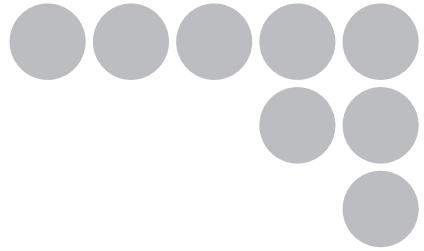# OMRON

ZX-GT Series

**Setup Software for PCs
SmartMonitor GT**

Operation Manual

Introduction

Thank you for purchasing the ZX-GT series.
This manual provides information regarding functions, performance and operating methods that are required for using the ZX-GT.
When using the ZX-GT, be sure to observe the following:

• The ZX-GT must be operated by personnel knowledgeable in electrical engineering.
• To ensure correct use, please read this manual thoroughly to deepen your understanding of the product.
• Please keep this manual in a safe place so that it can be referred to whenever necessary.

CONTENTS

MEMO

Before Use

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What is "SmartMonitor GT?"

SmartMonitor GT is software for the ZX-GT series. SmartMonitor GT allows you to set sensing settings for the ZX-GT series, log data and monitor graphs.
Alternatively, Smart Sensor settings and measured values can be displayed, these values can be displayed as graphs, and setting data can be loaded and saved from a personal computer installed with SmartMonitor GT.

SmartMonitor GT   Personal computer   Controller   Interface Unit
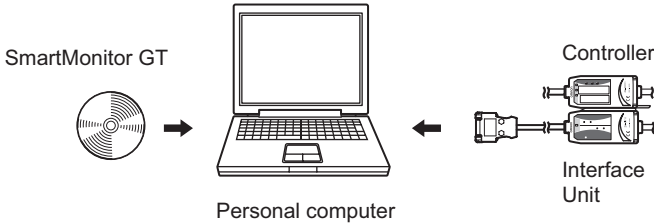
Operating Environment

The following table summarizes the operating environment for SmartMonitor GT. Make sure that the following environmental conditions are satisfied.

Item	Condition
OS	Windows 2000/XP
CPU	Celeron 500 MHz or faster
Memory	128 MB
Free hard disk space	50 MB
Display	800 x 600 HighColor
Baud rate	38400 bps (max.)

• Windows is a trademark or registered trademark of Microsoft Corporation.
• Celeron is a trademark or registered trademark of Intel Corporation or its subsidiaries.

Installing SmartMonitor GT

- Before installing SmartMonitor GT, quit all other programs that are running. If virus detection software is enabled, installation may take time to complete.
- When installing SmartMonitor GT, log in as an administrator or a user having the same privileges as an administrator for changing system settings.

1 Insert your "SmartMonitor GT" CD-ROM into the CD-ROM drive on your personal computer.

2 SmartMonitor GT is automatically launched and the installation window is displayed. Follow the on-screen instructions.
By default, SmartMonitor GT is installed to the directory "C:\Program Files\OMRON\SmartMonitorGT".

If SmartMonitor GT is not automatically launched, execute "setup.exe" from the CD-ROM.

Uninstalling SmartMonitor GT

- Before you install SmartMonitor GT, quit all other programs that are running. If virus detection software is enabled, uninstallation may take time to complete.
- When uninstalling SmartMonitor GT, log in as an administrator or a user having the same privileges as an administrator for changing system settings.

1 Select [Settings]-[Control Panel] from the [Start] menu in the PC.

2 Remove programs from [Add/Remove Programs].

Starting Up and Exiting SmartMonitor GT

Operation Modes

SmartMonitor GT has two operation modes, the online mode and the offline mode.

Online mode: SmartMonitor GT normally enters this mode when the PC is connected to a Controller (Interface Unit). All SmartMonitor GT functions can be used in this mode.

Offline mode: SmartMonitor GT enters this mode when the PC is not connected to a Controller.

In the offline mode, waveform data can be loaded and saved as an image file or reports can be prepared.

Important

Operations in the offline mode are basically the same as in the online mode excluding the following differences:
 • Measured values are not displayed in the Main window.
 • Some functions cannot be set.
 • Logging cannot be started.
 • Received light waveforms cannot be displayed.

Starting Up SmartMonitor GT

After installation is completed, start up SmartMonitor GT by the following procedure.

Important

 • Be sure to turn the Controller ON before starting up SmartMonitor GT. (excluding when SmartMonitor GT is in the offline mode)
 • Do not disconnect or connect devices with the Controller ON. The Controller may break down if devices are connected or disconnected while the power is ON.
 • Do not switch the screens on the Controller during SmartMonitor GT operations.
 • Set the Controller's baud rate to 38400 bps.

## 1 Turn the Controller's power supply ON.

When the Controller's power supply is turned ON, the Interface Unit will also turn ON.

2 Set the Controller to the RUN mode.
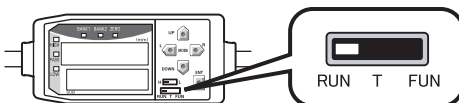
3 Check the indicators on the Interface Unit.

When the Controller communications indicator and the RS-232C communications BUSY/ERR indicator go out,
this means that SmartMonitor GT is ready for communications with the Controller.

Power ON indicator ——————   Controller communications indicator

Binary output ———————   RS-232C communications
    indicator   indicator
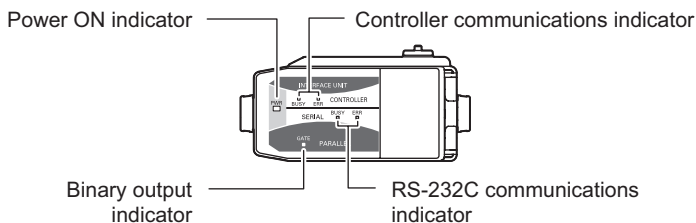
| Note |

If the Controller communications indicator or RS-232C communications ERR indicator do not go out after five seconds of the power being turned ON, the connections have not been recognized correctly.
Check the following points and then turn the power supply ON again.
 • Is the mode switch on the Controller set to the RUN mode?
 • Are connections between Controllers as well as between Interface Units and Controllers correct?
 • Have the Controllers started up correctly? (If they have not started up correctly due to connection failure between the Controller and Sensor, eliminate the cause of the problem.)

4 Select [Programs]-[OMRON]-[SmartMonitor GT] from the Windows [Start] menu.
This displays the Main window.

| Note |

SmartMonitor GT can be started up in the offline mode even if a Controller is not connected to the PC.

When the PC Cannot be Connected to a Controller

In Device Manager, check the COM port No. assignments on the PC that are used by SmartMonitor GT.

1 **Right-click "My Computer" on the PC's desktop, and click "Properties".**

2 **Click [Device Manager(D)] on the [Hardware] tab.**

3 **Open [Ports (COM & LPT)], and check the number of communications port COMM Settings.**

4 **Set this COM port No. in the SmartMonitor GT [COMM Settings] window.**

Exiting SmartMonitor GT

Exit SmartMonitor GT.

1 **Select [File]-[Close] from the SmartMonitor GT menu bar.**

Software Version

To use SmartMonitor GT, the Controller and Interface Unit software (firmware) must be the latest version.
If the firmware version is not the latest, use the firmware update software WarpEngine to rewrite the firmware.

For the latest version of WarpEngine and the firmware, please contact your OMRON representative.

Explanation of GUI Items and Basic Operations

Common Windows

Configuration of Windows

Menu bar

Tool bar

Indicators

Information display area

Display setup area
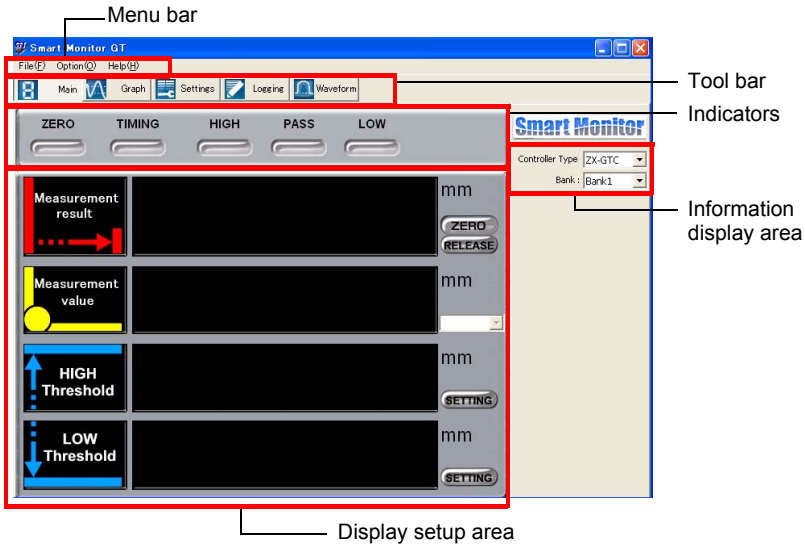
Menu Bar
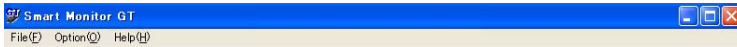
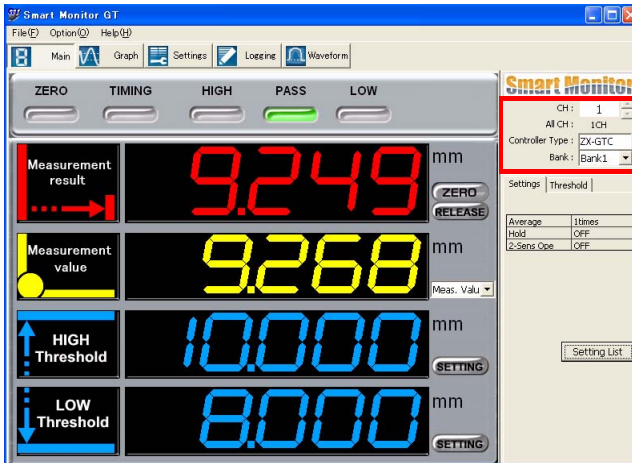| Name		Description
File	Load Settings	Loads the settings currently saved to file.
	Save Settings	Saves the current settings to file.
	Save Display	Saves the currently displayed window in BMP format.
Option	Data Folder	Sets the destination to save the various data to. The following file save destinations can be set: • Logging data • Setting data • Graph data • Received waveform data
	Graph Color	The background color on the Graph window display can be changed. Select from the following three colors: • Standard • Oscilloscope • Blackboard
Help	Contents	Displays the SmartMonitor GT operation manual (this manual).
	Version	Displays the system SmartMonitor GT version information.

Tool Bar
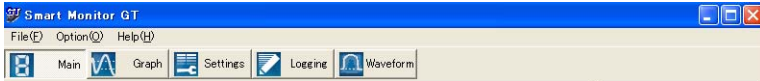
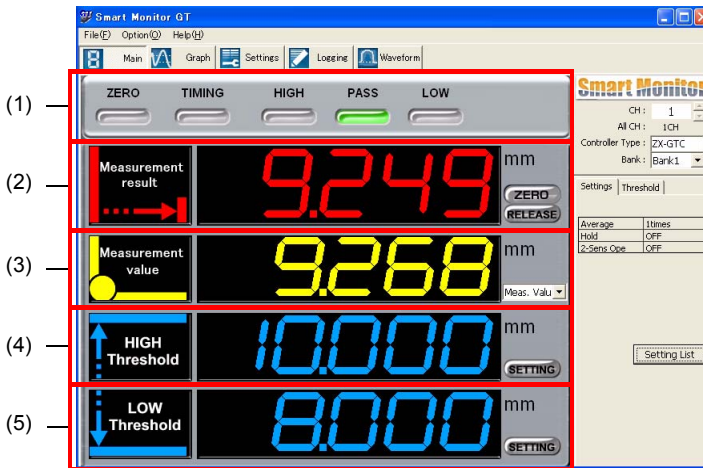| Name	Description
[Main] button	Displays the Main window. Data (e.g. measured values or current values) currently being measured on the Controller can be displayed as numeric values. 　　📖　Main window p.13
[Graph] button	Displays the Graph window. A waveform of the measured values or the various outputs can be displayed as a graph. 　　📖　Graph window p.16
[Settings] button	Displays the Settings window. Sensing and output conditions, display details, etc. can be set. 　　📖　Settings window p.19
[Logging] button	Displays the Logging window. The logging timing conditions can be set, and measured data can be stored. 　　📖　Logging window p.31
[Waveform] button	Displays the Waveform window. The receiving status of the receiver (ZX-GT28R) can be displayed as a waveform to adjust the optical axis or check the measurement status. 　　📖　Waveform window p.33

Information Display Area

Name	Description
CH	This is the currently displayed channel No. The channel No. can be switched to the Controller to be displayed and set.
All CH	Displays the total number of currently connected CHs.
Controller Type	Displays the Controller type.
Bank	Displays the current bank. The bank to be set or measured can be switched to. Bank switching is enabled only when [KEY] is set as the source from where banks are to be switched on the Controller.

Monitoring Digital Values (Main Window)

Data (e.g. measured values or current values) currently being measured on the Controller are displayed as numeric values in the Main window.
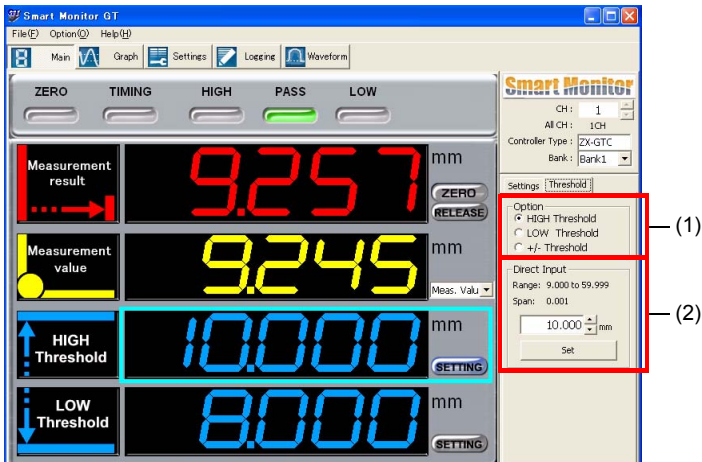The Main window can be displayed by clicking the [Main] button.

Name		Description
(1) Indicators	ZERO	This indicator turns ON when the zero reset function is enabled.
	TIMING	This indicator turns ON during timing signal input when the hold function is enabled.
	HIGH	This indicator turns ON when "HIGH threshold < measured value".
	PASS	This indicator turns ON when "LOW threshold ≤ measured value ≤ HIGH threshold".
	LOW	This indicator turns ON when "measured value < LOW threshold.
(2) Measured value display	Main display	Displays the current measured result.
	[ZERO] button	Executes a zero reset.
	[RELEASE] button	Cancels a zero reset.
(3) Sub-display		Displays the current measured value, voltage value, current value, and resolution. The display details are switched by clicking the pulldown button on the right side of the display. The default value is [Measurement value].

Name		Description
(4) HIGH Threshold display	HIGH Threshold	Displays the currently set HIGH threshold.
	[SETTING] button	Clicking this button displays the [Threshold] tab so that you can set the HIGH threshold. [Threshold] tab p.15
(5) LOW Threshold display	LOW Threshold	Displays the currently set LOW threshold.
	[SETTING] button	Clicking this button displays the [Threshold] tab so that you can set the LOW threshold. [Threshold] tab p.15

[Threshold] tab

Click the [SETTING] button of either the HIGH Threshold or LOW Threshold to display the [Threshold] tab so that you can set the threshold.

Name		Description
(1) Option	HIGH Threshold	Sets the HIGH threshold value. (default value)
	LOW Threshold	Sets the LOW threshold value.
	+/- Threshold	The HIGH and LOW thresholds are substituted with the +/- thresholds which area referenced to "0" (zero).
(2) Direct Input	Range:	Numeric values can be directly input in 0.001 (mm) units to set the thresholds. Setting range: • HIGH threshold: -19.999 to 59.999 (mm) (default value: 20.000) • LOW threshold: -19.999 to 59.999 (mm) (default value: 10.000) • +/- Threshold: 0.001 to 19.999 (mm) (default value: 0) Note, however, that values that result in "HIGH threshold - LOW threshold $\leq$ hysteresis" cannot be input.
	[Set] button	This button sets the numeric values that are entered at "Direct Input".

Monitoring Waveforms (Graph Window)

A waveform of the measured values or the various outputs can be displayed as a graph in the Graph window.
The Graph window can be displayed by clicking the [Graph] button.

Name		Description
(1) Graph display		A waveform of the measured value is displayed.
(2) Scroll bar		Scrolls the displayed waveform.
(3) Output display	TIMG	Displays the transition of the timing output.
	HIGH	Displays the transition of the judgment output (HIGH/PASS/LOW).
	PASS	
	LOW	
(4) [START]/ [STOP] button	START	This button starts display of transitions in the measured value or various outputs.
	STOP	This button stops display of transitions in the measured value or various outputs.

Name		Description
(5) [Scale] tab	Vertical Scale	Sets the vertical axis scale of the graph to be displayed. Range: 5 μm to 20000 mm/div (default value: 10 mm/div)
	Center Point	Sets the center value of the vertical axis of the graph display. The measuring center point can also be set by inputting a numeric value. To do this, click the [INPUT] button. Range: -20.000 to 66.000 (mm) (default value: 14)
	[Auto Set] button	Sets the optimum vertical axis scale to match the currently selected Sensor.
	Horizontal Scale	Sets the horizontal axis scale of the graph to be displayed. Range: 500 ms to 10 s/div (default value: 500 ms/div)
(6) [Cursor] tab	Cursor 1	Displays waveform data at a specified time. The display position of cursor 1 can be changed by clicking the [Cursor 1] button. Range: -19.999 to 59.999 (default value: 28 mm)
	Cursor 2	Displays waveform data at a specified time. The display position of cursor 2 can be changed by clicking the [Cursor 2] button. Range: -19.999 to 59.999 (default value: 0 mm)
	Always Display	Selecting this checkbox displays the cursor bar in the graph display at all times.
(7) [Settings] tab		Displays the Controller's main settings. A list of setting values can be displayed by clicking the [Setting List] button. 　　　📖　Setting List window p.18
(8) [Save Wave] button		Saves the currently displayed waveform data in CSV format.
(9) [Save Image] button		Saves the currently displayed window in BMP format.
(10) [Display Data] button		Displays detailed information of the currently displayed waveform data. • Measured values, judgment results (H/P/L) and trigger input status (T) in the past 1,000 Graph windows 　(1,000 Graph windows is the equivalent of data for four windows.) • Average, minimum value, maximum value and standard deviation of 1,000 Graph windows • Graph acquisition start time (HH:MM:SS)
(11) [Load Wave] button		Loads and displays waveforms saved by the [Save Wave] button.

1 Click the [Auto Set] button.

The optimum vertical axis scale matched to the currently selected Sensor is set.
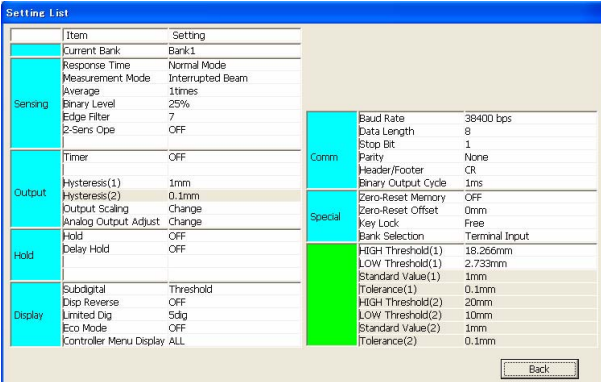
2 Click the [START] button.

Display of the waveform is started.

3 Click the [STOP] button.

Display of the waveform is stopped.

Setting List window

A list of setting values can be displayed by clicking the [Setting List] button on the [Settings] tab.
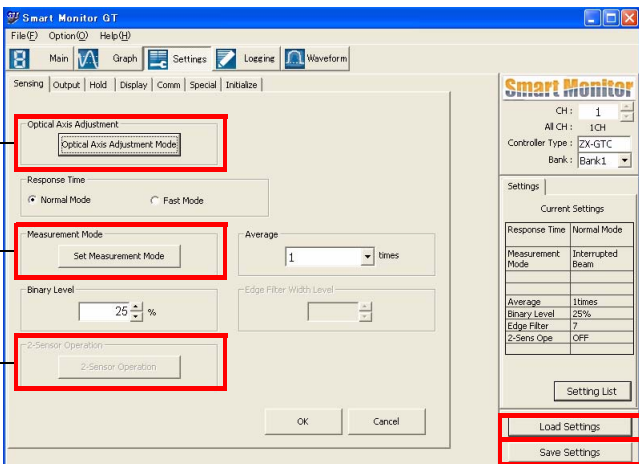
Setting Measurement Conditions (Settings Window)

Sensing conditions and outputs, display details, etc. are set in the Settings window.
The Settings window can be displayed by clicking the [Settings] button.

> For details on each of the functions in this window, refer to the ZX-GT Series User's Manual.
> This Operation Manual describes only setting functions that are specific to ZX-GT SmartMonitor.

## [Sensing] Tab

This tab is for setting the sensing conditions.

p.20

p.22

p.22

(1)

(2)

| Name	Description
(1) [Load Settings] button	Loads the settings currently saved to file and sets them to the Controller. 📖 Loading settings p.24
(2) [Save Settings] button	Saves the Controller's current settings to file. 📖 Saving settings p.23

Optical Axis Adjustment Window

Clicking the [Optical Axis Adjustment Mode] button displays the [Optical Axis Adjustment Window]. In this window, you can adjust the optical axis by operating the illustration arrows or entering numeric values while verifying the receiving status of the receiver.
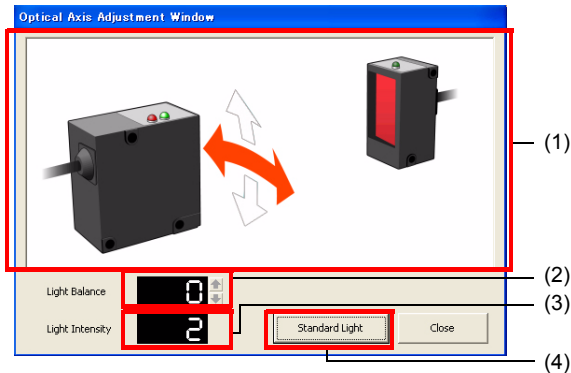

| Name	Description
(1) Adjustment window	Displays the direction of optical axis adjustment using arrows and color indications.
(2) Light Balance	Displays the vertical balance status of the received light. A larger balance viewed from the receiver side is displayed as a yellow arrow. A smaller numeric value indicates better balance. Adjust the position of the Sensor so that balance falls within the range 3 to 4.
(3) Light Intensity	The light intensity is displayed as a numeric value. (The display is the same as the Controller's sub-display.) Normal Mode: about 70 or more Fast Mode: about 100 or more Adjust the light intensity to the values in each of the above modes.
(4) [Standard Light] button	Click this button when the optical axis adjustment is completed. This registers the current settings as standard values to the Controller's internal memory.

1 Click the [Optical Axis Adjustment Mode] button.

The Optical Axis Adjustment Window is displayed.
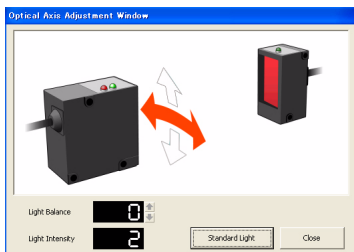
2 Move the emitter to the left and right to adjust the received light intensity while verifying the horizontal arrow.

When the optical axis is adjusted, the arrow changes color from red to green.
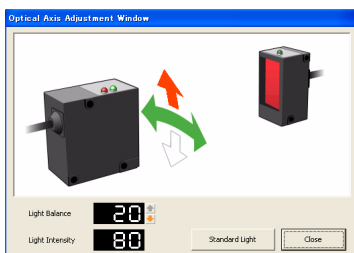
3 Move the emitter up and down to adjust the received light intensity while verifying the vertical arrow.

Move the emitter in the direction of the red arrow to adjust. When the optical axis is adjusted, the arrow changes color from red to green.
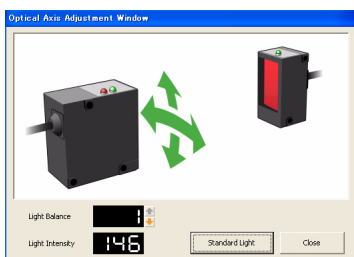
4 When both optical axes are aligned, click the [Standard Light] button.

This registers the current settings as the standard received light intensity.

Note

The registered standard received light intensity and the receiving status of the receiver CCD can also be verified in the Waveform window.

Measurement Mode Window

Clicking the [Set Measurement Mode] button displays the [Measurement Mode Window]. In this window, you can set the measurement mode.
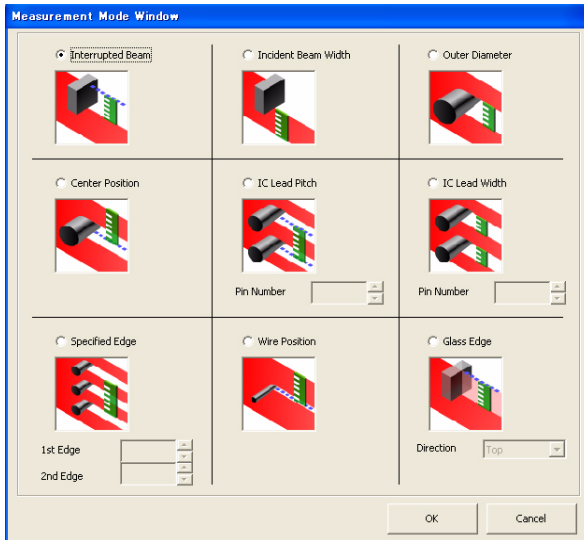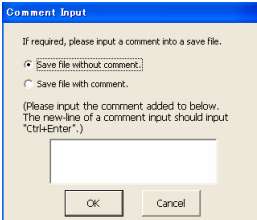

2-Sensor Operation Window

Clicking the [2-Sensor Operation] button displays the [2-Sensor Operation Window]. In this window, you can set calculation processing. The 2-Sensor Operation Window is displayed only when multiple Sensors are connected to each other.
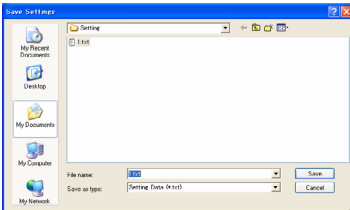
Saving settings

1 **Click the [Save Settings] button.**

The [Comment Input] window is displayed.

2 **Select either [Save file without comment] or [Save file with comment], and click the [Back] button.**

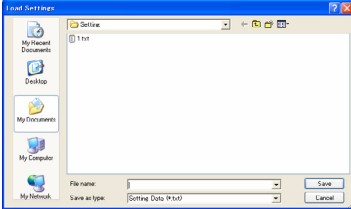*3* **Input the file name, select the save destination, and click the [Save] button.**

Loading settings

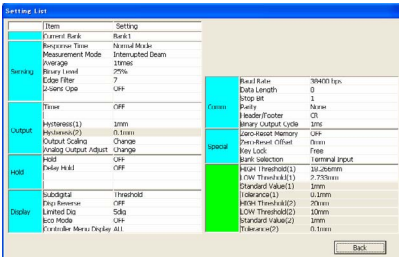*1* **Click the [Load Settings] button.**

The [Load Settings] window is displayed.

2 **Select the desired file, and click the [Open] button.**

The Settings list window is displayed.

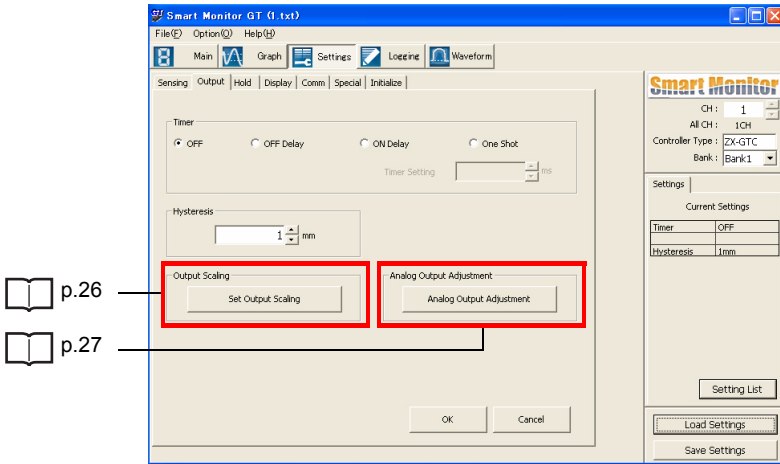*3* **Check the settings and click the [Back] button.**

*4* **Click the [Yes] button.**

This starts loading of settings.

[Output] Tab

This tab is for setting the conditions for output from the Controller.

p.26

p.27

Output Scaling Window

Clicking the [Set Output Scaling] button displays the [Output Scaling Window]. In this window, you can select the analog output scaling (current output/voltage output) and customize the relationship between specific measured values and output values.
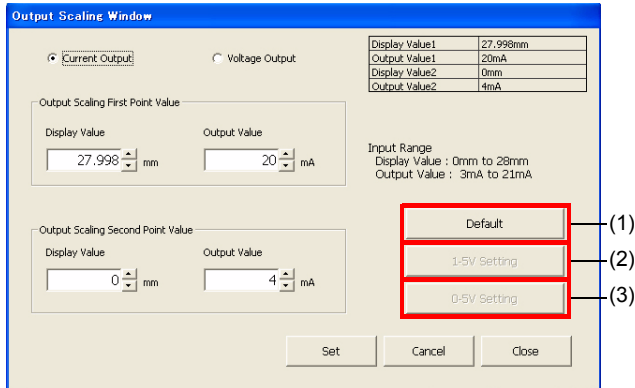

Be sure to set the same selection as the setting mode on the current/voltage switch on the rear of the Controller.

Name	Description
(1) [Default] button	Returns all settings to their defaults. Voltage output: • Output scaling 1st point value: Display value = 28, Output Value = 4 • Output scaling 2nd point value: Display value = 0, Output Value = -4 Current output: • Output scaling 1st point value: Display value = 28, Output Value = 20 • Output scaling 2nd point value: Display value = 0, Output Value = 4
(2) [1-5V Setting] button	This button automatically sets the output value to within the range 1 to 5 V. (only at voltage output)
(3) [0-5V Setting] button	This button automatically sets the output value to within the range 0 to 5 V. (only at voltage output)

Analog Output Adjustment mode

Clicking the [Analog Output Adjustment] button displays the [Analog Output Adjustment] window. Analog output can be adjusted to match the current (voltage) that is actually output in this window. The output type (current/voltage) set at output scaling is displayed at Adjust Standard1 and Adjust Standard2.

Analog Output Adjustment

Adjust Standard1 `20` mA   Adjustment `20`   Output

Adjust Standard2 `4` mA   Adjustment `4`   Output

OK   Cancel
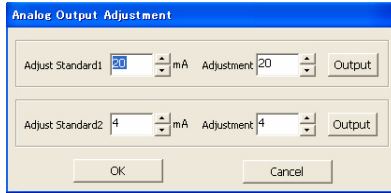
Perform the following operations after connecting the analog output wire to an external ammeter or voltmeter.

---

1 Click the [Output] button at Adjust Standard1.

The measured value corresponding to the value of Adjust Standard1 is output as the analog value.

2 Set the value displayed on the externally connected ammeter or voltmeter at [Adjustment].

3 Repeat steps 1 and 2 to set [Adjust Standard2].
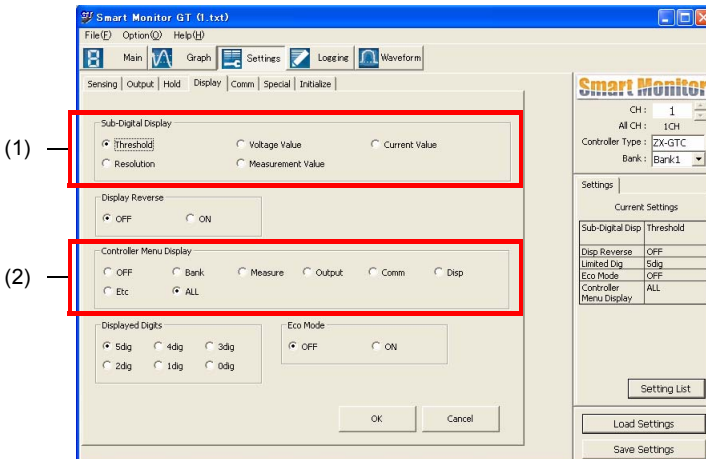
4 Click the [OK] button.

[Hold] Tab

This tab is for setting the hold conditions.
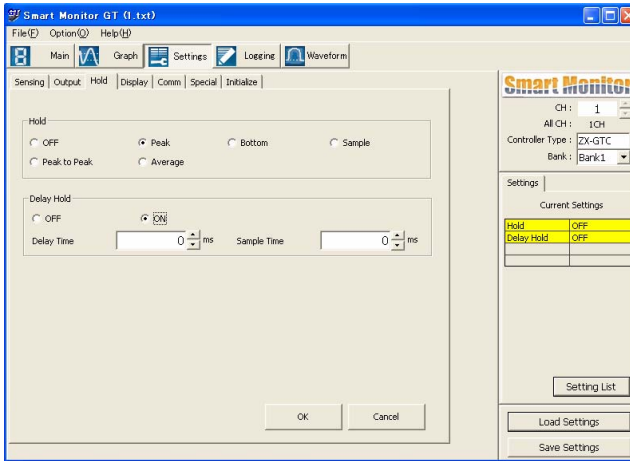
[Display] Tab

This tab is for setting the Controller display conditions.

(1)

(2)

Name	Description
(1) Sub-Digital Display	Sets the details to be displayed in the Controller's sub-display. Range: Threshold, Voltage Value, Current Value, Resolution, Measurement Value (default: Threshold)
(2) Controller Menu Display	Sets the display status of the special functions on the Controller. Range: OFF, Bank, Measure, Output, Comm, Disp, Etc, ALL (default: OFF)

[COMM] Tab

This tab is for setting the communications conditions of the Interface Unit.
To enable the details set here, turn the Controller OFF then back ON again.
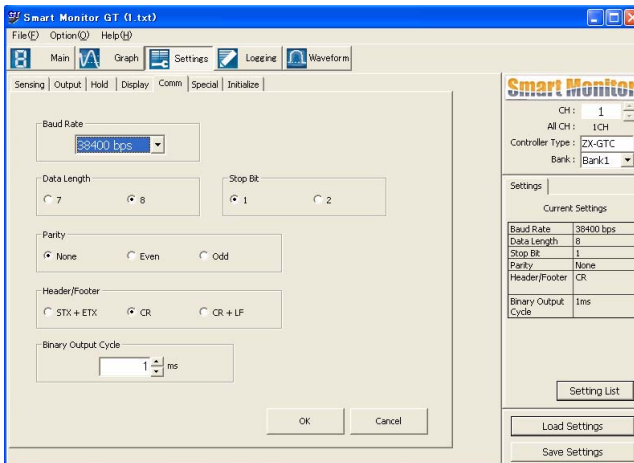
[Special] Tab
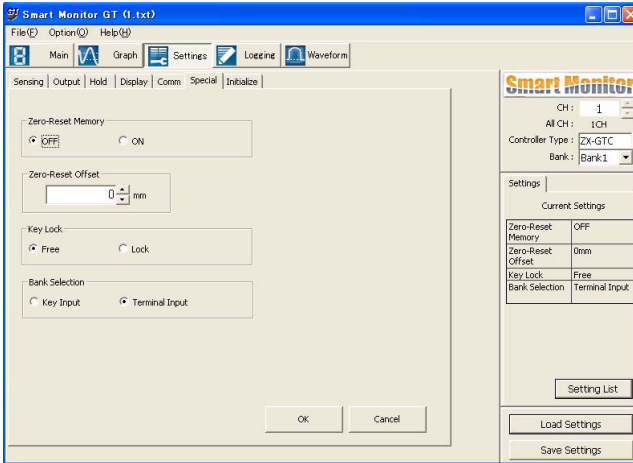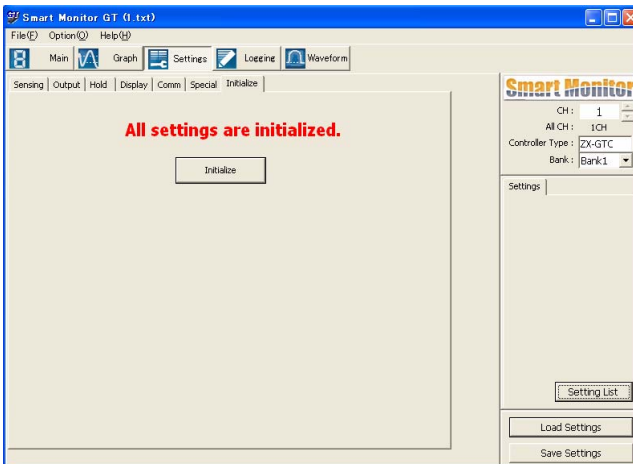
This tab is for setting the various special conditions relating to zero reset and bank switching, for example.
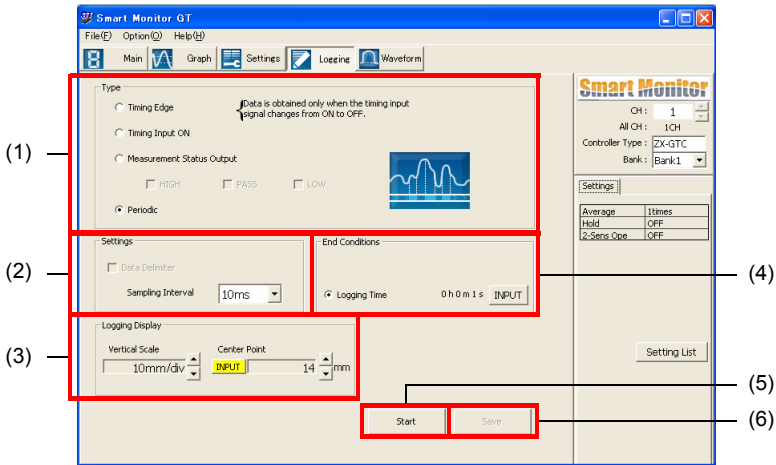

[Initialize] Tab

This tab is for initializing all of the Controller's settings.

Data Logging (Logging Window)

The logging timing conditions can be set, and measured data can be stored in the Logging window. The Logging window can be displayed by clicking the [Logging] button.


Name		Description
(1) Type		Specifies the data logging timing.
	Timing Edge	Data is obtained only when the Controller's timing input signal changes from ON to OFF. Select this item to obtain data one point at a time at each hold when hold conditions are set.
	Timing Input ON	Data is obtained only while the Controller's timing input signal is ON.
	Measurement Status Output	All data is obtained while the selected judgment result (HIGH/PASS/LOW) is being output.
	Periodic	Data is obtained periodically at each sampling interval. (default value)
(2) Settings		Detailed settings can specified when [Timing Input ON] or [Measurement Status Output] is selected at [Type].
	Data Delimiter	Sets whether or not to delimit logged data by a carriage return. When a condition not matching the selected condition occurs, a blank line is inserted in the logged data.
	Sampling Interval	Sets the data acquisition interval. When an item other than [Periodic] is set at [Type], the sampling interval is set to 10 ms at all times. Range: 10ms, 20ms, 50ms, 100ms, 200ms, 500ms, 1s, 2s, 10s (default value: 10ms)

Name		Description
(3) Logging Display	Vertical Scale	Sets the vertical axis scale of the logging graph window. Range: 5 µm to 20000 mm/div (default value: 10mm/div)
	Center Point	Sets the center value of the vertical axis of the logging graph window. The measuring center point can also be set by inputting a numeric value. To do this, click the [INPUT] button. Range: -20.000 to 66.000 (mm) (default value: 14)
(4) End Conditions	Number of Points	Logging ends when the specified number of data have been acquired. This item can be set when an item other than [Periodic] is set at [Type]. The number of data can be changed by clicking the [INPUT] button. Range: 1 to 50000 (default value: 1)
	Logging Time	Logging ends when the specified time has elapsed. The logging time can be changed by clicking the [INPUT] button. Range: 00:00:01 to 24:00:00 (default value: 0h0m1s)
(5) [Start] button		Starts logging and displays the logging graph window.
(6) [Save] button		Logged data can be saved in CSV format to a specified file. The default save destination is the Log_Data folder in the SmartMonitor GT installation folder.

1 Click the [Start] button.

The logging graph window is displayed and logging is started.
Logging ends when the end condition is satisfied.
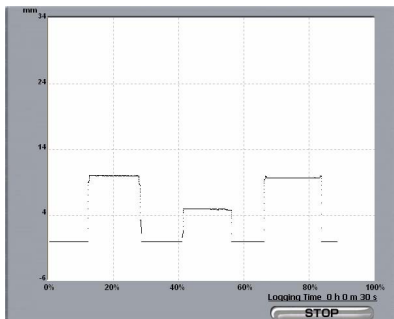
2 Click the [STOP] button in the logging graph window.

This stops logging.

3 Click the [Save] button.

Logged data is saved to the specified file.

Displaying Received Light Waveforms (Waveform Window)

The receiving status of the receiver CCD can be displayed in this window.
This window is used to adjust the optical axis or check the measurement status.
The Waveform window can be displayed by clicking the [Waveform] button.

• All incident light state
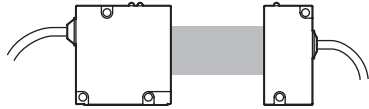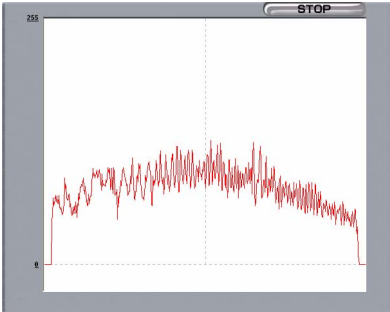
• When light is interrupted
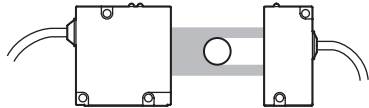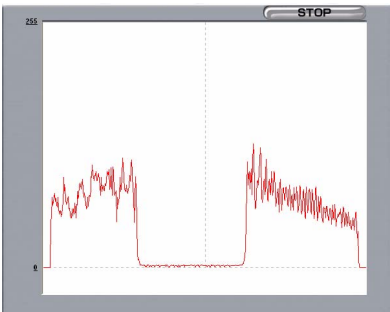
Note

The optical axis can also be adjusted in the [Optical Axis Adjustment Window].

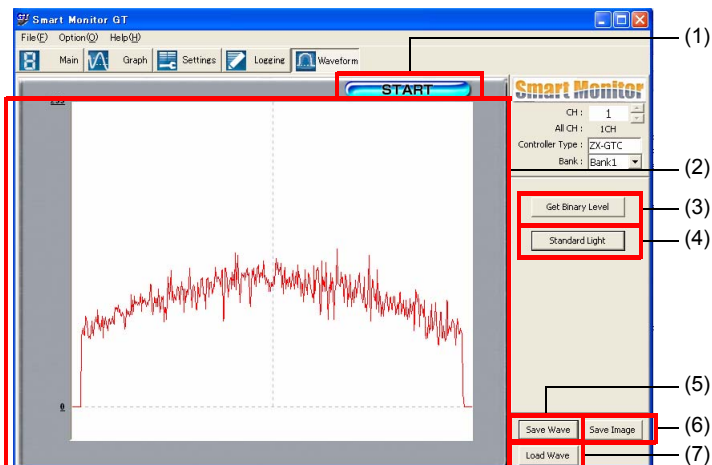| Name		Description
(1) [START]/ [STOP] button	START	Starts acquisition of the received light waveform.
	STOP	Stops acquisition of the received light waveform.
(2) Light intensity display		Displays the light intensity on the receiver (CCD) in the form of a graph.
(3) [Get Binary Level] button		The binary level is displayed overlapping the received light waveform.
(4) [Standard Light] button		Registers the standard received light intensity.
(5) [Save Wave] button		Saves the currently displayed waveform data in CSV format.
(6) [Save Image] button		Saves the currently displayed window in BMP format.
(7) [Load Wave] button		Loads and displays waveforms saved by the [Save Wave] button.

1 Click the [START] button.

This starts the received light waveform display.

2 Check the measurement status.

3 Click the [STOP] button.

This stops the waveform display.

4 Click the [Standard Light] button.

This registers the current settings as standard values to the Controller's internal memory.

Troubleshooting

When a Problem Occurs

Problem	Probable cause and possible countermeasure
The personal computer does not have an RS-232C port.	A commercially available USB-serial converter cable can be used. Note, however, that communications cannot be performed normally with some types of cable. For details, please contact your OMRON sales representative. (recommended cable: OMRON CS1W-CIF31)
"E-DAT" is displayed on the Controller.	When calculations are set to be performed on multiple Controllers that are connected to each other, "E-DAT" is displayed on the Controller having the largest channel No. from the current Controller to be set. To execute measurement when this happens, either exit SmartMonitor GT or switch to the largest channel No.
Output scaling/threshold cannot be set.	The input value may be outside the output scaling/threshold effective range. Set the input value again referring to the User's Manual.
Windows are disrupted or on-screen text protrudes from the window.	The Windows system font may be set to "Large fonts". Select Control Panel on the PC, and specify "Small fonts".

List of Error Messages

Displayed error message	Probable cause and possible countermeasure
2-sensor operation setup cannot be loaded to CH1.	The setting data you are attempting to load cannot be loaded to CH1 as it contains operation settings. • Either load to a different CH or set the CH1 settings again.
Please input a value.	A value is not entered in the number entry field. • Enter a value.
There is the possibility which the file to overwrite is under use.	The file you tried to save as setting data, waveform data or logging data is in use by another application. • Quit the other application, and either try to save the file again, or save it under a different name.
Could not connect to the Controller.	• Check the following items: • Is the Controller turned ON? • Is the controller in the RUN mode? • Is the Interface Unit connected correctly? • Was SmartMonitor GT started up after turning the Controller ON? • Is the RS-232C cable wired correctly? • Is the correct communications port No. selected? • SmartMonitor GT can be started up in the offline mode even if a Controller is not connected to the PC.
The minimum input span:	Data having too few digits or too small a unit was input to the target data item. • Input the data again.
The assigned data was not found.	The data of the type specified as the data to be logged did not occur even once within the specified time period.
The setting of output scaling cannot be changed.	The entered data could not be scaled for output. • Set the input value again referring to the Controller User's Manual.
A decimal cannot be inputted.	Digits past the decimal point cannot be set to the target data item. • Input the data again.
An error is in the decimal point or the number of digit.	The position of the decimal point or the number of digits you entered is in error. • Enter number values in the specified format (i.e. five digits including the decimal point).
SmartMonitor is already started.	SmartMonitor GT is already started up. Another SmartMonitor GT cannot be started up. • Use SmartMonitor GT that is already started up.

Displayed error message	Probable cause and possible countermeasure
Since the head of the type different from the time of a file being saved is connected, setting cannot be loaded.	Settings cannot be loaded as the type of Sensor or Controller is different from the one in the settings. • Either return the original Sensor or Controller, or set the settings again.

Communication error occurred.	• Check the following items:
	  • Is the Interface Unit connected correctly?
	  • Is the RS-232C cable wired correctly?

An error is in a setup of a COM port. / The present communication port (COM*) is not effective.	Either the target communication port does not exist on the personal computer, or it is being used by a different application. • Either specify a different communication port, or quit the application that is using the communication port in question. 📖 p.8
The format of data is different. It cannot load.	The data of the file you tried to load is for a different type of data or the data is corrupted. • Specify the correct data.
Please check mode of operation.	The controller is in an operating mode other than the RUN mode. • Set the Mode switch to RUN.
The input is only a numerical value.	A text string other than a numeric value is entered in the number entry box. • Enter numeric values.
The input range: xxx to yyy	The value entered in the number entry box is outside the specified range. • Enter values within the range xxx to yyy.
A path was not found.	The specified folder path could not be found on the personal computer. • Enter the correct folder path.
There is no data to display.	A data display key was pressed, but there was no data to display. • Get the waveform and then display the data.
A file name has not been inputted.	• Input the file name.
The following characters cannot be used for a file name. \ /:;,*?<>|	Characters that cannot be used as file names were specified. • Specify a different file name.
There is no data to save.	The waveform could not be saved as there is no waveform. • Get the waveform and then save it.

MEMO

Revision History

Revision code	Date	Revised content
01	June 2007	Original production