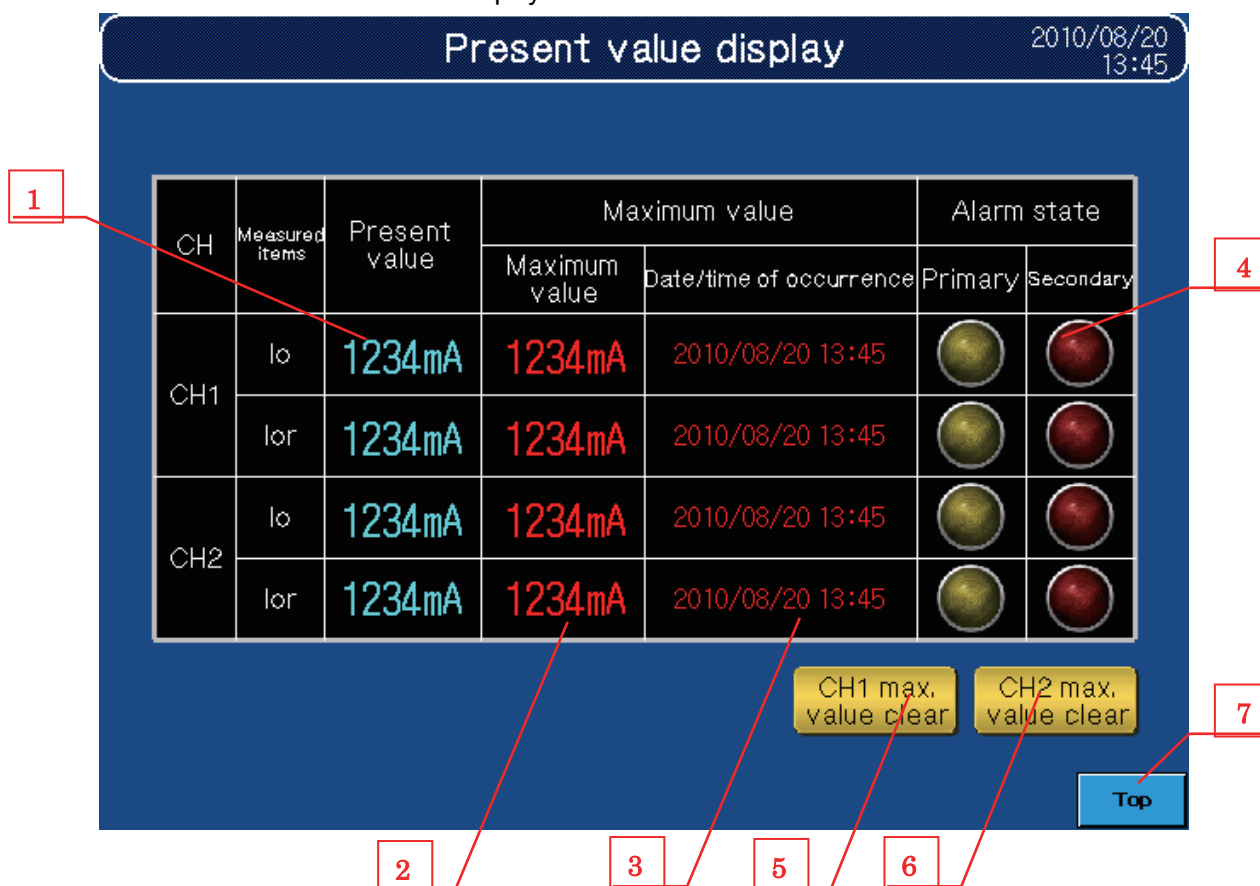
Table 3-1-1 Function details

No.	Object	Details
1	[Present value display] button	Displays the Present value display monitor.
2	[Line chart display] button	Displays the Line chart display monitor.
3	[Alarm occurrence count display] button	Displays the Alarm occurrence count display monitor.
4	[Alarm history display] button	Displays the Alarm history display monitor.
5	[Parameter settings] button	Displays the Parameter settings monitor.
6	[Display Japanese] button	Displays the text on sample screens in Japanese.
7	[Display English] button	Displays the text on sample screens in English.

3.2 Present Value Display Monitor

This monitor screen displays the information measured by using the insulation monitoring module.

Base screen 101 Present value display



(1) Function details

Details of each function are shown in "Table 3-2-1 Function details".

lo: leak current, lor: leak current for resistance

Table 3-2-1 Function details

No.	Object	Details
1	Present value	Displays present values of measuring items.
2	Maximum value	Displays the maximum value in the past of measuring items. *1
3	Date/time of occurrence	Displays the date and time when the above maximum value occurred.
4	Alarm state	Lamps turn on when primary alarms or secondary alarms are detected.
5	[CH1 max. value clear]	Clears the maximum value and occurred date/time of CH1.
6	[CH2 max. value clear]	Clears the maximum value and occurred date/time of CH2.
7	[Top] button	Displays the main menu.

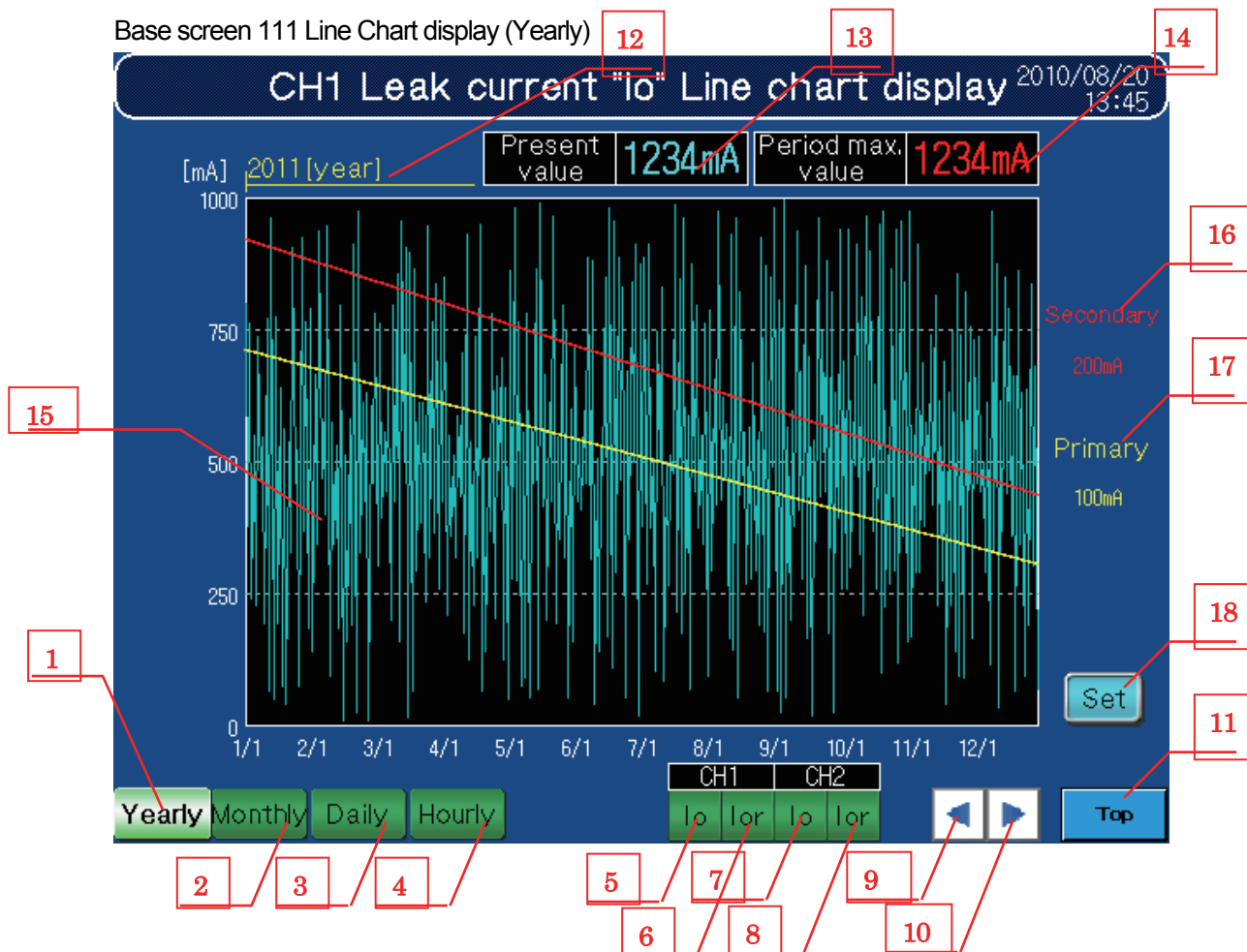
*1 The maximum value is the largest value that occurred from clearing the maximum value to the present. The data before clearing the maximum value is not cumulated.

3.3 Line Chart Display Monitor

This monitor screen displays the leak current measured by using the insulation monitoring module. <Graph is updated in a cycle of 10 seconds.>

The screen title changes when switching measurement elements.

Base screen 111 Line Chart display (Yearly)



(1) Function details

Details of each function are shown in "Table 3-3-1 Function details".

Table 3-3-1 Function details

No.	Object	Details
1	[Yearly] button	Displays [Yearly] graph. Displays the maximum value among the data of 1 day (2-hour data x 12 points) from the monthly graph as "1-day data." Considering leap years, the number of data points is 366.
2	[Monthly] button	Displays [Monthly] graph. Displays the maximum value among the data of 2 hours (5-minute data x 24 points) from the daily graph as "2-hour data." Note that 1 month includes 31 days. Therefore if the displayed month does not have 31 days, "0" is shown on the date that does not exist in the month.
3	[Daily] button	Displays [Daily] graph. Displays the maximum value among the data of 5 minutes (10-second data x 30 points) from the hourly graph as "5-minute data."
4	[Hourly] button	Displays [Hourly] graph. Present values are collected every second and the maximum value within 10 seconds is displayed as 10-second data. The "10 seconds" is defined as 0 to 9 seconds, 10 to 19 seconds, and so on.

Table 3-3-2 Function details

No.	Object	Details
5	[lo] button	Displays the graph about lo of CH1.
6	[lor] button	Displays the graph about lor of CH1.
7	[lo] button	Displays the graph about lo of CH2.
8	[lor] button	Displays the graph about lor of CH2.
9	[▲] button	Displays the previous graph of the currently displayed graph.
10	[▼] button	Displays the next graph of the currently displayed graph.
11	[Top] button	Displays the main menu.
12	Display date/time	Displays the date and time of the currently displayed graph.
13	Present value	Displays the present value of leak current. The display is updated in real time.
14	Period max. value	Displays the maximum value in the displayed screen. The display is updated in real time.
15	Line chart	Displays the status of leak current in a line chart depending on the graph type.
16	Secondary alarm value	Displays the secondary alarm value specified in the parameter setting screen.
17	Primary alarm value	Displays the primary alarm value specified in the parameter setting screen.
18	[Set] button	Specify the upper/lower limit point of the vertical axis in the line chart.

(2) Setting window

The setting windows are as follows.

Window screen 121 Line chart set (Leak current)

Window screen 11 Graph upper/lower limit confirm

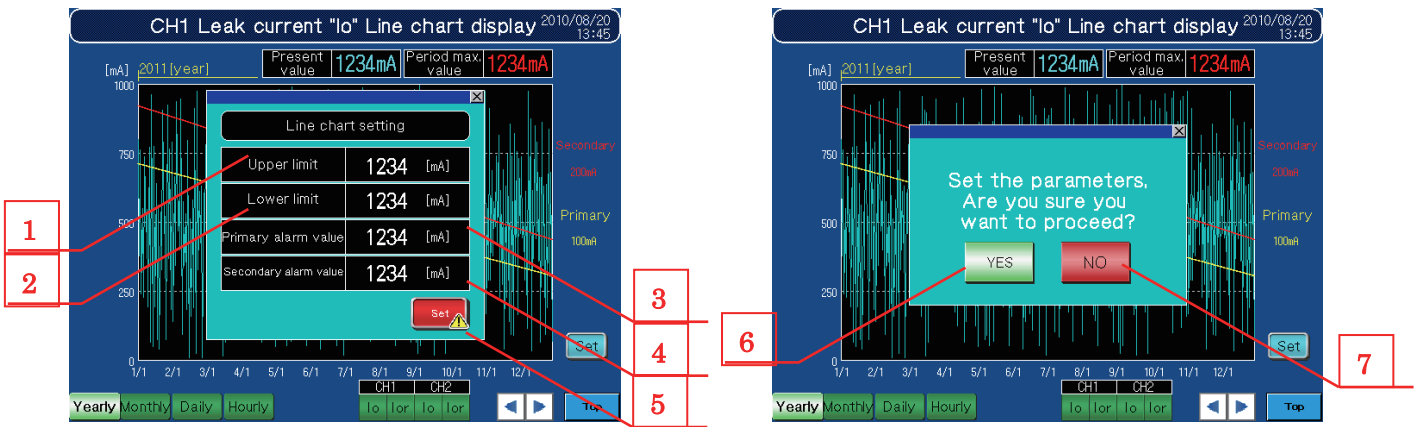


Table 3-3-3 Function details

No.	Object	Details
1	Upper limit	Specifies the upper limit value of the line graph's vertical axis (scale).
2	Lower limit	Specifies the lower limit value of the line graph's vertical axis (scale).
3	Primary alarm value *1	Specifies the primary alarm value of the measuring element that is currently being displayed.
4	Secondary alarm value *1	Specifies the secondary alarm value of the measuring element that is currently being displayed.
5	[Set] button	Press the Set button to switch to the set contents confirmation window.
6	[YES] button	Enables the scale setting value and reflects it the graph.
7	[NO] button	Discards the scale setting value and maintains the previous value.

*1 The value changes along with observed values in the parameter setting screen.

(3) Graph specifications

Details of graph specifications are shown in "Table 3-3-4 Graph specifications".

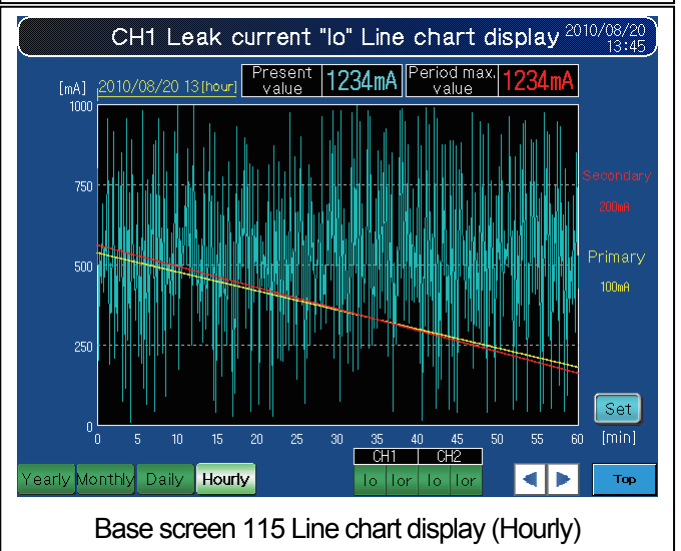
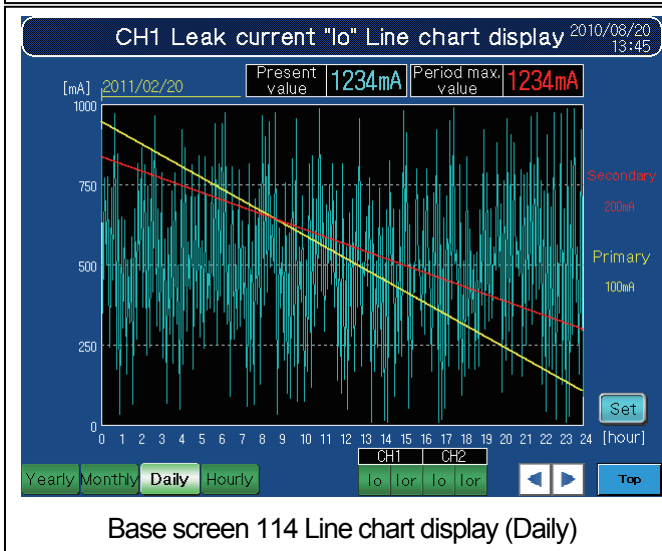
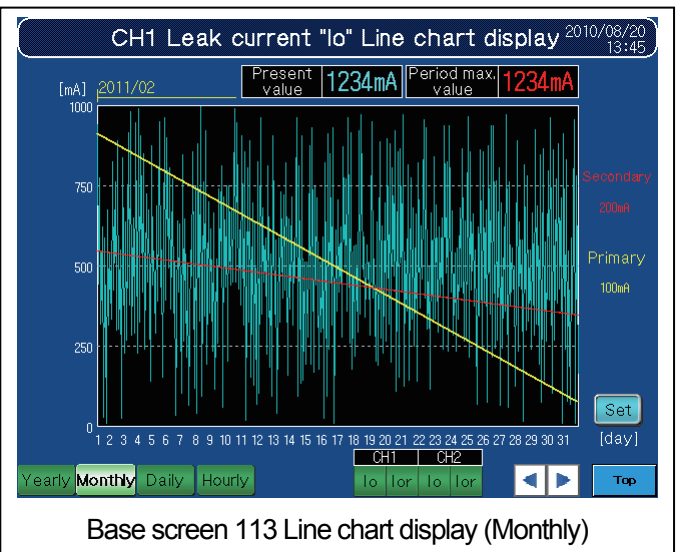
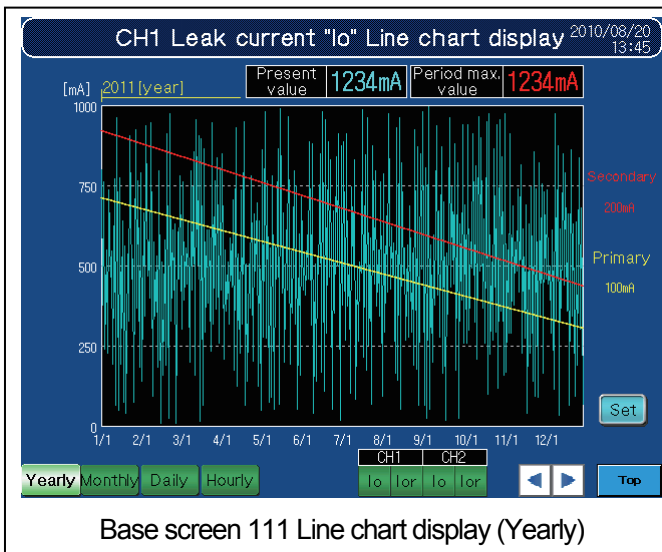
The upper and lower values are the default values.

Table 3-3-4 Graph specifications

Graph Type	Graph Lines	Number of Points	Horizontal Scale				Vertical Scale				Unit	
			Scales	Values	L-limit Value	U-limit Value	Scales	Values	L-limit Value	U-limit Value	Horizontal	Vertical
Hourly	1	360/screen	-	13	0	60	5	5	0	100	Minute	mA
Daily	1	288/screen	-	25	0	24	5	5	0	100	Hour	mA
Monthly	1	372/screen	-	31	1	31	5	5	0	100	Day	mA
Yearly	1	366/screen	-	12	1/1	12/1	5	5	0	100	Month	mA

(4) Screen images

Images of screens are as follows.

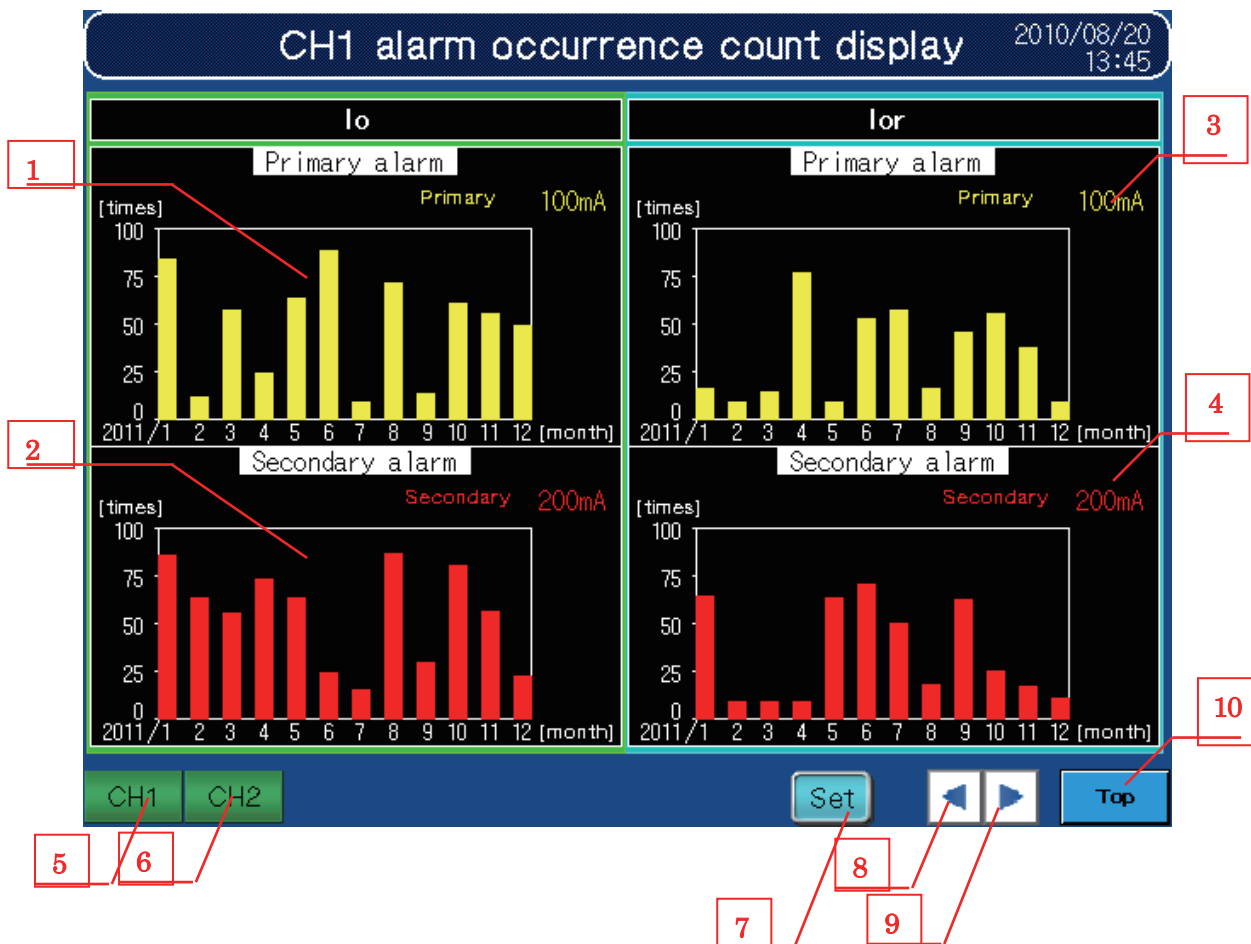


3.4 Alarm Occurrence Count Display

This monitor screen displays the number of alarm occurrences for each Io and Ior.

The screen title changes when switching displayed channels.

Base screen 131 Alarm occurrence display



(1) Function details

Details of each function are shown in "Table 3-4-1 Function details".

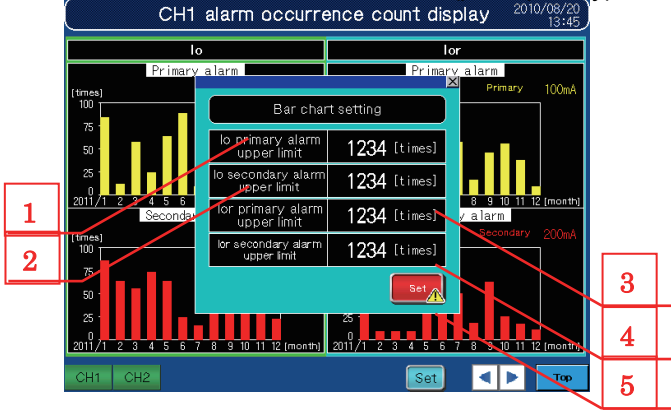
Table 3-4-1 Function details

No.	Object	Details
1	Primary alarm graph	Displays the number of primary alarms occurred in each month in a bar graph.
2	Secondary alarm graph	Displays the number of secondary alarms occurred in each month in a bar graph.
3	Primary alarm value	Displays the primary alarm value specified in the parameter setting screen.
4	Secondary alarm value	Displays the secondary alarm value specified in the parameter setting screen.
5	[CH1] button	Displays the graph about CH1.
6	[CH2] button	Displays the graph about CH2.
7	[Set] button	Specifies the upper limit point for each alarm of the bar graph vertical axis.
8	[▲] button	Displays the graph of the previous year.
9	[▼] button	Displays the graph of this year.
10	[Top] button	Displays the main menu.

(2) Setting screen window

Setting screen windows are as follows.

Window screen 131 Bar chart set (prod quantity)



Window screen 11 Graph upper/lower limit confirm

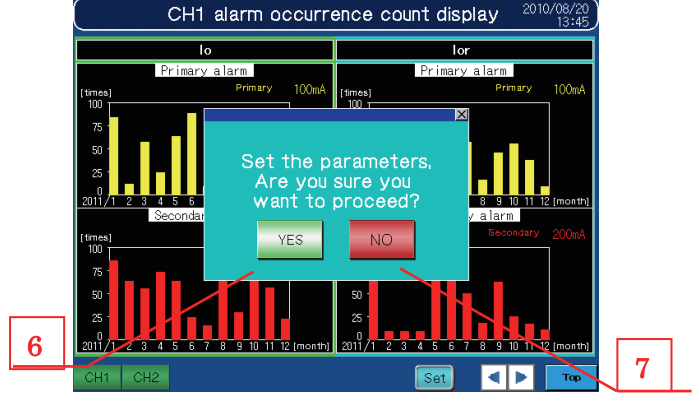


Table 3-4-2 Function details

No.	Object	Details
1	lo primary alarm upper limit value *1	Specifies the upper limit value of the bar graph vertical axis (scale) for the lo primary alarm.
2	lo secondary alarm upper limit value *1	Specifies the upper limit value of the bar graph vertical axis (scale) for the lo secondary alarm.
3	lor primary alarm upper limit value *1	Specifies the upper limit value of the bar graph vertical axis (scale) for the lor primary alarm.
4	lor secondary alarm upper limit value *1	Specifies the upper limit value of the bar graph vertical axis (scale) for the lor secondary alarm.
5	[Set] button	Press the Set button to move to the setting check screen.
6	[YES] button	Enables scale setting values and reflects them to the graph.
7	[NO] button	Discards scale setting values and maintains the previous values.

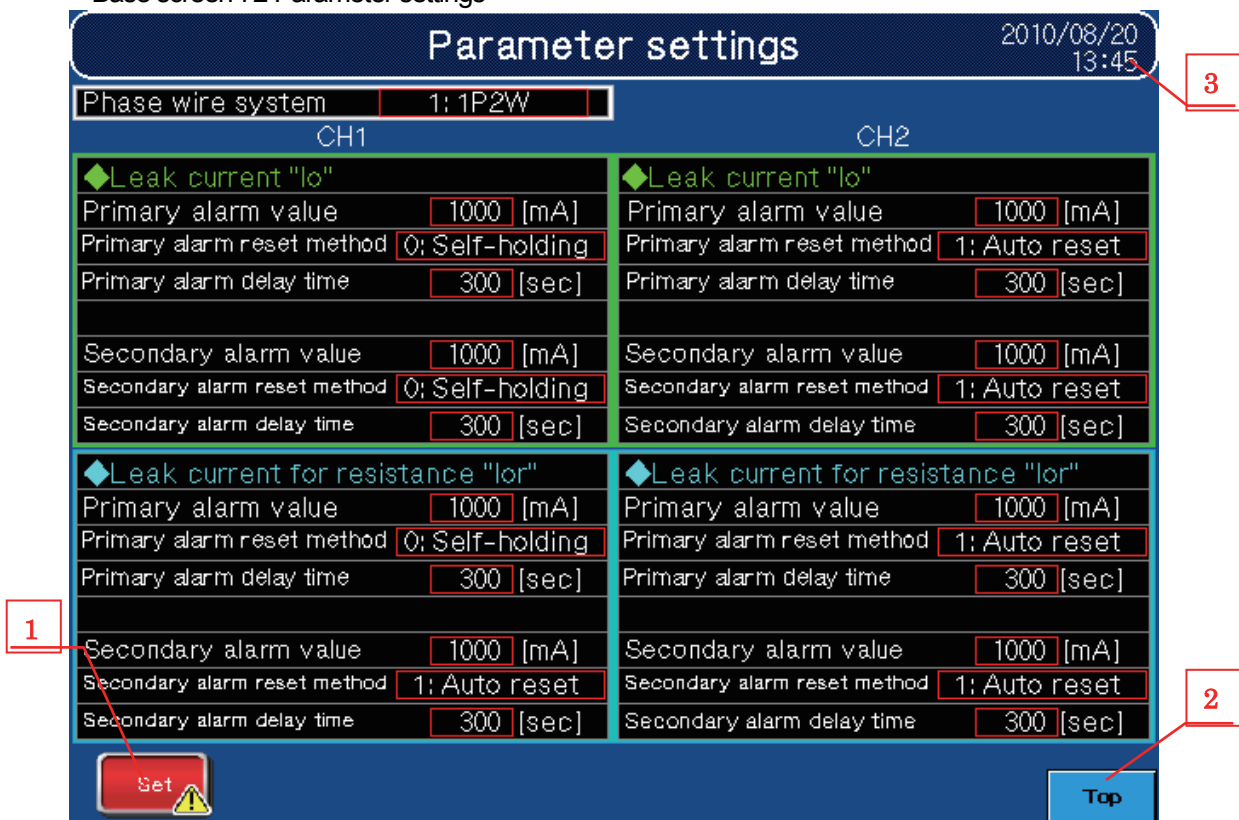
*1 Scales can be specified for each graph..

It is required to specify the upper limit count in multiples of 4. If the specified value is not the multiples of 4, the scale value may not be displayed correctly.

3.5 Parameter Setting Monitor

This monitor screen is used to monitor all parameters, and settings can be changed by touching values.

Base screen 72 Parameter settings



(1) Function details

Details of each function are shown in "Table 3-5-1 Function details".

Table 3-5-1 Function details

No.	Object	Details
1	[Set] button	Set the changed parameter(s). A setting check screen appears.
2	[Top] button	Displays the main menu.
3	Clock setting	Sets the clock. * Press the clock display area (for 2 seconds) to display the window screen to set time. Note that the clock can be set in all screens.

(2) Setting check screen

The setting check screen is as follows.

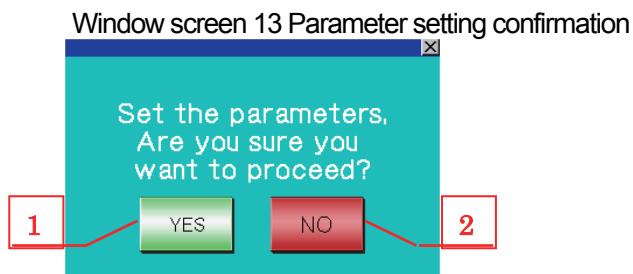


Table 3-5-2 Function details

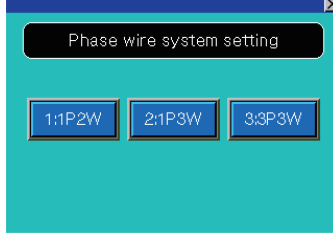
No.	Object	Details
1	[YES] button	Sets the changed parameter(s) and closes the screen.
2	[NO] button	Closes the screen without changing the parameter(s).

(3) Setting screens

The setting screens are as follows.

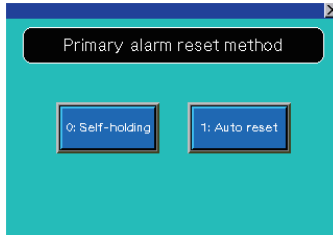
- Phase wire system setting screen

Window screen 31 Phase wire system setting



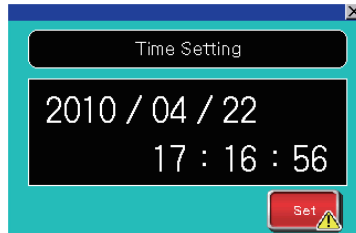
- Alarm reset method setting screen

Window screen 71 to 78 Primary alarm reset method ch1 lo



- Clock setting screen

Window screen 61 Time setting

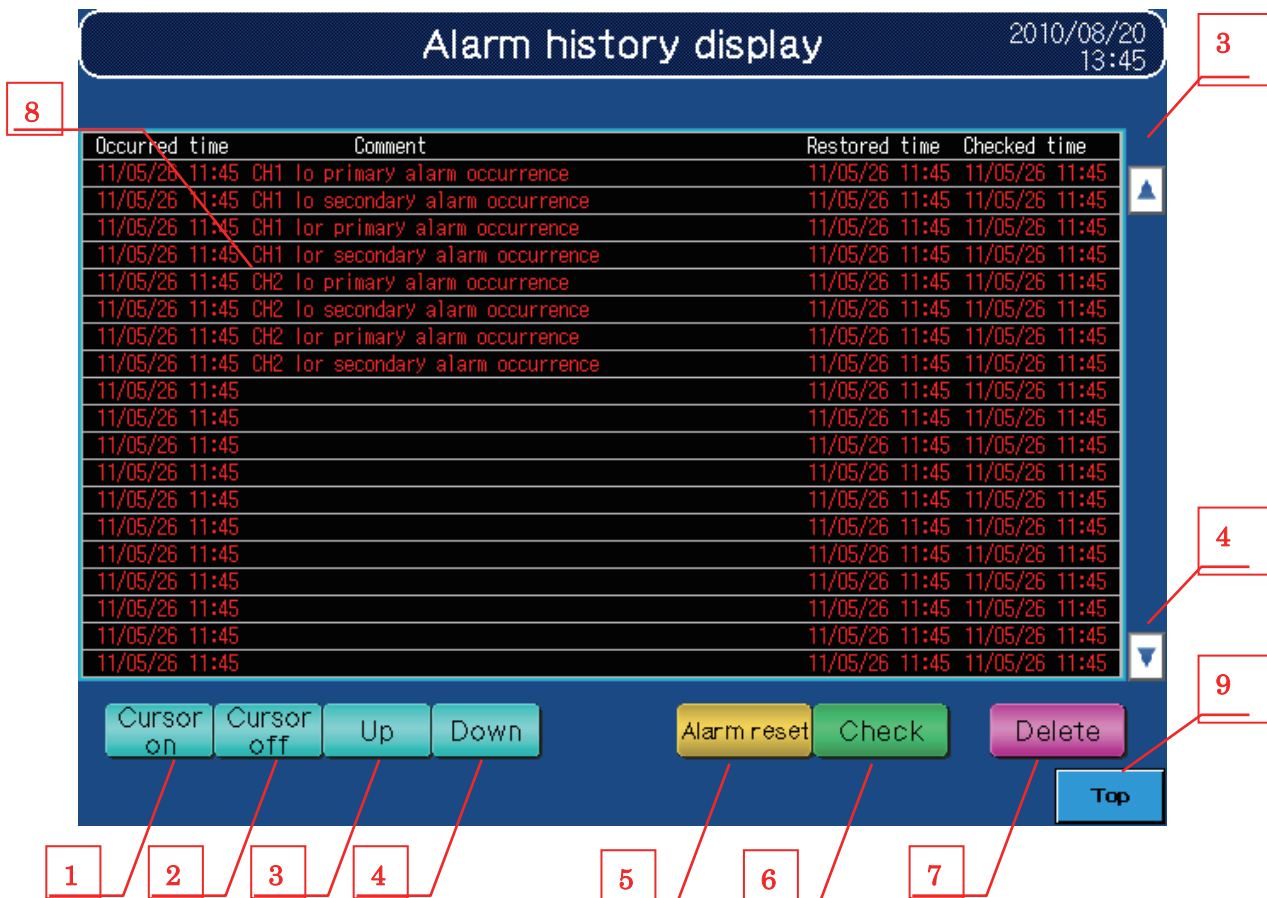


* Refer to 2.4 Precautions When Changing the Time.

3.6 Alarm History

This screen displays the alarm history.

Base screen 82 Alarm history display



(1) Function details

Details of each function are shown in "Table 3-6-1 Function details".

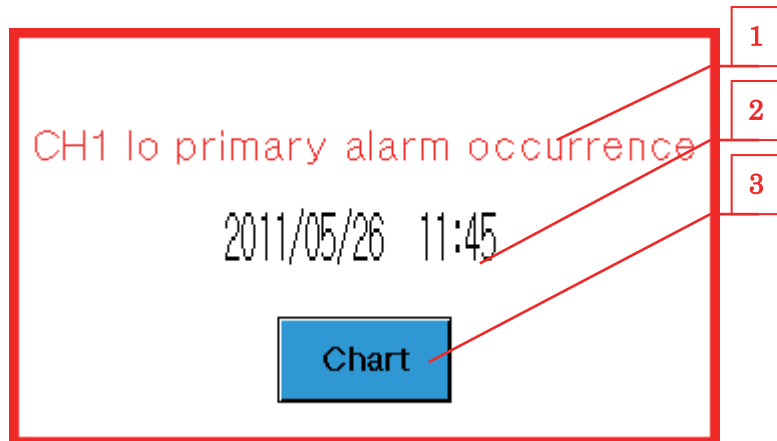
Table 3-6-1 Function details

No.	Object	Details
1	[Cursor on] button	Displays the cursor in the alarm history.
2	[Cursor off] button	Clears the cursor from the alarm history.
3	[Up] button	Moves the cursor up.
4	[Down] button	Moves the cursor down.
5	[Alarm reset] button	Resets the alarms that have been triggered. *1
6	[Check] button	Checks the selected alarm.
7	[Delete] button	Deletes only the restored errors.
8	Alarm history display	Displays the alarm history. Current error: red characters, Restored error: white characters
9	[Top] button	Displays the main menu.

*1 When the alarm reset switch is pressed, alarm reset requests for both CH1 and CH2 turn on (Yn1, Yn5).

(2) Pop-up window

Window screen 1 Popup window



(2)-1 Function details

Details of each function are shown in "Table 3-6-2 Function details".

Table 3-6-2 Function details

No.	Object	Details
1	Error content display	Displays the error that is being displayed in 3.6 Alarm History.
2	Error date and time	Displays the date and time on which alarms occur.
3	[Chart] button	Displays the [Alarm history display].

(2)-2 Management specifications

- The pop-up window appears along with Xn1 to Xn8.
- If different alarms occur simultaneously, the last detected alarm is displayed.