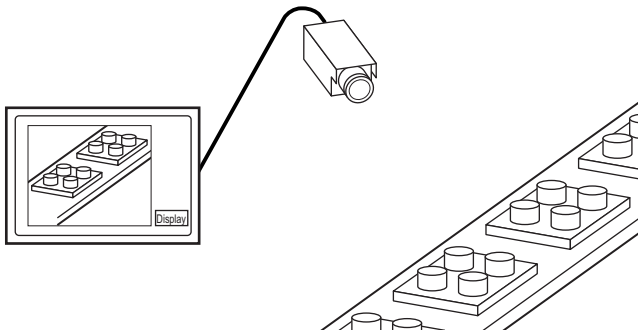
27 Video/Video Recording

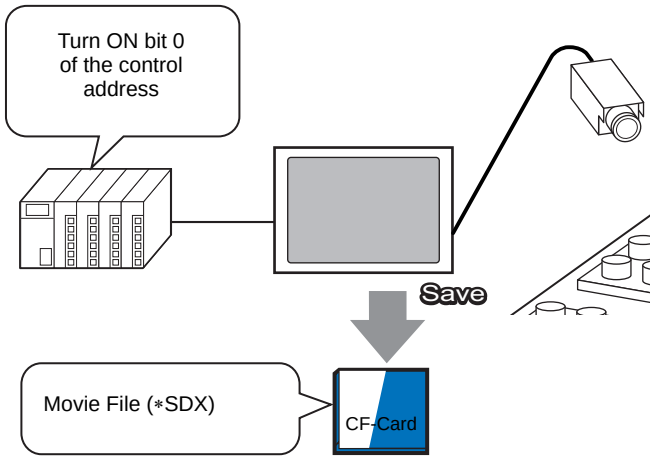
This chapter describes the video display and recording features of GP-Pro EX, and the additional functions provided by the optional VM unit.
First read "27.1 Settings Menu" (page 27-2) and then refer to individual procedures as required.

27.1 Settings Menu

The functions introduced in this chapter can be used only on some models. Check that the functions can be used on your model before configuring the settings.

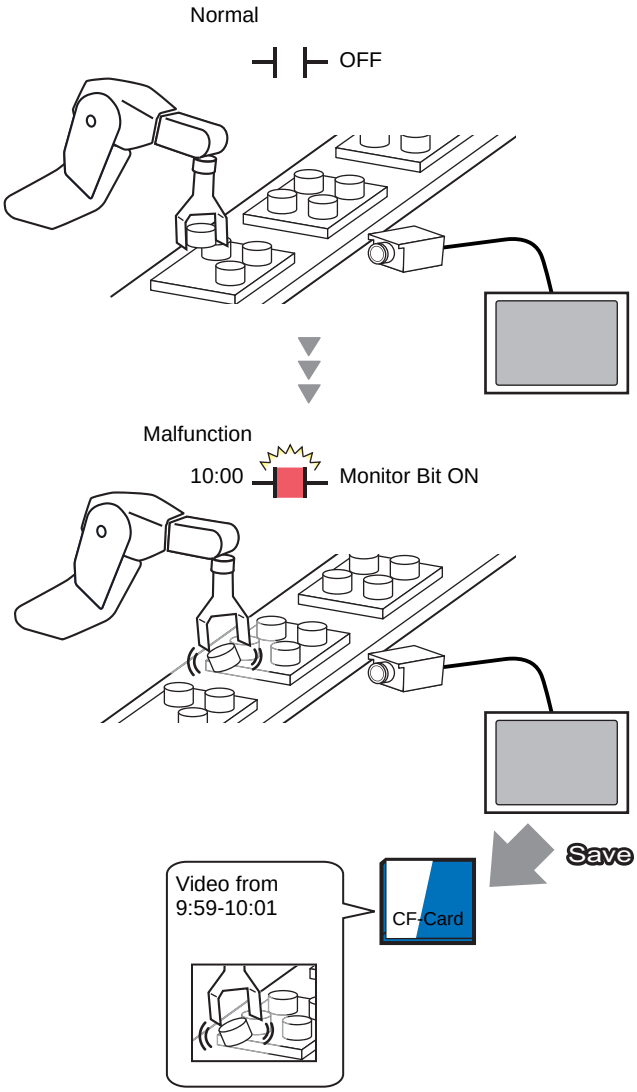
☞ "1.3 List of Supported Functions by Device" (page 1-4)

Displaying Video from a Video Camera	
Displays real-time video from a camera connected to the GP. 	☞ Setup Procedure (page 27-8) ☞ Details (page 27-7)

Recording Video	
Saves the video signal to a CF-Card or FTP server as movie files. 	☞ Setup Procedure (page 27-12) ☞ Details (page 27-11)

Recording Video only before and after a Malfunction

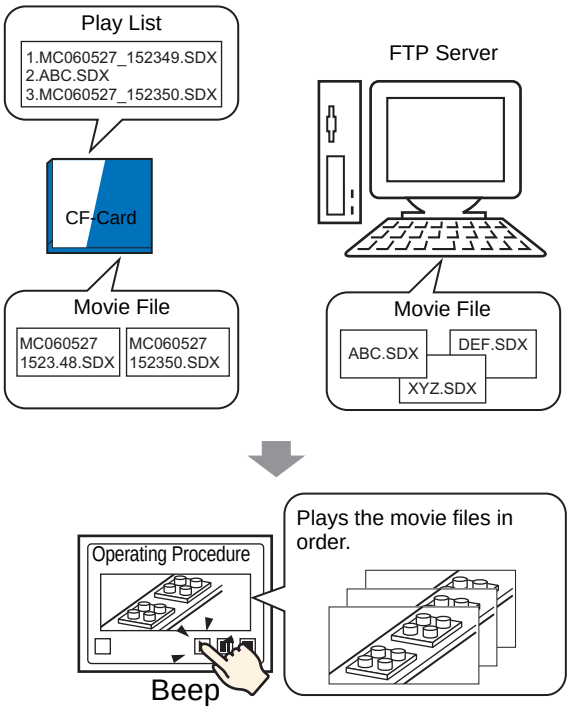
Automatically saves the video signal before and after a malfunction.



☞ Setup Procedure (page 27-20)
☞ Details (page 27-19)

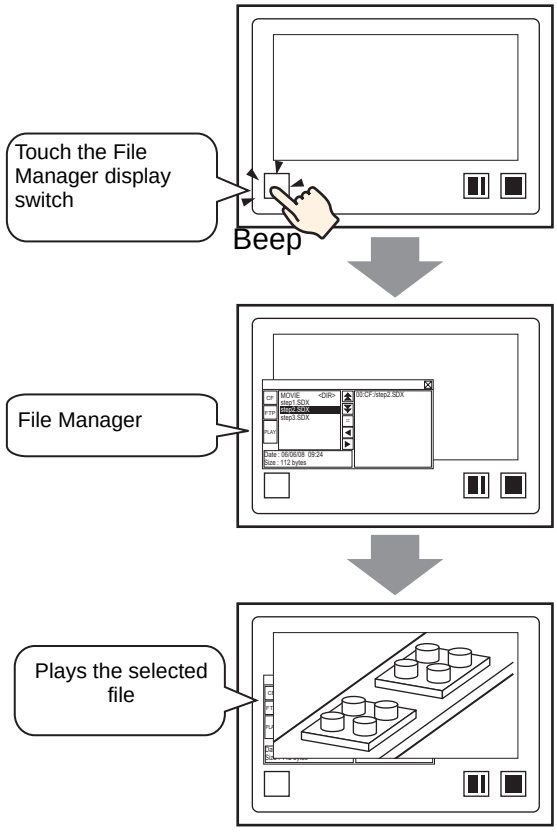
Playing Movies

Plays the movies in the specified order.



☞ Setup (page 27-25)
☞ Details (page 27-24)

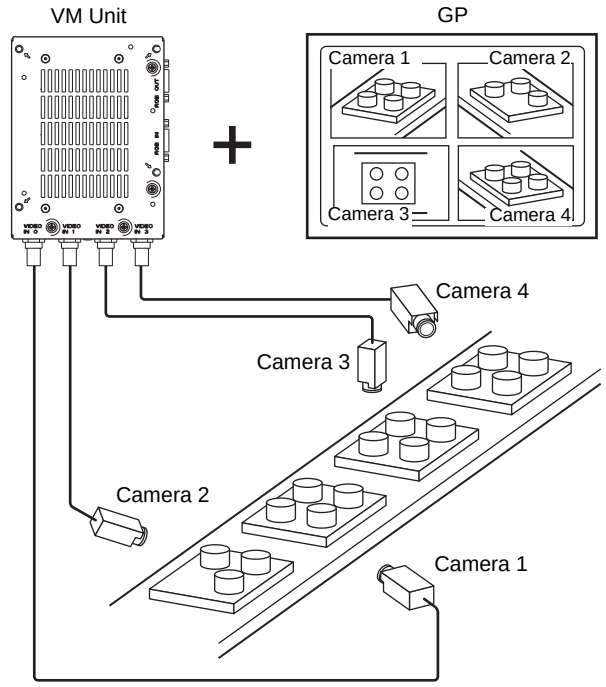
Plays the movie you want to see when you want to see it.



☞ Setup Procedure (page 27-32)
☞ Details (page 27-24)

Displaying Pictures from Multiple Video Cameras Simultaneously

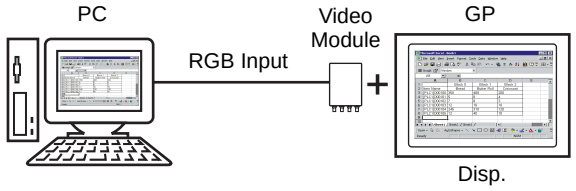
Displays video from cameras connected to a VM unit in real time.



☞ Setup Procedure (page 27-50)
☞ Details (page 27-49)

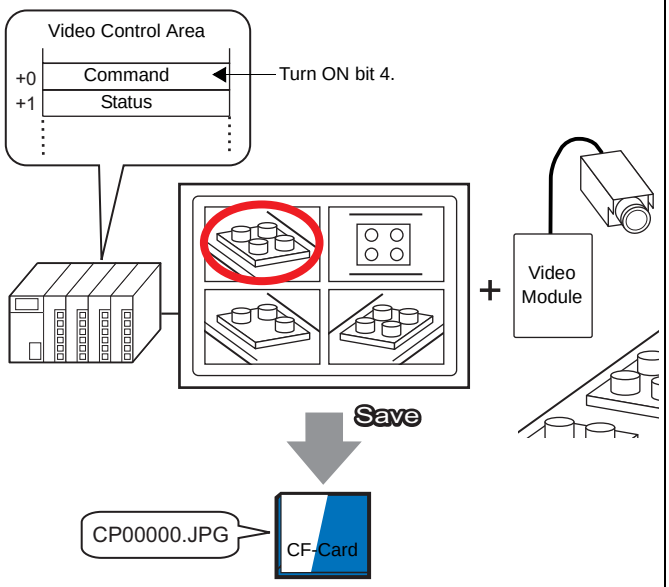
Displaying PC Screen

GP can be used as a PC monitor.



☞ Setup Procedure (page 27-59)
☞ Details (page 27-58)

Saving the Displayed Pictures as Still Images

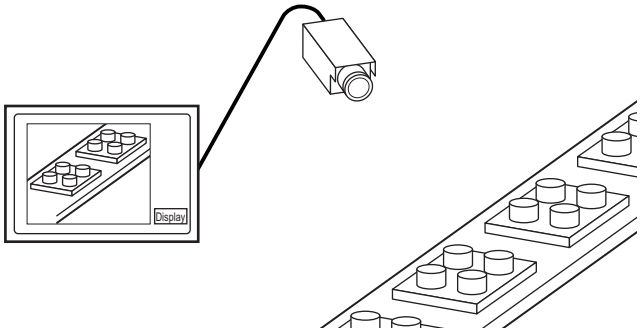


☞ Setup Procedure (page 27-65)
☞ Details (page 27-64)

27.2 Displaying Video from a Video Camera

27.2.1 Details

With GP-3450T/3550T/3650T/3750T, you can display real-time images from a video camera directly connected to the GP. This is useful for monitoring the operation status of a factory line and confirming safety.



NOTE

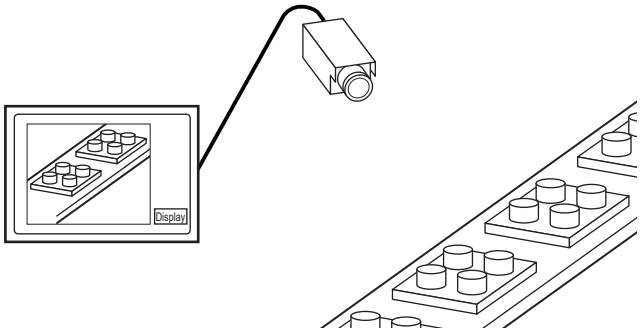
- With GP-3550T/3650T, you can also display video using the (optional) VM unit.
  ☞ "27.9.6 Setup guide of [Video Module Settings]" (page 27-120)
- Only images are displayed. In order to display images with sound, you must first record a movie and then play it back.
  ☞ "27.3 Recording Video" (page 27-11)

27.2.2 Setup Procedure

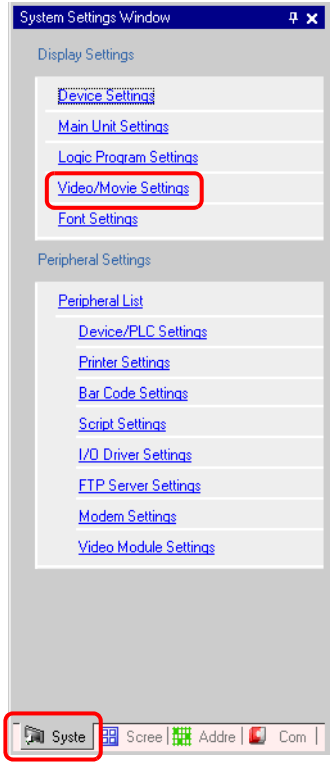
NOTE

- Please refer to the settings guide for details.
  ☞ "27.9.1 [Video/Movie Settings] Settings Guide" (page 27-72)
  ☞ "27.9.4 Movie Player Setting Guide" (page 27-93)
- For details on how to arrange the components and how to specify the address, shape, color, and label settings, refer to the "Component Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-37)

Displaying video from a video camera on the GP screen in real time.



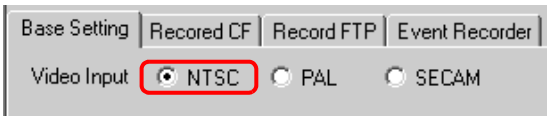
1 In [System Settings Window], click [Video/Movie Settings].



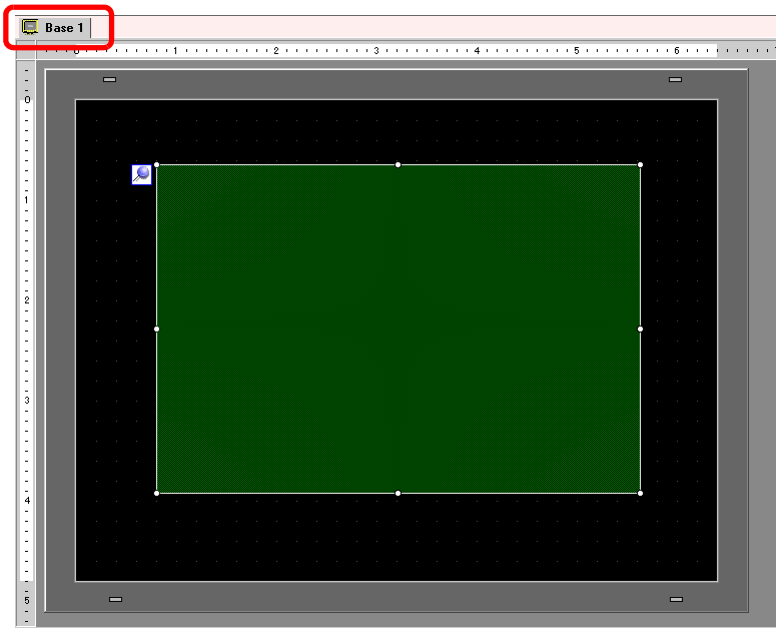
NOTE

- If the [System Settings Window] tab is not displayed in the workspace, on the [View (V)] menu, point to [Work Space (W)] and then click [System Settings Window (S)].

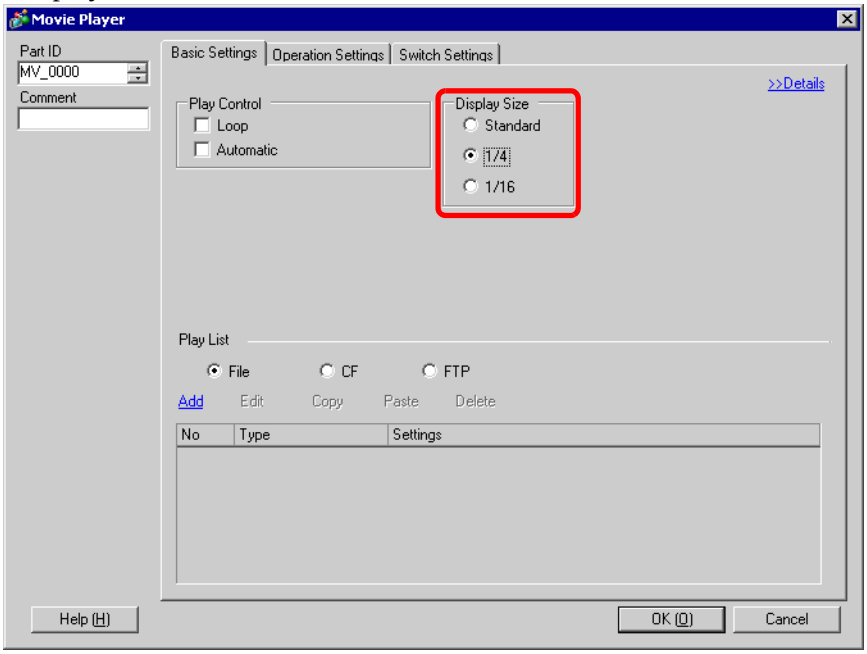
2 Select [NTSC] for [Video Input]. (To use PAL for the video signal, select [PAL].)



3 In the [Screen List] window open the base screen where you want to display the video. On the [Part (P)] menu, click [Movie Player (O)] (or click) and place a player on the screen.



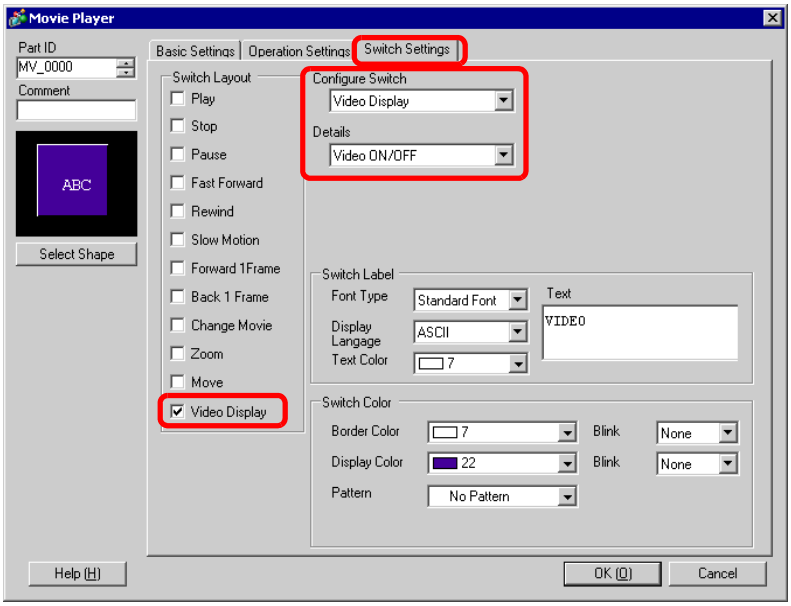
4 Double-click the movie player to open the following dialog box.
In the [Display Size] area select [1/4].



NOTE

- If the selected [Display Size] is larger than the size of the GP screen or the movie player, the image in the excess area is not displayed. If you want to display the entire image, set the [Display Size] smaller than the size of the movie player.

5 Click the [Switch Settings] tab. Under [Switch Layout], select the [Video Display] check box. In the [Details] list, select [Video ON/OFF].



6 Click [Select Shape] to select the shape of the switch and specify the label and color as desired, and then click [OK].

NOTE

- Depending on the shape of the switch, you may not be able to change the color.

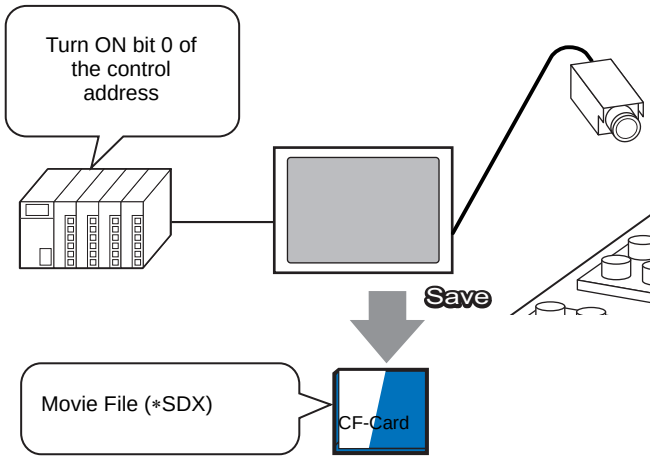
27.3 Recording Video

27.3.1 Details

GP-3450T/3550T/3650T/3750T allows you to save the video signal from a camera directly connected to GP as movie files (movies/sound files).
Turn ON 0-bit of the specified control address to start saving on the CF-Card (or FTP server).
The video signal is saved in a movie file format (.sdx) unique to GP.

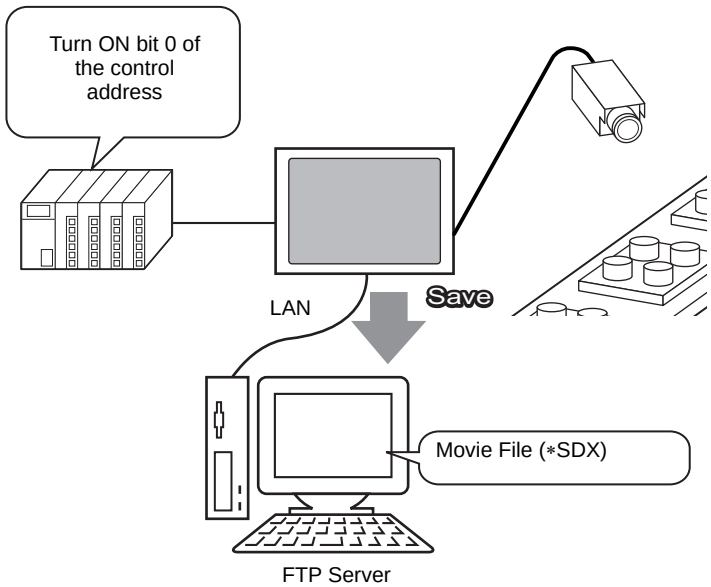
■ Saving on a CF-Card

In the “MOVIE” folder on the CF-Card, the movie file is saved under the specified folder name and file name (first 2 letters). Each file can save a movie of up to 512 MB. Each folder can save a maximum of 100 files.



■ Saving on an FTP server

In the registered FTP server, a movie file is saved under the specified folder name and file name (first 2 letters). Each file can save a movie up to 2048 MB.



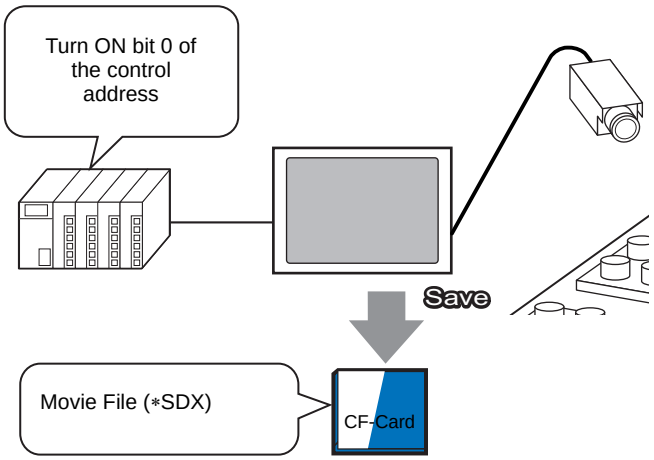
27.3.2 Setup Procedure

■ Saving a movie file on a CF-Card

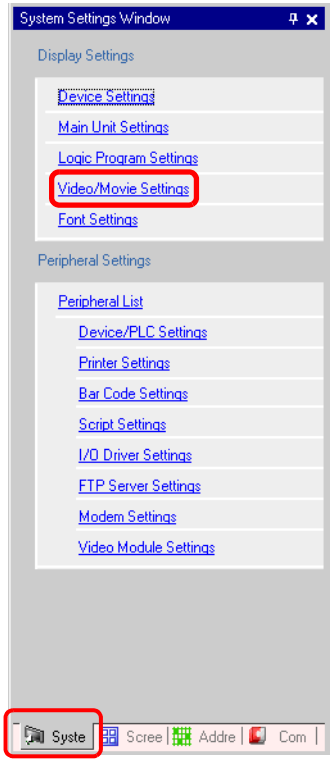
NOTE

- Please refer to the settings guide for details.
☞ “27.9.1 [Video/Movie Settings] Settings Guide” (page 27-72)

Turn ON 0-bit of the control address to begin saving the movie file to the CF-Card.



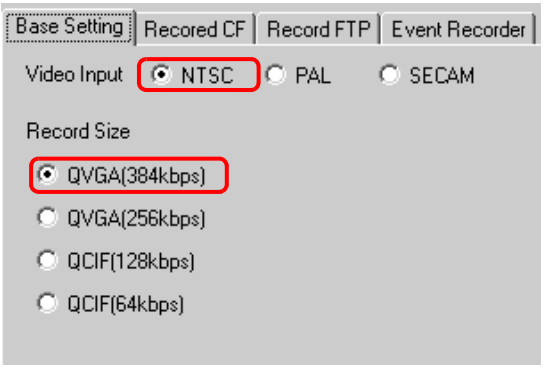
1 In [System Settings Window], click [Video/Movie Settings].



NOTE

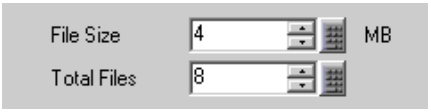
- If the [System Settings Window] tab is not displayed in the workspace, on the [View (V)] menu, point to [Work Space (W)] and then click [System Settings Window (S)].

2 In the [Video Input] area, select [NTSC]. Under [Record Size], select [QVGA(384kbps)].



3 Click the [Record CF] tab and select the [Record CF] check box.

4 Specify the [File Size] and [Total Files] to be saved.



NOTE

- Video input that exceeds the specified file size is saved automatically to the next file. The file name is created based on the time stamp (year, month, day, hour, minute, second) when the file size was exceeded.

5 In the [User Set String] area select [Direct] and enter 2 single-byte characters (e.g.: MC). This string is the folder name and the first 2 characters of the file name in which the movie is saved.

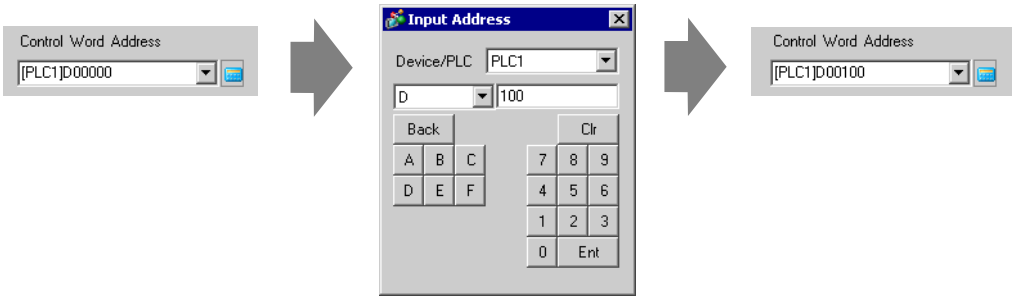
NOTE

- The movie is saved under a file name consisting of the user set string (2 characters max.) + time stamp (the year, month, day, hour, minute, and second when saving starts) with a file extension (SDX).
  (e.g.: If a folder and file are saved at 15:23'26" on May 27, 2006, the file name will be "MC060527_152346.SDX".)
- If [Indirect] is selected, you must store the user set string with PLC before saving to the CF. Store the 2-character string in the second of 3 words at the specified address.
- If [User Set String] is not set, the folder will be named "NONAME".

6 In [Control Word Address], specify a word address (e.g.: D100) to control saving.

Click the icon to display an address input keypad.

Enter “D” and “100”.



Movie save setting to CF-Card has been successfully completed.

NOTE

- The video signal can be displayed while it is being recorded.
- Previously-recorded movie files cannot be played while a video signal is being recorded.

◆ Operating Procedure

Use 3 sequential words from the specified address to control saving.

D100	Control
D101	Status
D102	Number of Saved Files

1 Turn ON bit 0 of D100 to start recording (saving to CF-Card).
Bit 0 of status address (D101) becomes ON while saving.

2 Turn OFF bit 0 of D100 to stop recording. Value “1” is added to the number of saved files stored in D102.

NOTE

- If more movie files have been saved in the folder than the number specified in [Total Files], you cannot save more movie files.

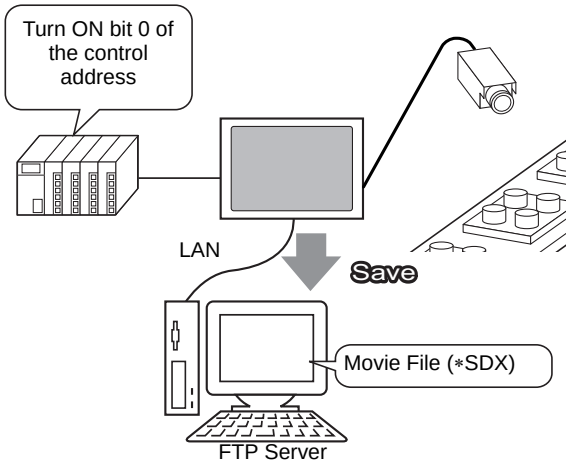
■ Saving a movie file on an FTP server

NOTE

- In order to save the files on an FTP server, you must have an FTP (File Transfer Protocol) server set up on the network in advance.
- Please refer to the settings guide for details.

☞ “27.9.2 [FTP Server Settings] Setting Guide” (page 27-89)
☞ “27.9.1 [Video/Movie Settings] Settings Guide” (page 27-72)

Turn ON 0 bit of the control address to start saving a movie file on the registered FTP server.

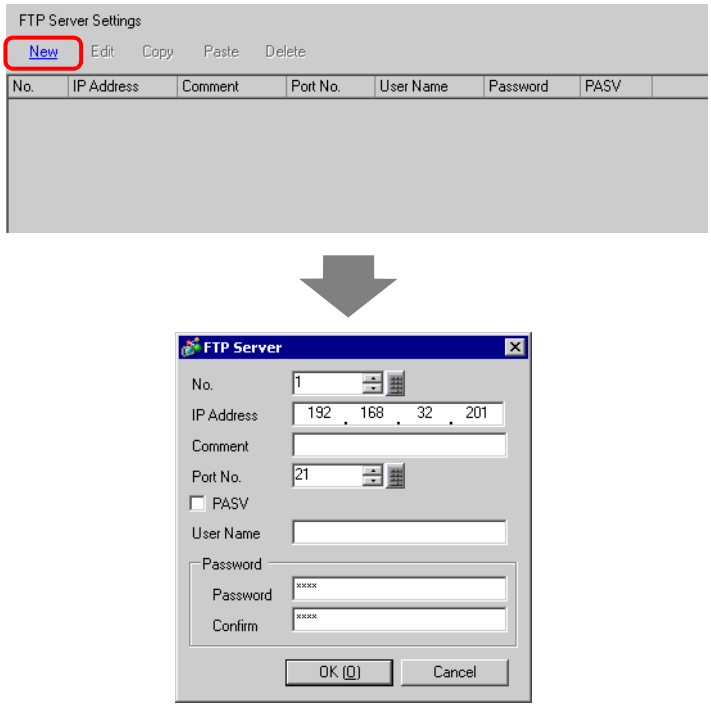


1 In [System Settings Window], click [FTP Server Settings].

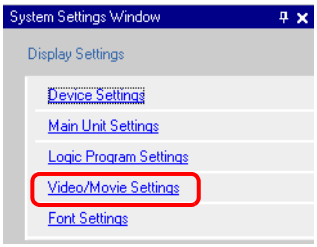
NOTE

- If the [System Settings Window] tab is not displayed in the workspace, on the [View (V)] menu, point to [Work Space (W)] and then click [System Settings Window (S)].

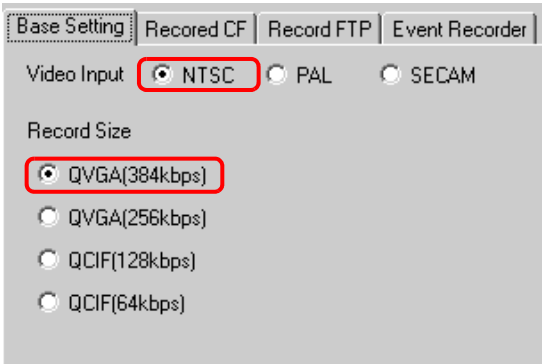
2 Click [New] to open the [FTP Server] dialog box. Enter the FTP server information (registry number, IP address, password, etc.) to save the movie file. Click [OK] to exit the FTP server registeration.



3 In [System Settings Window], click [Video/Movie Settings].

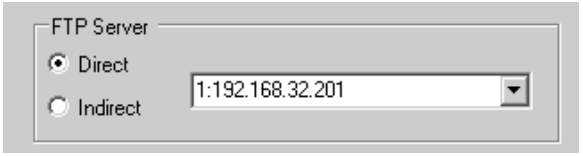


4 Select appropriate options for [Video Input] and [Record Size].



5 Click the [Record FTP] tab and select the [Record FTP] check box.

6 In the [FTP Server] area, select [Direct] and then select the registry number of the FTP server registered in step 2.



7 In [File Size] enter the size of the file to be saved.

NOTE

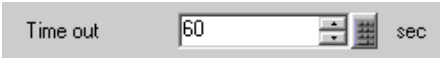
- Video input that exceeds the specified file size is saved automatically to the next file. The file name is created based on the time stamp (year, month, day, hour, minute, second) when the file size was exceeded.

8 In the [User Set String] area select [Direct] and enter 2 single-byte characters (e.g.:MC). This string is the folder name and the first 2 characters of the file name in which the movie is saved.

NOTE

- The movie is saved under a file name consisting of the user set string (2 characters max.) + time stamp with file extensions .sdx.
  (e.g.: If a folder and file are saved at 15:23'26" on May 27, 2006, the file name will be "MC060527_152346.SDX".)
- If [Indirect] is selected, you must specify the server registry number with PLC before saving on the FTP server. To specify the number indirectly, use 3 words from the specified address.
- If [User set string] is not set, the folder will be named "NONAME".

9 In [Timeout], enter the waiting time for connecting to the FTP server (e.g.: 60seconds).



10 In [Control Word Address], specify a word address (e.g.: D100) to control saving.

Click the icon to display an address input keypad.

Enter “D” and “100”.

Movie save setting on the FTP server has been successfully completed

NOTE

- The video signal can be displayed while it is being recorded.
- Previously-recorded movie files cannot be played while a video signal is being recorded.

◆ Operating Procedure

Use 2 sequential words from the specified address to control saving.

D100	Control
D101	Status

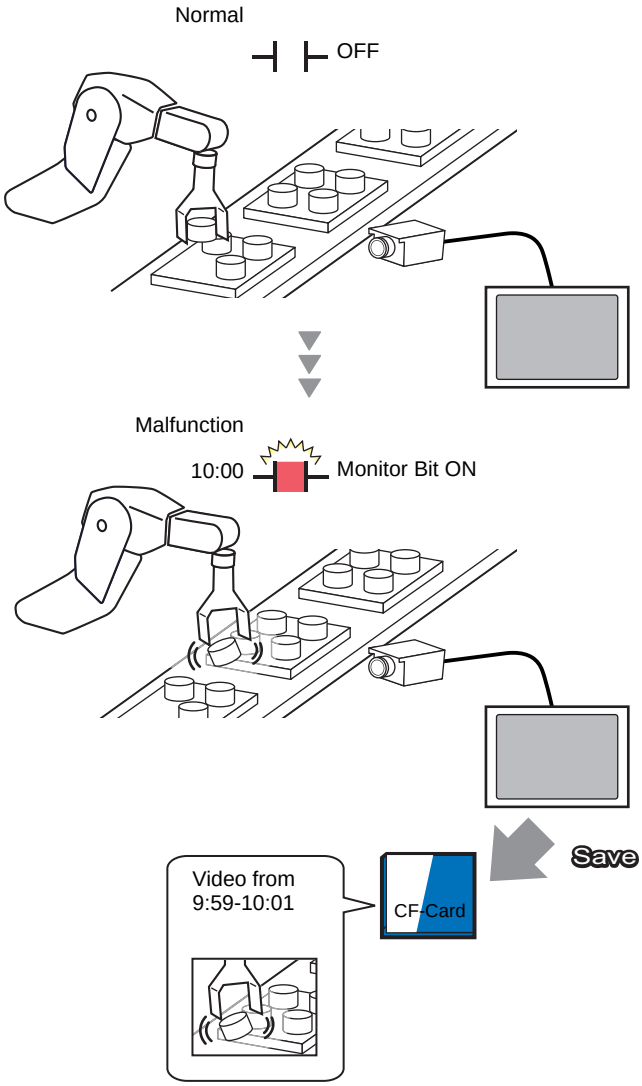
1 Turn ON bit 0 of D100 to start recording (saving on the FTP server).
Bit 0 of status address (D101) turns ON while saving.

2 Turn OFF bit 0 of D100 to stop recording.

27.4 Recording Video only before and after a Malfunction

27.4.1 Details

GP-3450T/3550T/3650T/3750T allows you to automatically save the video signal before and after a malfunction as movie files (images and sound) when specified conditions are met. Since the function captures the moment when a malfunction occurs in a factory line, it is useful for investigating the cause of the malfunction.
When the trigger bit address is turned ON during monitoring, up to 60 seconds of video before the event and 60 seconds of video after the event is saved as a movie file to a CF-Card or FTP server.

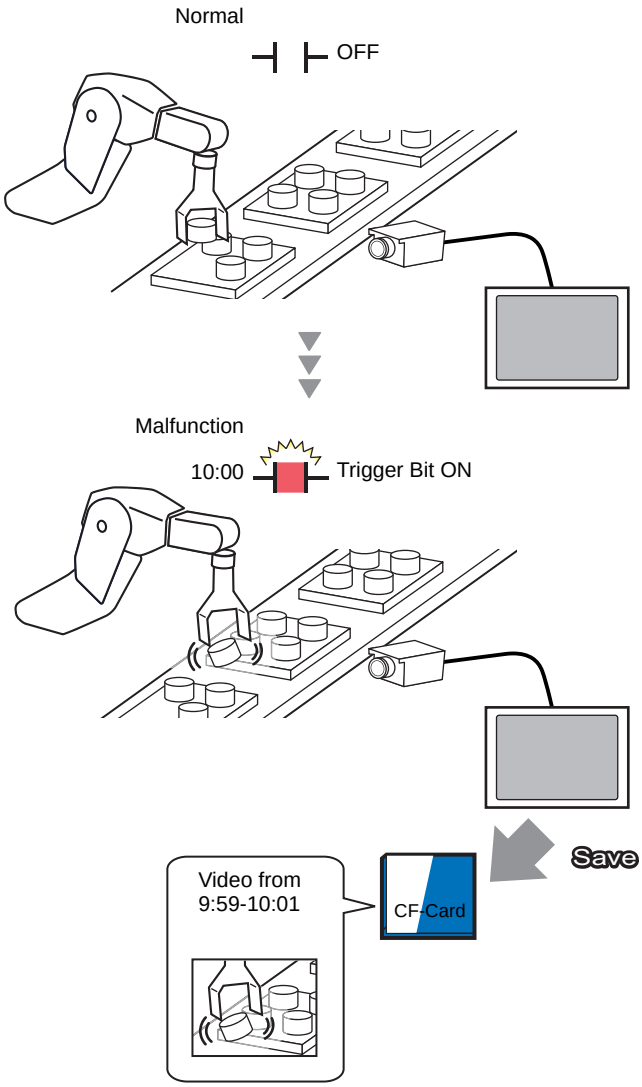


27.4.2 Setup Procedure

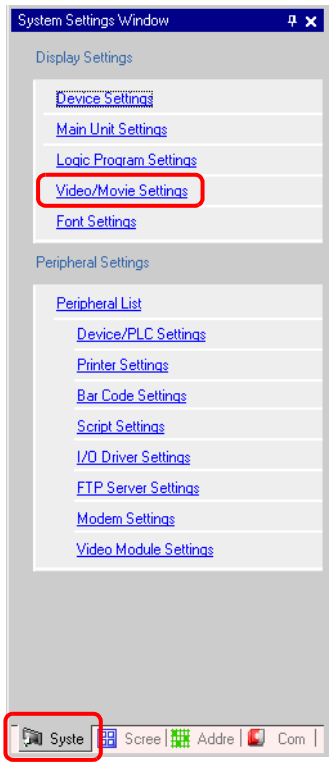
NOTE

- Please refer to the settings guide for details.
  ☞ “27.9.1 [Video/Movie Settings] Settings Guide” (page 27-72)

Saving video as a movie file before and after a factory line malfunction or other event. When the trigger bit address is turned ON (and the monitoring bit is also ON) video is saved to a CF-Card.



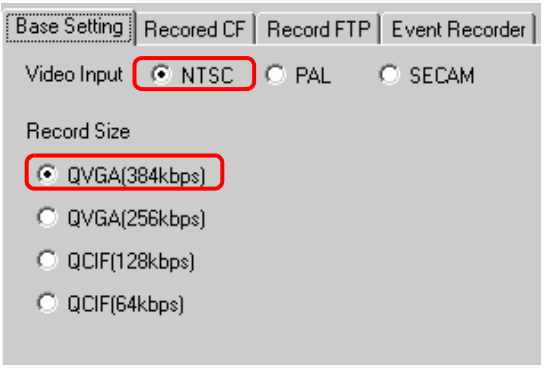
1 In [System Settings Window], click [Video/Movie Settings].



NOTE

- If the [System Settings Window] tab is not displayed in the workspace, on the [View (V)] menu, point to [Work Space (W)] and then click [System Settings Window (S)].

2 Select appropriate options for [Video Input] and [Record Size].

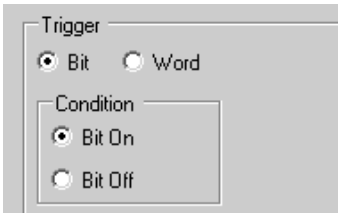


3 Click the [Event Recorder] tab, and then select the [Record Events] check box.

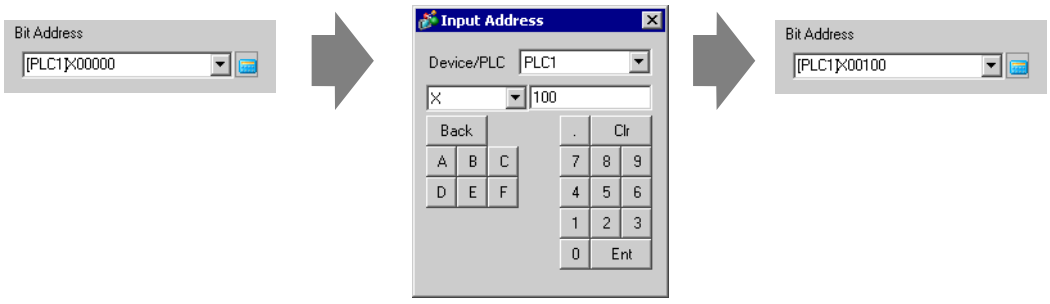
NOTE

- Movies cannot be played while the [Record Events] function continues monitoring.

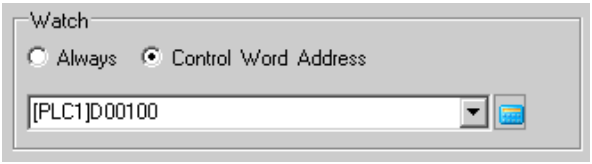
4 Under [Trigger], select [Bit], and under [Condition], select [Bit ON].



5 In the [Bit Address] box, specify the bit address to start saving. (e.g.: X100)



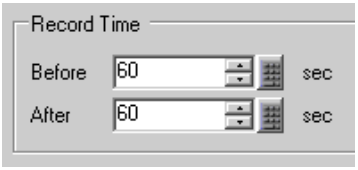
6 Select [Control Word Address] for the monitoring conditions and specify the address used to control monitoring (e.g.: D100). Two sequential words from the specified address are used for control.



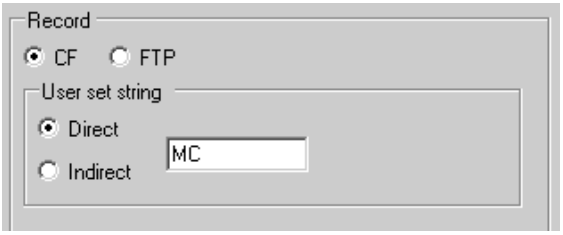
NOTE

- If bit 0 (monitoring bit) of the specified control address is not ON, movie files cannot be saved even with the trigger bit address ON.
- When [Always] is selected for the monitoring conditions, [Event Recorder] monitoring is always ON and movies cannot be played.

7 Under [Record Time], specify the seconds to record (e.g.: 60) before and after a trigger occurs.



8 Under [Record], select [CF].
In the [User Set String] area select [Direct] and enter 2 single-byte characters (e.g.: MC). This string is the folder name and the first 2 characters of the file name in which the movie is saved.



NOTE

- The movie can be saved to either a CF-Card or an FPT server. You cannot save the movie until the current recording process is completed.
- The movie is saved under a file name consisting of the user set string (2 characters) + time stamp (saves the starting year, month, day, hour, minute, second) and file extension .sdx.
  (e.g.: If a folder and file are saved at 15:23'26" on May 27, 2006, the file name will be “MC060527_152346.SDX”.)
- If [Indirect] is selected, you must store the user set string with PLC before saving to the CF. Store the 2-character string in the second of 3 words at the specified address.
- If [User Set String] is not set, the folder will be named “NONAME”.

The settings are complete.

NOTE

- The video signal can be displayed even when Event Recorder is enabled.

27.5 Playing Movies

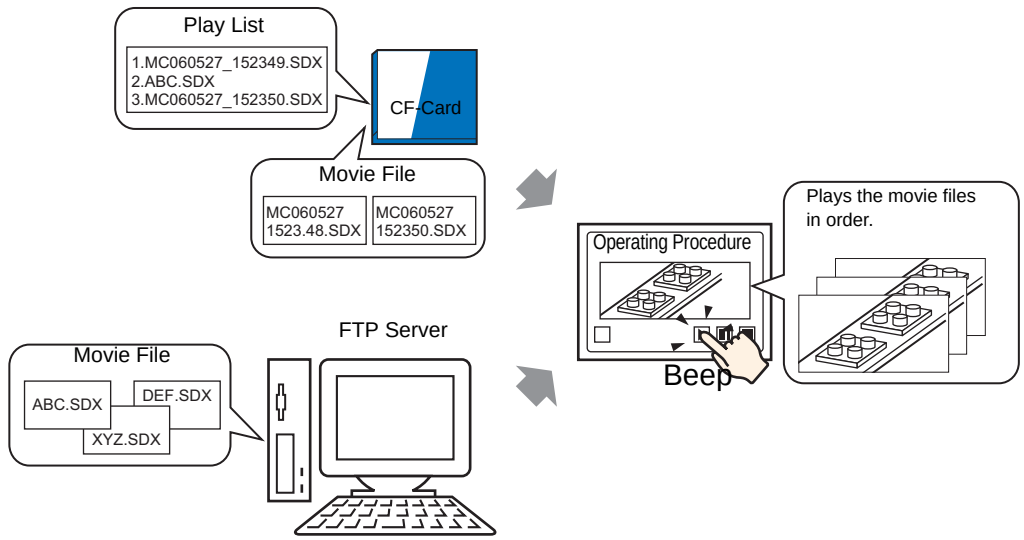
27.5.1 Details

In GP-3450T/3550T/3650T/3750T, the recorded .sdxmovie file can be played on the GP. A user can touch the keys to pause or rewind, which is convenient for carefully inspecting images.

There are two methods for playing movie files saved on a CF-Card or FTP server.

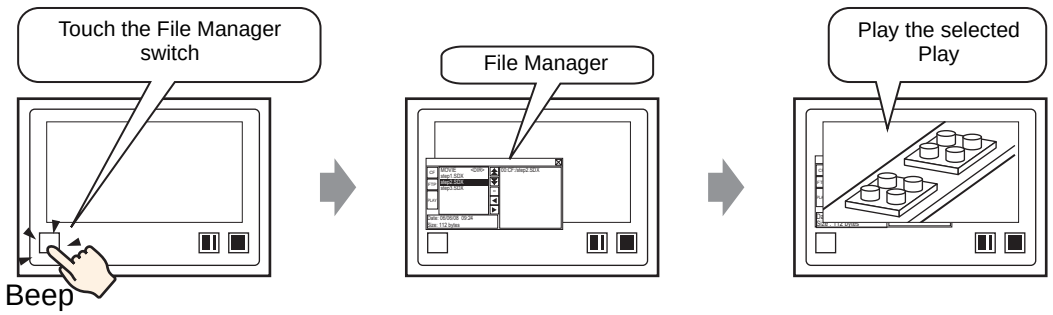
■ Using a Play List

If you know the movie files you want to play, for example, to display a process recorded in movies, first register the movie files you want to play in a play list. If several movie files are registered in the play list, the files will be played sequentially in that order.



■ Selecting a Movie at Run Time

Using Special Data Display [File Manager], a user can play a particular movie file by touching the desired file.



NOTE

- Using [Movie Converter], you can convert PC movie files to a format playable on GP.

☞ "27.5.3 Converting movie files" (page 27-40)

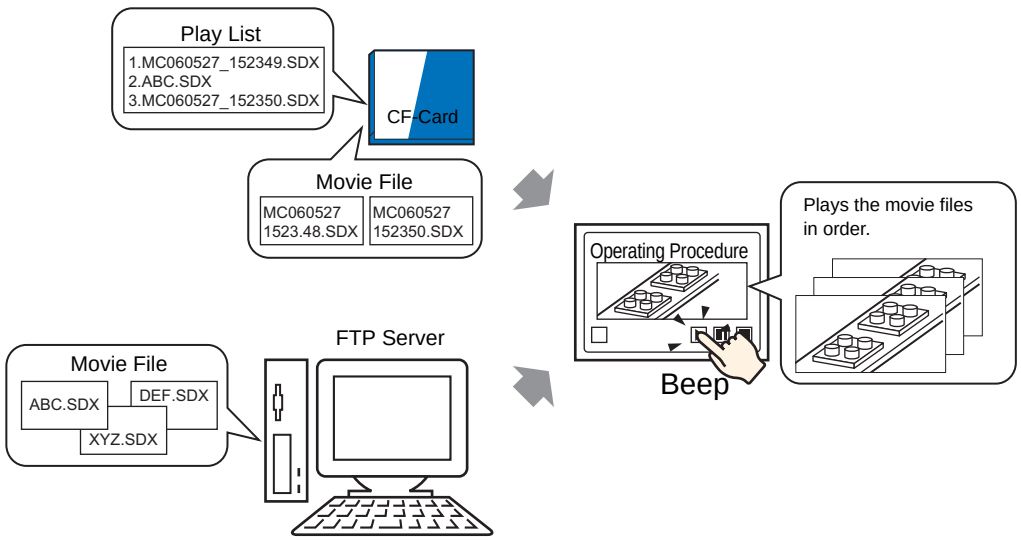
27.5.2 Setup Procedure

NOTE

- Please refer to the settings guide for details.
  - ☞ "27.9.3 Common Settings [Movie Settings (O)] Setting Guide" (page 27-91)
  - ☞ "27.9.4 Movie Player Setting Guide" (page 27-93)
  - ☞ "25.10.2 Setup Guide for the Special Data Display ■ File Manager" (page 25-86)
- For details on how to arrange the components and how to specify the address, shape, color, and label settings, refer to the "Component Editing Procedure".
  - ☞ "9.6.1 Editing Parts" (page 9-37)

■ Using a Play List

Determines the order of the movie files in the play list, and plays the movies in that order.

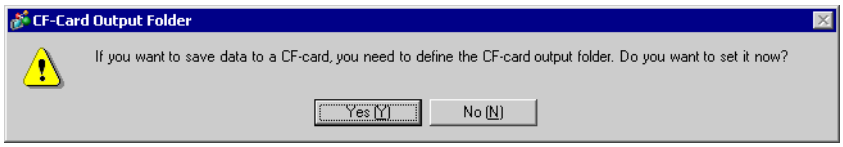


◆ creating a play list file

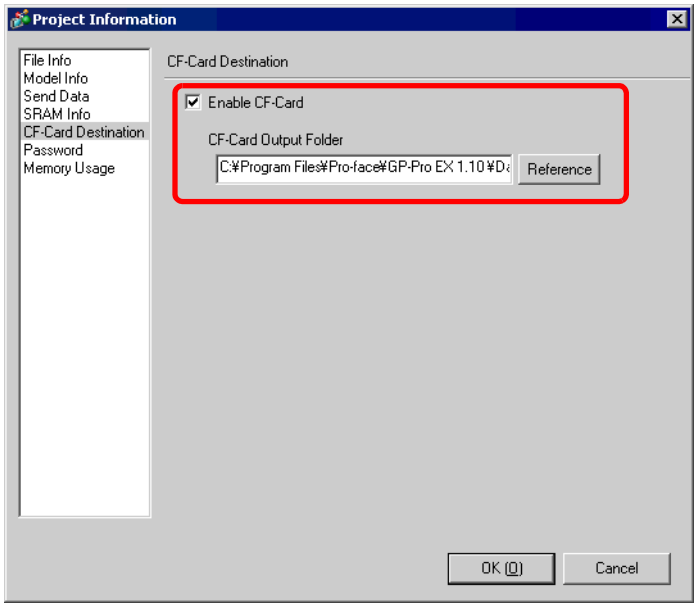
NOTE

- To create a play list file and save it on a CF-Card, you must specify the CF-Card output folder.
- If [CF-Card Output Folder] is already specified, the following message will not be displayed. Specify the settings starting from step 3.
  - ☞ " ■ CF-Card Output Folder Setting Procedure" (page 5-38)

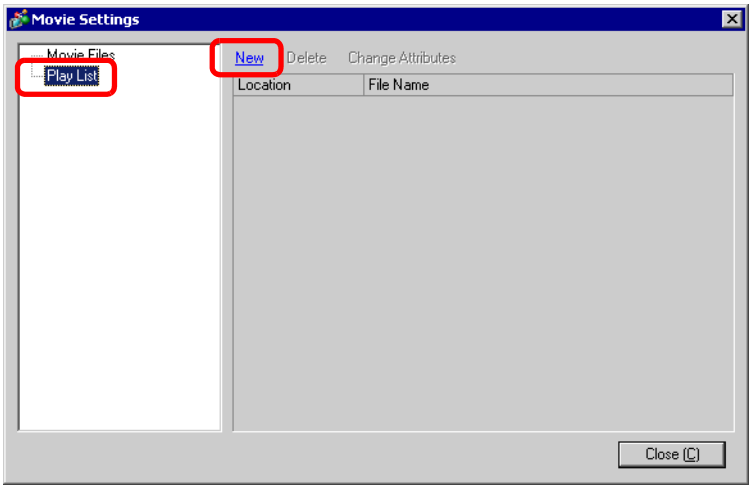
1 On the [Common Settings(R)] menu, click [Movie Settings(O)] or click . The following message is displayed. Click [Yes] to display the [Project Information] dialog box.



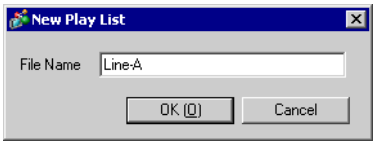
2 Select the [Enable CF-Card] check box, specify the folder in which the movie files are stored, and click [OK].



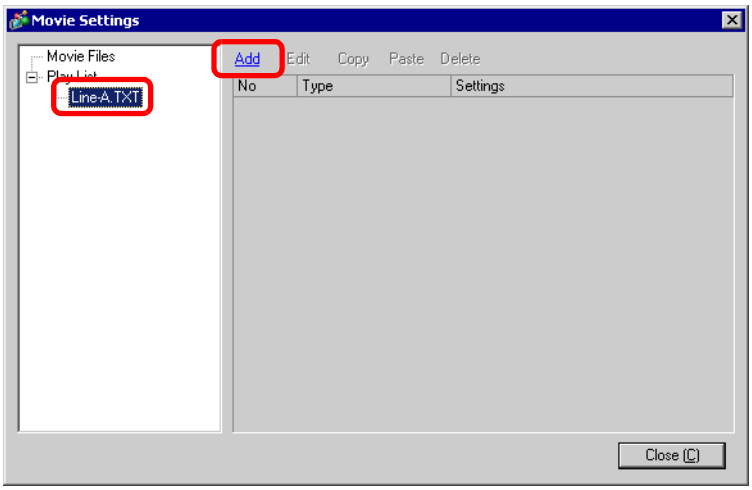
3 The [Movie Settings] dialog box is displayed. Select [Play List] and click [New].



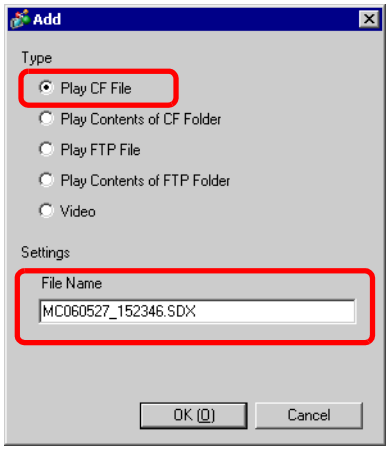
4 The [New Play List] dialog box is displayed. Enter the play list file name (e.g.: Line-A) and click [OK].



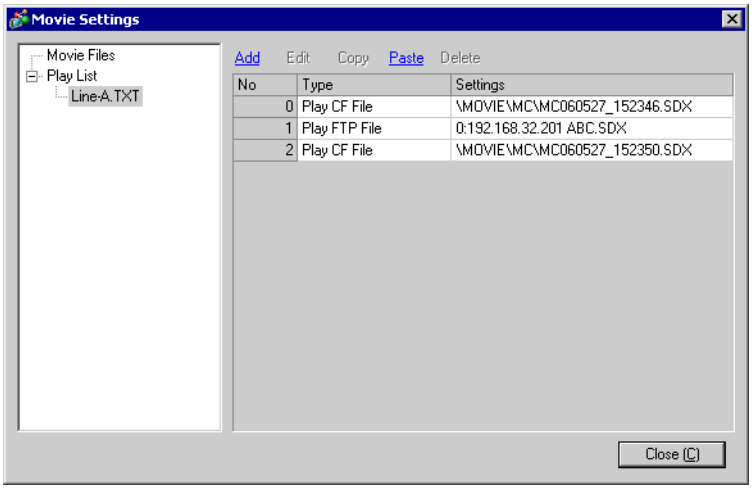
5 Select the created file and click [Add].



6 The [Add] dialog box is displayed. Select [Play CF File], and in [File Name], enter the name of a movie file to be registered in the play list (e.g.: MC060527_152346.SDX). Then, click [OK].



7 In the same way, register movie files in the order you want to play them. After completing the registration, click [Close].



NOTE

- To create a play list file on the FTP server, use a text editor (such as Notepad) to create a file in the following format.

"Format"

- Specifying a movie file on the CF-Card
  (serial No.),CF,\MOVIE\(folder name)\(file name.SDX)
- Specifying a folder on the CF-Card.
  (serial No.),CF,\MOVIE\(folder name)\
- Specifying a movie file on the FTP server.
  (serial No.),FTP,FTP(FTP server registration No.),(folder name)\(file name.SDX)
- Specifying a folder on the FTP server
  (serial No.),FTP,FTP(FTP server registration No),(folder name)\
- Displaying real-time video.
  (serial No.),INVM

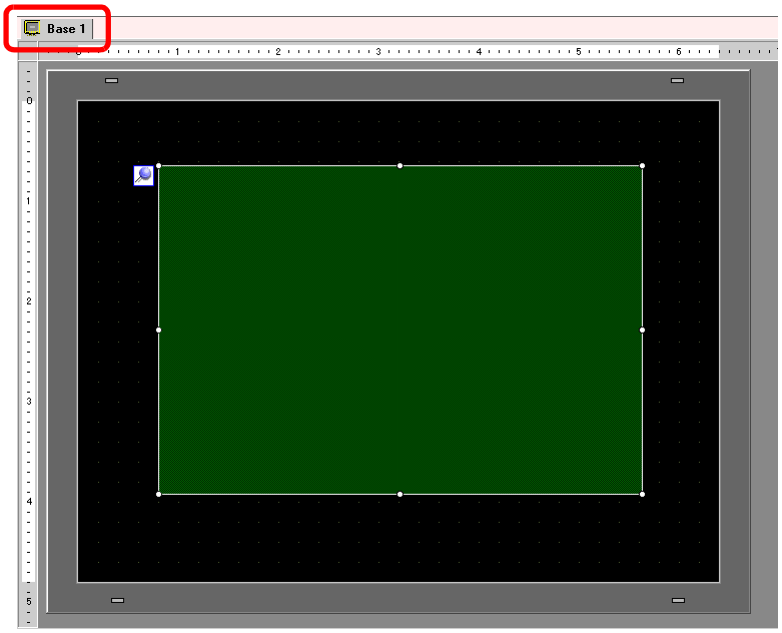
- The serial number is assigned to the first line starting from 0 and then assigned sequentially to the following lines. Lines can be created from 0 to 99.
- If you want to input any comments, enter a one-byte '#' at the beginning of the line and then input comments. Lines with comments or line breaks do not affect movie play.
- The FTP server registration number is the number registered in [FTP Server Settings].
- Delimit the folder name and file name using "\".
- Use one byte characters for the play list file name. The extension is ".txt".
- The maximum number of movie files that can be played is 100.

"Description example"

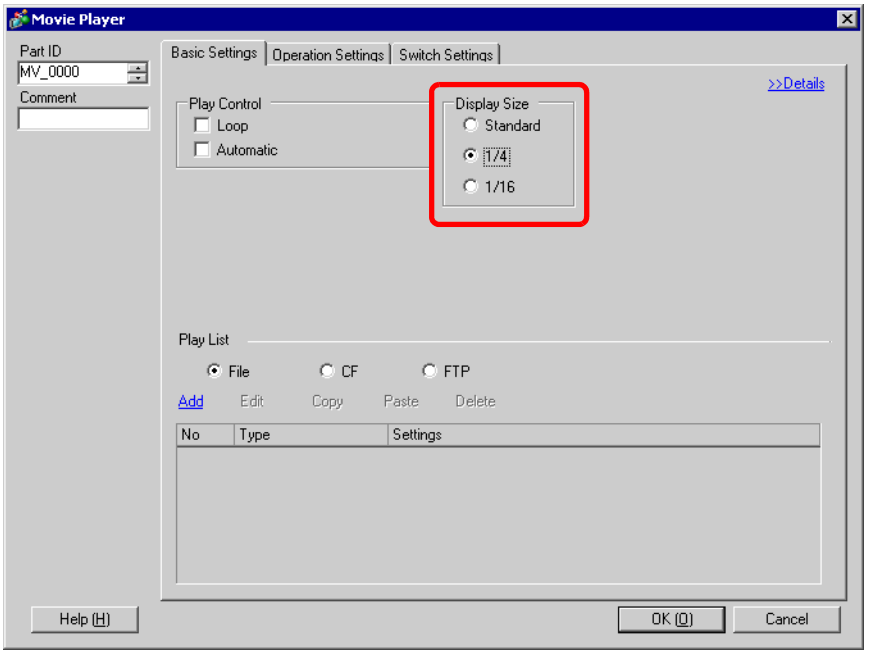
```
#Play list 1
0,CF,\MOVIE\MC\MC060527_152346.SDX
1,FTP,FTP0\MC\ABC.SDX
2,CF,\MOVIE\MC\MC060527_152350.SDX
```

◆ Creating the movie play screen

8 In the [Screen List] window open the base screen where you want to display the video. On the [Part (P)] menu, click [Movie Player(O)] (or click) and place a player on the screen.



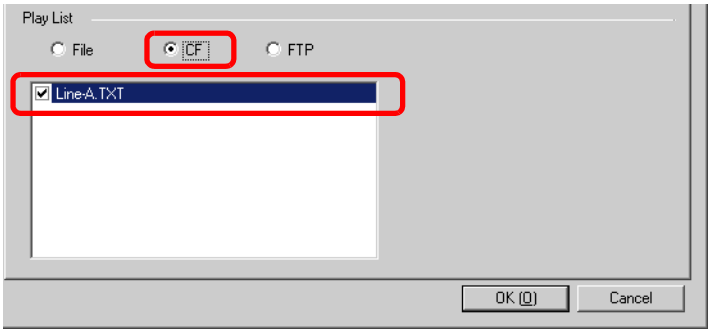
9 Double-click the movie player to open the following dialog box. In the [Display Size] area select [1/4].



NOTE

- If the selected [Display Size] is larger than the size of the GP screen or the movie player, the image in the excess area is not displayed. If you want to display the entire image, set the [Display Size] smaller than the size of the movie player.

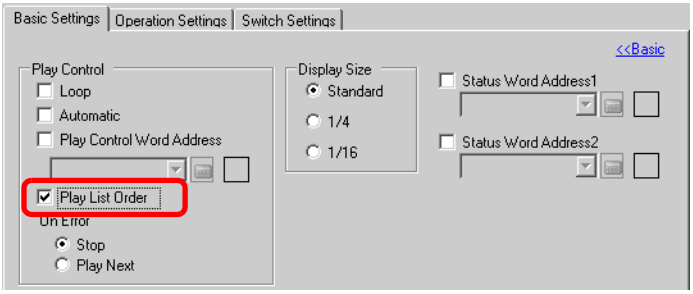
10 Under [Play List], select [CF]. Select the check box next to the file (e.g.: Line-A.TXT) created in step 7.



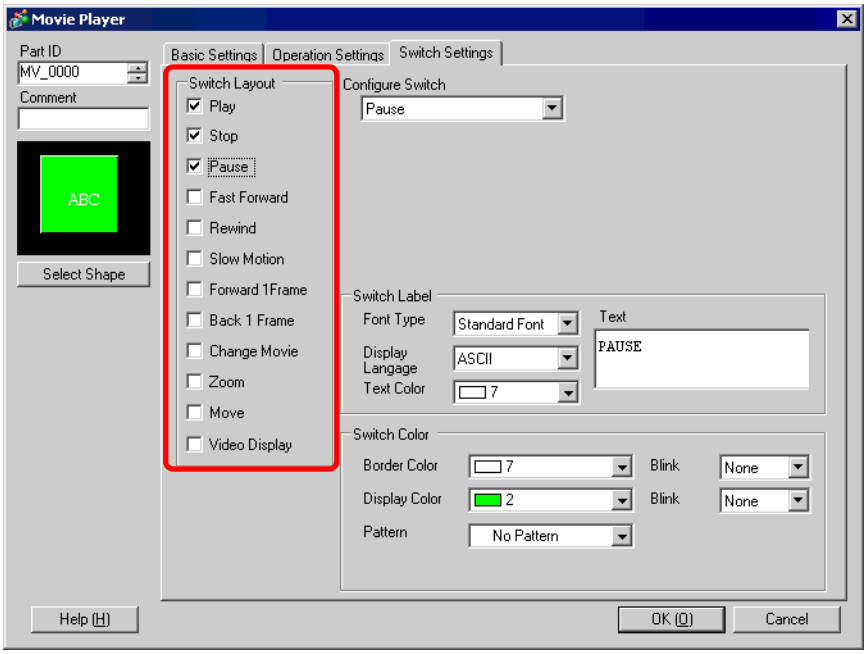
NOTE

- If you select [File], the play list can be specified in the Movie Player. In this case, the play list file is not required.

11 Click [Details] and then select [Play List Order].



12 Specifiy the operation switch. Click the [Switch Settings] tab and under [Switch Layout], select [Play], [Pause], and [Stop].

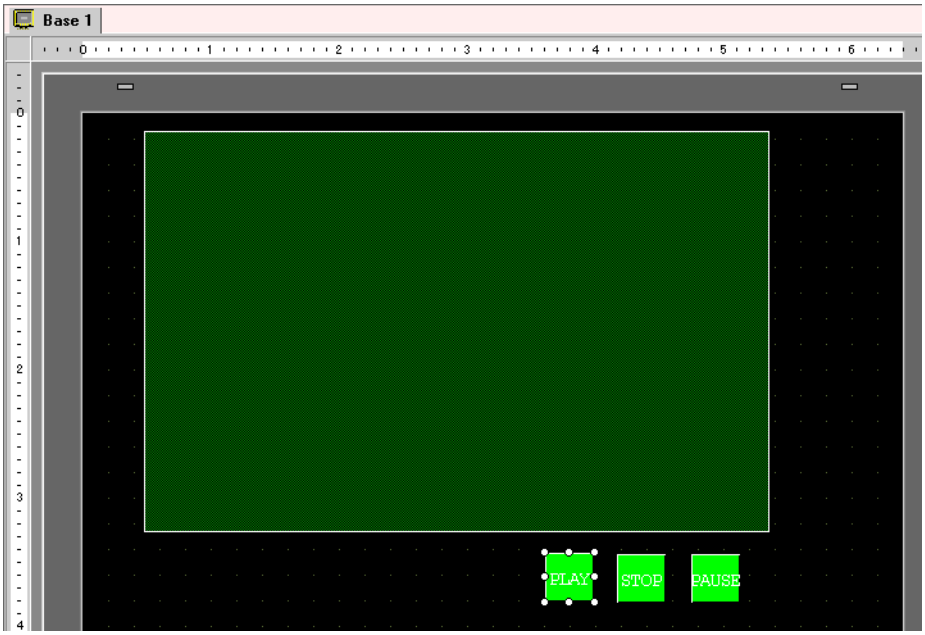


13 In [Select Shape], select the shape of the switch, and specify the label and color as necessary. Click [OK] to complete the settings.

NOTE

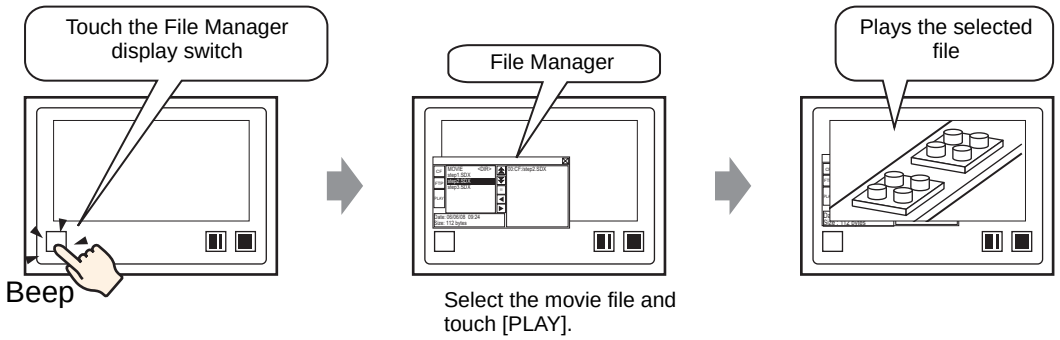
- If multiple switches have been specified, the shapes and colors of the switches placed with the [Switch Settings] tab in [Movie Player] cannot be specified individually. Only the label can be specified individually. To specify the shape or color individually, create switches separately in [Special Switch]-[Movie Player Switch] in a switch/lamp object.
  ☞ "11.14.4 Special Switch" (page 11-61)
- Depending on the shape of the switch, you may not be able to change the color.

The switches can be individually selected and moved to a desired location.

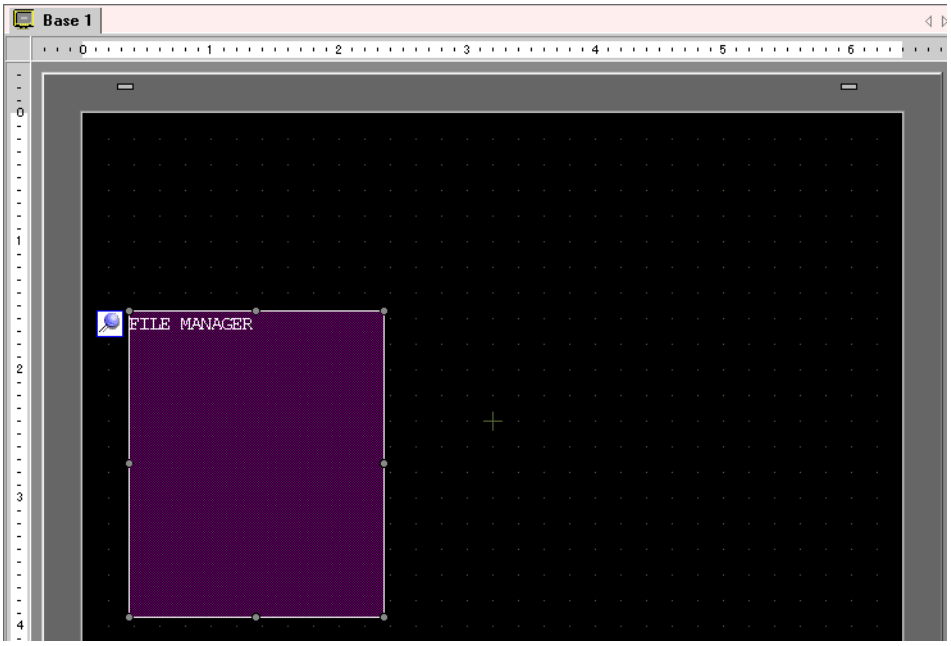


■ Selecting a movie at run time

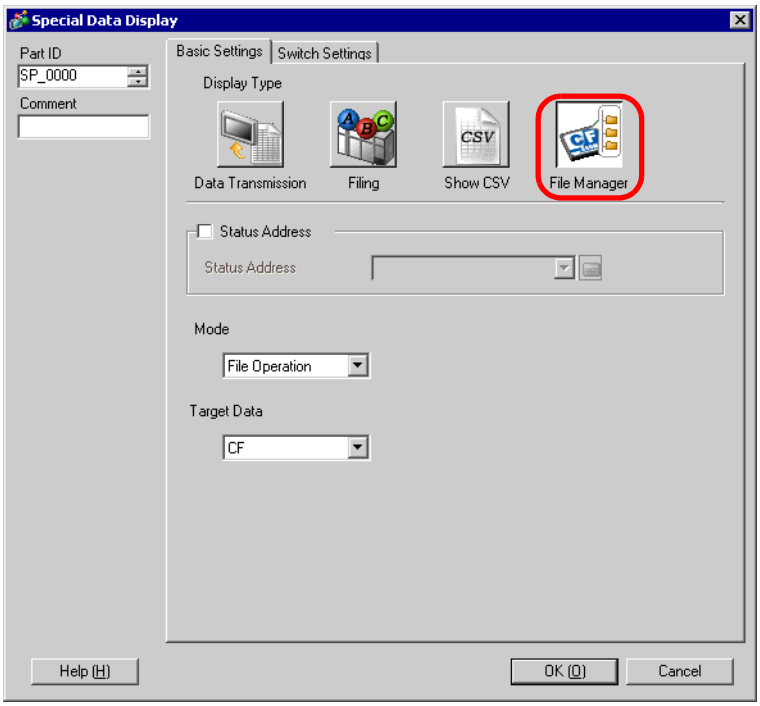
Selecting the desired movie file on the GP screen will immediately play the movie.



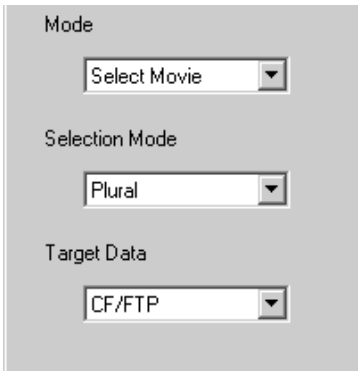
1 On the [Part(P)] menu, point to [Special Data Display(P)] and then click [File Manager(M)] and place File Manager on the screen.



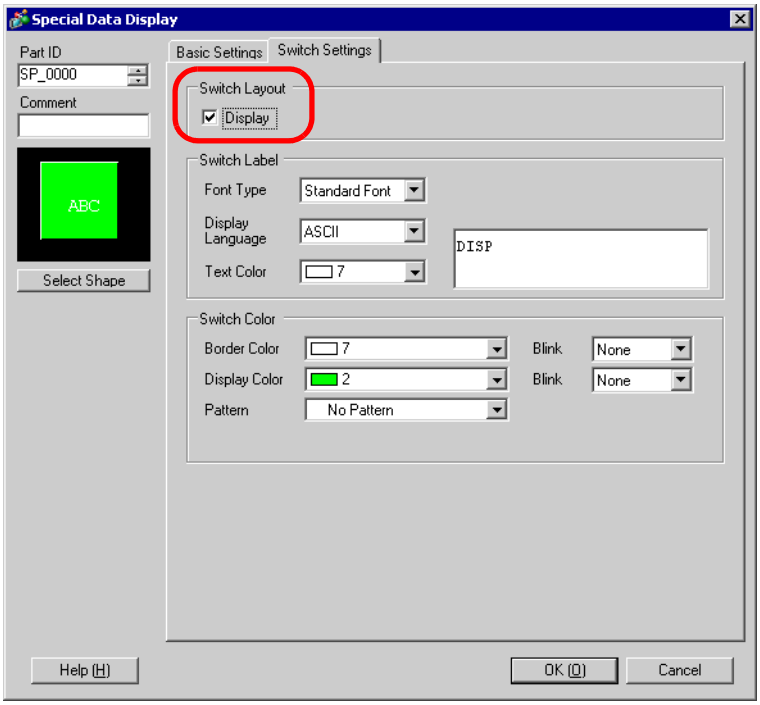
2 Double-click the [File Manager] to open the following dialog box.



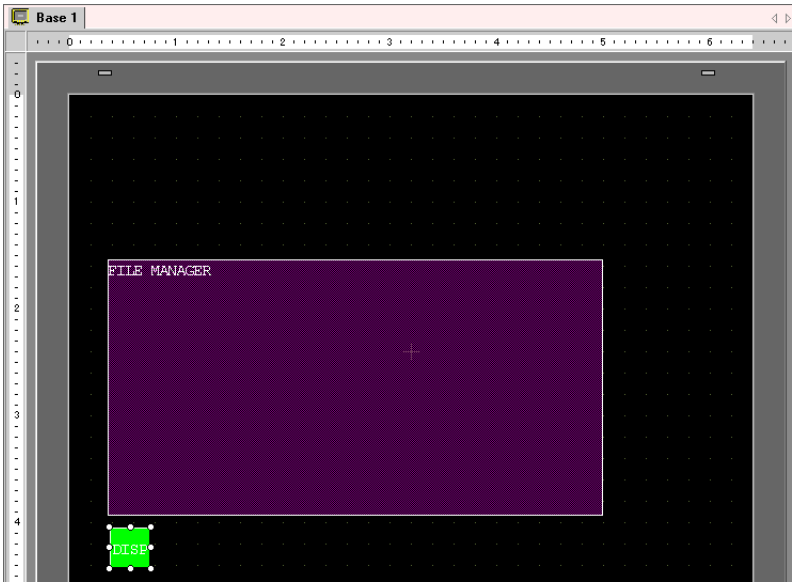
3 Under [Mode], select [Select Movie]. Under [Selection Mode], select [Plural] and under [Target Data] select [CF/FTP].



4 Click the [Switch Settings] tab and under [Switch Layout] select the [Display] check box. Select the shape of the File Manager switch, specify the label and color, and click [OK].

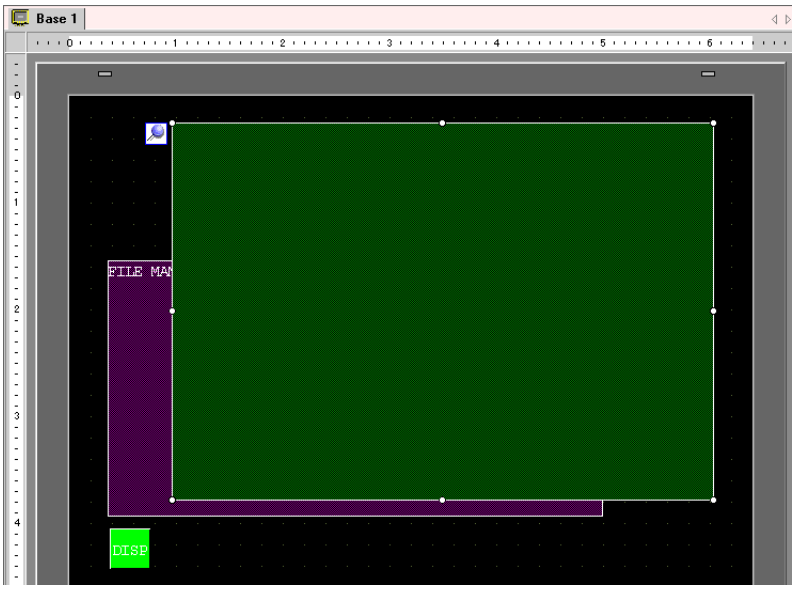


The Special Data Display [File Manager] has been specified. The switches placed with the [Switch Settings] tab of [File Manager] can be individually selected and moved to a desired location.

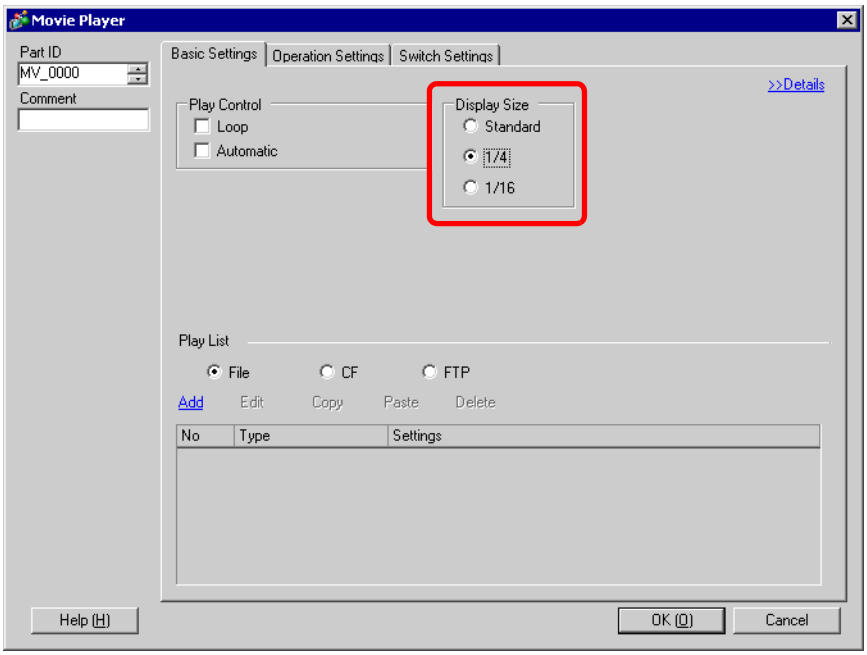


NOTE • Only one Special Data Display [File Manager] can be placed on one screen.

5 On the [Part (P)] menu, click [Movie Player (O)] and place Movie Player in the same Base screen as [File Manager].



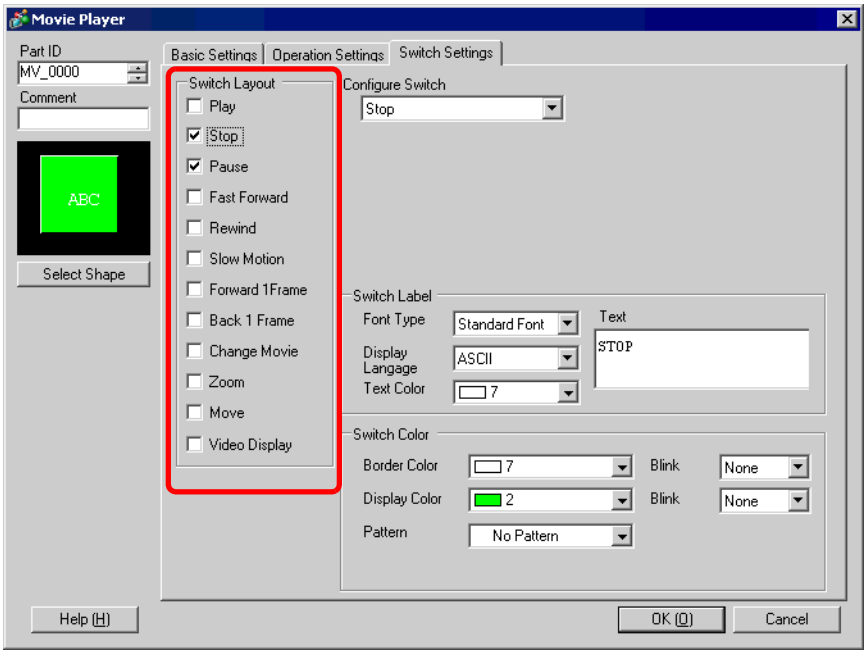
6 Double-click the movie player to open the following dialog box.
In the [Display Size] area select [1/4].



NOTE

- If the selected [Display Size] is larger than the size of the GP screen or the movie player, the image in the excess area is not displayed. If you want to display the entire image, set the [Display Size] smaller than the size of the movie player.

7 Place the operation switch. Click the [Switch Settings] tab, and under [Switch Layout], select [Stop] and [Pause].



8 In [Select Shape], select the shape of the switch, specify the label and color, and click [OK].

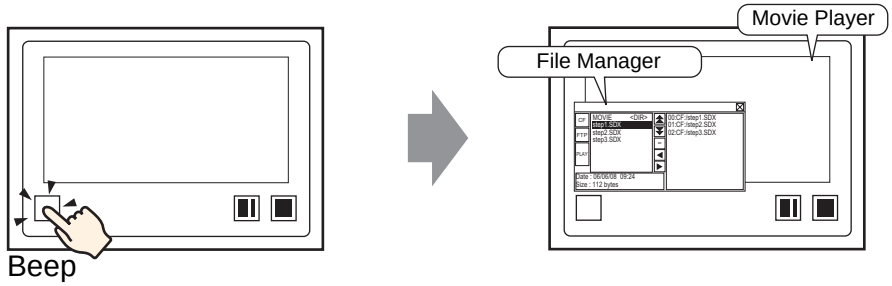
NOTE

- If multiple switches have been specified, the shapes and colors of the switches placed with the [Switch Settings] tab in [Movie Player] cannot be specified individually. Only the label can be specified individually. To specify the shape or color individually, create switches separately in [Special Switch]-[Movie Player Switch] in a switch/lamp object.
  ☞ "11.14.4 Special Switch" (page 11-61)
- Depending on the shape of the switch, you may not be able to change the color.

The switches placed with the [Switch Settings] tab in [Movie Player] can be individually selected and moved to a desired location.

◆ Using File Manager to play movies

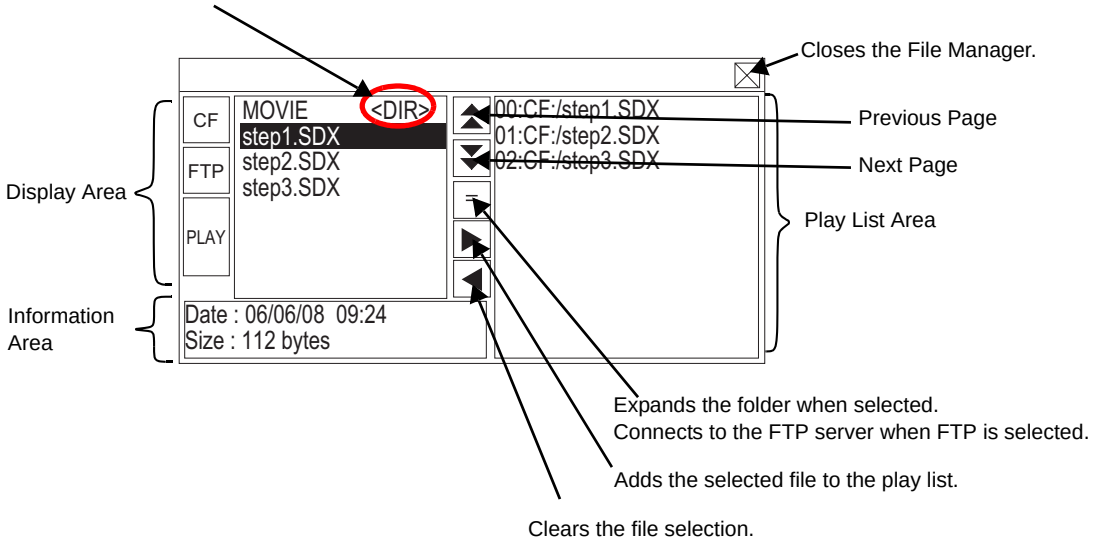
1 Touch the File Manager Display Switch to call up [File Manager] on the GP screen.



(If you touch the display switch again, [File Manager] will close.)

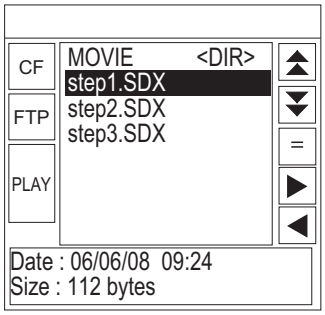
2 Setting [Selection Mode] on the Special Data Display [File Manager] to [Plural] and setting [Target Data] to [CF/FTP] displays the following contents.

<DIR> is displayed to the right of the folder name.

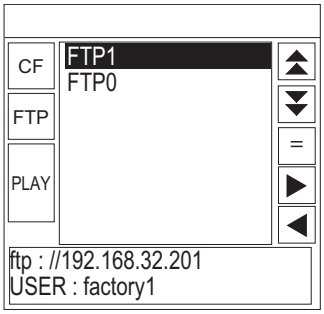


- Display Area
  Touch [CF] or [FTP] to select the file location.
  Selecting [CF] displays a list of the folder names or file names on the CF-Card.
  Selecting [FTP] displays the list of the setting names of the host registered on the FTP server registration list.
  The files are displayed in the order in which they were created. It is not possible to sort the files by file numbers or time stamps.
  Touching [PLAY] starts playing the files with GP-Pro Ex.
- Information Area
  Selecting a folder displays the folder creation date. Selecting a file displays the creation date and size of the file.
  Selecting [FTP] displays the IP address and user name of the selected host.
- Play List Area
  The names of the files to be played are displayed in the list. The files are played in the order of this list.

3 Selecting the folder and touching the [=] key displays a list of all the files in the folder.



CF-Card

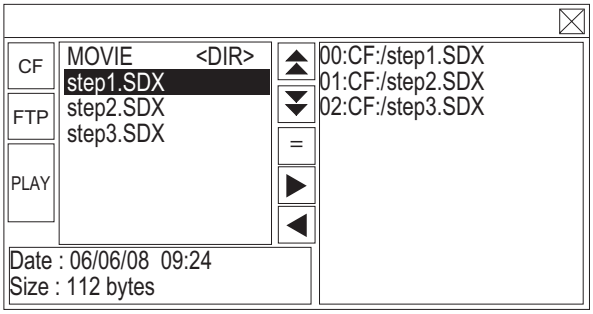


FTP Server

NOTE

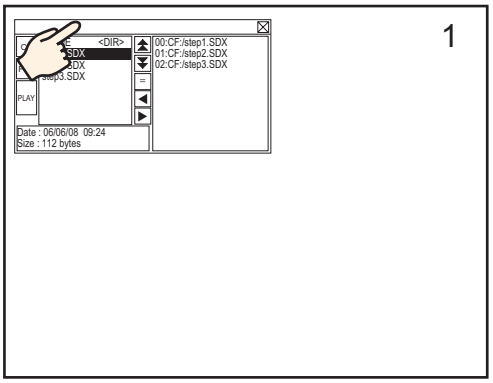
- To return to the above tree (the list of folders) from the file list page, select "..< DIR >" in the first line and touch the [=] key.
- After connecting to the FTP server selected with [=] key, selecting [FTP] displays the file list.

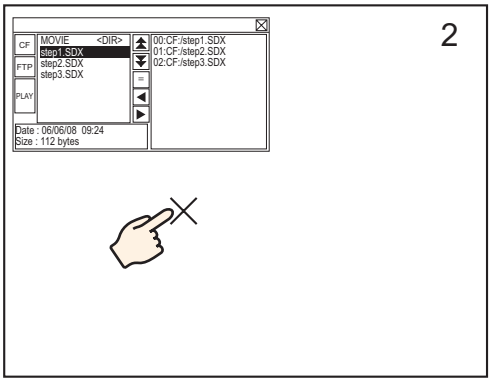
4 On the GP, select the movie file you want to play and touch the [▶] key to add the file to the play list.
Touching [PLAY] starts playing the files in the order registered in the play list.

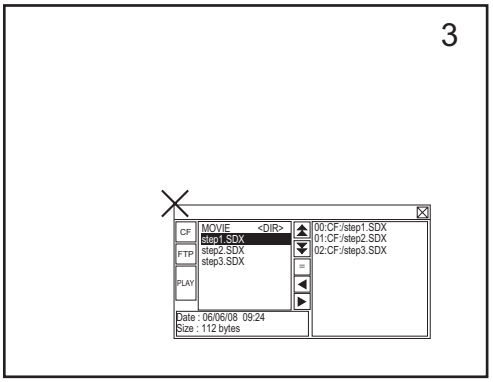


How to move File Manager

The screen position of Special Data Display [File Manager] can be changed.







1 Touch the top of the [File Manager] Display.
2 Touch the desired position on the screen where you want the display to move.
3 The [File Manager] Display moves to display the specified position.

NOTE

- If the [File Manager] Display runs off the screen at a specified position, the coordinates will be automatically adjusted so that the entire window is displayed.

27.5.3 Converting movie files

To display PC movie files on the GP, the files must be converted to a GP-specific movie file format (SDX). Use the special software “Movie Converter” to convert the movie files to SDX format. This Movie Converter can also convert SDX movie files to a format playable on a PC.

IMPORTANT

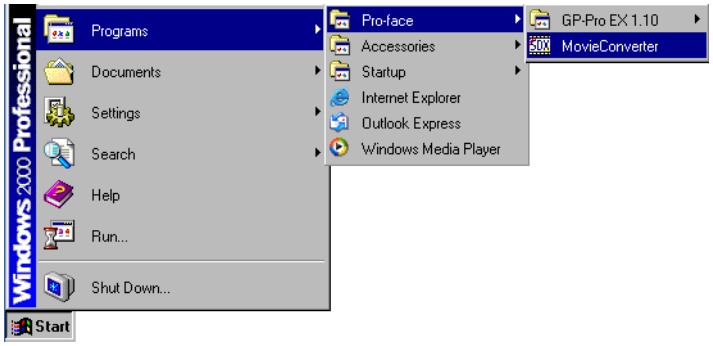
- To install the Movie Converter, you need a license which is sold separately.
- A codec must be installed on the PC running Movie Converter. (If movie files can be played normally on the PC, the codec has already been installed.)
- A default codec is installed with video/audio players such as Windows® Media Player.

Movie Converter Operating Environment

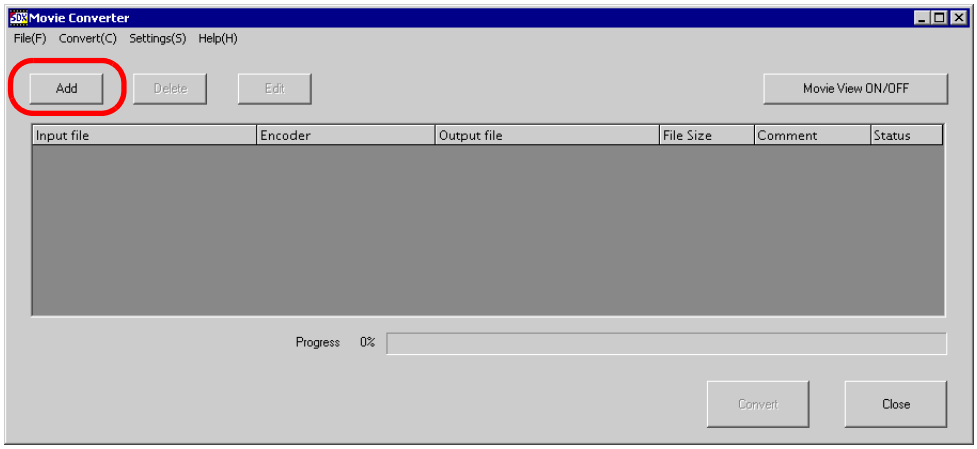
	Specification	Remarks
PC	PC/AT and compatible models that can run Windows® normally	Pentium®III 1 GHz or higher recommended
Hard Disk Space	60MB or higher	This capacity is required to install Movie Converter.
Memory	256MB or higher	512MB or higher recommended
OS	Windows®2000 Service Pack 4 Windows®XP (Home Edition/ Professional) Service Pack 2 or higher	
Others	Windows®Media Player 9.0	For details on Windows®Media Player, see the Microsoft website.
	Mouse	A model which is supported by the above OS must be connected.
	CD-ROM drive	Required for installation only. A model which is supported by the above OS must be connected.

■ Starting Movie Converter and Converting Movies

1 Install Movie Converter on a PC.
2 From the [Start] menu, select [Programs]-[Pro-face]-[Movie Converter].



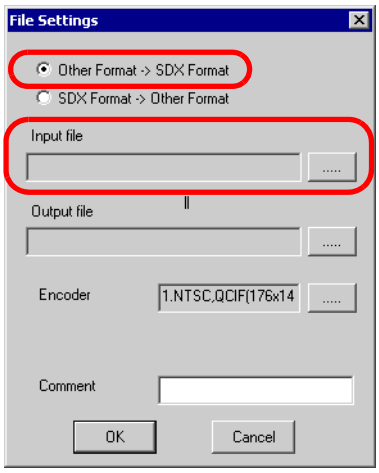
3 [Movie Converter] starts. Click [Add] to display the [File Settings] dialog box.



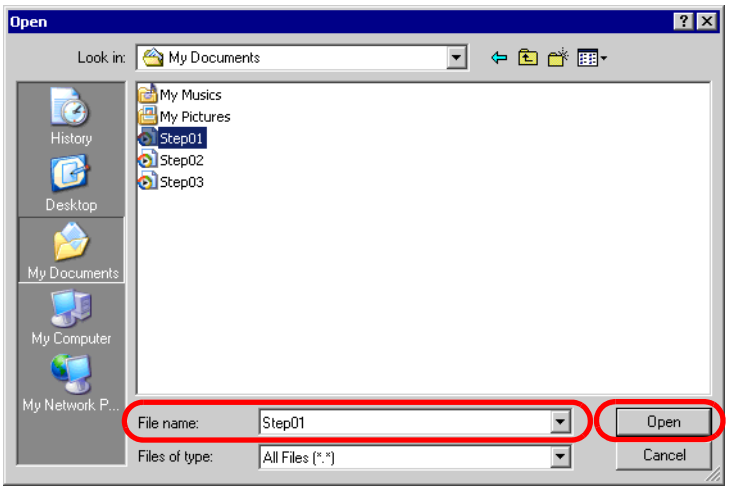
NOTE

- When the [Image Conversion In Progress] window is displayed, the name of the movie being converted is displayed in the window. To close the [Image Conversion in Progress] window, click [Hide File List].

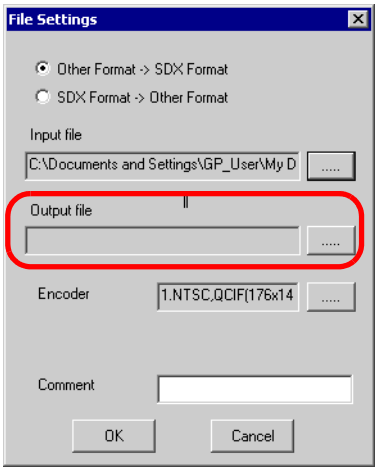
4 Select [Other Format → SDX Format]. Clicking [...] in [Input File] displays the [Open] dialog box.



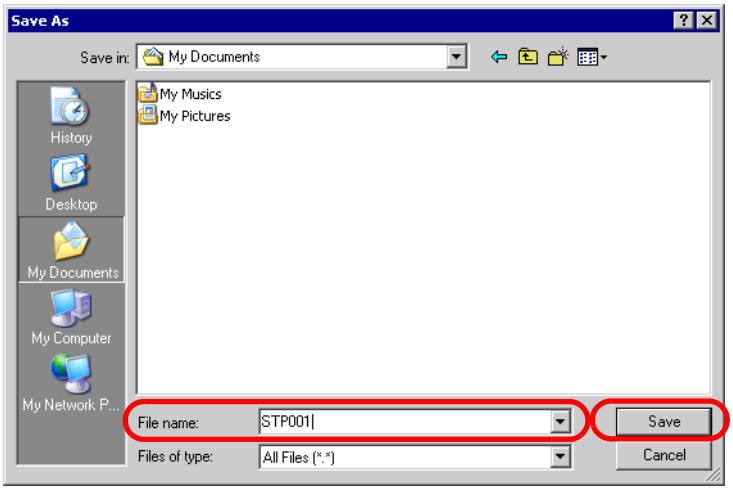
5 Select [Look in] and [File name] for the file to be converted, and then click [Open].



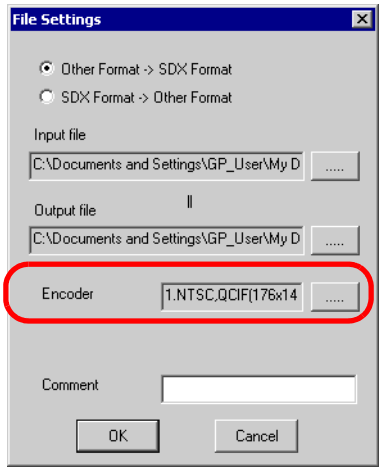
6 The [File Settings] dialog box returns. Clicking [...] in [Output File] displays the [Save As] dialog box.



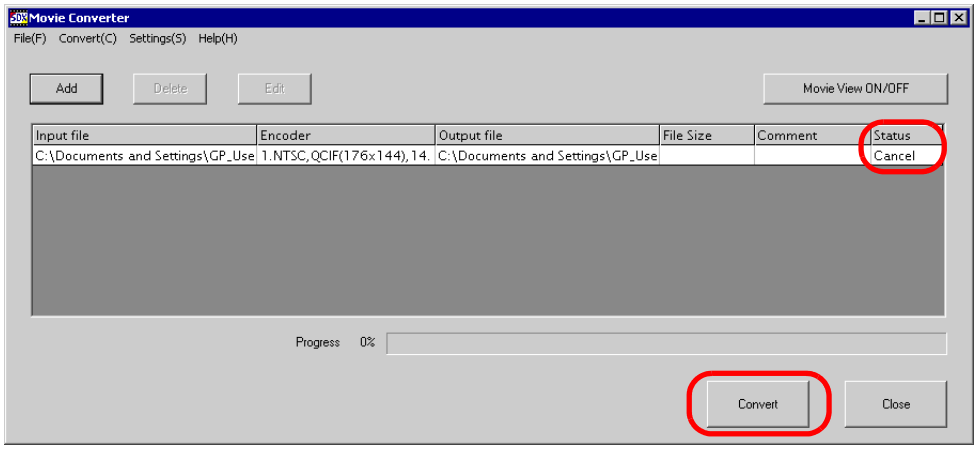
7 Specify [Save in] and [File name] for the file to be converted, and click [Save].



8 Select the conversion encoding in [...] in [Encoder], and click [OK].

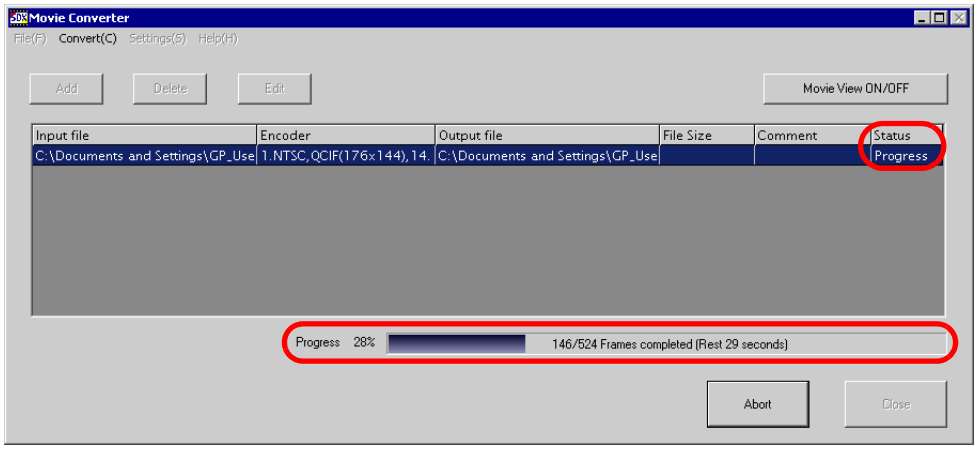


9 A list is displayed containing the specified files. The state of the current file can be checked in [Status].
Clicking [Convert] starts the conversion.



NOTE
- If multiple conversion settings are specified, all the conversions displayed in the list are performed in order.

10 During conversion, [Status] for the file list is displayed as [Progress] and the state of the conversion is displayed in [Progress].

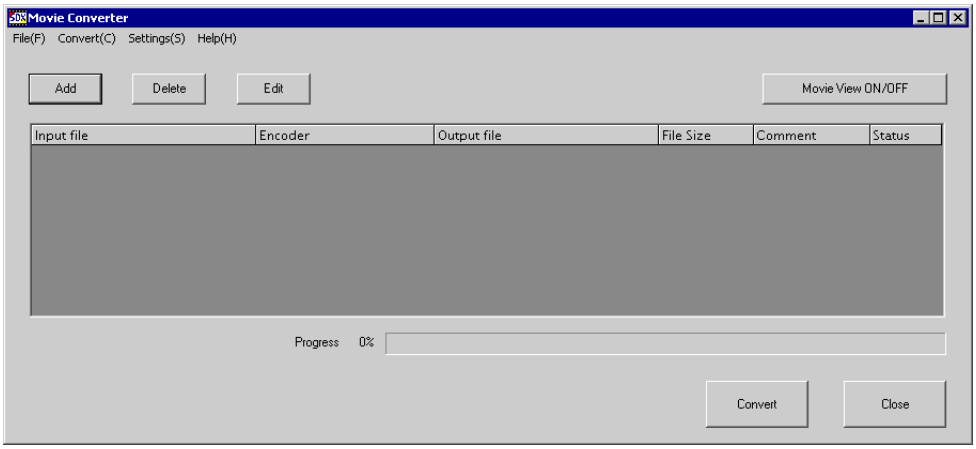


NOTE
- Clicking [Stop] will stop the conversion.

11 After the conversion finishes normally, the following message is displayed. Click [OK].

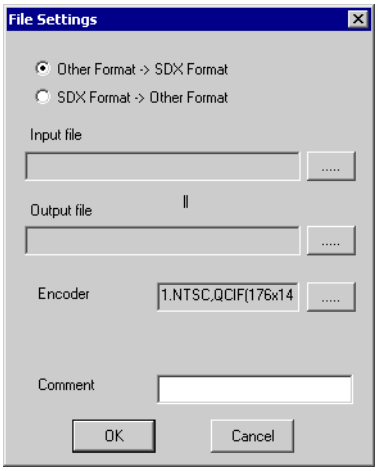
■ Movie Converter Setting Guide

"Movie Converter" is a tool for converting movie files on a PC to a GP-specific movie file format (SDX) and for converting a GP-specific movie file to a format playable on a PC. To start Movie Converter, from the [Start] menu, select [Programs] - [Pro-face] - [Movie Converter].



Setting	Description
Add	In the opened [File Settings] dialog box, you can register a list of movie files for conversion.
Delete	Deletes the selected file from the file conversion list.
Edit	Changes the settings for the file selected from the file conversion list.
Movie View ON/OFF	Displays/hides the Image Conversion In Progress window.

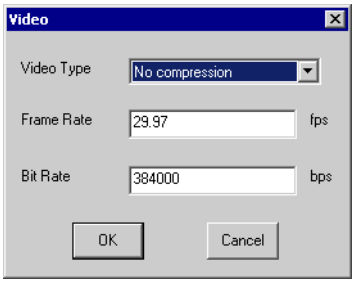
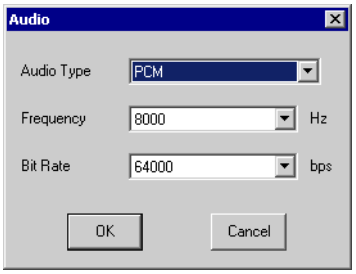
File Settings



Setting		Description
Converting Other Formats → SDX Format		Converts formats other than SDX to SDX format. **NOTE** • Any movie can be selected for conversion regardless of the movie format. • After conversion, the original file extension will be changed to SDX as the default.
	Input File	Click [...] to select a movie file for conversion.
	Output File	Click [...] to specify the location for saving the converted file and to specify the file name.
	Encoder	The following settings can be selected.

Input Image Signal	Record Size	Number of Frames	Bit Rate
NTSC	QCIF (176 x 144)	14.99 fps	64 kbps
NTSC	QCIF (176 x 144)	14.99 fps	128 kbps
NTSC	QVGA (320 x 240)	14.99 fps	256 kbps
NTSC	QVGA (320 x 240)	14.99 fps	384 kbps
PAL	QCIF (176 x 144)	12.50 fps	64 kbps
PAL	QCIF (176 x 144)	12.50 fps	128 kbps
PAL	QVGA (320 x 240)	12.50 fps	256 kbps
PAL	QVGA (320 x 240)	12.50 fps	384 kbps

Continued

Setting		Description
Converting SDX Format → Other Formats		Converts the SDX format to a format other than SDX.
	Input File	Click [...] to select a movie file for conversion.
	Output File	Click [...] to specify the location for saving the converted file and to specify the file name.
	Video	Displays the [Image Settings] dialog box.  • Video Type The selections vary depending on the codec installed on the PC running Movie Converter. • Frame Rate The settings will vary depending on the codec installed on the PC running Movie Converter.
	Audio	Displays the [Sound Format Settings] dialog box.  • Audio Type The selections vary depending on the codec installed on the PC running Movie Converter. • Frequency, Bit Rate The settings will vary depending on the codec installed on the PC running Movie Converter.
Comment		Input arbitrary comments. The comments are used to distinguish between movie files on GP-Pro EX

■ Error Messages

◆ List of errors that might occur after conversion (Other format → SDX format)

Error	Actions to Take
Memory acquisition failed.	Secure free memory.
DirectX initialization failed.	Confirm that the input file is correct. Confirm that the requirements for the operating environment are satisfied.
Resize initialization failed.	An error occurred in the codec. Confirm that the codec is installed. Alternatively, use a different codec.
MPEG4 encoder initialization failed.	
SDX file initialization failed.	
DirectX data acquisition failed.	
Resize failed.	
MPEG4 encoding failed.	
MPEG4 encoder deletion failed.	
SDX file frame data writing failed.	
SDX file close processing (writing) failed.	
Downsampling failed.	

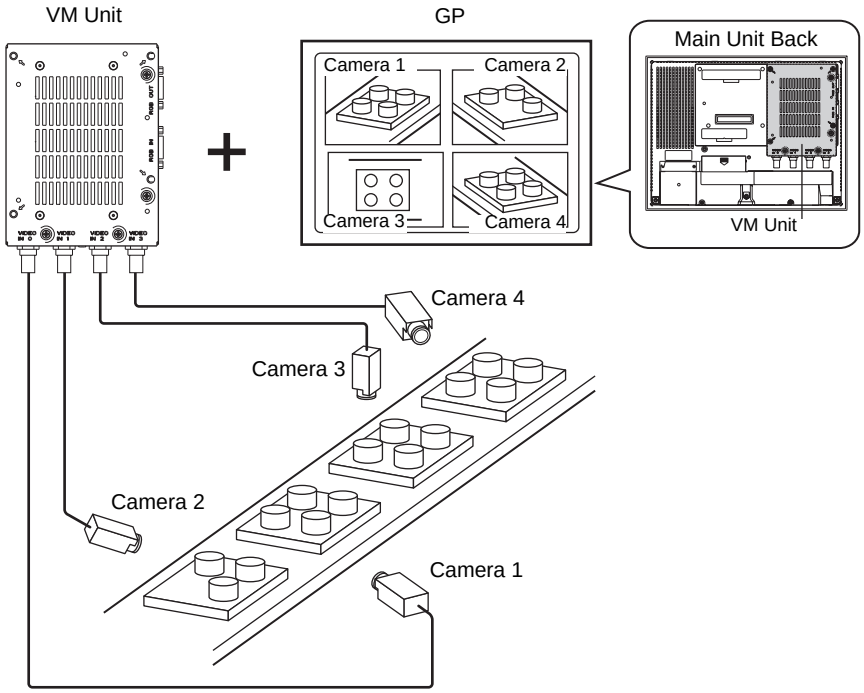
◆ List of errors that might occur after conversion (SDX format → other format)

Error	Actions to Take
Memory acquisition failed.	Secure free memory.
SDX file initialization failed.	Confirm that the input file is correct. Confirm that the requirements for the operating environment are satisfied.
MPEG4 decoder initialization failed.	An error occurred in the codec. Confirm that the codec parameters are specified correctly. Alternatively, use a different codec.
DirectX initialization failed.	
MPEG4 decoding failed.	
DirectX image data writing failed.	
DirectX audio data writing failed.	
DirectX close processing failed.	
Downsampling failed.	

27.6 Displaying Pictures from Multiple Video Cameras Simultaneously

27.6.1 Details

Install the Video Module option on the GP-3500T/3550T/3600T/3650T to display pictures on the GP screen from 1 to 4 video cameras connected to the Video Module.
It is useful for cross checking images from multiple points and pictures taken from various angles.



NOTE

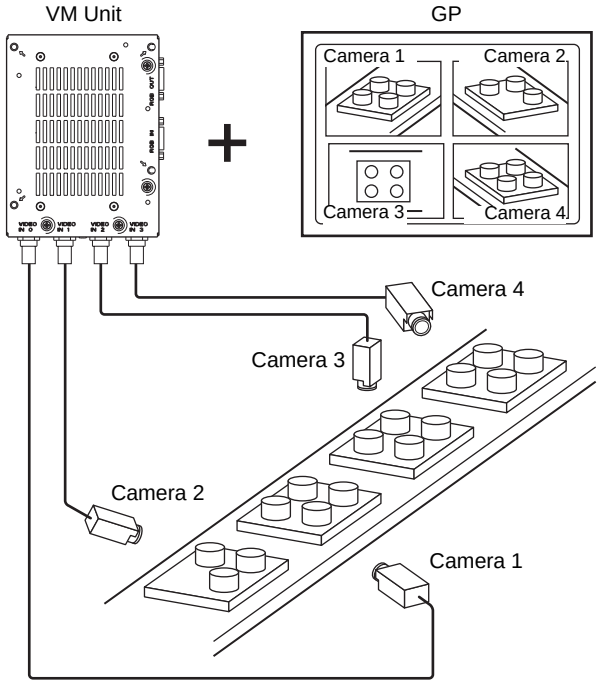
- For the Video Module specifications and installation method, please refer to the "VM Unit User's Manual."
- You can display the PC screen on one of the 4 split screens.
  ☞ "27.7 Displaying PC Screen" (page 27-58)
- You can capture video as still images and save the images in JPEG format.
  ☞ "27.8 Saving the Displayed Pictures as Still Images" (page 27-64)

27.6.2 Setup Guide

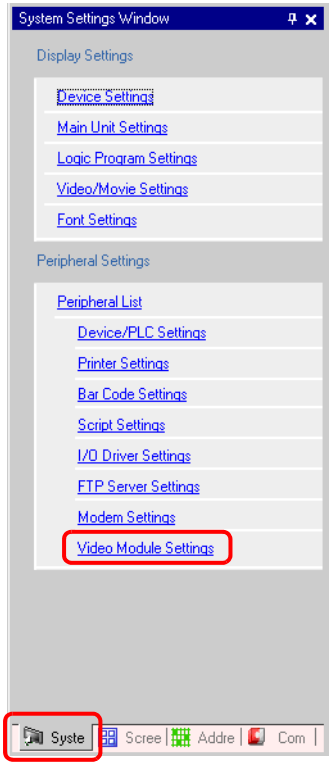
NOTE

- Please refer to the settings guide for details.
  - “27.9.5 Setup guide of common settings [Video Module Settings]” (page 27-113)
  - “27.9.6 Setup guide of [Video Module Settings]” (page 27-120)
  - “27.9.7 Setup Guide for the Video Module Display” (page 27-130)
- For a detailed description of the methods for parts placement and for specifying the address, shape, color, and label, refer to the “Procedures for Editing Parts”.
  - “9.6.1 Editing Parts” (page 9-37)

With the Video Module installed, pictures taken from 4 angles are displayed on the GP screen in real time.



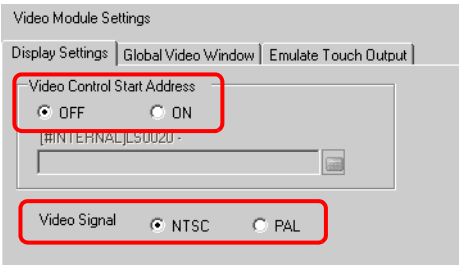
1 In the [System Settings Window], select [Video Module Settings].



NOTE

- If the [System Settings Window] tab is not displayed in the workspace, on the [View (V)] menu, point to [Work Space (W)] and then click [System Settings Window (S)].

2 Set [Video Control Start Address] to [OFF] and [Video Signal] to [NTSC]. (To use PAL for the video signal, select [PAL].)

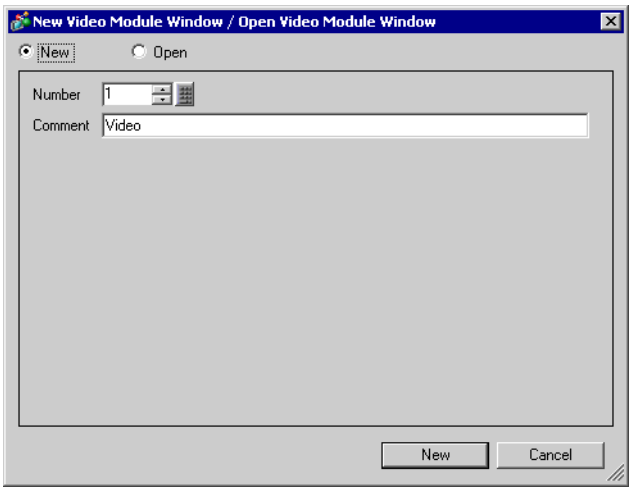


NOTE

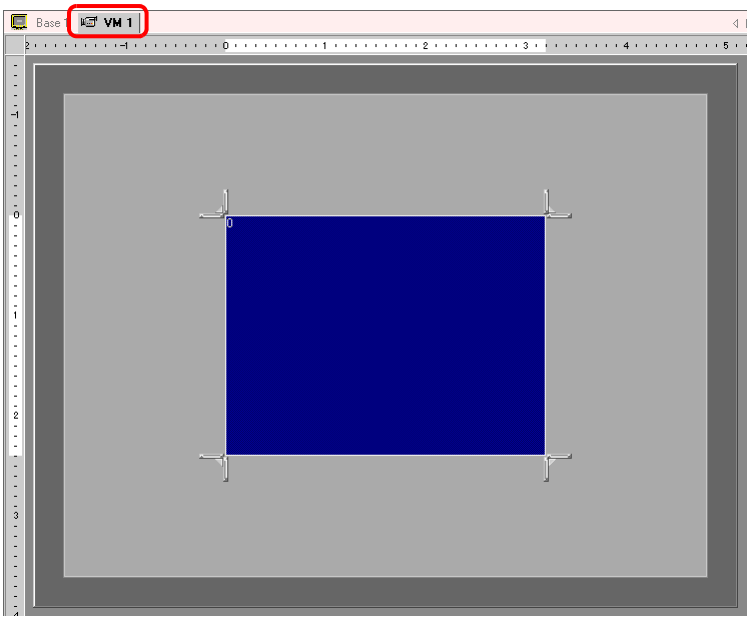
- If [ON] is selected under [Video Control Start Address], 42 words from the setup address are automatically used to control the video display. For the items that can be controlled with addresses, refer to the following section.

☞ " ◆ Video Control Area" (page 27-121)

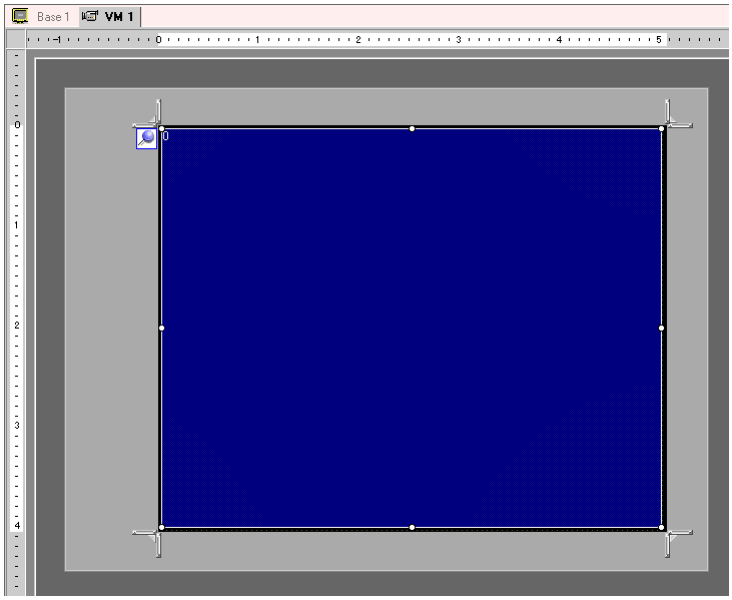
3 On the [Common Settings (R)] menu, select [Video Module (V)] or click to open the following dialog box. Select [New] and then specify [Number] and [Comment]. (e.g.: Number “1”, Comment “Video”)



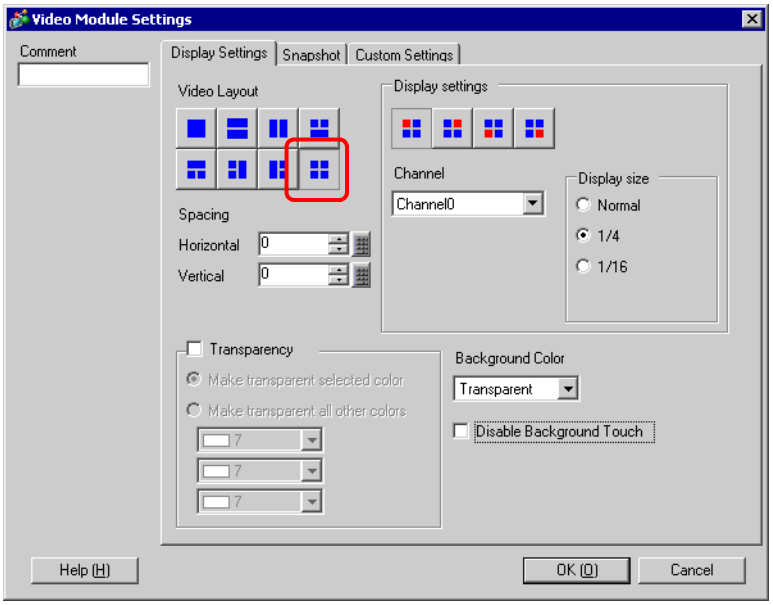
4 The video screen [VM1] will be displayed.



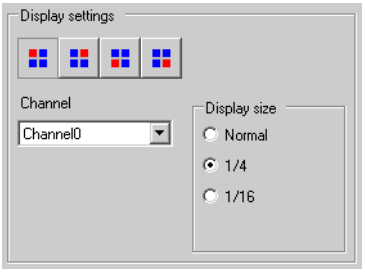
5 Adjust the size of the Video Module window.
To make the Video Module window larger, drag the marks on the corners to expand the window, and then adjust the display area (the blue part) to the size of the window. To make the window smaller, first make the display area smaller and then adjust the size of the window accordingly.



6 Double-click the display area (the blue part) to open the following dialog box. Select [Video Layout] .



7 In the [Display Settings] area, click  and, under [Channel], select the camera image to be displayed in this upper left area (e.g.: Channel 0).
Also select the size of the image (e.g.: 1/4).

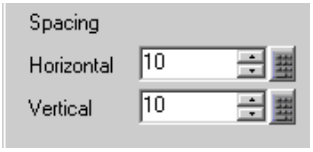


Similarly, select the channels and display sizes for the images displayed in the upper right, lower left, and lower right areas.

NOTE

- If the selected [Display Size] is larger than the size of the GP screen or the display area (the blue part), the image in the excess area is not displayed. You can use [Video Display position] on the [Custom Settings] tab to specify which part of the input image to be displayed. If you want to display the entire image, set the [Display Size] smaller than the size of the display area (the blue part).

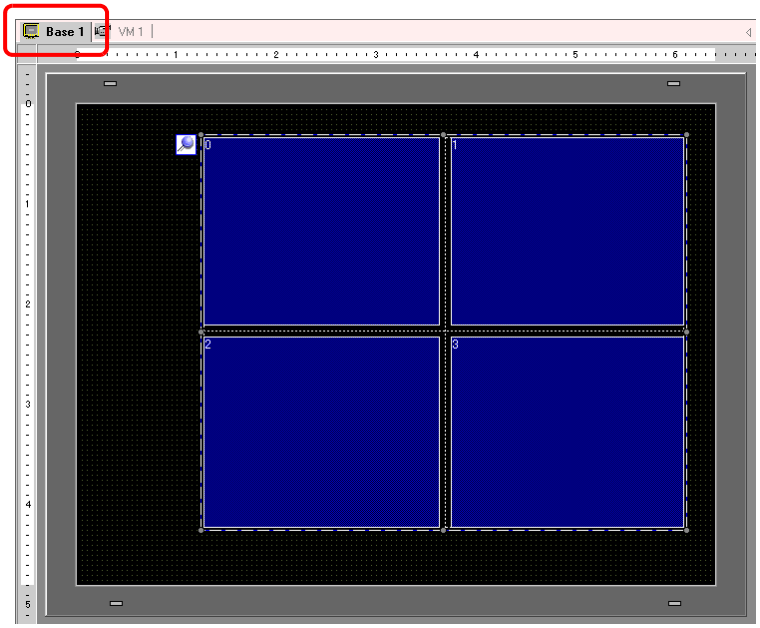
8 Specify the values for the space between the screens. (e.g.: horizontal 10, vertical 10)
Click [OK] to finish and exit the Video Module window settings.



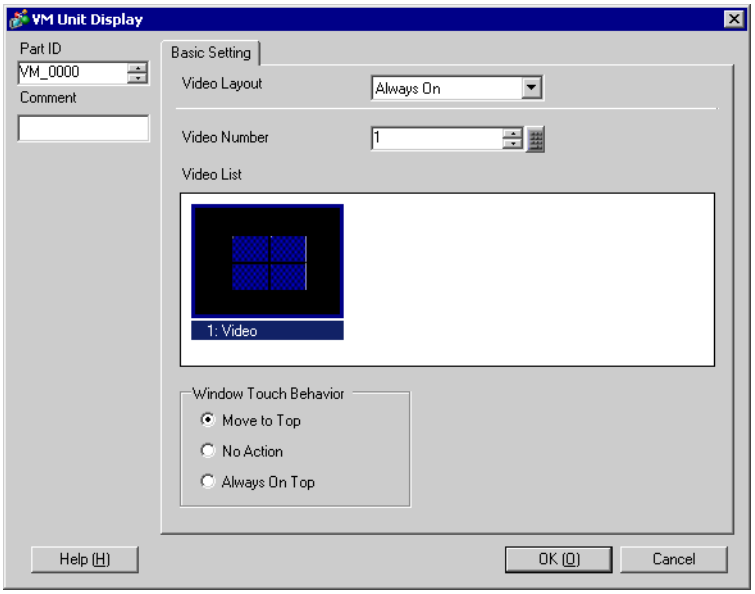
NOTE

- Drag the boundary lines between the screens to adjust the size.

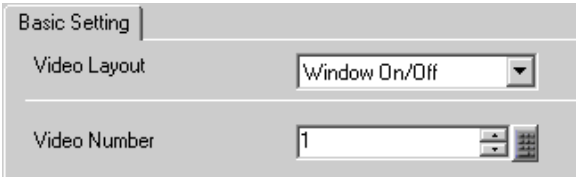
9 Click the [Base 1] tab to display the base screen.
On the [Part (P)] menu, select [Video Module Display (V)] or click to place Video Module displayon the screen.



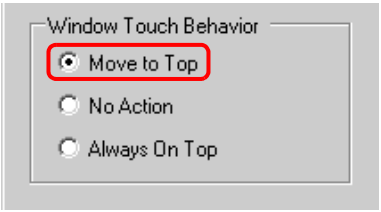
10 Double-clicking on the Video Module display opens following dialog box.



11 In the [Video Layout] list , click [Window On/Off], and select the video screen number (e.g.: 1) in the [Video Number] box.



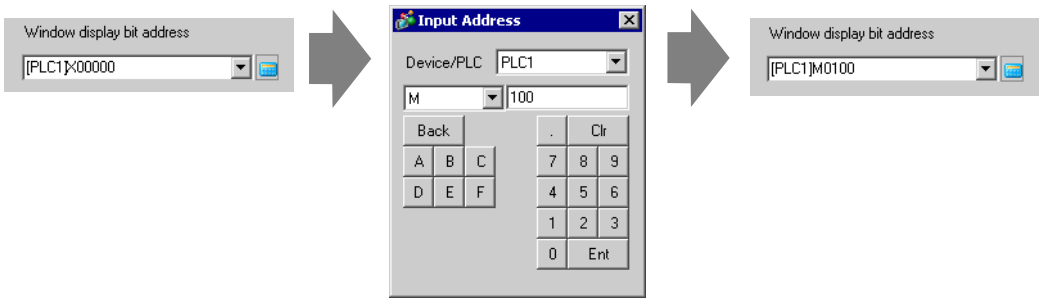
12 Under [Window Touch Behavior], select [Move to Top].



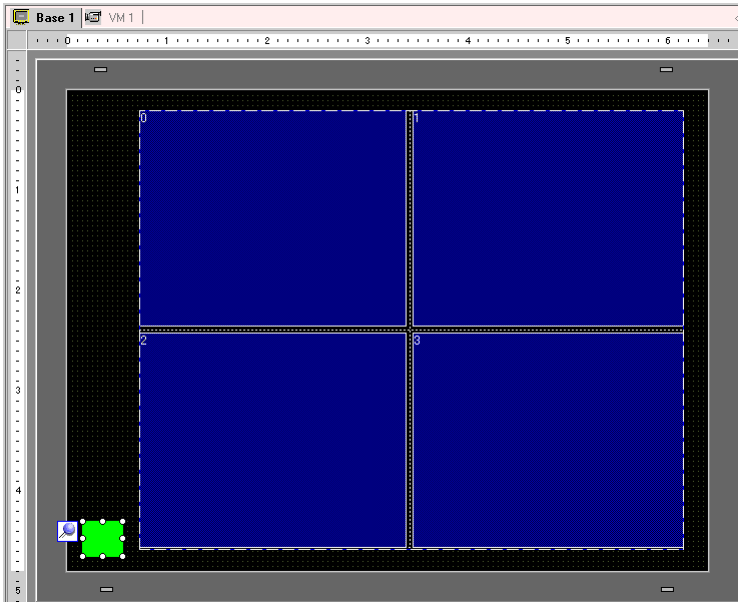
13 In the [Window Display Bit Address] list, select the bit address (e.g.: M100) for controlling the window display and click [OK].

Click the icon to display an address input keypad.

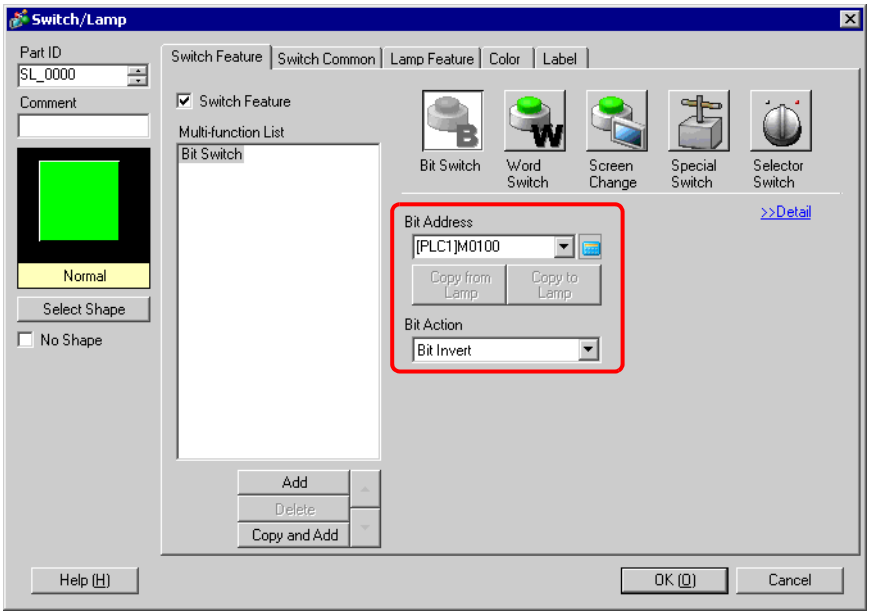
Enter “M” and “100”.



14 Place an ON/OFF switch on the screen to control the Video Module display.
On the [Part (P)] menu, point to [Switch Lamp (C)] and click [Bit Switch (B)], or click to place the switch on the screen.



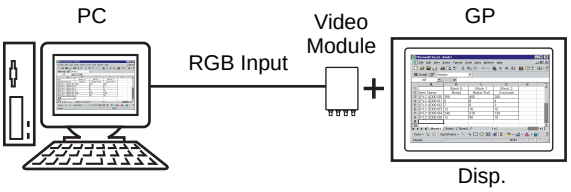
15 Double-clicking the switch opens the following dialog box.
In the [Bit Address] list, select the (M100) address for controlling the screen and select [Bit Invert] in the [Bit Action] list.



27.7 Displaying PC Screen

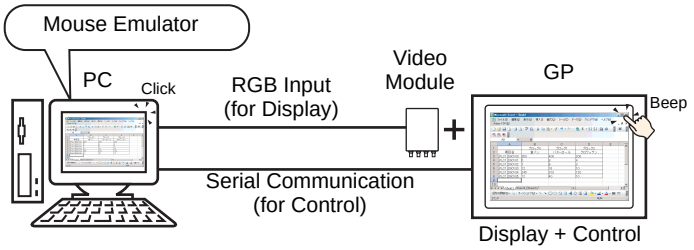
27.7.1 Details

Install the Video Module option on the GP-3500T/3550T/3600T/3650T to display a PC screen on the GP through an RGB connection with the PC. You can use the GP as a PC monitor.



NOTE

- For the Video Module specifications and installation method, please refer to the "VM Unit User's Manual."
- Install a touch-panel driver on your PC to output GP touch coordinates through serial communication. You can control the PC's pointer on the GP.

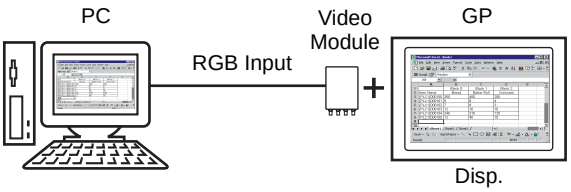


27.7.2 Setup Guide

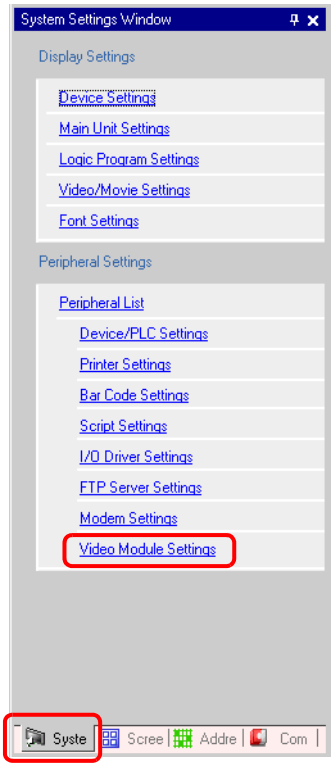
NOTE

- Please refer to the settings guide for details.
  - ☞ "27.9.5 Setup guide of common settings [Video Module Settings]" (page 27-113)
  - ☞ "27.9.6 Setup guide of [Video Module Settings]" (page 27-120)
  - ☞ "27.9.7 Setup Guide for the Video Module Display" (page 27-130)
- For details about placing parts or setting addresses, shapes, colors, and labels, please refer to "Parts Editing".
  - ☞ "9.6.1 Editing Parts" (page 9-37)

The PC screen is displayed on the screen of the GP with the installed Video Module.



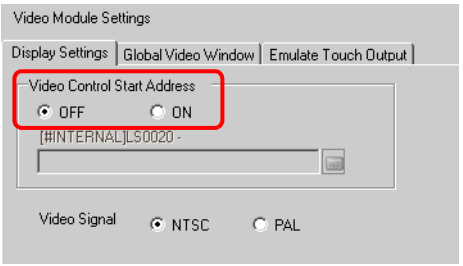
1 In the [System Settings Window], select [Video Module Settings].



NOTE

- If the [System Settings Window] tab is not displayed in the workspace, on the [View (V)] menu, point to [Work Space (W)] and then click [System Settings Window (S)].

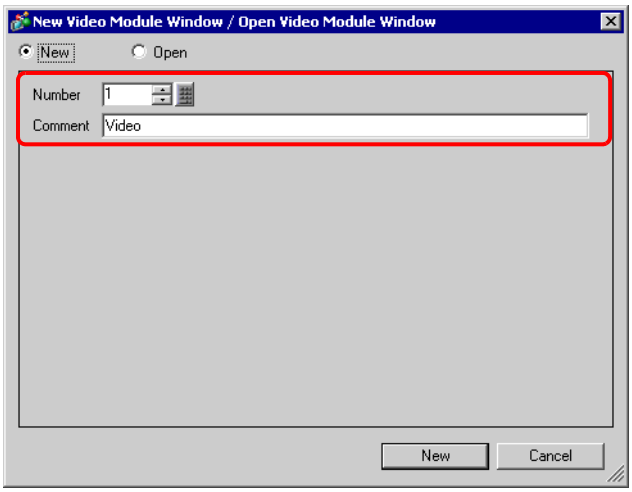
2 Under [Video Control Start Address], select [OFF].



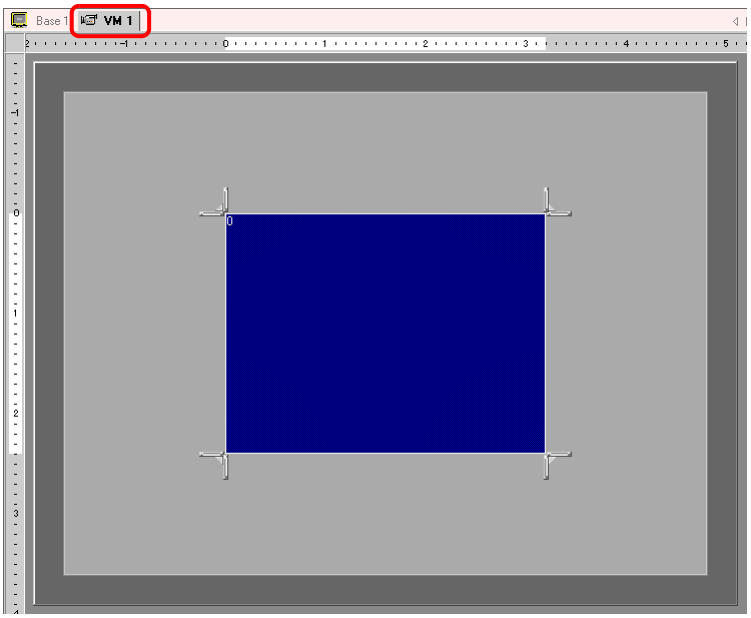
NOTE

- If [ON] is selected under [Video Control Start Address], 42 words from the setup address are automatically used to control the video display. For the items that can be controlled with addresses, refer to the following section.
  ☞ " ◆ Video Control Area" (page 27-121)
- To display only PC screens on GP using RGB input, you can select either [NTSC] or [PAL] for [Video Signal]. This setting does not affect the display.

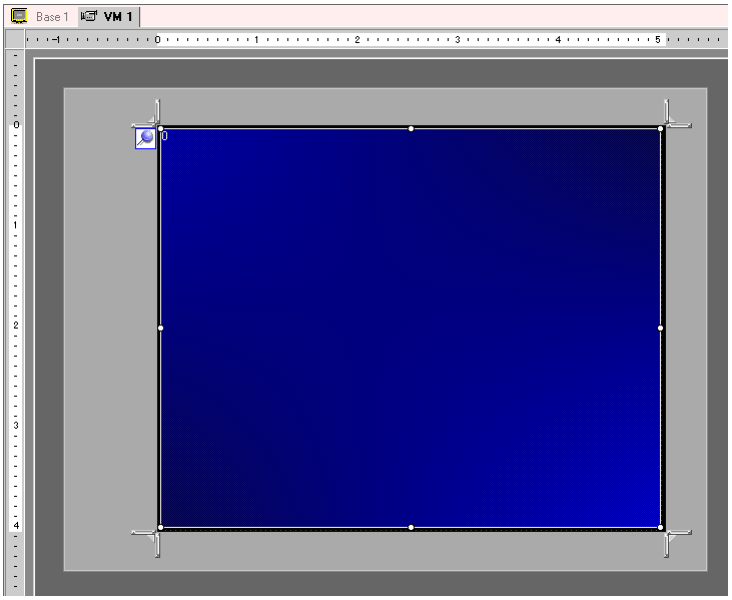
3 On the [Common Settings (R)] menu, select [Video Module (U)], or click  to open the following dialog box .
Select [New], and then specify [Number] and [Comment]. (e.g.: Number "1", Comment "Video")



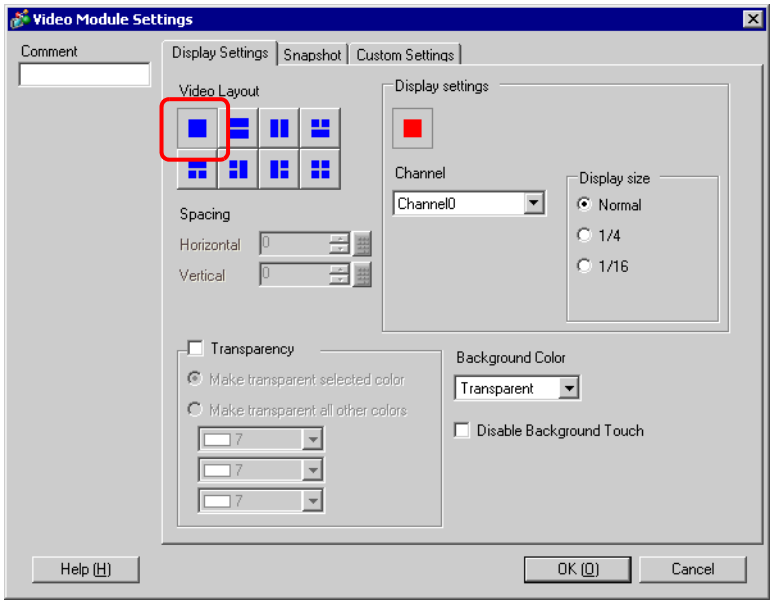
4 The video screen [VM1] will be displayed.



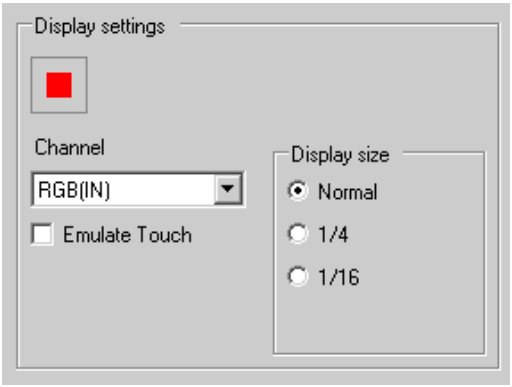
5 Adjust the size of the Video Module window.
To make the Video Module window larger, drag the marks on the corners to expand the window, and then adjust the display area (the blue part) to the size of the window. To make the window smaller, first make the display area smaller and then adjust the size of the window accordingly.



6 Double-clicking the display area (the blue part) opens the following dialog box. Under [Video Layout], click .



7 In the [Channel] list, select [RGB (IN)], and then under [Display Size] select [Normal].

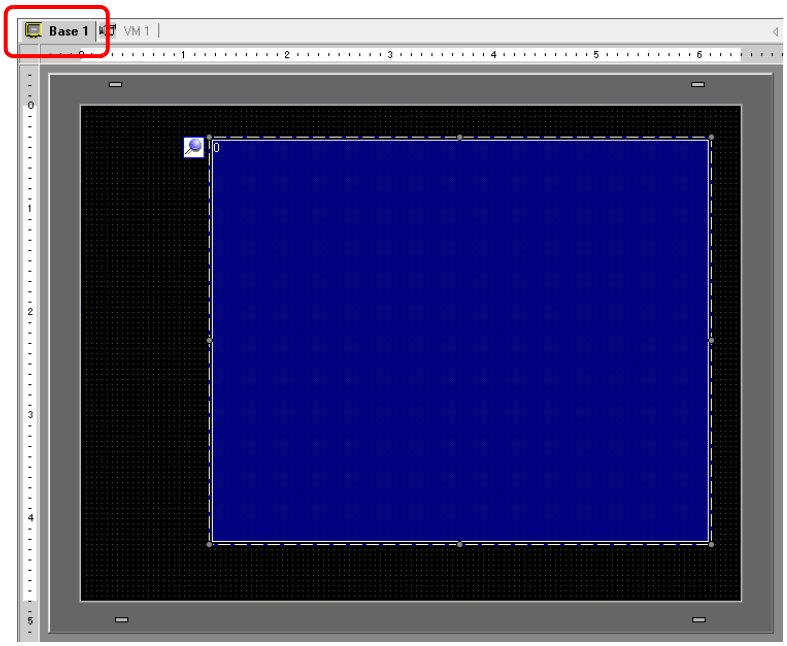


NOTE

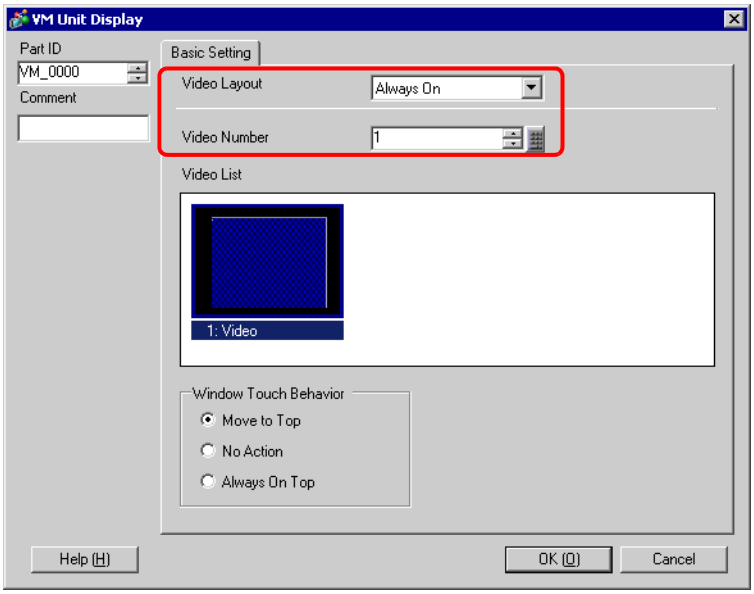
- If the selected [Display Size] is larger than the size of the GP screen or the display area (the blue part), the image in the excess area is not displayed. You can use [Video Display position] on the [Custom Settings] tab to specify which part of the input image to be displayed. If you want to display the entire image, set the [Display Size] smaller than the size of the display area (the blue part).

8 Click [OK] to finish and exit the Video Module window settings.

9 Click [Base 1] to switch to the base screen.
On the [Part (P)] menu, select [Video Module Display (V)], or click  to place the Video Module display on the screen.



10 Double-clicking Video Module display opens the following dialog box.
In the [Video Layout] list, select [Always ON], and specify the video screen number (e.g.: 1) in the [Video Number] box.

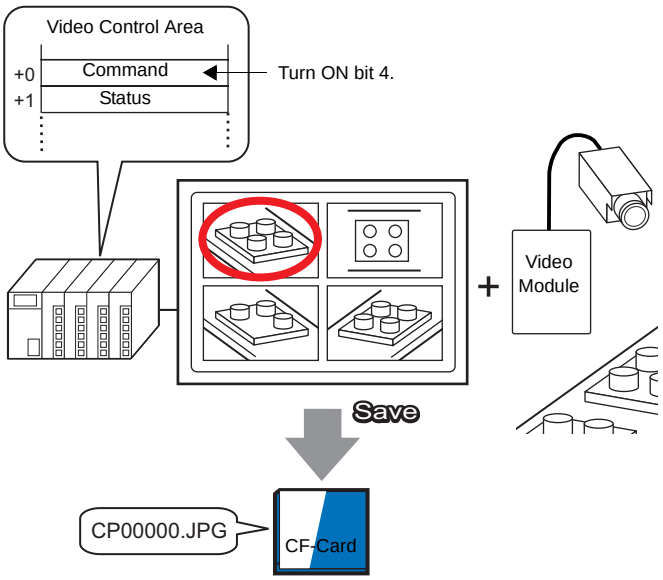


Click [OK] to complete the settings.

27.8 Saving the Displayed Pictures as Still Images

27.8.1 Details

Install the Video Module option on the GP-3500T/3550T/3600T/3650T to capture video from channel 1 and save it on a CF-Card in JPEG format.



NOTE

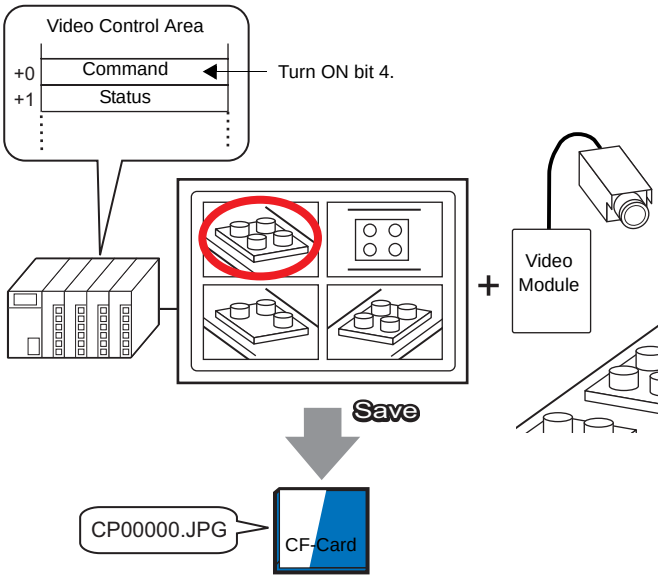
- For Video Module specifications and installation method, please refer to the "VM Unit User Manual".

27.8.2 Setup Guide

NOTE

- Please refer to the settings guide for details.
  - “27.9.6 Setup guide of [Video Module Settings]” (page 27-120)
  - “27.9.5 Setup guide of common settings [Video Module Settings]” (page 27-113)
  - “27.9.7 Setup Guide for the Video Module Display” (page 27-130)
- For details about placing parts or setting addresses, shapes, colors, and labels, please refer to “Parts Editing”.
  - “9.6.1 Editing Parts” (page 9-37)

Turn ON the screen capture address on the PLC side to save the specified image from channel 1 as a still image on a CF-Card in JPEG format.

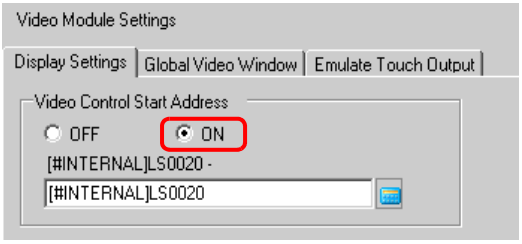


1 In the [System Settings Window], select [Video Module Settings].

NOTE

- If the [System Settings Window] tab is not displayed in the workspace, on the [View (V)] menu, point to [Work Space (W)] and then click [System Settings Window (S)].

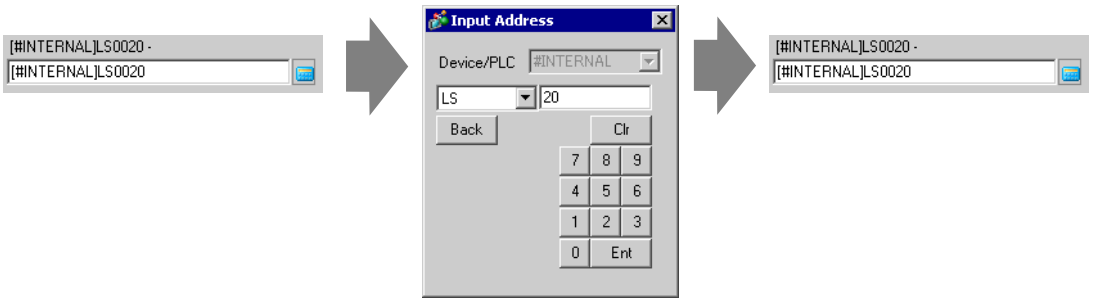
2 Under [Video Control Start Address], select [ON]. Forty-two words from the setup address are automatically used to control the video display.



3 Specify the video control start address (e.g.: LS20).

Click the icon to display an address input keypad.

Enter “LS” and “20”.

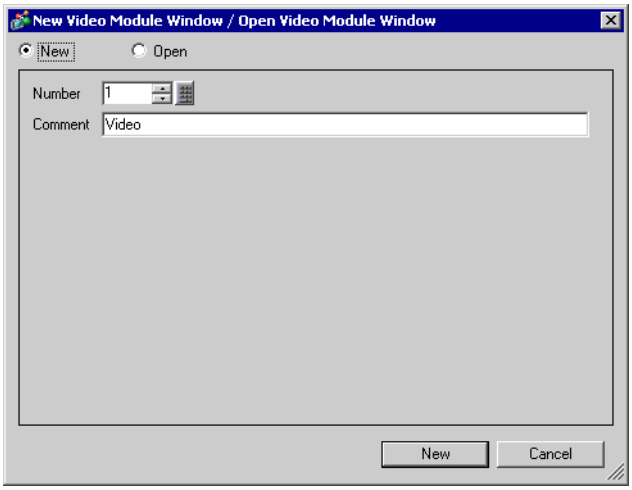


NOTE

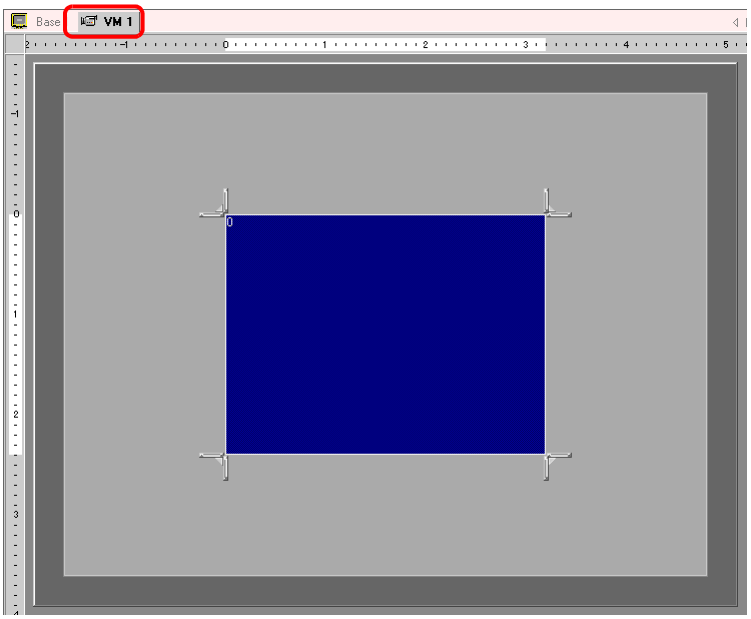
- The settings for the [Video Control Start Address] range from LS20-LS1989 and LS2096-LS8957. If values outside this range are specified, none of the VM functions will operate.

4 Select [NTSC] for [Video Signal]. (To use PAL for the video signal, select [PAL].)

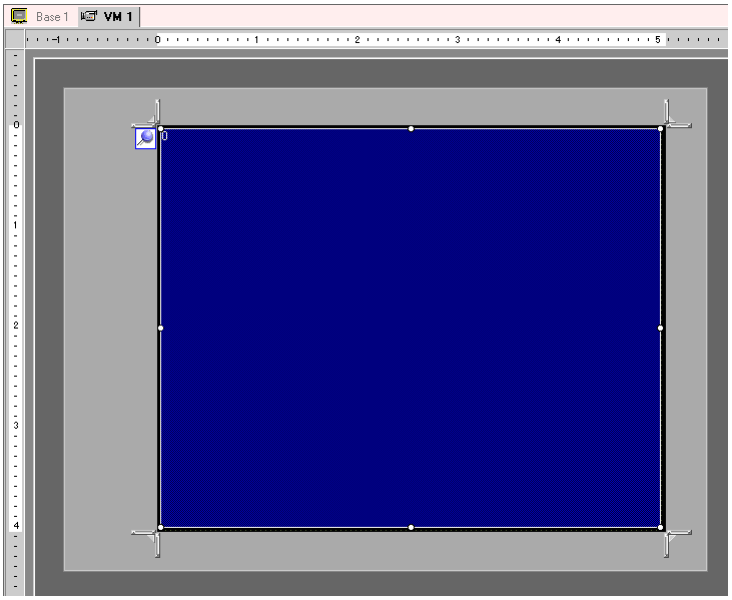
5 On the [Common Settings (R)] menu, select [Video Module (V)] or click to open the following dialog box. Select [New] and then specify [Number] and [Comment]. (e.g.: Number “1”, Comment “Video”)



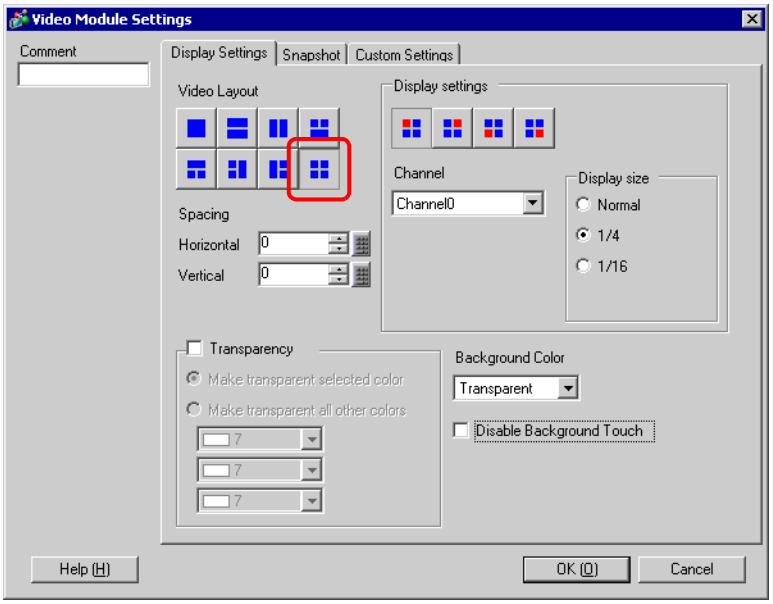
6 The video screen [VM1] will be displayed.



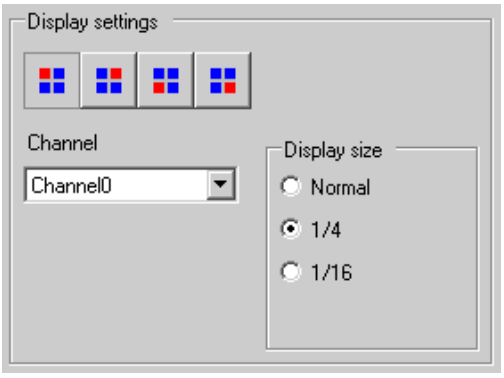
7 Adjust the size of the Video Module window.
To make the Video Module window larger, drag the marks on the corners to expand the window, and then adjust the display area (the blue part) to the size of the window. To make the window smaller, first make the display area smaller and then adjust the size of the window accordingly.



8 Double-click the display area (the blue part) to open the following dialog box. Select [Video Layout] .



9 In the [Display Settings] area, click and, under [Channel], select the camera image to be displayed in this upper left area (e.g.: Channel 0).
Also select the size of the image (e.g.: 1/4).

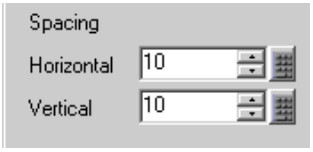


Similarly, select the channels and display sizes for the images displayed in the upper right, lower left, and lower right areas.

NOTE

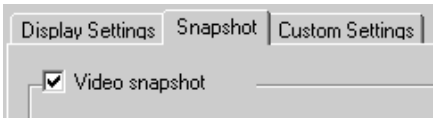
- If the selected [Display Size] is larger than the size of the GP screen or the display area (the blue part), the image in the excess area is not displayed. You can use [Video Display position] on the [Custom Settings] tab to specify which part of the input image to be displayed. If you want to display the entire image, set the [Display Size] smaller than the size of the display area (the blue part).

10 Specify the values for the space between the screens. (e.g.: horizontal 10, vertical 10) Click [OK] to finish and exit the Video Module window settings.

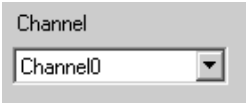


NOTE • Drag the boundary lines between the screens to adjust the size.

11 Next, open the [Snapshot] tab, and select the [Video snapshot] check box.

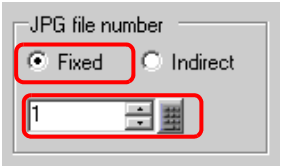


12 In the [Channel] list, select [Channel 0].



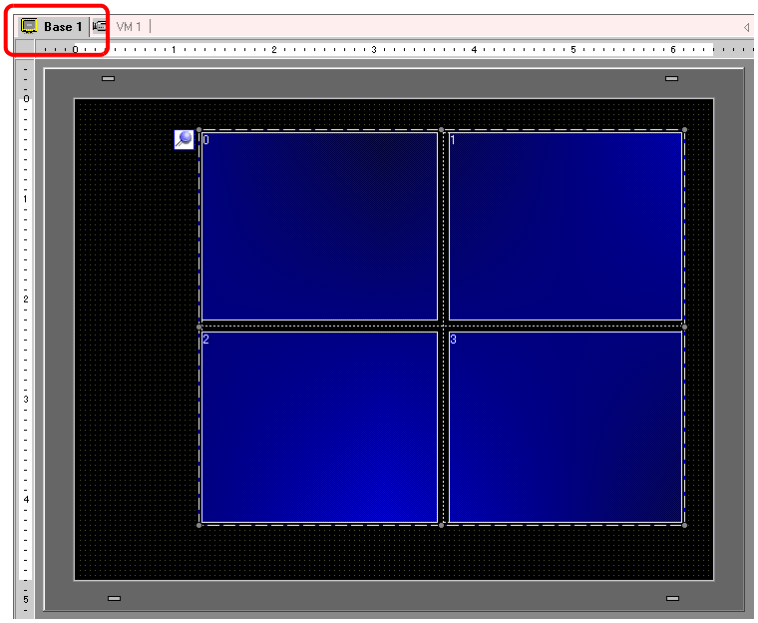
NOTE • You can use screen capture for one channel only, and only for video images.

13 Under [JPG file number], select [Fixed], and specify the JPEG file number for the file that you are creating.

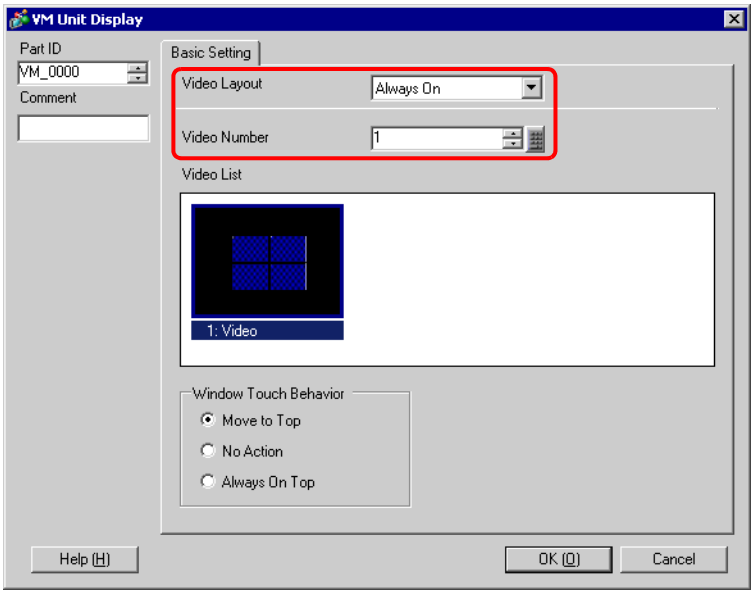


14 Click [OK] to exit Video Module window settings.

15 Open the base screen, and select [Video Module Display (V)] on the [Part (P)] menu, or click  to place Video Module display on the screen.



16 Double-clicking the Video Module display opens the following dialog box.
In the [Video Layout] list, select [Always ON] and in the [Video Number] list, specify the video display number (e.g.: 1) and click [OK].



◆ Operating Procedure

1 Turn ON bit 4 of [Video Control Start Address] specified in step 3 of the setup procedure (LS20).

2 The video image of Channel 0 is captured and saved in the “CAPTURE” folder on the CF-Card with the file name “CP00001.JPG”.

27.9 Settings Guide

27.9.1 [Video/Movie Settings] Settings Guide

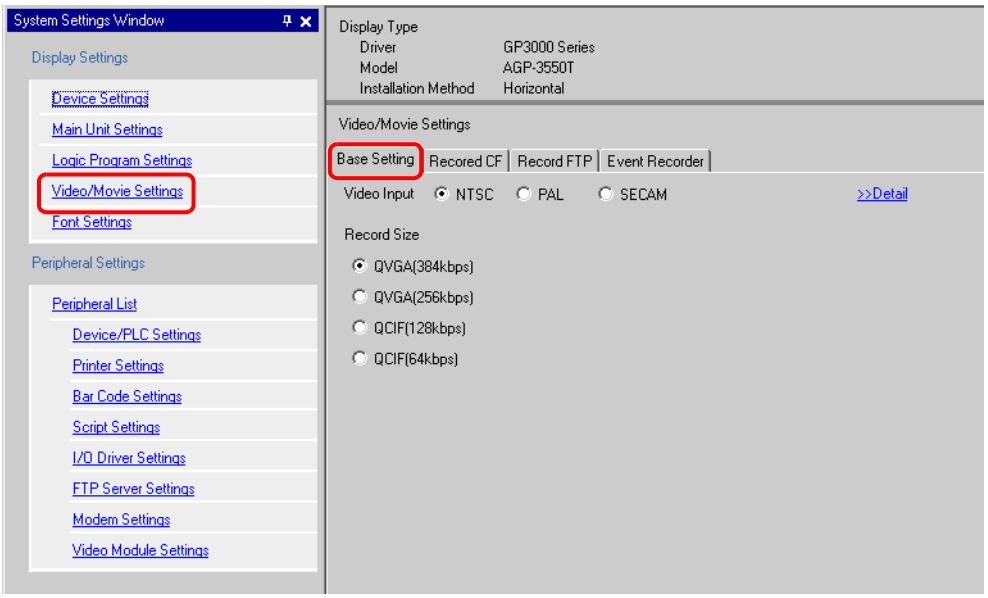
Configures the settings for video image display and movie recording.

NOTE

- To check whether this function is available for your model, please refer to the below.

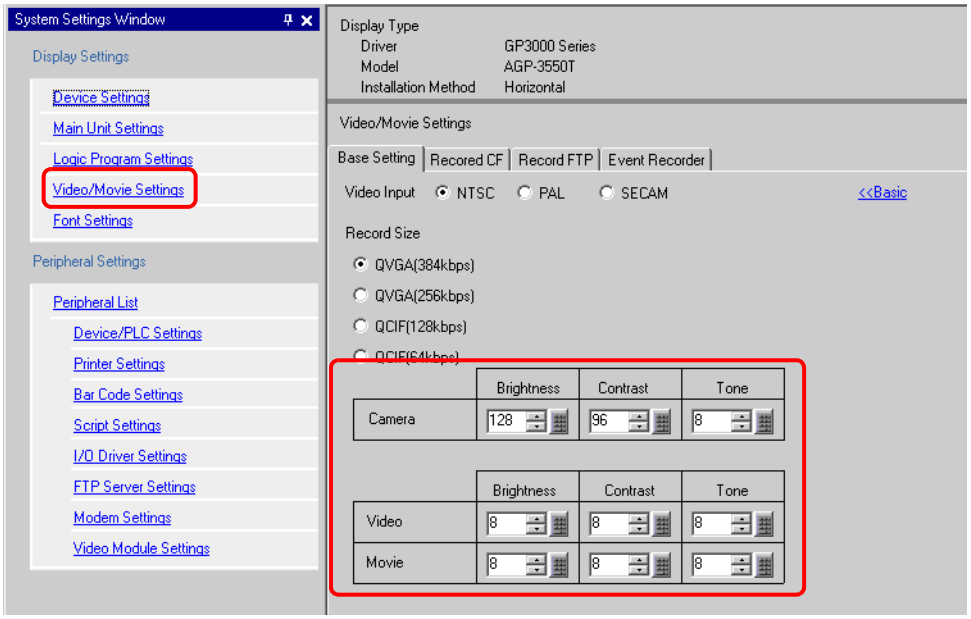
☞ "1.3 List of Supported Functions by Device" (page 1-4)

■ Basic Settings/Basic



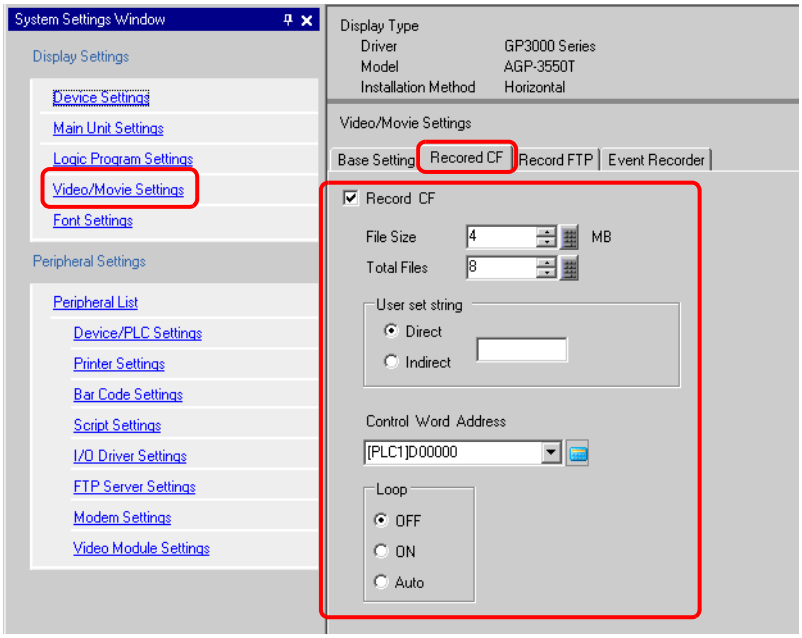
Setting	Description
Video Input	Select the image input signal. • NTSC: 640 x 480 dots • PAL: 768 x 576 dots • SECAM: 768 x 576 dots
Record Size	Select the record size. • QVGA (384kbps): 320 x 240 dots • QVGA (256kbps): 320 x 240 dots • QCIF (128kbps): 176 x 144 dots • QCIF (64kbps): 176 x 144 dots

■ Base Setting/Detail



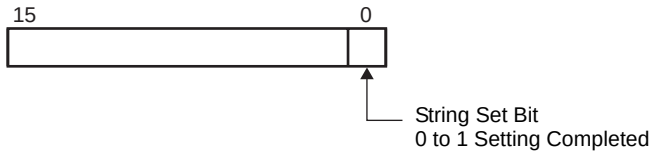
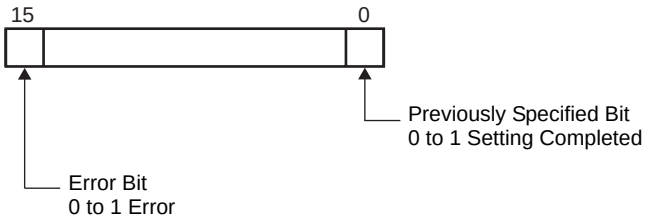
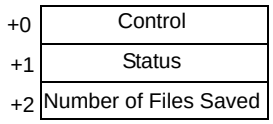
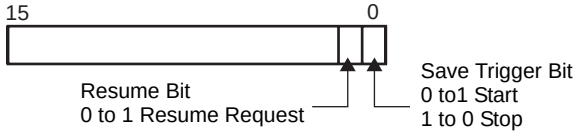
Setting		Description
Camera		Set the image quality for a video camera connected to GP.
	Brightness	Set the brightness. The settings range from 0-255.
	Contrast	Set the contrast. The settings range from 0-255.
	Tone	Set the color tone. The settings range from 0-255.
Video		Set the image quality for the real-time display on the GP.
	Brightness	Set the brightness. The settings range from 0-15.
	Contrast	Set the contrast. The settings range from 0-15.
	Tone	Set the color tone. The settings range from 0-15.
Movie		Set the video quality for playing a movie on the GP.
	Brightness	Set the brightness. The settings range from 0-15.
	Contrast	Set the contrast. The settings range from 0-15.
	Tone	Set the color tone. The settings range from 0-15.

■ Record CF

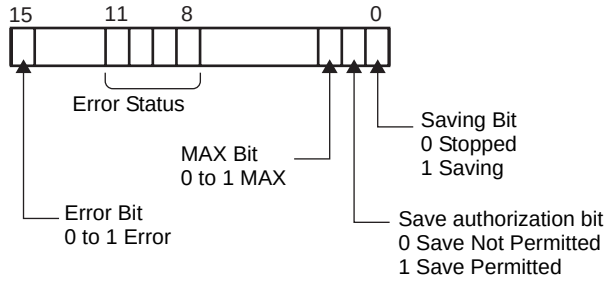


Setting	Description
Record CF	Select whether to record from a video camera and save on a CF-Card.
File Size	Specify the size per video file to be saved. The settings range from 1-512 MB. Video input that exceeds the specified file size is saved automatically to the next file. The file name is created based on the time stamp (year, month, day, hour, minute, second) when the file size was exceeded.
Total Files	Specify the number of videos files to save in a folder. The settings range from 1-100.
User set string	Specify the character string to be included in the folder and file names for the saved video files. Specify the string with up to 2 single-byte alphanumeric letters or numbers. **NOTE** • The file name is saved under the user set string (2 characters max.) + time stamp. (e.g.: A file saved under the user set string “MC” on 2006 (year) 05 (month) 27 (day) at 15 (hour) 23 (minute) 46 (second) will be named “MC060527_152346.SDX”) • If the user does not specify a string, the folder name will be “NONAME” and only the time stamp (year, month, day, hour, minute, second when the file was saved) will appear in the file name.
Direct	Specify the string by entering it here.
Indirect	Specify the address used for saving the file and for specifying the strings as user set strings. You can change any file name on the connection device. Use a sequence of 3 words from the specified address. +0 Control +1 User set string +2 Status

Continued

Setting		Description
User Set String	Indirect	• Control Turn ON bit 0 to save the codes in the following address as “user set string”.  • User Set String Save the string codes. The procedure for saving text codes differs depending on the connection devices. • Status Turning ON bit 0 in the [Control] address also turns ON bit 0 in the [Status] address. Specifying user set strings while saving to the CF-Card is in progress will result in an error and bit 15 will turn ON.  **NOTE** • Bit 0 and bit 15 of the [Status] address are automatically turned OFF when bit 0 of the [Control] address is turned OFF. • If a 32-bit device is specified, only the lower 16 bits are used.
	Control Word Address	Specify the address for controlling saving operations. Use a sequence of 3 words from the specified address.  • Control Turn ON bit 0 to start recording (and saving on CF-Card). Turn OFF the bit to stop recording. ☞ “ ◆ Timing Chart for Saving on CF” (page 27-77) 

Continued

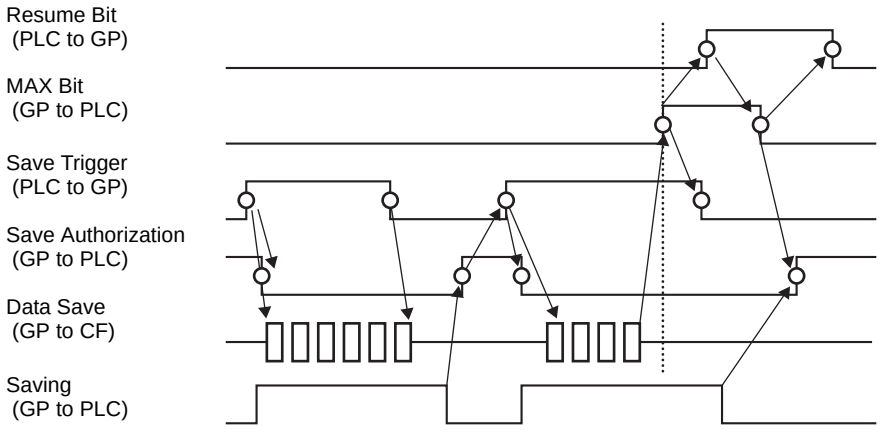
<table>
<tr><th>Setting</th><th>Description</th></tr>
<tr><td>Control Word Address</td><td>
• Status
The CF save status and error status are saved.


Save authorization bits are automatically turned ON when the GP power is turned on.
The error status indicates the following conditions.
< Error Code >
<table>
<tr><td>0</td><td>Completed Successfully</td><td>-</td></tr>
<tr><td>1 to 3</td><td>Reserved</td><td>-</td></tr>
<tr><td>4</td><td>No CF-Card</td><td>The CF-Card is not inserted in the GP, or the CF-Card cover is not closed.</td></tr>
<tr><td>5</td><td>CF Write Error</td><td>Writing to the CF-Card failed or there is not enough free space.</td></tr>
<tr><td>6</td><td>Reserved</td><td>-</td></tr>
<tr><td>7</td><td>CF-Card Error</td><td>CF-Card is invalid or the media inserted is not a CF-Card.</td></tr>
<tr><td>8 to 13</td><td>Reserved</td><td>-</td></tr>
<tr><td>14</td><td>Playing</td><td>Saving to CF was initiated while movie play was in progress.</td></tr>
<tr><td>15</td><td>Reserved</td><td>-</td></tr>
</table>
• Number of Files Saved
If a file is successfully saved, the address is automatically incremented. You can see how many files have been saved up to that point. Files currently being saved are not counted. The number of files are updated when;
• The power is turned on
• A CF-Card is inserted
• [Indirect] is selected when setting the [User Set String], or the folder name is changed.
Only movie files (.SDX) are counted.
IMPORTANT
• Do not save files in a folder that do not have the same [User Set String], file name, and number of strings as the folder name, otherwise, the files will be included in the file count number.
NOTE
• If a 32-bit device is specified, only the lower 16 bits are used.
</td></tr>
</table>

Continued

Setting		Description
Loop		Set the operation to be initiated after the movie files have been saved as specified in [Total Files].
	Disable	After all the specified files have been saved (the MAX bit is turned ON), no more files can be saved. To resume saving, delete movie files or specify files saved in another folder and turn ON the resume bit. The MAX bit turns OFF automatically.
	Enable	After all the specified files have been saved (the MAX bit is turned ON), no more files can be saved. When the resume bit is turned ON, the oldest file is deleted and a new file is saved.
	Auto	Once all the specified files have been saved (the MAX bit is turned ON), the files are automatically deleted starting with the oldest file, and new files are saved.

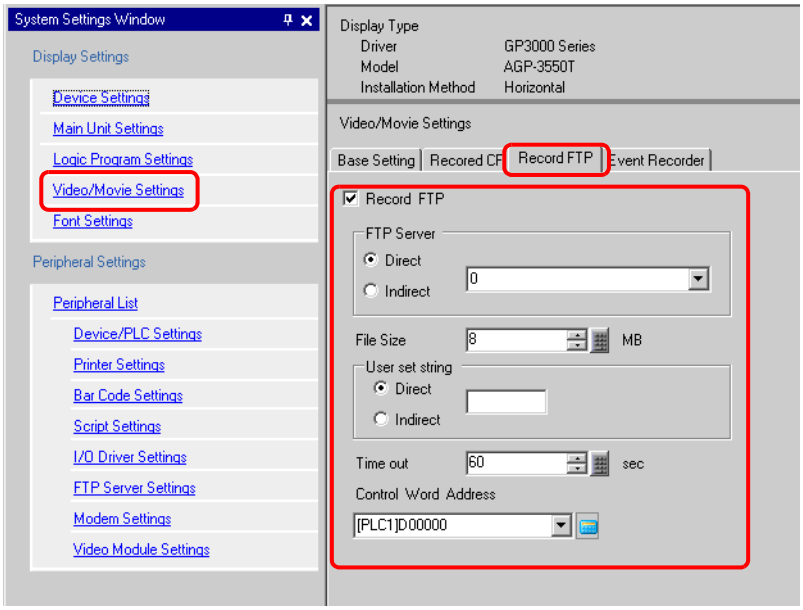
◆ Timing Chart for Saving on CF



NOTE

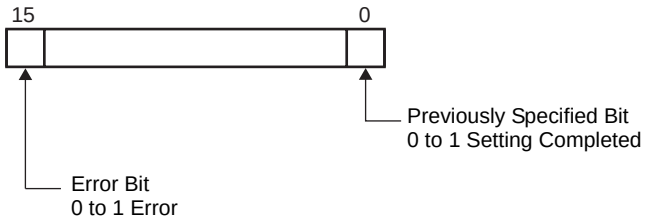
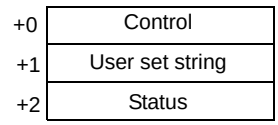
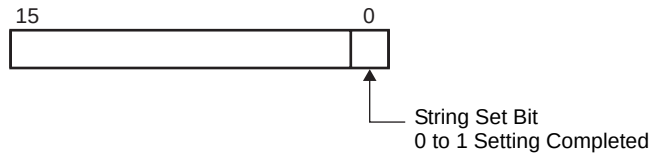
- Bit 1 (resume bit) of the [Control] address does not automatically turn OFF. Confirm that bit 2 (MAX bit) of the [Status] address is tuned OFF and then turn OFF the resume bit.

■ Record FTP

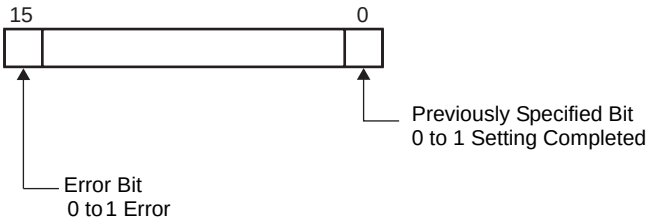
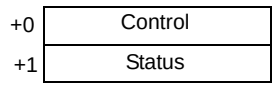
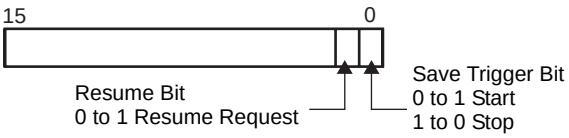


Setting	Description
Record FTP	Set whether to record from a video camera and save on an FTP server.
FTP Server	Specify the FTP server for saving the movie files. Use the FTP server number registered in [FTP Server Settings] in the system setting window.
Direct	Select the FTP server number from 0-31.
Indirect	Specify the address for saving, and specify the connection number for the server on which the files will be saved. You can change the FTP server for saving files on the connection device. A sequence of three words are used, starting from the specified address. +0 Control +1 server connection No. +2 Status • Control Turn ON bit 0 to specify the numbers saved in the following address as the FTP server connection. 15 0 Server Connection No. Set Bit 0 to 1 Start • Server Connection No. Save the server connection No. before turning ON bit 0 of the [Control] address.

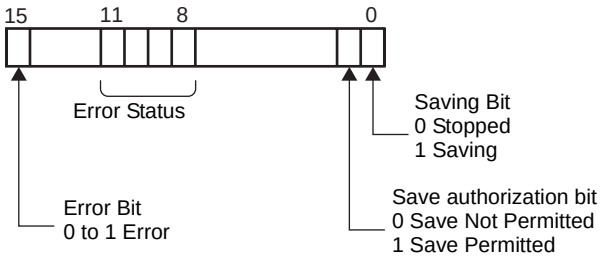
Continued

Setting		Description
FTP Server	Indirect	• Status Turning ON bit 0 in the [Control] address also turns ON bit 0 in the [Status] address. Specifying the server connection No. while saving is in progress results in an error and bit 15 turns ON.  **NOTE** • Bit 0 and bit 15 of the [Status] address are automatically turned OFF when bit 0 of the [Control] address is turned OFF. • If a 32-bit device is specified, only the lower 16 bits are used.
File Size		Specify the size per movie file to be saved. The settings range from 1-2048 MB. Video input that exceeds the specified file size is saved automatically to the next file. The file name is created based on the time stamp (year, month, day, hour, minute, second) when the file size was exceeded.
User set string		Specify the string to be included in the movie file name. Specify the string with up to 2 single-byte alphanumeric letters or numbers. **NOTE** • The file name is saved under the user set string (2 strings max.) + time stamp. (e.g.: A file saved under the set string “MC” on 2006 (year) 05 (month) 27 (day) at 15 (hour) 23 (minute) 46 (second) will be named “MC060527_152346.SDX”)
	Direct	Directly input the settings.
	Indirect	Specify the address used for saving the file and for specifying the strings as user set strings. You can change any file name on the connection device. Use a sequence of 3 words from the specified address.  • Control Turn ON bit 0 to save the codes in the following address as “user set string”.  • User Set String Save the string codes. The procedure for saving text codes differs depending on the connection devices.

Continued

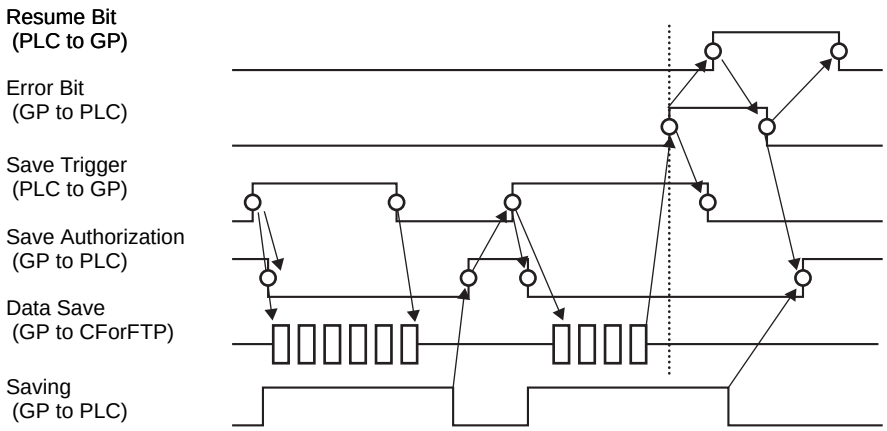
Setting		Description
User Set String	Indirect	• Status Turning ON bit 0 in the [Control] address also turns ON bit 0 in the [Status] address. Specifying user set strings while saving is in progress results in an error and bit 15 turns ON.  **NOTE** • Bit 0 and bit 15 of the [Status] address are automatically turned OFF when bit 0 of the [Control] address is turned OFF. • If a 32-bit device is specified, only the lower 16 bits are used.
Time out		Specify the queuing time for when the FTP server does not respond to an access request. The settings range from 10-120 seconds.
Control Word Address		Specify the control address for saving operations. Use a sequence of 2 words from the specified address.  • Control Turn ON bit 0 to start recording (start saving to FTP). Turn OFF the bit to stop recording. ☞ " ◆ Timing Chart for Saving to FTP" (page 27-81) 

Continued

<table>
<tr><th>Setting</th><th>Description</th></tr>
<tr><td>Control Word Address</td><td>
• Status
The FTP save status and error status are saved.


Save authorization bits are automatically turned ON when the GP power is turned on.
The error status indicates the following conditions.
< Error Code >
<table>
<tr><td>0</td><td>Completed Successfully</td><td>-</td></tr>
<tr><td>1-8</td><td>Reserved</td><td>-</td></tr>
<tr><td>9</td><td>FTP Connection Error</td><td>The FTP server is not operating normally, or the FTP server does not exist.</td></tr>
<tr><td>10</td><td>FTP Login Error</td><td>The FTP user name or password is not correct.</td></tr>
<tr><td>11</td><td>Write Error</td><td>The logged in user does not have write privileges, or writing to the FTP server has failed, or there is not enough free space.</td></tr>
<tr><td>12 to 13</td><td>Reserved</td><td>-</td></tr>
<tr><td>14</td><td>Client functions are operating</td><td>Saving to FTP server was initiated while movie play was in progress.</td></tr>
<tr><td>15</td><td>Reserved</td><td>-</td></tr>
</table>
NOTE
• If a 32-bit device is specified, only the lower 16 bits are used.
</td></tr>
</table>

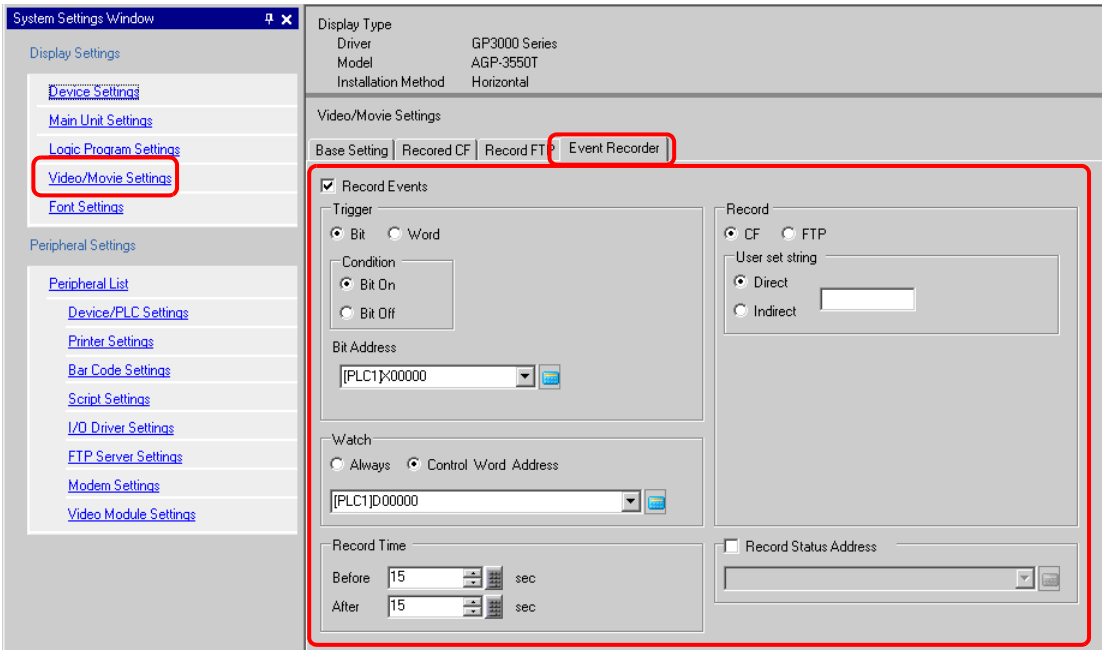
◆ Timing Chart for Saving to FTP



NOTE

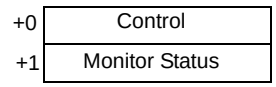
• If file saving to the FTP server fails, the GP turns ON bit 15 of the [Status] address (save error bit) and no files can be saved. Once the FTP server resumes file saving, the GP turns ON bit 1 (resume bit) of the [Control] address. The GP turns OFF the error bit and begins saving files.

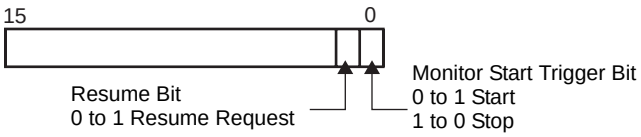
■ Event Recorder

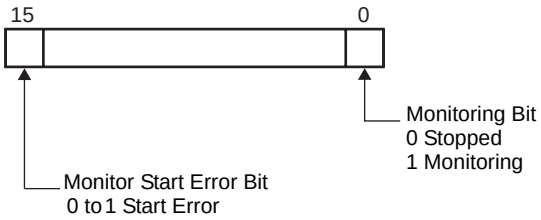


Setting			Description
Record Events			Specify whether to use the “event recorder” function for recording pictures before and after a specific event if the specified conditions are met.
Trigger			Specify the operational conditions for the event recorder function.
	Bit		Control saving with the specified bit address.
		Condition: Bit ON	Start saving with the bit ON.
		Condition: Bit OFF	Start saving with the bit OFF.
		Bit Address	Specify the control bit address for saving.
	Word		Control saving with the specified word address. **NOTE** • Only 16 bits, no sign, and BIN can be used.

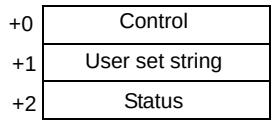
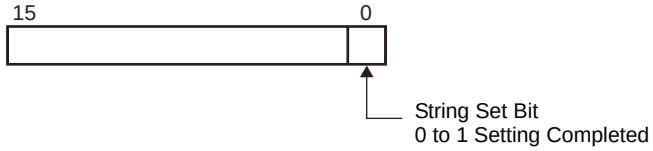
Continued

<table>
<tr><th colspan="4">Setting</th><th>Description</th></tr>
<tr><td rowspan="5">Trigger</td><td rowspan="5">Word</td><td rowspan="4">Condition</td><td>Equals</td><td>Saving starts when the value in the settings matches the value on the PLC.
• Number: Specify the value in the settings.</td></tr>
<tr><td>Different</td><td>Saving starts when the value in the settings differs from the value on the PLC.
• Number: Specify the value in the settings.</td></tr>
<tr><td>Inside Range</td><td>Saving starts when the value in the settings falls in the range of values on the PLC. The specified values are included in the range.
• Minimum: Set the minimum value from 0-65534.
• Maximum: Set the maximum value from 1-65535.</td></tr>
<tr><td>Out of range</td><td>Saving starts when the setting value is out of the PLC value range. The setup values are included.
• Minimum: Set the minimum value from 0-65534.
• Maximum: Set the maximum value from 1-65535.</td></tr>
<tr><td colspan="2">Word Address</td><td>Specify the word address for controlling saving operations.</td></tr>
<tr><td colspan="3">Watch</td><td>Set the monitoring conditions.</td></tr>
<tr><td colspan="2">Always</td><td>The monitoring event recorder is always ON, and the movie player is unavailable.</td></tr>
<tr><td colspan="2">Control Word Address</td><td>Specify the control address for monitoring operations. Use a sequence of 2 words from the specified address.
Trigger save is available only when monitoring.
 

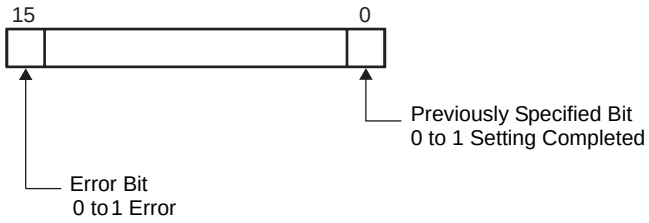
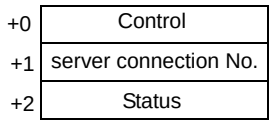
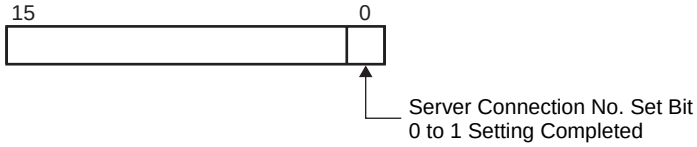
• Control
Turn ON bit 0 to start monitoring. Turn OFF the bit to stop monitoring.
☞ “ ◆ Event Recorder Timing Chart” (page 27-88)
 

• Monitor Status
The CF save status and error status are saved.
 
</td></tr>
</table>

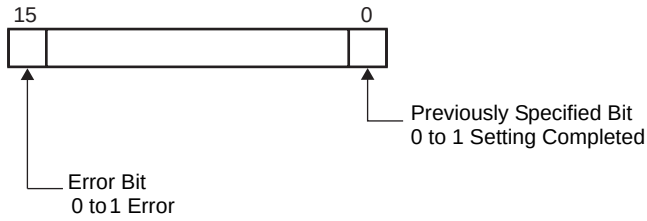
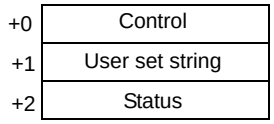
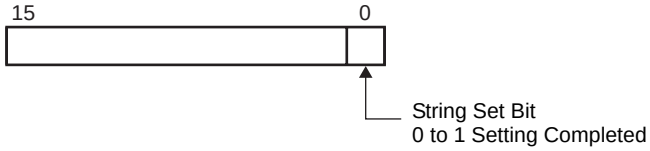
Continued

Setting	Description
Record Time	Specify the time for the record. The settings range from 1-60 seconds. • Before: Specify the recording time before the trigger. • After: Specify the recording time after the trigger. **NOTE** • The recording time is a total of the time set above.
Record	Set where to save a movie file.
CF	Save the file on CF-Card.
User set string	Specify the character string to be included in the folder and file names for the saved video files. Specify 2 single-byte alphabetic letters or numbers. **NOTE** • In "\MOVIE," a folder named with the specified string is created to save the file. • The file name is saved under the user set string (2 characters) + time stamp. (e.g.: A file saved under the user set string "MC" on 2006 (year) 05 (month) 27 (day) at 15 (hour) 23 (minute) 46 (second) will be named "MC060527_152346.SDX") • When there is no string set, the folder name is "\MOVIE\NONAME" and only the time stamp (year, month, day, hour, minute, and second when the file is saved on) is used for the file name.
Direct	Specify the string by entering it here.
Indirect	Specify the address used for saving the file and for specifying the strings as user set strings. You can change any file name on the connection device. Use a sequence of 3 words from the specified address.  • Control Turn ON bit 0 to save the codes in the following address as "user set string".  • User Set String Save the string codes. The procedure for saving text codes differs depending on the connection devices.

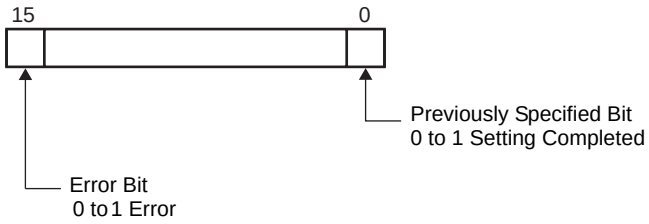
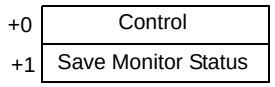
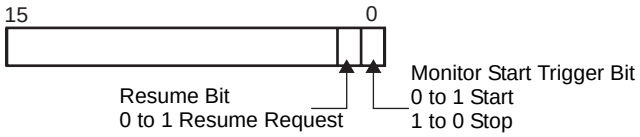
Continued

Setting				Description
Record	CF	User Set String	Indirect	• Status Turning ON bit 0 in the [Control] address also turns ON bit 0 in the [Status] address. Specifying user set strings while saving to the CF-Card is in progress will result in an error and bit 15 will turn ON.  **NOTE** • Bit 0 and bit 15 of the [Status] address are automatically turned OFF when bit 0 of the [Control] address is turned OFF. • If a 32-bit device is specified, only the lower 16 bits are used.
	FTP			Save to the FTP server.
		FTP Server	Direct	Select the FTP server number from 0-31.
			Indirect	Specify the address for saving, and specify the connection number for the server on which the files will be saved. You can change the FTP server for saving files on the connection device. A sequence of three words are used, starting from the specified address.  • Control Turn ON bit 0 to specify the numbers saved in the following address as the FTP server connection.  • Server Connection No. Save the server connection No. before turning ON bit 0 of the [Control] address.

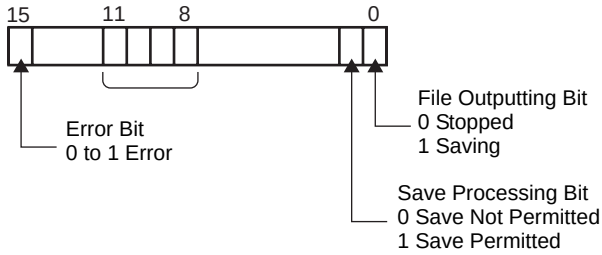
Continued

Setting				Description
Record	FTP	FTP Server	Indirect	• Status Turning ON bit 0 in the [Control] address also turns ON bit 0 in the [Status] address. Specifying the server connection No. while saving is in progress results in an error and bit 15 turns ON.  **NOTE** • Bit 0 and bit 15 of the [Status] address are automatically turned OFF when bit 0 of the [Control] address is turned OFF. • If a 32-bit device is specified, only the lower 16 bits are used.
		User set string		Specify the string to be included in the movie file name. Specify the string with up to 2 single-byte alphanumeric letters or numbers. **NOTE** • The file name is saved under the user set string (2 strings max.) + time stamp. (e.g.: A file saved under the set string “MC” on 2006 (year) 05 (month) 27 (day) at 15 (hour) 23 (minute) 46 (second) will be named “MC060527_152346.SDX”)
			Direct	Directly input the settings.
			Indirect	Specify the address used for saving the file and for specifying the strings as user set strings. You can change any file name on the connection device. Use a sequence of 3 words from the specified address.  • Control Turn ON bit 0 to save the codes in the following address as “user set string”.  • User Set String Save the string codes. The procedure for saving text codes differs depending on the connection devices.

Continued

Setting				Description
Record	FTP	User Set String	Indirect	• Status Turning ON bit 0 in the [Control] address also turns ON bit 0 in the [Status] address. Specifying user set strings while saving is in progress results in an error and bit 15 turns ON.  **NOTE** • Bit 0 and bit 15 of the [Status] address are automatically turned OFF when bit 0 of the [Control] address is turned OFF. • If a 32-bit device is specified, only the lower 16 bits are used.
		Time out		Specify the queuing time for when the FTP server does not respond to an access request. The settings range from 10-120 seconds.
Record Status Address				Specify the address for the event recorder function. Use a sequence of 2 words from the specified address.  • Control Turn ON bit 0 to start save monitoring. Turn OFF the bit to stop monitoring. 

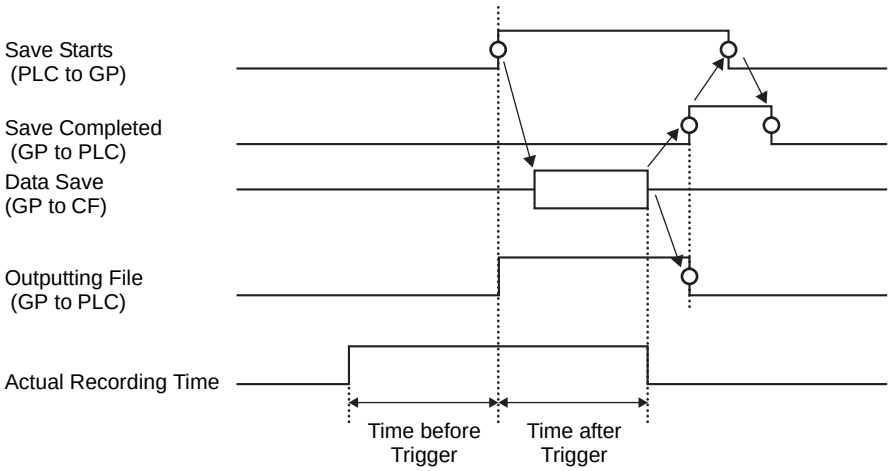
Continued

<table>
<tr><th>Setting</th><th>Description</th></tr>
<tr><td>Record Status Address</td><td>
• Save Monitor Status
The event recorder save status and error status are saved.


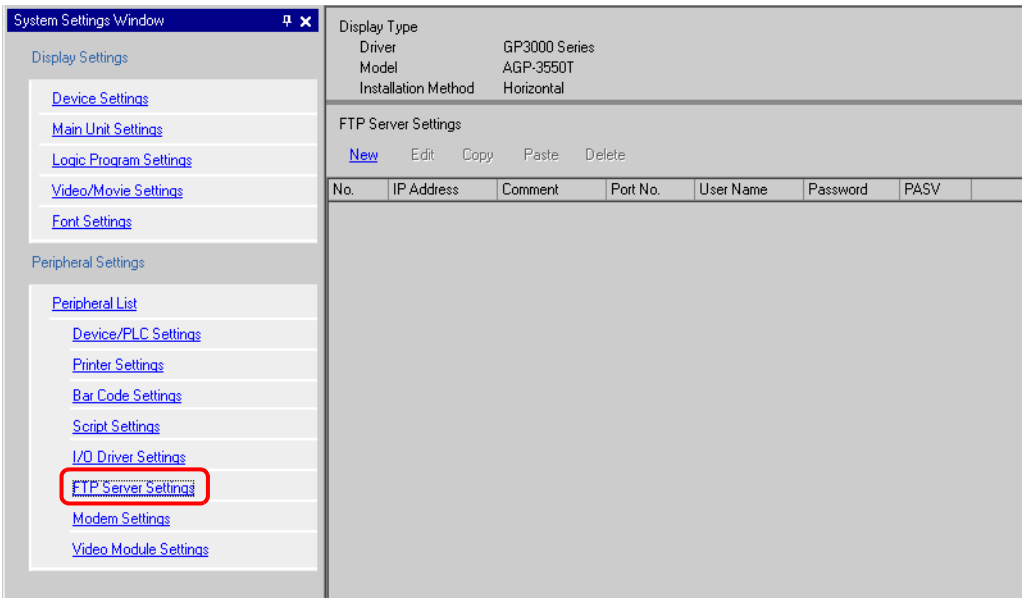
The error status indicates the following conditions.
< Error Code >
<table>
<tr><td>0</td><td>Completed Successfully</td><td>-</td></tr>
<tr><td>1 to 3</td><td>Reserved</td><td>-</td></tr>
<tr><td>4</td><td>No CF-Card</td><td>The CF-Card is not inserted in the GP, or the CF-Card cover is not closed.</td></tr>
<tr><td>5</td><td>CF Write Error</td><td>Writing to the CF-Card failed or there is not enough free space.</td></tr>
<tr><td>6</td><td>Reserved</td><td>-</td></tr>
<tr><td>7</td><td>CF-Card Error</td><td>CF-Card is invalid or the media inserted is not a CF-Card.</td></tr>
<tr><td>8</td><td>Reserved</td><td>-</td></tr>
<tr><td>9</td><td>FTP Connection Error</td><td>The FTP server is not operating normally, or the FTP server does not exist.</td></tr>
<tr><td>10</td><td>FTP Login Error</td><td>The FTP user name or password is not correct.</td></tr>
<tr><td>11</td><td>Write Error</td><td>The logged in user does not have write privileges, or writing to the FTP server has failed, or there is not enough free space.</td></tr>
<tr><td>12 to 15</td><td>Reserved</td><td>-</td></tr>
</table>

NOTE
• If a 32-bit device is specified, only the lower 16 bits are used.
</td></tr>
</table>

◆ Event Recorder Timing Chart

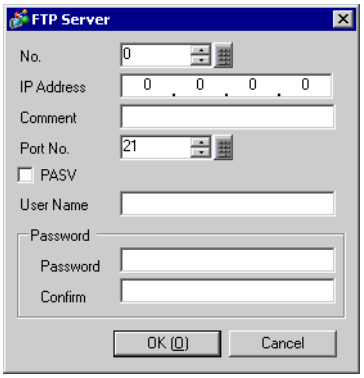


27.9.2 [FTP Server Settings] Setting Guide



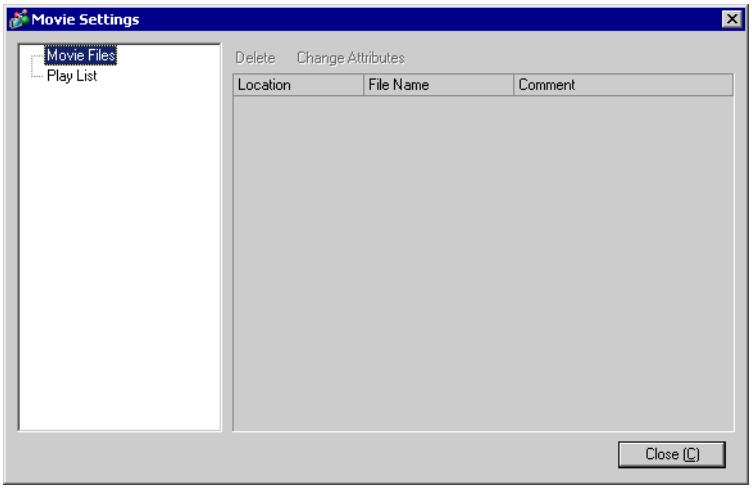
Setting	Description
New	Displays the [FTP Server] dialog box.
Edit	Edit the registered contents.
Copy	Copy the registered contents from the selected row.
Paste	Paste the copied register contents to the selected row in the list.
Delete	Deletes the selected row.

◆ FTP Server



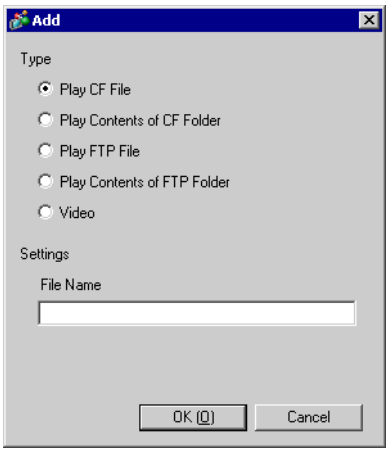
Setting		Description
No.		Specify the registry No.
IP Address		Specify the IP address to register for the FTP server.
Comment		Input comments. You can use up to 12 single-byte alphabetic letters and numbers.
Port No.		Specify the FTP server port No.
PASV		Specify whether to use PASV mode.
User Name		Specify the user name for login to the FTP server. You can use up to 16 single-byte alphabetic letters and numbers.
Password	Password	Specify the password for login to the FTP server. You can use up to 16 single-byte alphabetic letters and numbers.
	Confirm	Reenter the password for confirmation.

27.9.3 Common Settings [Movie Settings (O)] Setting Guide



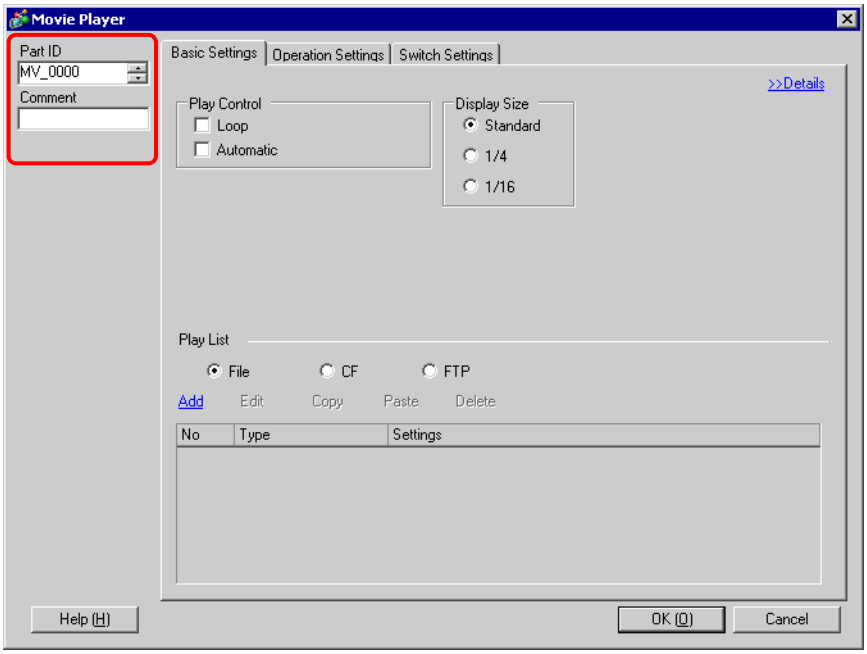
Setting		Description
Movie File		Display a list of the movie files saved in the MOVIE folder in the specified “CF-Card output folder”.
	Delete	Delete the selected file from the list.
	Change Attribute	Change the file name or file comment selected from the list.
Play List		Display the existing play list files.
	Create	Create a new play list file.
	Delete	Delete the selected play list file from the list.
	Change Attribute	Change the file name of a play list file selected from the list.

Continued

Setting			Description
(File Name)			Display the contents of the created play list file.
	Add		Specify a movie file or folder to add to the play list. When a folder is specified, the movie files in the folder are played in the order in which the files were created on the CF-Card or FTP server. 
		Type: Play CF File	Add a file saved in the MOVIE folder on the CF-Card to the play list. When "\MC" is entered at [File Name], "\MOVIE" and "\" are added automatically to display "\MOVIE\MC\".
		Type: Play Contents of CF Folder	Add a folder saved in the MOVIE folder on the CF-Card to the play list. When "\MC" is entered at [Folder Name], "\MOVIE" is added automatically to display "\MOVIE\MC".
		Type: Play FTP File	Add a file saved on the FTP server to the play list. Select the registry No. of FTP server where the file is saved, and input the file name.
		Type: Play Contents of FTP Folder	Add a folder saved on the FTP server to the play list. Select the registry No. of the FTP server where the folder is saved, and input the folder name.
		Type: Video	Add real-time images to the play list.
		Settings: File Name/ Folder Name	Input a file name or folder name.
	Edit		Edit the settings for a file or folder selected on the list.
	Copy		Copy a file or folder selected from the list.
	Paste		Paste the copied file or folder to the list.
	Delete		Delete the selected row from the list.

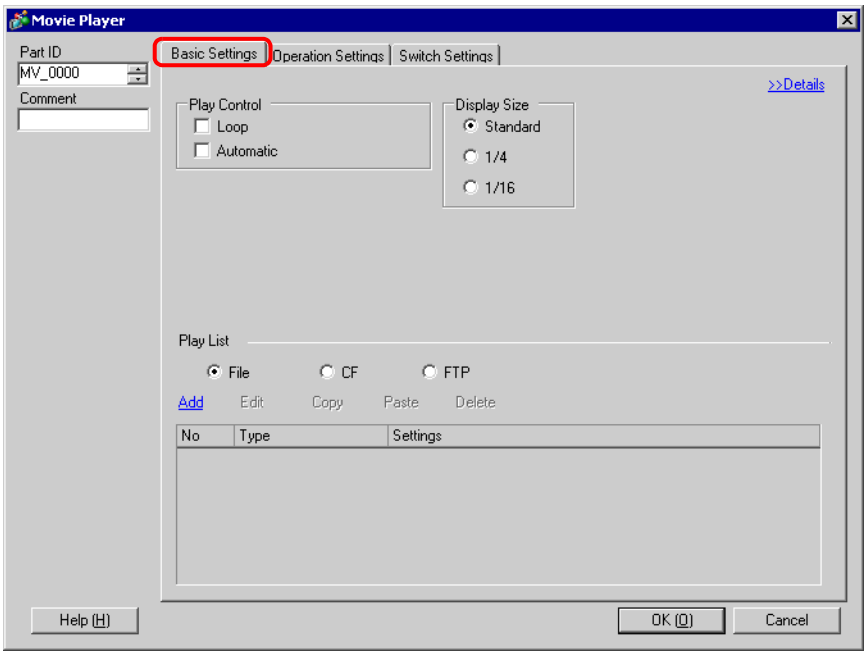
27.9.4 Movie Player Setting Guide

This is a component used for playing movies. Use for displaying images from video cameras and for playing movie files. You can place only one player on a screen.



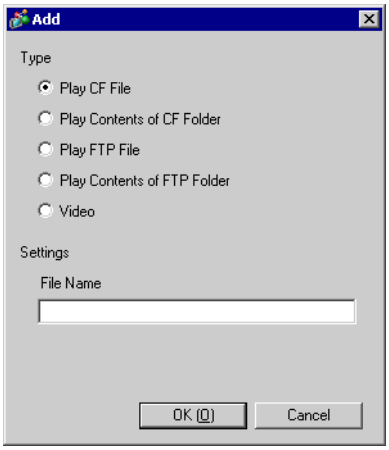
Setting	Description
Part ID	Placed parts are automatically assigned an ID number. Part ID of Movie Player: MV_**** (4 numbers) The alphabetic portion is fixed. You can change the number part within the range of 0000-9999.
Comment	The comment for each Part can be up to 20 characters long.

■ Base Setting/Basic

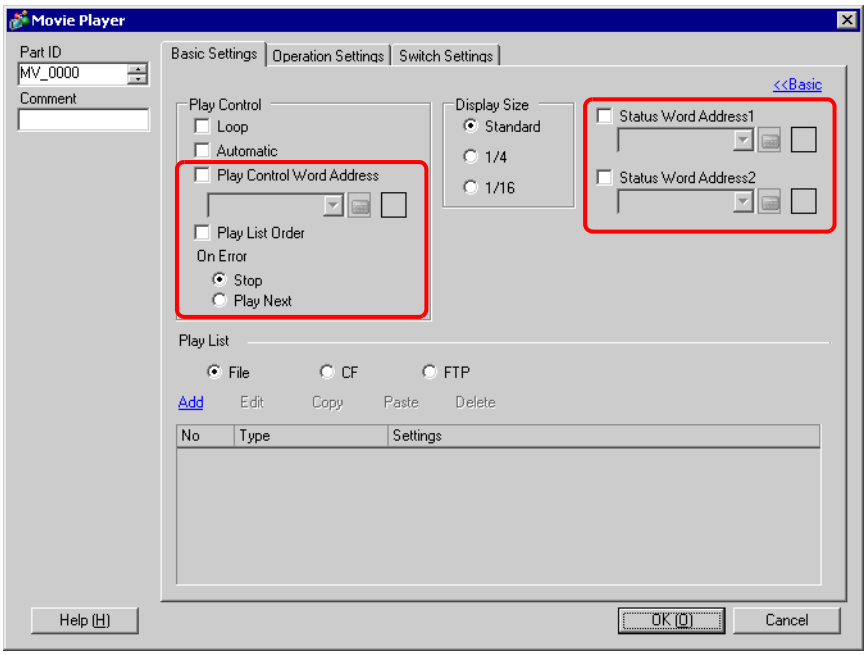


Setting		Description
Play Control		Select the play method.
	Loop	Play movies repeatedly. Movies are played repeatedly in the order of the play list until the player stops.
	Automatic	Play a movie automatically immediately after the screen is switched to a screen with a movie player.
Display size		Select the image display size. Once selected, the actual display size depends on the type of image input signal.
	Standard	• For NTSC: 640 x 480 dots • For PAL: 768 x 576 dots • For SECAM: 768 x 576 dots
	1/4	• For NTSC: 320 x 240 dots • For PAL: 384 x 288 dots • For SECAM: 384 x 288 dots
	1/16	• For NTSC: 160 x 120 dots • For PAL: 192 x 144 dots • For SECAM: 192 x 144 dots

Continued

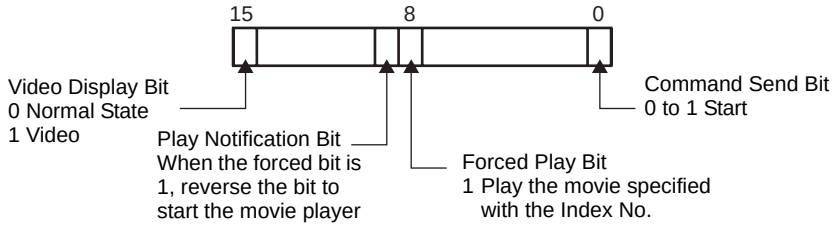
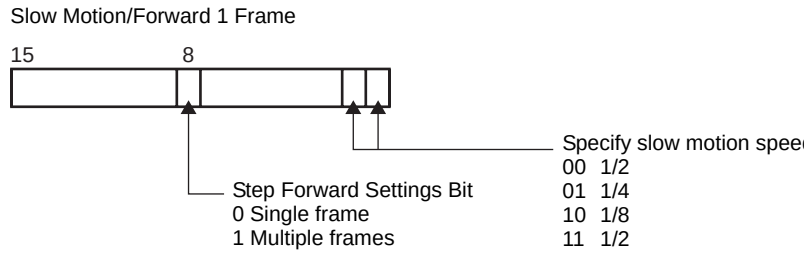
Setting			Description
Play List			Specify the movie file to be played.
	File		Specify a file and folder to play directly from the movie player.
		Add	Specify a movie file (or folder) to add to the list. When a folder is specified, the movie files in the folder are played in the order in which the files were created on the CF-Card or FTP server. 
		Type: Play CF File	Add a file saved in the MOVIE folder on the CF-Card to the play list. When "\MC" is entered at [File Name], "\MOVIE" and "\" are added automatically to display "\MOVIE\MC\".
		Type: Play Contents of CF Folder	Add a folder saved in the MOVIE folder on the CF-Card to the play list. When "\MC" is entered at [Folder Name], "\MOVIE" is added automatically to display "\MOVIE\MC".
		Type: Play FTP File	Add a file saved on FTP server. Select the registry No. of FTP server where the file is saved, and input the file name.
		Type: Play Contents of FTP Folder	Add a folder saved on the FTP server. Select the registry No. of the FTP server where the folder is saved, and input the folder name.
		Type: Video	Add real-time images to the play list.
		Settings: File Name/ Folder Name	Input a file name or folder name.
	CF		Specify the play list file (.txt) created in [Movie Settings] in the common settings. The file is saved in the MOVIE folder on the CF-Card.
	FTP		Specify the play list file on the FTP server.
		FTP Server	Select the FTP server registry No.
		List File Name	Input the file name of the play list on the specified FTP server. Use the FTP server route for input. (e.g.: "***/***.txt")
		Time out	Set the wait time for when the FTP server does not respond to an access request.

■ Basic Settings/Details

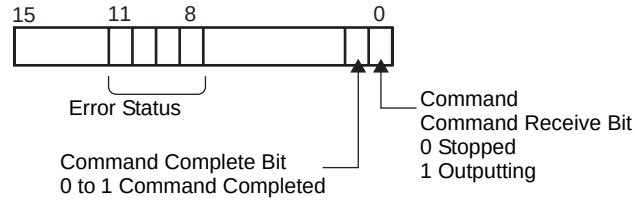


Setting	Description
Play Control Word Address	Control the player from the connection device. Use a sequence of 5 words from the specified address. Play Control Word Address +0 Control +1 Play Mode +2 Index No. +3 Option +4 Status For the operating procedure, refer to the following sections: ☞ " ◆ Operating Procedure for Play Control Address" (page 27-101) ☞ " ◆ Timing Chart for Play Control" (page 27-101)

Continued

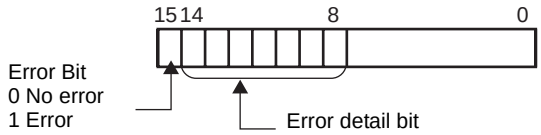
Setting		Description
Play Control	Play Control Word Address	• Control  The upper bits are prioritized in each bit. • When the video display bit is turned ON, the current camera images are displayed whether or not a movie is being played. Since the movie is still being played during this time, the movie returns after the bit is turned off. While the current camera images are displayed, the audio for the movie being played is not output. • When turned ON, the forced play bit plays the movie with the specified index number. When the play notification bit is reversed while the forced play bit is ON, the movie with the currently specified number is played. • Play Mode The numbers to be specified are as follows. 0 Stop 5 Slow Motion 1 Play 6 Forward 1Frame 2 Pause 7 Back 1 Frame 3 Fast Forward 8 Specify Index 4 Rewind 9 Reserve Thereafter (Stop) • Index No. Specify the Index No. of the file to be played. This setting is enabled only when the “Play Mode” is set to No. 8 and the command send bit or the forced play bit of [Control] is turned ON. • Option This setting allows Slow Motion and Forward 1 Frame operations. 

Continued

<table>
<tr><th colspan="3">Setting</th><th>Description</th></tr>
<tr><td rowspan="5">Play Control</td><td colspan="2">Play Control Word Address</td><td>• Status
 

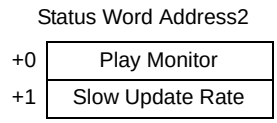
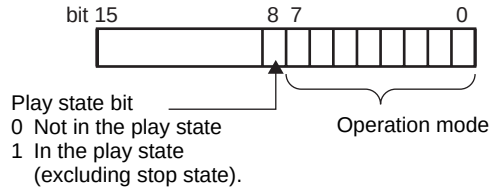
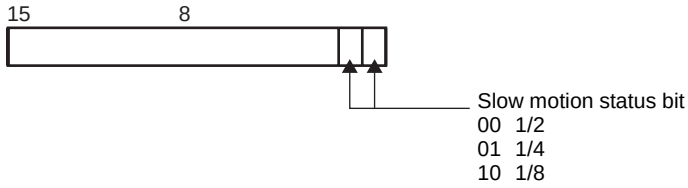
< Error Code >
<table>
<tr><td>0</td><td>Completed Successfully</td></tr>
<tr><td>1</td><td>The specified value for the play method is not within the setting range</td></tr>
<tr><td>2</td><td>Executing the command from the switch</td></tr>
<tr><td>3</td><td>Saving a movie</td></tr>
<tr><td>4 to 15</td><td>Reserved</td></tr>
</table></td></tr>
<tr><td colspan="2">Play List Order</td><td>Set whether or not to play movies in the specified order. After playing all of the movies, the player operates as follows depending on whether [Loop] is selected or not:
[Loop] is selected: Plays from the first movie on the list.
[Loop] is not selected: Stops playing.</td></tr>
<tr><td colspan="2">On Error</td><td>Specify how to proceed if the player does not start for the following reason.
• The CF-Card is not inserted when CF play is selected
• Unable to connect to FTP server when FTP play is selected
• No file is found for CF play and FTP play
• Cannot open the file for CF play and FTP play
• The specified file is not in a format compatible for CF play or FTP play</td></tr>
<tr><td></td><td>Stop</td><td>Stops the operation if the movie cannot be played.</td></tr>
<tr><td></td><td>Play Next</td><td>Plays the next movie file if a selected movie cannot be played. In this case, the error status is not stored in [Status Word Address 1].</td></tr>
<tr><td colspan="3">Status Word Address1</td><td>If you want to check the error information, play size, or information on the play position, specify a word address for storing the information. Use four words from the specified address.
For a 32-bit device, use only the lower 16 bits.
<table>
<tr><th colspan="2">Status Word Address1</th></tr>
<tr><td>+0</td><td>Error Status</td></tr>
<tr><td>+1</td><td>Play Size</td></tr>
<tr><td>+2</td><td>Play Position X</td></tr>
<tr><td>+3</td><td>Play Position Y</td></tr>
</table></td></tr>
</table>

Continued

<table>
<tr><th>Setting</th><th>Description</th></tr>
<tr><td>Status Word
Address1</td><td>
• Error Status


The error bit is ON when an attempt to play a movie failed (for example, because a file does not exist or a connection cannot be established to the FTP server), or when a status error occurs in Movie Player (for example, a because file is corrupted during play).
<table>
<tr><th>State of the error detail bit</th><th>Error Name</th><th>Description</th></tr>
<tr><td>0</td><td>Completed Successfully</td><td>Operating normally.</td></tr>
<tr><td>1 - 3, 6, 8, 12 - 15, 17 - 127</td><td>Reserved</td><td>These are reserved numbers and are not specified.</td></tr>
<tr><td>4</td><td>No CF-Card</td><td>The CF-Card is not inserted.
The hatch is open.</td></tr>
<tr><td>5</td><td>CF Read Error</td><td>An attempt to read from the CF-Card failed.</td></tr>
<tr><td>7</td><td>CF-Card Error</td><td>The CF-Card is defective.
This is not a CF-Card.</td></tr>
<tr><td>9</td><td>FTP server connection error</td><td>The FTP server cannot be accessed.</td></tr>
<tr><td>10</td><td>FTP Login Error</td><td>An attempt to log in to the FTP server failed.</td></tr>
<tr><td>11</td><td>Write error</td><td>An attempt to write data to the FTP server failed.</td></tr>
<tr><td>16</td><td>The file is corrupt.</td><td>The specified file is not in SDX format.</td></tr>
</table>
• Display size
The current display size is stored.
0 Normal mode
1 1/4 mode
2 1/16 mode
3 Reserve after (normal type)
• Play positionX / play positionY
The following table lists the coordinate ranges in which the movie plays according to the display size and the image input signal settings.
<table>
<tr><th rowspan="2">Display size</th><th colspan="2">Image Input Signal Settings</th></tr>
<tr><th>NTSC</th><th>PAL/SECAM</th></tr>
<tr><td>Default</td><td>(0,0) - (639,479)</td><td>(0,0) - (767,575)</td></tr>
<tr><td>1/4</td><td>(0,0) - (319,239)</td><td>(0,0) - (383,287)</td></tr>
<tr><td>1/16</td><td>(0,0) - (159,119)</td><td>(0,0) - (191,143)</td></tr>
</table>
</td></tr>
</table>

Continued

Setting	Description
Status Word Address2	Specify whether to use an address for monitoring the play status of a movie. For a 32-bit device, only the lower 16 bits are used.  • Play Monitor  • The operation mode for the Play Monitor is stored in the lower 8 bits. • The play state bit indicates that the Play Monitor is actually in the play state. There are no repeat specifications, and even when the play switch is ON, if play is completed to the end, the state changes to state other than play state. • The following lists the numbers to be specified for the Play Monitor operation mode. 0 Stop 1 Play 2 Pause 3 Fast Forward 4 Rewind 5 Slow Motion 0xFF Video display The numbers other than the above are reserved. • Slow Update Rate When slow motion is used, the play speed is stored here. 

◆ Operating Procedure for Play Control Address

<Normal play>

1 Store the index No. of the movie file you want to play in the [Index No.] address.
2 Store “8” in the [Play Mode] address, and turn ON the command send bit (bit 0) of the [Control] address. The index No. is set. (The movie being played stops.)
3 Set back the command send bit to OFF.
4 Change the [Play Mode] address to “1”, and turn ON the command send bit again. The movie with the specified index No. starts playing.

<Play in the forced play mode>

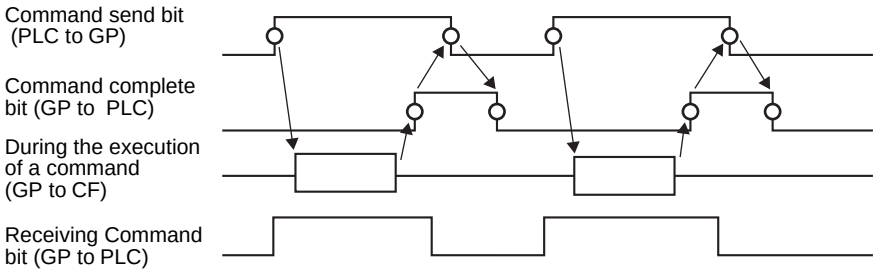
The movie with the specified index No. is forced to play regardless of the current movie play status.

1 Store the index No. of the movie file you want to play in the [Index No.] address.
2 Turn on the forced play bit (bit 8) of the [Control] address. The movie starts playing.

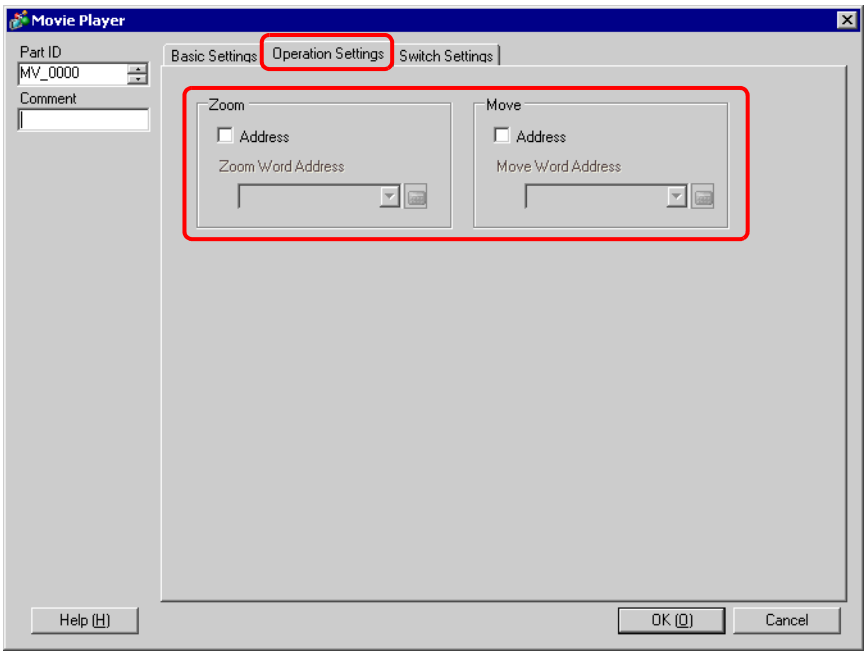
NOTE

- Turning ON the command send bit is not effective while the forced play bit is turned ON.
- When the play notification bit (bit 9) is turned ON or OFF while the forced play bit is turned ON, the movie with the currently stored index No. is played again.
- To stop the movie from being played in the forced play mode, you need to turn OFF the forced play bit.
  If [Loop] and [Play List Order] are not specified, the play stops when the movie finishes.
  If [Play List Order] is specified but [Loop] is not selected, the play stops when the last movie in the play list finishes.

◆ Timing Chart for Play Control

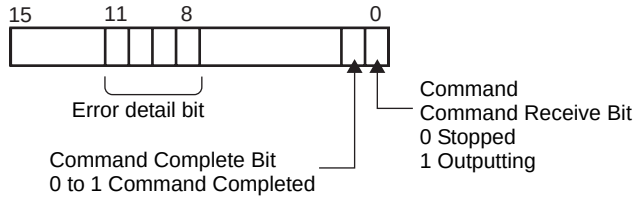


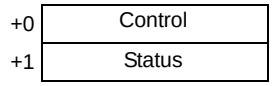
■ Operation Settings



Setting		Description
Zoom		Zoom display settings.
	Address	Specify whether to use zoom display or not.
	Zoom Word Address	Specify an address for operating zoom. Use a sequence of 3 words from the specified address. For a 32-bit device, use only the lower 16 bits. +0 Control — Control the zoom function. +1 Zoom specifications — Specify the zoom size. +2 Status — Display the error state, etc. ☞ "◆ Timing Chart for Operation of Movie Player" (page 27-105) • Control 15 8 Zoom set bit 0 Normal 1 Zoom

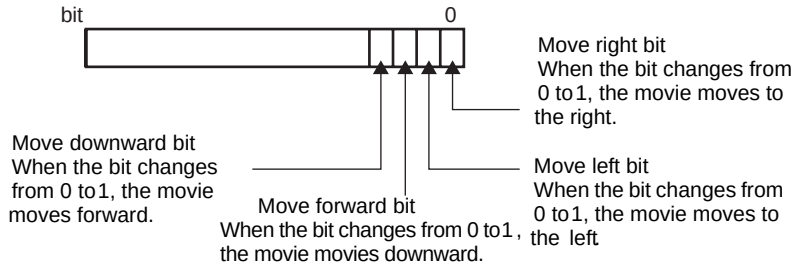
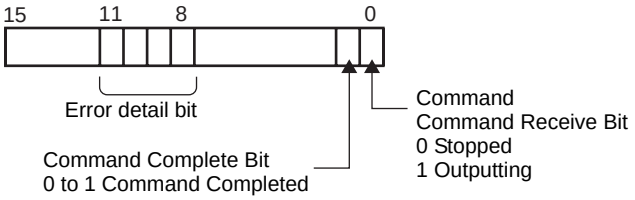
Continued

<table>
<tr><th colspan="2">Setting</th><th>Description</th></tr>
<tr><td rowspan="2">Zoom</td><td>Zoom Word Address</td><td>
• Zoom specifications
Specify the zoom by storing one of the following values:
0 Normal
1 1/4
2 1/16
3 to 0xFFFE Reserved (No change)
0xFFFF Normal (return to settings on the main screen)
• Status


<table>
<tr><th>State of the error detail bit</th><th>Error Name</th><th>Description</th></tr>
<tr><td>0</td><td>Completed Successfully</td><td>Operating normally.</td></tr>
<tr><td>1</td><td>The zoom specification is invalid.</td><td>The specified value is out of the acceptable range.</td></tr>
<tr><td>2</td><td>Executing the command from the switch</td><td>Because a command from a switch on the screen is being processed, new processing data cannot be received.</td></tr>
<tr><td>3 to 15</td><td>Reserved</td><td>These are reserved numbers and are not specified.</td></tr>
</table>
☞ “ ◆ Screen Display When Zoom is Specified” (page 27-105)
</td></tr>
<tr><td colspan="2">Move</td><td>Settings for moving the screen position.</td></tr>
<tr><td></td><td>Address</td><td>If a movie to be played does not fit completely on the screen, specify whether to move the movie play coordinates.</td></tr>
<tr><td></td><td>Move Word Address</td><td>
Specify an address for moving the play position. Use a sequence of 2 words from the specified address.
For a 32-bit device, use only the lower 16 bits.


☞ “ ◆ Timing Chart for Move Operation of Movie Player” (page 27-107)
</td></tr>
</table>

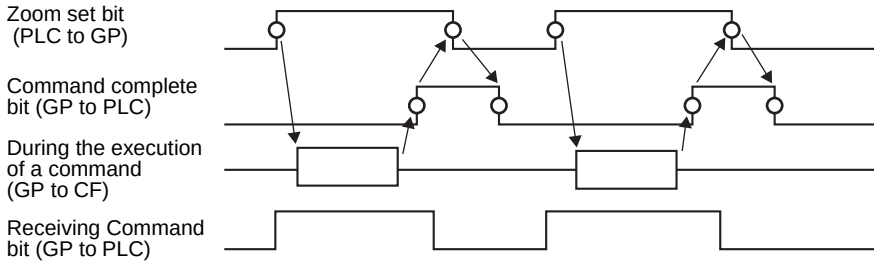
Continued

Setting		Description
Move	Move Word Address	• Control  The bit priority is higher for the upper bits and lower for the lower bits. When each allocated bit is turned ON, the movie moves according to the following dots. If a movie cannot be moved, an error is returned to the status address. • Status 

Direction	When playing a movie file	When playing a video
Horizontal direction	2 dots	2 dots
Vertical direction	Normal size 2 dots 1/4 and 1/16 sizes 1 dot	1 dot

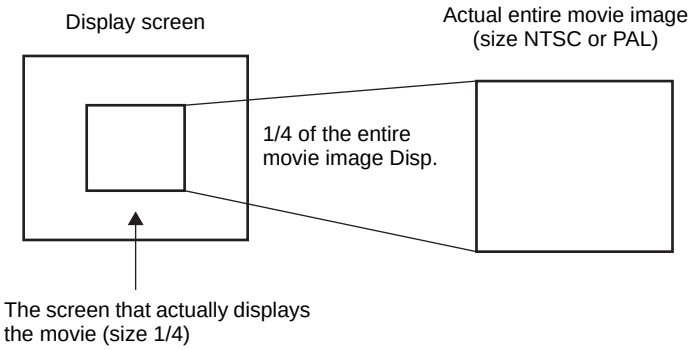
State of the error detail bit	Error Name	Description
0	Completed Successfully	Operating normally.
1	The movie is at the screen edge.	The movie cannot be moved because it is at the edge of the screen.
2	Executing the command from the switch	Because a command from a switch on the screen is being processed, new processing data cannot be received.
3 to 15	Reserved	These are reserved numbers and are not specified.

◆ Timing Chart for Operation of Movie Player

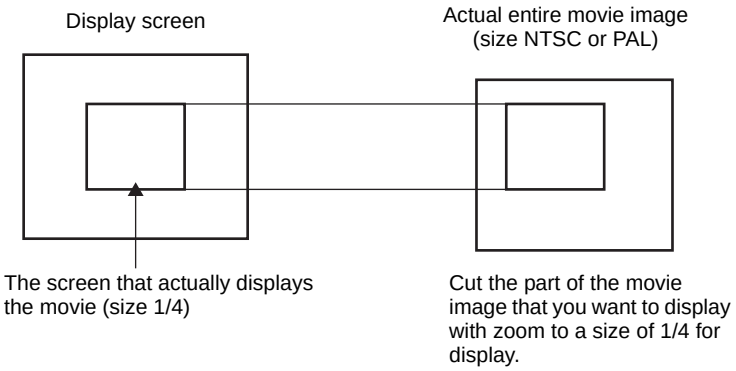


◆ Screen Display When Zoom is Specified

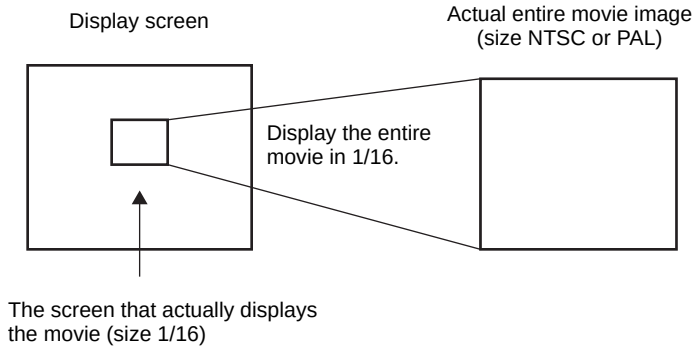
- When the display size is [1/4] and the screen size is 1/4 of the movie image



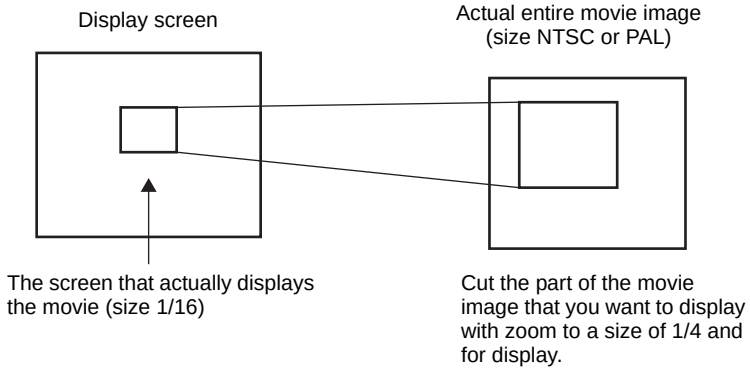
- When the display size is [Normal] and the screen size is 1/4 of the movie image



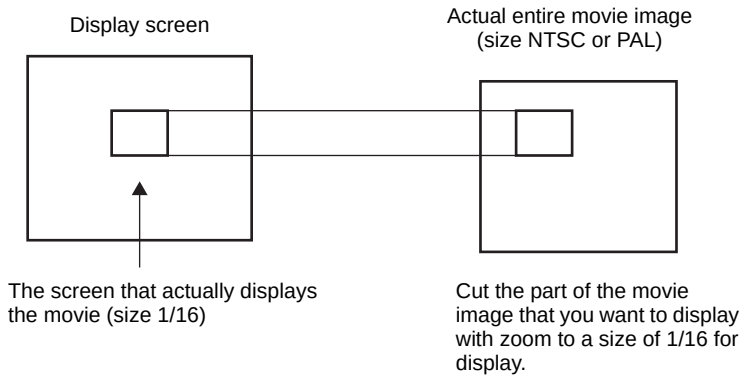
- When the display size is [1/16] and the screen size is 1/16 of the movie image



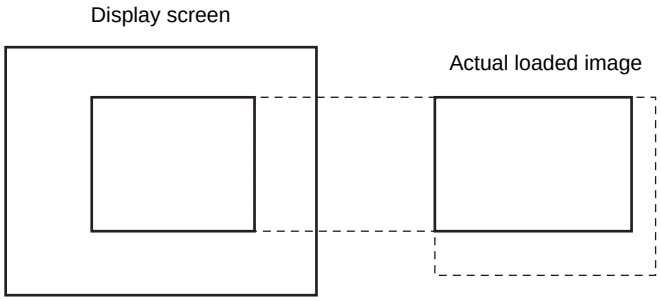
- When the display size is [1/4] and the screen size is 1/16 of the movie image

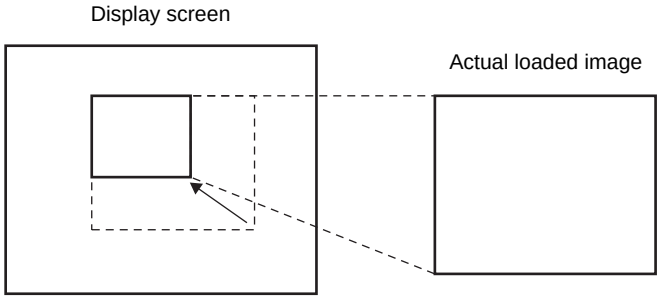


- When the display size is [Normal] and the screen size is 1/16 of the movie image

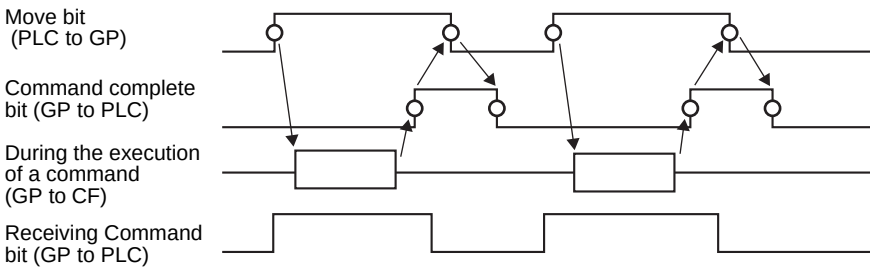


- If a movie image is zoomed and the size is smaller than the display size, the display size automatically changes to the movie image size.

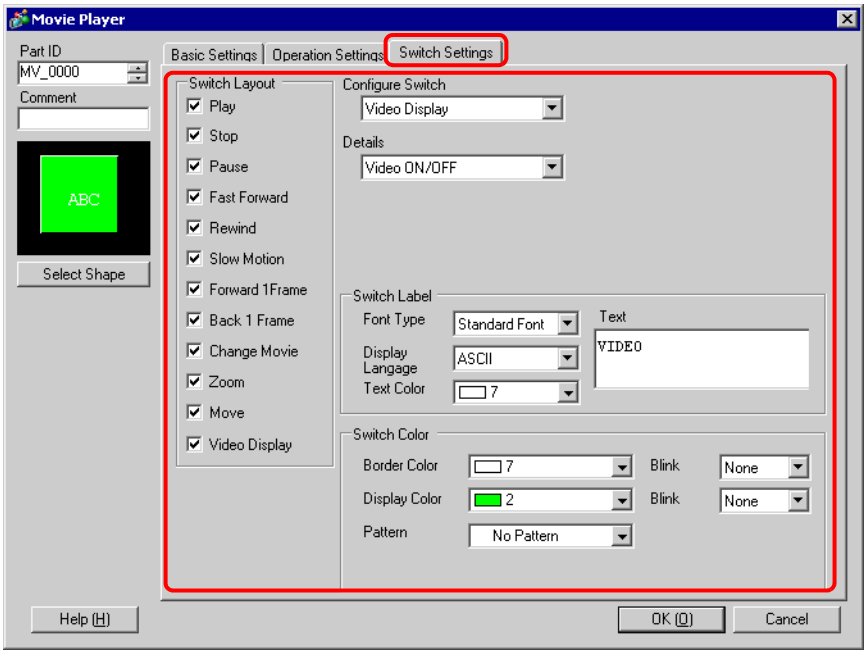




◆ Timing Chart for Move Operation of Movie Player

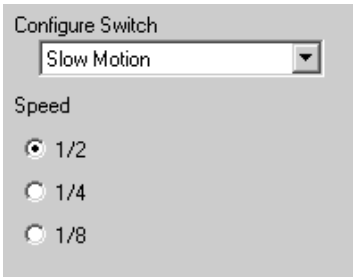
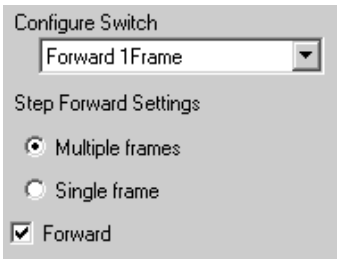
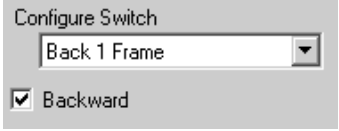


■ Switch Settings

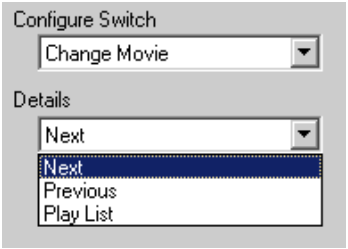
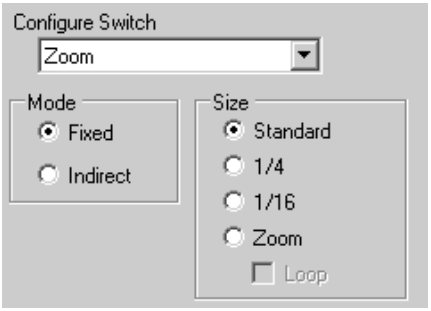


Setting	Description
Select Shape	Open the Select Shape dialog box to choose the Part's shape. **NOTE** • Depending on the shape, you may not be able to change the color.
Switch Layout	Select the operation switch to be attached to Movie Player. • Play Starts play. • Stop Stops play. At the next play, movie files are played from the first file. You cannot start playing from the point where the previous play was stopped. • Pause Pauses play. • Fast Forward Plays a movie in fast forward. This switch operates even in the stop state. • Rewind Plays a movie in rewind. This switch does not operate in the stop state. • Slow Motion Plays a movie in slow motion. This switch operates even in the stop state. • Forward 1Frame Forwards a movie frame by frame. This switch can be used only in the pause state.

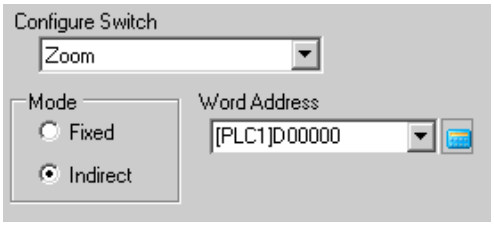
Continued

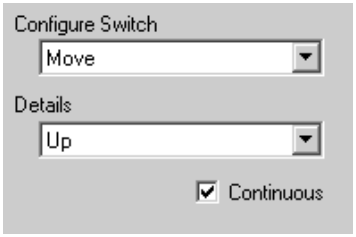
Setting	Description
Switch Layout	• Back 1 Frame Reverses a movie frame by frame. This switch can be used only in the pause state. • Change Movie Stops the movie being played and plays another movie. The next movie can be selected by using [Next], [Previous], or [Play List]. • Zoom Enlarges/reduces the movie display. • Move Moves the movie display position. • Video Displays the image from the current movie camera.
Configure Switch	From among the switches on the screen, select a switch for specifying the details and labels.
Speed	This item is displayed only when [Slow Motion] is selected in [Configure Switch]. Select the speed for slow motion from [1/2], [1/4] or [1/8]. 
Step Forward Settings	This item is displayed only when [Forward 1 Frame] is selected in [Configure Switch]. Select the frame width. Multiple Frames: Forwards a movie by I frame. Single Frame: Forwards a movie by one frame. 
Forward	This item is displayed only when [Forward 1 Frame] is selected in [Configure Switch]. While pressing the switch, specify whether to continuously forward a movie frame by frame.
Backward	This item is displayed only when [Back 1 Frame] is selected in [Configure Switch]. While pressing the switch, specify whether to continuously reverse a movie frame by frame. 

Continued

Setting	Description
Details	This item is displayed only when [Change Movie] is selected in [Configure Switch]. Select the detailed operation for switching movies. • Next: • Previous: • Play List: 
Loop	This item is displayed only when [Change Movie] is selected in [Configure Switch], and [Next] or [Previous] is selected in [Details]. Specify whether to perform a loop operation.
Index No.	This item is displayed only when [Change Movie] is selected in [Configure Switch], and [Play List] is specified in [Details]. Specify the Index No. of the movie file to be played. The settings range from 0 to 99.
Action Mode	This item is displayed only when [Zoom] is selected in [Configure Switch]. Select how to specify the display size from either [Fixed] or [Indirect].
Fixed	Select the display size from [Standard], [1/4], [1/16], or [Zoom]. For [Zoom], every time the switch is pressed, the movie is zoomed in the following steps. Standard to 1/4 to 1/16 to 1/4 to Standard  **NOTE** • When [Loop] is specified, the order is Standard to 1/4 to 1/16 to Standard to 1/4.

Continued

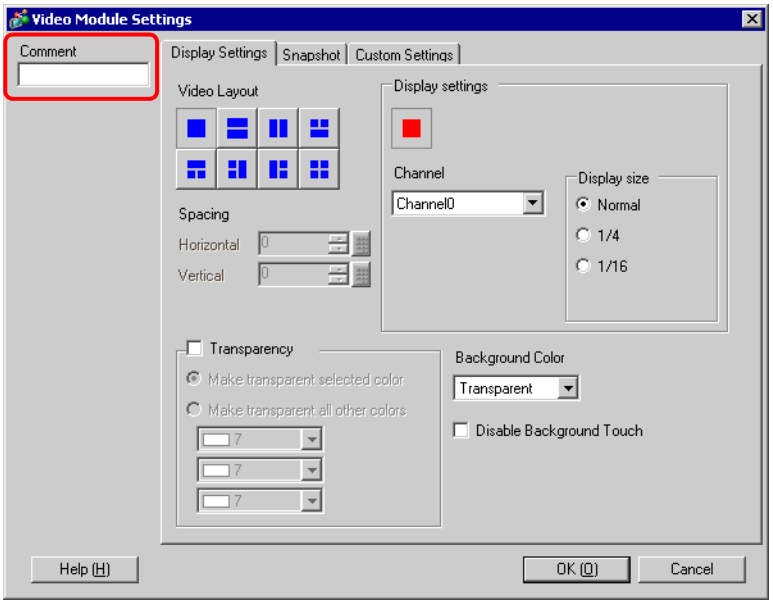
<table>
<tr><th colspan="2">Setting</th><th>Description</th></tr>
<tr><td rowspan="3">Action Mode</td><td>Indirect</td><td>Specify the address for storing the display size to indirectly zoom the movie.
The following lists the values to be stored.
0 Standard
1 1/4
2 1/16
3 to 0xFFFE Reserved (No change)
0xFFFF Return to the original screen size.
If a value other than the above is stored, the movie will not zoom.
 

NOTE
• For a 32-bit device, only the lower 16 bits are used.</td></tr>
<tr><td colspan="2">Details</td><td>This item is displayed only when [Move] is selected in [Configure Switch].
 
</td></tr>
<tr><td></td><td>Details</td><td>Select the direction to move the movie from [Up], [Down], [Left], or [Right]. The following describes the range in which a movie can be moved at one time.
<table>
<tr><th></th><th>When a movie is played</th><th>When a video is played</th></tr>
<tr><td>Horizontal direction</td><td>2 dots</td><td>2 dots</td></tr>
<tr><td>Vertical direction</td><td>Standard: 2 dots
1/4, 1/16: 1 dot</td><td>1 dot</td></tr>
</table></td></tr>
<tr><td></td><td>Continuous</td><td>While pressing the switch, specify whether to continuously move a movie.</td></tr>
</table>

Continued

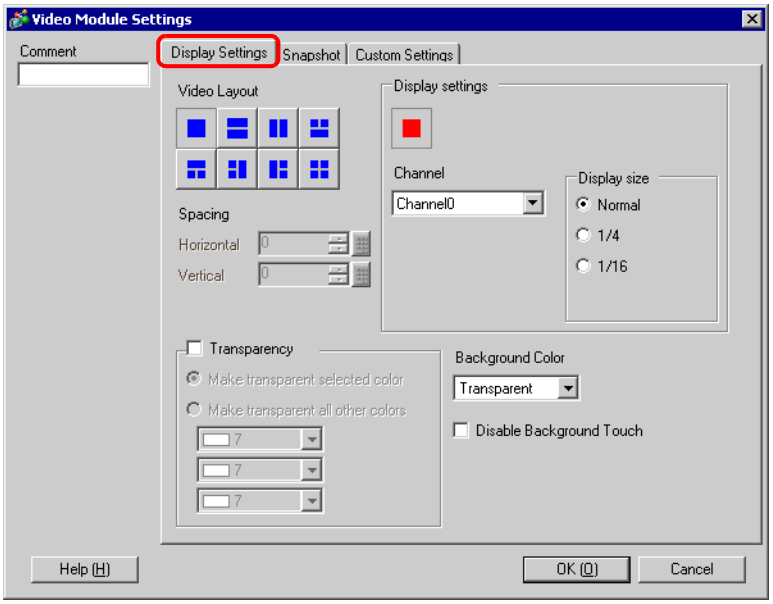
Setting		Description
Switch Label	Font Type	Select the font type for the label displayed on the switch. • Standard Font The vertical and horizontal dimensions of a character can be specified in bitmap font. When a character is enlarged or reduced, the outline of the character may appear grainy or smudged. • Stroke Font This is the outline font (with the lines defined together) for which the vertical and horizontal dimensions of a character are fixed. Even when a character is enlarged or reduced, the outline is displayed clearly. However, due to the large required capacity, this font may put a burden on the GP.
	Display Language	Select the display language for the label displayed on the switch from among [ASCII], [Japanese], [Chinese (Traditional)], [Chinese (Simplified)], [Korean], [Cyrillic Alphabet], or [Thai].
	Text Color	Select a color for the label's text.
	Text	Enter the text to be displayed on the switch.
Switch Color	Border Color	If the Part Shape is set to have a border, select a color for it.
	Display Color	Select the Switch's color.
	Pattern	Select from the 8 patterns or choose [No Pattern].
	Blink	Specify whether or not to use a blinking display, and the blinking speed. Specify [Border Color] and [Display Color]. **NOTE** • There are cases where you can and cannot set Blink depending on the Main Unit and System Settings' [Color Settings]. ☞ "9.5.1 Setting Colors ■ List of Available Colors" (page 9-34)

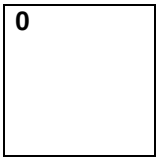
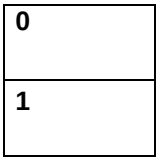
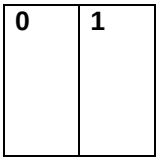
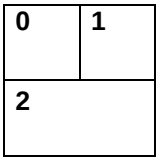
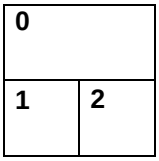
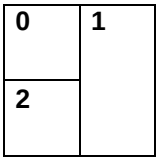
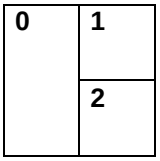
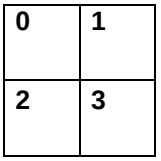
27.9.5 Setup guide of common settings [Video Module Settings]



Setting	Description
Comment	The comment for each Part can be up to 20 characters long.

■ Display Settings

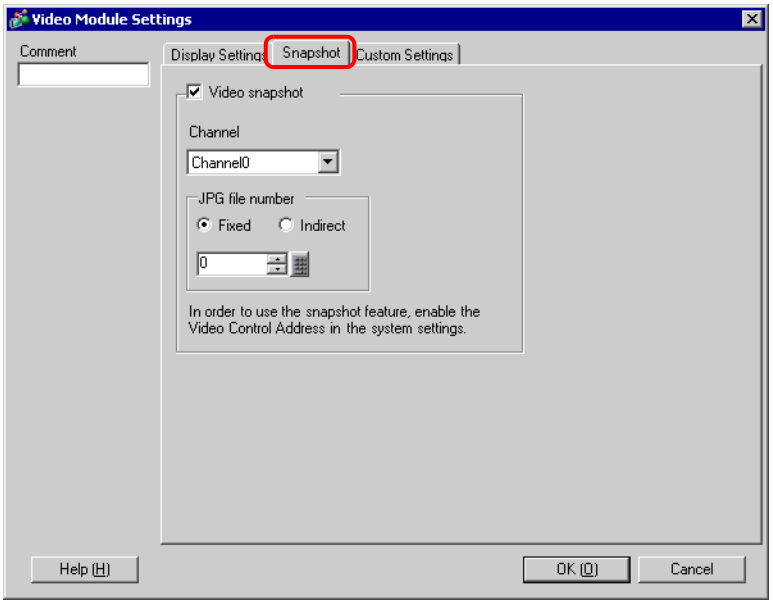


Setting	Description
Video Layout	Select the window display type. <Single screen>  <Two screens placed horizontally>  < Two screens placed vertically >  <Three screens (One screen on the bottom)>  < Three screens (One screen on the top) >  < Three screens (One screen on the right) >  < Three screens (One screen on the left) >  < Four screens > 
Spacing	Specify this setting when two or more screens are displayed simultaneously. • Horizontal: Specify the horizontal intervals between windows from 0 to 320. • Vertical: Specify the vertical intervals between windows from 0 to 273.

Continued

<table>
<tr><th>Setting</th><th>Description</th></tr>
<tr><td>Display Settings</td><td>Specify the display settings for each screen according to the selected window type.</td></tr>
<tr><td>Channel</td><td>Select a Channel No. on which the display settings are to be specified.</td></tr>
<tr><td>Channel 0 to 3</td><td>Displays the video camera image input to the specified channel.</td></tr>
<tr><td>Display size</td><td>
<table>
<tr><th rowspan="2">Disp. Size</th><th colspan="2">NTSC</th><th colspan="2">PAL</th></tr>
<tr><th>AGP-35∗0T</th><th>AGP-36∗0T</th><th>AGP-35∗0T</th><th>AGP-36∗0T</th></tr>
<tr><td>Normal</td><td>640 x 480 dots</td><td>640 x 480 dots</td><td>640 x 480 dots*1</td><td>768 x 576 dots</td></tr>
<tr><td>1/4</td><td>320 x 240 dots</td><td>320 x 240 dots</td><td>384 x 288 dots</td><td>384 x 288 dots</td></tr>
<tr><td>1/16</td><td>160 x 120 dots</td><td>160 x 120 dots</td><td>192 x 144 dots</td><td>192 x 144 dots</td></tr>
</table>
*1 When [PAL] and [Normal] are selected for AGP-35∗0T, part of the image will not be displayed.
</td></tr>
<tr><td>RGB (IN)</td><td>Displays an image from a device connected via an RGB interface.</td></tr>
<tr><td>Emulate Touch</td><td>Sends the screen touch information to an external device connected via serial communication.
The following lists the maximum effective area of the XY coordinates for the entire screen display.
For AGP-35∗X coordinate: 0 - 799 Y coordinate: 0 - 599
For AGP-36∗0T X coordinate: 0 - 639 Y coordinate: 0 - 479</td></tr>
<tr><td>Display size</td><td>The following table lists the display sizes according to the models and display mode settings.
<table>
<tr><th rowspan="2">Disp. Size</th><th colspan="2">AGP-35∗0T</th><th colspan="2">AGP-36∗0T</th></tr>
<tr><th>VGA</th><th>SVGA</th><th>VGA</th><th>SVGA</th></tr>
<tr><td>Normal</td><td>640 x 480 dots*1</td><td>640 x 480 dots</td><td>640 x 480 dots</td><td>800 x 600 dots</td></tr>
<tr><td>1/4</td><td>320 x 240 dots</td><td>320 x 240 dots</td><td>400 x 300 dots</td><td>400 x 300 dots</td></tr>
<tr><td>1/16</td><td>160 x 120 dots</td><td>160 x 120 dots</td><td>200 x 150 dots</td><td>200 x 150 dots</td></tr>
</table>
*1 When using AGP-35∗T, if the display mode is set to SVGA, part of the image will not be displayed in [Normal] size.
</td></tr>
<tr><td>JPG</td><td>Displays a JPEG file from the CF-Card. Multiple images can be placed on the same screen only when displaying a JPEG image, and the [JPEG File No.] can be selected for multiple images.
NOTE
• Even if an attempt is made to turn OFF a video screen while a JPEG image is displayed, the screen will not turn OFF until the display processing has completed.</td></tr>
<tr><td>Display size</td><td>Select the image display size from among [Normal], [1/4], [1/16], or [1/64].
NOTE
• Regardless of the display mode, the reduction ratio is based on the size of the displayed image.</td></tr>
<tr><td>Transparency</td><td>From the color pallet, select the color that will be seen through the window from the display on the GP screen. It is not possible to set the colors for each image to be displayed.
• Make transparent selected color: Up to three colors can be selected.
• Make transparent all other colors: Only one color can be selected.</td></tr>
<tr><td>Background Color</td><td>Select the background color for the VM Unit Window.</td></tr>
<tr><td>Disable Background Touch</td><td>Specify whether to enable the touch switch on the GP screen displayed behind VM Unit Window.</td></tr>
</table>

■ Snapshot



Setting			Description
Video snapshot			Specify whether to take a snapshot of the picture (for one channel) displayed on the screen and save it on the CF-Card as a JPG file. For snapshot output, a picture of the channel specified in [VM Unit Window Settings] is output in JPEG format. The image is output in 640 x 480 dots through NTSC signals, and in 768 x 576 dots through PAL signals. IMPORTANT • To use the video snapshot function, you need to set [Video Control Start Address] to [ON] in [VM Unit Settings] in the System Settings beforehand. The snapshot starts when bit 4 of the specified [Video Control Start Address] is turned ON.
	Channel		Select the channel.
	JPG file number	Fixed	Set a number to be the JPEG file name. The settings range from 0 to 65535. The file name will be saved as “\CAPTURE\CPXXXXX.JPG” (XXXXX indicates the specified numeric value.) NOTE • Files are always saved with file names specified here. If a file with the same name already exists on the CF-Card, the file will be overwritten.
		Indirect	Stores the file number in the second address from [Video Control Start Address] specified in [VM Unit Settings] in the System Settings.

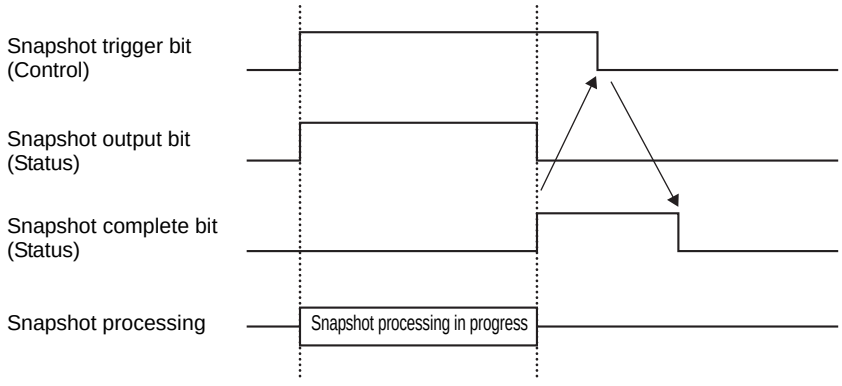
Continued

Setting			Description
Video snapshot	JPG file number	Indirect	< JPEG error code >

No	Summary	Detail
0	Completed Successfully	Processing successfully completed.
1	The JPEG image size exceeds 1024 x 768 dots.	An attempt was made to display a JPEG image with an image size of 1024 x 768 dots or more.*1
2	Unsupported sample ratio	An attempt was made to display a JPEG image created with an unsupported sample ratio.
3	Other compression/ expansion error	An internal error occurred due to an unknown reason while taking a snapshot (compressing) of a JPEG image or while displaying (expanding) a JPEG image.
4	No CF-Card	A CF-Card was not inserted at the time of displaying or taking a snapshot of a JPEG image, or the CF-Card hatch was open.
5	CF Write Error	The CF-Card capacity was not sufficient at the time of taking the JPEG image snapshot, or the CF-Card was ejected while it was being written.
6	CF Read Error	A display file did not exist at the time of displaying the JPEG image, or the CF-Card was ejected while it was being read.
7	CF-Card Error	The CF-Card is not formatted.
8	The video image cannot be saved.	When saving a video image in PAL, only the actual image size can be specified. If the size is specified as 1/4 or 1/16, the video image cannot be saved. If the revision No. of the VM Unit is Rev.A-2 or higher, an error will not occur and the video image can be saved.
9	Automatic increment file count error	When the [File Automatic Increment Function] is enabled in the system settings, and the JPEG file No. of the video capture was indirectly designated, an error will occur if the file No. exceeds 65535.

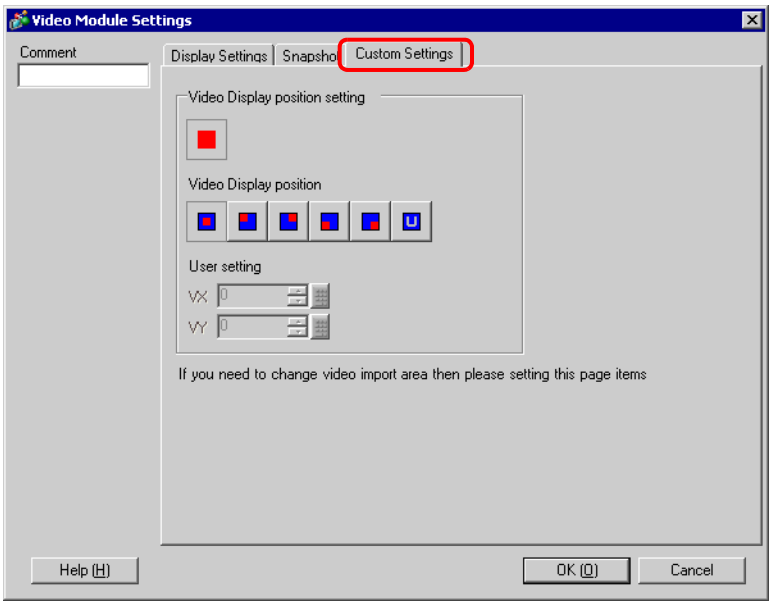
*1 An error occurs when the size of the expanded JPEG file exceeds 1024 x 768 dots. It does not depend on the original JPEG image file. An error does not occur for JPEG files with 1024 x 768 dots or more if the size is below 1024 x 768 dots in the 1/4, 1/16, or 1/64 setting.

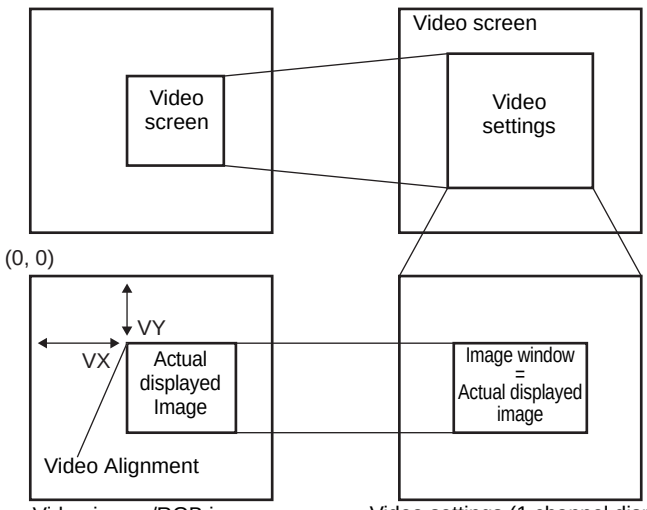
◆ Video Capture Timing Chart



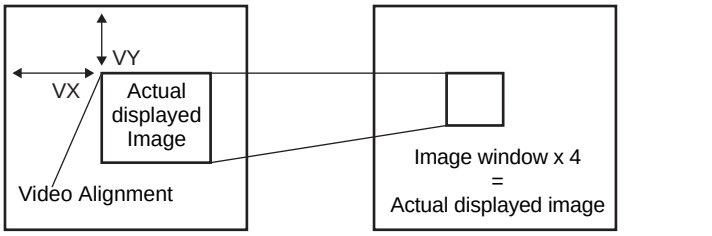
Even if the trigger bit turns OFF before the snapshot complete bit turns ON, the snapshot complete bit automatically turns OFF.

■ Custom Settings



Setting	Description
Video Display position setting	Specify which part of the actual image should be displayed. • To display normally Creates a movie window for the movie size starting from (0,0) • To display part of the movie Specifies the necessary position and creates a video window. Base The video screen is displayed on the base screen. Relationship Between the Video Screen and Video Settings The part called video settings is placed on the video screen, and the image is displayed only in the video settings.  Video image/RGB image Video settings (1 channel display, normal) When the display size is normal, the size of the actual displayed image is equal to the size of the image window in the video settings.

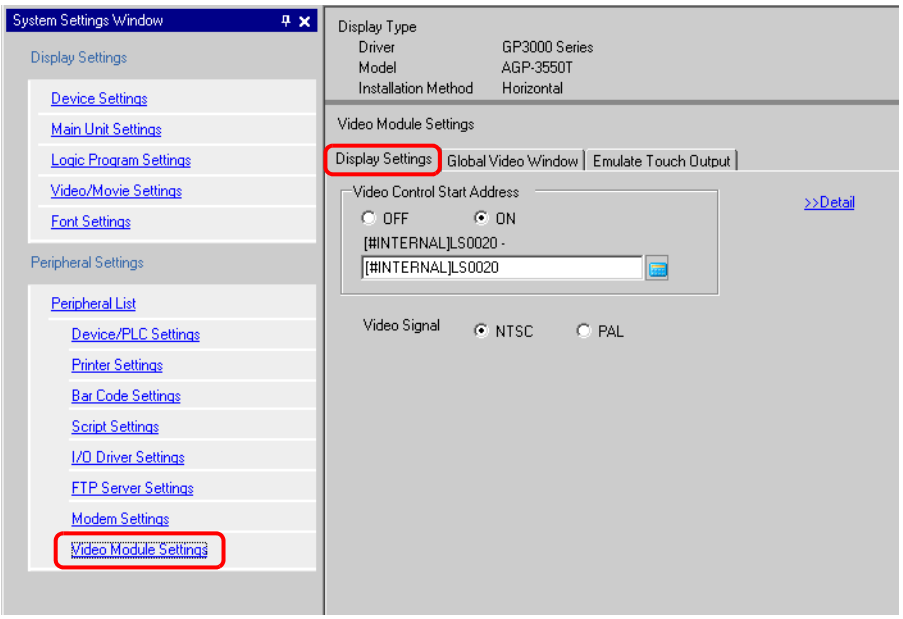
Continued

Setting	Description
Video Display Position Setting	 Video image/RGB image Video settings (1 channel display, 1/4 (reduced display)) When the display size is reduced (1/4), the size of the actual displayed image is four times as large as the size of the image window in the video settings (for 1/16, the size is 16 times larger).
Video Display position	For each display screen, select the video display position from , , , , , and . If is selected, the XY coordinates can be specified. • VX: Specify from 0 to 767. • VY: Specify from 0 to 575.

27.9.6 Setup guide of [Video Module Settings]

This section describes the basic settings of the optional Video Module.

■ Display Settings/Base



Setting		Description
Video Control Start Address		Specify whether to use the control address.
	OFF	Does not use the control address.
	ON	Set the GP internal device address for controlling the display of the VM Unit Window. Use a sequence of 42 words from the specified address. The settings range from LS20 - 1989 and 2096 - 8957. ☞ " ◆ Video Control Area" (page 27-121) **NOTE** • If an address is specified outside of the settings range, the VM function will not run.
Video Signal		Select the image input signal. • NTSC: 640 x 480 dots • PAL: 768 x 576 dots

◆ Video Control Area

The sequence of 42 words from the specified [Video Control Start Address] is called the "video control area". The following tables lists what each address controls.

NOTE
- The video control area processes data in 16 bits.
- The settings specified in [VM Unit Window Settings] in the Common Settings are written in the video control area.

Word Address	Summary	Bit	Detail
+0	Video common control command	0	Transparency (0: OFF, 1: ON)
		1	Transparent execution mode (0: Transparently displays colors other than those specified, 1: Transparently displays the specified color.)
		2	Touch input is prohibited in the window. (0: Enables input, 1: Prohibits input.)
		3	Unused (Reserved)
		4	Snapshot output (0: None, 1: Starts)
		5 to 15	Unused (Reserved)
+1	Video common control status	0 to 1	Snapshot status (0: None, 1: Snapshot in progress, 2: Snapshot complete.)
		2 to 11	Unused (Reserved)
		12 to 15	JPEG error codes
+2	JPEG file No.	0 to 65535	
+3	Transparent color 1	0 to 255, 0x8001 to 0x800C (E1 to E12)	
+4	Transparent color 2	0 to 255, 0x8001 to 0x800C (E1 to E12)	
+5	Transparent color 3	0 to 255, 0x8001 to 0x800C (E1 to E12)	
+6	Image window display control	0 to 3	Image window 0 0: External input device, 1: JPEG normal, 2: JPEG 1/4 expanded, 3: JPEG 1/16 expanded, 4: JPEG1 1/64 expanded, 5 - F: Reserved
		4 to 7	Image window 1 0: External input device, 1: JPEG normal, 2: JPEG 1/4 expanded, 3: JPEG 1/16 expanded, 4: JPEG1 1/64 expanded, 5 - F: Reserved
		8 to 11	Image window 2 0: External input device, 1: JPEG normal, 2: JPEG 1/4 expanded, 3: JPEG 1/16 expanded, 4: JPEG1 1/64 expanded, 5 - F: Reserved
		12 to 15	Image window 3 0: External input device, 1: JPEG normal, 2: JPEG 1/4 expanded, 3: JPEG 1/16 expanded, 4: JPEG1 1/64 expanded, 5 - F: Reserved
+7	Image window 0	JPEG file No.	
+8	Image window 1	JPEG file No.	
+9	Image window 2	JPEG file No.	
+10	Image window 3	JPEG file No.	

Continued

Word Address	Summary	Bit	Detail	
+11	Internal image window control flag (When the bit is ON, the operation described on the right is performed.)	0	Updates the coordinate position.	
		1	Unused (Reserved)	
		2	UP	
		3	DOWN	
		4	RIGHT	
		5	LEFT	
		6	Unused (Reserved)	
		7	Unused (Reserved)	
		8	Updates the color value.	
		9	Unused (Reserved)	
		10	Increases the color value by increments.	
		11	Decreases the color value by increments.	
		12	Brightness adjustment mode	
		13	Contrast adjustment mode	
		14	Color tone adjustment mode	
		15	Unused (Reserved)	
+12	Internal video control channel No.		0: Channel 0 1: Channel 1 2: Channel 2 3: Channel 3 4: RGB display	
+13	Video window control command *1	Video channel 0 information	0	Video display mode (0 Normal mode, 1: 1/4 mode, 2: 1/16 mode, 3: Reserved)
			1	
			2	Still (Still video screen) (0: Movie, 1: Still image)
			3 to 15	Unused (Reserved)
+14	Video alignment (VX)		NTSC: 0 to 639, PAL: 0 to 767	
+15	Video alignment (VY)		NTSC: 0 to 479, PAL: 0 to 575	
+16	Brightness		(Low ⇔ High: 0 to 15)	
+17	Contrast		(Low ⇔ High: 0 to 15)	
+18	Tone		(Green ⇔ red: 0 to 15)	

Continued

Word Address	Summary	Bit	Detail	
+19	Video window control command *1	Video channel 1 information	0	Video display mode (0: Normal mode, 1: 1/4 mode, 2: 1/16 mode, 3: Reserved)
			1	
			2	Still (Still video screen) (0: Movie, 1: Still image)
			3 to 15	Unused (Reserved)
+20	Video alignment (VX)		NTSC: 0 to 639, PAL: 0 to 767	
+21	Video alignment (VY)		NTSC: 0 to 479, PAL: 0 to 575	
+22	Brightness		(Low ⇔ High: 0 to 15)	
+23	Contrast		(Low ⇔ High: 0 to 15)	
+24	Tone		(Green ⇔ red: 0 to 15)	
+25	Video window control command *1	Video channel 2 information	0	Video display mode (0: Normal mode, 1: 1/4 mode, 2: 1/16 mode, 3: Reserved)
			1	
			2	Still (Still video screen) (0: Movie, 1: Still image)
			3 to 15	Unused (Reserved)
+26	Video alignment (VX)		NTSC: 0 to 639, PAL: 0 to 767	
+27	Video alignment (VY)		NTSC: 0 to 479, PAL: 0 to 575	
+28	Brightness		(Low ⇔ High: 0 to 15)	
+29	Contrast		(Low ⇔ High: 0 to 15)	
+30	Tone		(Green ⇔ red: 0 to 15)	
+31	Video window control command *1	Video channel 3 information	0	Video display mode (0: Normal mode, 1: 1/4 mode, 2: 1/16 mode, 3: Reserved)
			1	
			2	Still (Still video screen) (0: Movie, 1: Still image)
			3 to 15	Unused (Reserved)
+32	Video alignment (VX)		NTSC: 0 to 639, PAL: 0 to 767	
+33	Video alignment (VY)		NTSC: 0 to 479, PAL: 0 to 575	
+34	Brightness		(Low ⇔ High: 0 to 15)	
+35	Contrast		(Low ⇔ High: 0 to 15)	
+36	Tone		(Green ⇔ red: 0 to 15)	

Continued

Word Address	Summary	Bit	Detail	
+37	Video window control command *1	RGB display information	0	Video display mode (0: Normal mode, 1: 1/4 mode, 2: 1/16 mode, 3: Reserved)
			1	
			2	Still (Still video screen) (0: Movie, 1: Still image)
			3 to 15	Unused (Reserved)
+38	RGB alignment (VX)		VGA: 0 to 639, SVGA: 0 to 799	
+39	RGB alignment (VY)		VGA: 0 to 479, SVGA: 0 to 599	
+40	Reserved		Unused (Reserved)	
+41	Reserved		Unused (Reserved)	
+42	Reserved		Unused (Reserved)	

*1 When using a video window control command, note the following points:

IMPORTANT

- The size of the video display cannot be changed while the video is paused and a still image is displayed.
- If an attempt is made to output a snapshot while the video is paused and a still image is displayed, a snapshot of the still screen will be taken.
- While the video is paused to display a still image, after switching the image window display settings from video picture to JPEG display, in order to switch the settings back to video picture, first cancel the still image and then switch the settings.

< Video common control command (word address + 0) >

The video common control command (address + 0) is used to control the operations in the VM Unit Window. The following describes the operations that are controlled.

- This address area is initialized with the value that was set in the Video Window at the time of displaying with the Video Module.
- The following describes the settings when Transparency is enabled.
  - The color specified for transparency uses the data from the word addresses +3 to +5. If the color does not use the data, FFFF(h) is stored in the word addresses +3 to +5. Also, when using the mode for transparently displaying a color other than the specified color, only the transparent color 1 (word address + 3) is valid.
  - The range for a color specified for transparency is from 0 to 255 and from E1 to E12. When specifying from E1 to E12, set 0x8000 + No. (e.g.: For E5, set 0x8005.)
  - The transparent color is acquired from the most significant bit and lower 8 bits. Other bits are disabled. Also, when specifying E0 and from E13 to E255, the transparent color is disabled.
- While taking a snapshot, processing of parts and video display are stopped.
- If the same file exists on the CF-Card, the existing file will be overwritten.
- It takes approximately 3 to 5 seconds to take a snapshot (when the image quality is 80).

< Video common control status (word address +1) >

The video common control status (address + 1) writes the results of the operation in the Video Window.

- The snapshot status is ON when taking a snapshot of a JPEG file.
- The JPEG error code is set when an error occurs while taking a snapshot of a JPEG image or while a JPEG image is being displayed. The error remains set until the next snapshot operation starts.
  For details on JPEG error codes, refer to " ■ Snapshot" (page 27-116) .

< Image window display control (word address +6) >

Specify an image to be displayed in Video Window.

- A video image or a JPEG image on the CF-Card can be selected. For a video image, the image is displayed on the channel that was set in the Video Window. For a JPEG image, the JPEG file No. is specified for each channel. Also, when displaying a JPEG image, it is possible to select an expansion (or reduction) of the image.
- A JPEG image can be displayed with up to 1024 x 768 dots. Note that even for an image with 1024 x 768 dots or more, if 1/4, 1/16, or 1/64 expansion is specified and the expanded result is 1024 x 768 or less, the image can still be displayed.
  Also, in the Video Window, up to 800 x 600 size can be displayed for the SVGA model and up to 640 x 480 size can be displayed for the VGA model. If the image size exceeds 800 x 600 or 640 x 480, part of the image is cut off the screen and the remaining image is displayed.
- When JPEG is set as the initial display, it is not possible to switch between video image and JPEG image using the window display image control flag.
- When saving a JPEG image, it is not possible to expand (or reduce) an image.

< Internal image window control flag (word address + 11) >

This is the address area for changing the display state of a video picture.

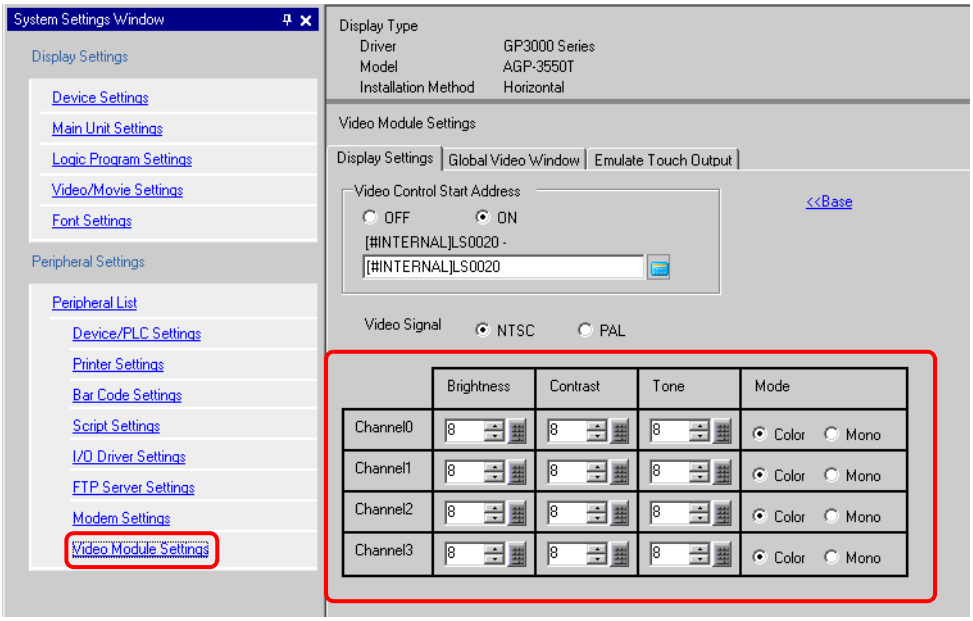
< Internal video control channel No. (word address + 12) >

The video picture display is changed to the settings specified in the bits for UP, DOWN, RIGHT, LEFT, and the plus/minus color value.
The bit for the plus/minus color value changes the settings for the parameters that are turned ON among the bits for brightness, contrast, and color tone. (These three parameters can be changed simultaneously.)

< Video channel information (word address +13 - 36)/RGB display information (word address +37 - 42) >

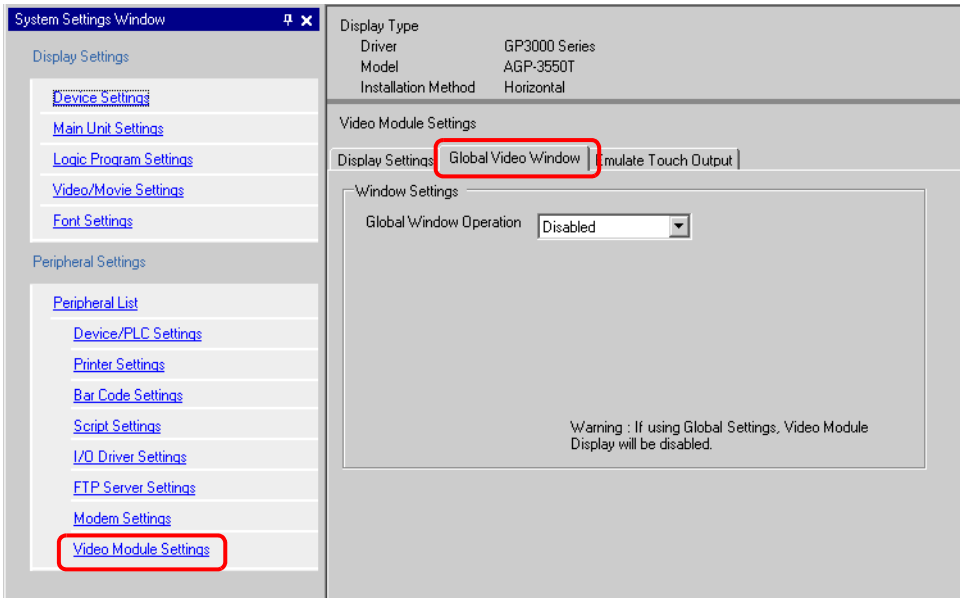
- Once the color value update bit is turned ON, it remains at the same level. Until this bit is turned OFF, the image window display state changes according to the brightness, contrast, and color tone values that are written in the video channel information area.
- Once the coordinate value update bit is turned ON, the bit remains at the same level. Until this bit is turned OFF, the image window display state changes according to the coordinate value that is written in the video channel window or the RGB display information area.
- Even after prohibiting touch-panel input in the Video Window, if the Video Module display is OFF, touch-panel input is enabled.

■ Display Settings/Detail



Setting		Description
Channels 0 - 3		Set the screen display state for each channel that has been set in [VM Unit Window Settings] in the Common Settings.
	Brightness	Specify the screen brightness. The settings range from 0 to 15.
	Contrast	Specify the screen contrast. The settings range from 0 to 15.
	Tone	Specify the screen color tone. The settings range from 0 to 15.
	Mode	Select the video input mode from either [Color] or [Mono].

■ Global Video Window



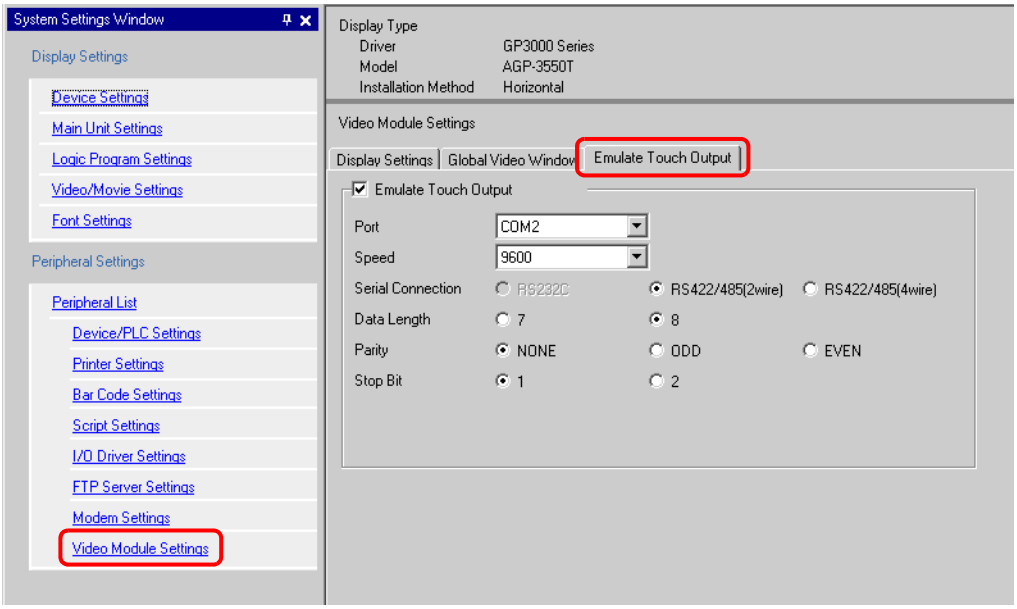
Setting			Description
Global Video Window	Disable		Does not use Global Video Window.
	Constant		Directly specify the Video Window No. to be displayed.
		Control Bit Address	Specify the address for displaying/hiding a window.
		Window No.	Specify the Video Window No. The settings range from 1 to 512.
		Display Position X-Coordinate	Specify the X coordinates for the window screen display position. The settings range from 0 to 1020. (The settings range varies depending on the GP model being selected.)
		Display Position Y-Coordinate	Specify the Y coordinates for the window screen display position. The settings range from 0 to 767. (The settings range varies depending on the GP model being selected.)
		Window Interchange	Specifies whether to switch from the foreground to the background by touching the windows when the windows overlap. By selecting [Always On Top], the Video Window is always displayed on top regardless of the order in which the windows were displayed.
	Address		Indirectly specifies the Video Window No. for display and the address for storing the display position, etc.
		Control Word Address	Specifies a window to be displayed or displays/hides the window using the sequence of 4 words from the specified address. Store the desired Video Window No. and display position and turn ON bit 0 of the control address. The window is displayed. +0 Control +1 Window No. +2 Display Position (X Coordinate) +3 Display Position (Y Coordinate)
		Data Type	Select the data type of the value to be set from either [Bin] or [BCD].

■ Emulate Touch Output

Touch coordinates can be output to the PC via serial communication. To operate the mouse cursor of the PC from the GP screen, you need to install mouse emulation software on your PC to receive touch information sent from the GP.

IMPORTANT

- To use touch output, prepare the following:
  - Mouse emulation software manufactured by Pro-face
    (This software can be downloaded from our support Web site “Otasuke Pro!” at http://www.pro-face.com/otasuke/.)
  - RGB cable (commercially available)
  - Serial cross cable (commercially available)



Setting		Description
Emulate Touch Output		Select whether to output a touch coordinate signal to the external connection device via serial communication when the screen displayed on the GB during RGB input is touched.
	Port	Select a port for the touch output from either [COM1] or [COM2]. NOTE • When specifying the port No. to be used, mark (“Duplicate Port”) is displayed.
	Speed	Select a communication speed from [2400], [4800], [9600], [19200], [38400], [57600] or [115200].
	Serial Connection	Select the communication method from [RS232C], [RS422/485(two wire)], or [RS422/485(4 wire)]
	Data Length	Select the data length from either [7] or [8].
	Parity	Select the parity bit from [None], [Odd], or [Even].
	Stop Bit	Select the stop bit from either [1] or [2].
	Flow Control	Select the flow control from [None], [RTS/CTS], or [ER(DTR/CTS)].

<Setup procedure>

1 For [Video Module Settings] in the System Settings Window, check [Emulate Touch Output], and configure communication settings according to the mouse emulation settings on the PC side.
2 Select [Video Module] in the Common Settings and create a new screen. Double-click the displayed screen and open the settings dialog box. Select [RGB (IN)] for [Channel] and check [Emulate Touch].
3 Place the VM Unit Display on the base screen and specify the window display settings.

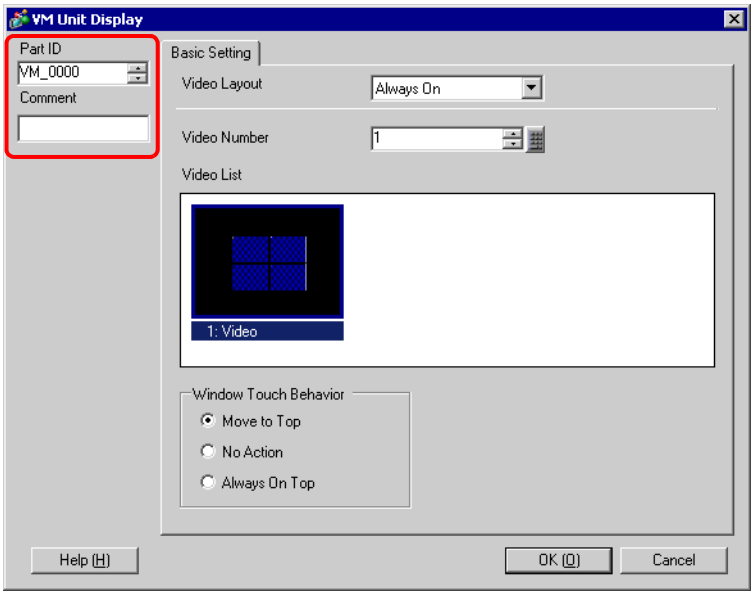
<Operating method>

Write “1” in the GP internal device LS9230. This enables touch output. The touch information to be output is written in LS9231 to LS9233.

LS9230	Enable/disable	0: Disable, 1: Enable
LS9231	Touch condition	0: Touch ON, 1: Touch OFF
LS9232	X coordinate	0 to 1023
LS9233	Y coordinate	0 to 1023

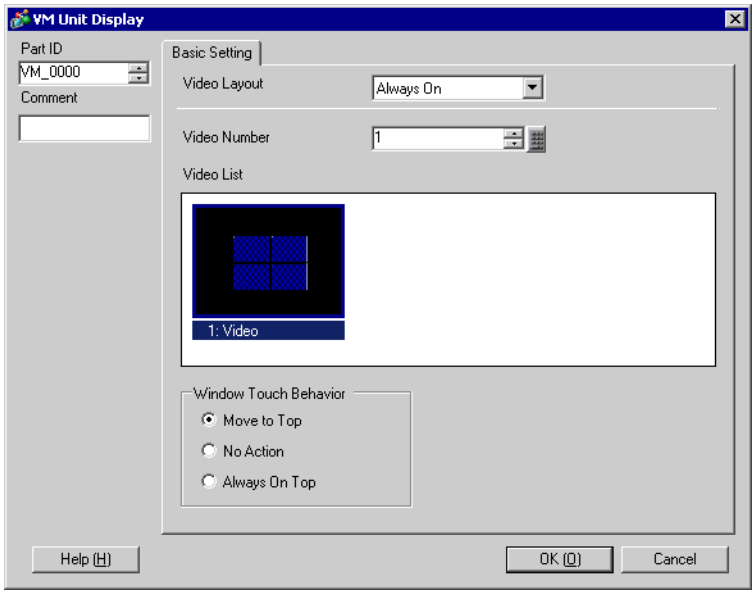
27.9.7 Setup Guide for the Video Module Display

The Video Module Display is the part for displaying the Video Window on the screen.
The Video Module Display shows the details specified in [Video Module Display] according to the position and operation specified in the Common Settings [Video Module].



Setting	Description
Part ID	An ID No. is automatically assigned to the parts placed on the screen. Part ID of Movie Player: VM_**** (four-digit numeric characters) The alphabetic portion is fixed. You can change the number part within the range of 0000-9999.
Comment	The comment for each Part can be up to 20 characters long.

■ Basic Setting



Setting		Description
Video Layout		Select the display operation for the Video Window.
	Always On	Always displays the Video Window.
	Window On/Off	Displays/hides the window in [Window Display Bit Address].
	Address	Specifies the Video Window No. to be displayed, or displays/hides the Video Window using the four-word sequence from the [Window Display Word Address]. Store the desired Video Window No. and display position and turn ON bit 0 of the control address. The window is displayed. +0 Control +1 Window No. +2 Display coordinate (X) +3 Display coordinate (Y)
Video Number		Set the Video Window No. to be displayed when [Always On] or [Window On/Off] is selected for [Video Layout]. The settings range from 0 to 512.
Window Display Bit Address		Specify the address used to control whether to display or hide the window when [Window On/Off] is selected at [Video Layout].
Video List		Displays the Video Window that was specified in the thumbnail when [Always On] or [Window On/Off] is selected for [Video Layout]. It is also possible to select a video window from the list.
Window Touch Behavior		Select the display operation for the window from [Move to Top], [No Action], or [Always On Top] when [Always On] or [Window On/Off] is selected for [Video Layout].

27.10 Restrictions

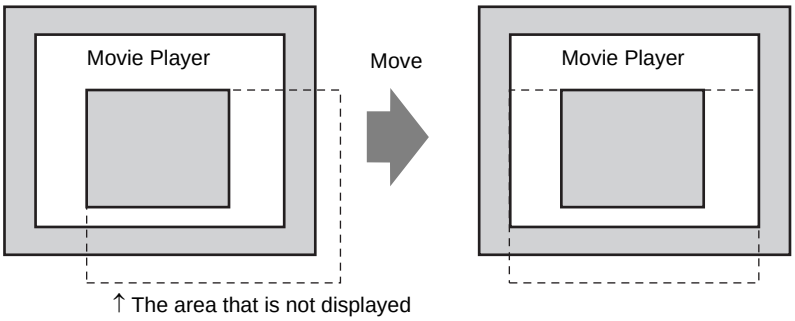
■ Differences Between Movie Function and Video Module Function

Detail	Movie play function	VM unit function
Camera for displaying objects	1-ch camera input with AGP-3*50T Movie file on the CF/FTP server	4-ch camera input on VM Unit RGB input on the VM Unit
Setup part	Movie Player	Video Module Display
Number of simultaneous camera displays	Displays only one image.	The display area can be divided into four areas and the number of images to be displayed can be selected.
Movie recording function	Enable	Disable
Snapshot function for JPEG	Disable	Enable
Camera input signal format	NTSC/PAL/SECAM	NTSC/PAL

27.10.1 Restrictions on Movie Function

■ Movie Player

- Only one Movie Player can be placed on one Base Screen or Window Screen.
- The width (X coordinate) of the Movie Player can be specified in multiples of four dots.
- If the size of the Movie Player is smaller than the video input image, part of the area that does not fit the screen will not be displayed. To view the entire image, move the image using the move switch.
  e.g.: GP-3550T (640 x 480)
  The video input is [NTSC] (640 x 480)
  [Size] of Movie Player is [Normal]



- The following table lists the video input settings, operable cameras, and movie files.

Video Input Setting	Video Input	Movie Player File	Movie Record File
NTSC	NTSC	NTSC	NTSC
PAL	PAL	PAL	PAL
SECAM	SECAM	PAL	PAL

- When returning online after moving to offline mode or transfer mode while a video is being displayed or played, all functions stop. (The picture will not be displayed.) Touch the video display switch or the play switch to display the video.

■ Video Display

- There will be no sound when displaying real-time video. Video that has been recorded in a movie file will play with sound.
- The video display function can be used simultaneously with the movie recording function for recording on a CF-Card or FTP server, but the video display function cannot be used simultaneously with the play function.

■ Recording

- It is not possible to save the next movie until the previous movie has finished saving. Movies can be saved on the CF-Card and FTP server simultaneously.
- It is not possible to play a movie while it is being recorded.
- When the operation of the event recorder function is specified as [Always], the play function cannot be used.
- Record to CF and Record to FTP can be operated simultaneously while using the event recorder function. However, the writing speed slows and saving will take longer to complete.
- The folder or file name in which a movie is recorded cannot be changed during recording.
- If an error occurs during recording, turn ON bit 1 (resume bit) of the specified [Control Address]. The error will be corrected, and bit 1 (save enable bit) of the status address will turn ON. Directly turning ON the save enable bit will not correct the error.
- When starting to save a movie on the CF-Card, the number of files in the Save To folder is confirmed. If the predefined number of files has already been saved, more files cannot be saved. However, if [Loop] is set to [Auto], the oldest file is automatically deleted and a new file is saved.
- At the beginning of saving a movie on a CF-Card, if any of the following files exist in the Save To folder, saving will not start.
    - A file with a name in which the number of characters do not match the specified number.
    - A file with a name in which the first two characters (the user specifiable string) do not match the specified characters.
    - A file with an extension other than ".SDX"
- Do not place a file that was arbitrarily created under the "MOVIE" folder on the CF-Card. An error may occur during saving to the CF-Card, or the file may be deleted.
- Do not operate a screen configured with a CF-Card if the CF-Card is not inserted in the GP. The screen will not operate properly.
- The number of times that data can be written on a CF-Card is limited. (Approximately 100,000 times for rewriting 500 KB.)
- Up to 32 FTP servers can be registered.
- The number of movie files to be saved on a FTP server differs depending on the specifications of the FTP server.
- If an error is returned from a FTP server, the saving operation will stop.
- The server connection number cannot be changed while a movie is being saved on the FTP server.
- When moving to offline mode or transfer mode during recording, the save function automatically stops and the pictures that have been recorded at that time are saved.

■ Playing a Movie

- While a movie is being played, video cannot be recorded.
- Even when [Play List] is specified as [CF] or [FTP] in Movie Player, Movie Player will not operate if the movie play list file does not exist. If the play list file was mistakenly deleted, use Special Data Display [File Manager] to play the movie.
- Movie files cannot be played unless they are in SDX format.
- While you are playing a video file saved on the FTP server, functions such as pause, fast forward, rewind, slow motion play, or frame-by-frame forward/reverse play cannot be used to change the playback speed. Even if you place these operation switches, they won't work.
- Although file names can be changed as desired, the order of play remains the same. (Movie files are played in the order in which the files were created on the CF-Card or FTP server.)
- While a logic program is operating, the operation of recording or playing movies may be interrupted. To use the movie recording/playing function and logic functions simultaneously, insert “LWA” (Logic Wait Instruction) in the logic program.

■ CF-Card Usage Warnings

- When ejecting a CF-Card, make sure that the CF-Card access LED lamp turns OFF. Otherwise, the data on the CF-Card may be damaged.
- When accessing a CF-Card, be sure not to power OFF or reset the GP, or eject the CF-Card. Create an application screen on which the CF-Card cannot be accessed, and on that application screen, you may power OFF or reset the GP, open and close the CF-Card cover, and eject the CF-Card.
- When inserting a CF-Card, check the front and back sides and the connector position of the card. If the CF-Card is inserted the wrong way, the data, the CF-Card, or the GP may be damaged.
- Use a CF-Card manufactured by Pro-face. If a CF-Card manufactured by another company is used, the contents of the CF-Card may be damaged.
- Please make sure to back up all CF-Card data.
- Please refrain from doing the following, as it can result in damage to data and equipment:
    - Bending the CF-Card
    - Dropping the CF-Card
    - Spilling water on the card
    - Touching the CF-Card’s connectors directly
    - Disassembling or modifying the CF-Card

27.10.2 Restrictions on Video Module Functions

- For AGP-3500T and AGP-3550T, Extended Unit and Video Module of SGMU cannot both be installed. Either one of these can be used.
- When the Video Module is installed, the GP display colors are reduced to 32 K colors.
- The Video Module display cannot be placed on a window.
- Multiple Video Module displays can be placed on a Base Screen. However, only one Video Module display can be displayed on the GP screen.
- A JPEG image can be displayed on the Video Module display up to 1024 x 768 dots. Note that even for an image with 1024 x 768 dots or more, if an image becomes 1024 x 768 or less after specifying a display size of 1/4, 1/6, or 1/64, the image can still be displayed. Also, in Video Window, a size up to 800 x 600 can be displayed on the SVGA model and a size up to 640 x 480 can be displayed on the VGA model. If the size of the image exceeds 800 x 600 or 640 x 480, part of the image will be cut off the screen and the only the remaining portion of the image will be displayed

■ Saving JPEG

- Only one channel of video input can be used for saving JPEG.
- It is not possible to take a snapshot of the RGB input screen.
- While taking a snapshot, processing of parts and video display are stopped.
- It takes approximately three to five seconds to take a snapshot.
  <When acquiring display data>
  After the data acquisition processing is complete, the screen is turned OFF. A file will not be created on the CF-Card.
  <When saving to a CF-Card>
  After saving is complete, the screen is turned OFF. A file will be created on the CF-Card.

Memo