32 Simulation

This chapter provides an overview of the "Simulation" feature of GP-Pro EX and the basic operation for the simulation.

Begin reading "32.1 Settings Menu" (page 32-2) and proceed to the description in the desired section.

32.1	Settings Menu	
32.2	Checking the Display operation on the PC.	32-3
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32.5	Settings Guide	
32.6	Restrictions	

32.1 Settings Menu





Checking the Logic Operation on the PC.						
You can check the operation of a logic program on the PC.	Setup Procedure (page 32-13) Introduction (page 32-12)					

32.2 Checking the Display operation on the PC.

32.2.1 Introduction

Using the simulation feature, you can verify how the project operates before transferring it to the device/PLC. You do not have to save the project before simulating, making it ideal for debugging as you edit and create the project. You can even keep simulation running while you open and edit a different project in GP-Pro EX.



32.2.2 Setup Procedure



1 Open the project file you want to simulate. From the [Project (F)] menu, select [Simulation (L)].

Proj	ect (F)	
	New (<u>N</u>)	
Þ	Open (<u>O</u>)	Ctrl+O
	Save (<u>5</u>)	Ctrl+5
	Save as (<u>A</u>)	
	Information (<u>I</u>)	+
	System Settings (<u>C</u>)	
-	Edit (<u>E</u>)	
•	Preview (<u>W</u>)	
	Simulation (L)	Ctrl+T
	Transfer Project (<u>G</u>)	•
M	Monitor (<u>M</u>)	
	Utility (<u>T</u>)	•
	Print (<u>P</u>)	•
	Recent Project (<u>)</u>	•
	Exit (X)	



You can also use the keyboard shortcut Ctrl+T to start simulation.
You can also click simulation from the State bar to start simulation.

2 [GP-Pro EX Simulation] is displayed.

🕺 GP-Pro EX Simulation							- 🗆 ×
Simulation (S) View (V) Option	s (O) Preview (W)						
	💿 🛒 📮						
Function Soreen Screen Screen	Catego Mei	urizing nu Scre	line en				
0pera circu	itional Imstance		Operation Guide View	1			<u> </u>
Object		<u></u>					
Current Screen	Number 4	Upen So	creen Search Uptions 🎤				
System Area	All Devices/PLCs 💌	All Types	▼ Dec (+/-) ▼				
Base Screen	Screen A	TD/Numb	Eupstion	Address	State	5	
Window Screen	Base 2	DD 0000	Monitor Word Address	[PLC1]D00050	0	+	
Header/Footer	Base 2	DD 0001	Monitor Word Address	[PLC1]D00060	0	+	
Alarm	Base 2	DD_0002	Monitor Word Address	[PLC1]D00051	0	+	
Sampling Settings	Base 2	DD_0003	Monitor Word Address	[PLC1]D00052	0	+	
Recipe Settings	Base 2	DD_0004	Monitor Word Address	[PLC1]D00053	0	+	
Security Settings	Base 2	DD_0005	Monitor Word Address	[PLC1]D00061	0	÷	
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Acquiring current value from the	simulator	DD 0007	I Manakan I Hand A daharan	LEDUCT DODOCO		i dha	
Address Hill Logi	ic 🖓 1/0						
Ready					RUN	AGP-35001	

3 You can check the operation of the project file in progress through [GP-Pro EX Simulation] located at the top of the screen.



NOTE

• If you simulate a different project file or the current project file after you make edits, select [Simulation (L)] from the [Project (F)] menu again.

4 [Address View] allows you to display a list and edit the current value of the virtual device/ PLC address used for simulation. Select the item you want to view from the [Object] pane (Base Screen)

View						×
Object						
Watah List	Number 2	💶 🕨 🛛 Open Sc	reen Search Options 🎤			
Current Sereen		A # 7				
Current Screen	All Devices/PLUs	All Types	▼ Dec (+/·)			
System Area			1	1		
All Items	Screen A	ID/Numb	Function	Address	State	S
Base Screen	Base 2	DD_0000	Monitor Word Address	[PLC1]D00050	0	+
Window Screen	Base 2	DD_0000	Monitor Word Address	[PLC1]D00060	0	+
Header/Footer	Base 2	DD_0000	Monitor Word Address	[PLC1]D00061	0	+
Alarm	Base 2	DD_0000	Monitor Word Address	[PLC1]D00062	0	-
Sampling Settings	Base 2	DD_0000	Monitor Word Address	[PLC1]D00063	0	*
Recipe Settings	Base 2	DD_0001	Monitor Word Address	[PLC1]D00051	0	-
Security Settings	Base 2	DD_0002	Monitor Word Address	[PLC1]D00052	U	
Operation Log Settings	Base 2	DD_0003	Monitor Word Address	[PLCI]D00053	0	
Cohe date Cohines	Base 2	GR_0000	Monitor Address	[PLCI]D00055	0	
Schedule Settings	Base 2	GR_0001	Monitor Address	[PLC1]D00056	0	
Sound Settings	Dase 2	GR_0002	Monitor Address	[PLCI]D00057	0	
Text Table	Base 2	GR_0003	Monitor Address	[PLC1]D00056	0	
Global D-script	Base 2	GR_0004	Monitor Address	[PLC1]D00055	0	
Extended Script	Base 2	GR_0005	Monitor Address	[PLC1]D00056	0	
User-defined Function	Base 2	GR_0000	Monitor Address	[PEC1]000057	0	<u>.</u>
Change Backlight Color	Base 2	SL 0000	Bit Address	[PLC1]000030		+
Video Module Window	Base 2	SL 0001	Bit Address	[PLC1]M0180		
Suctem Settings	50302	52_0001	DRAddross	[/ CCI]//0101		
Lasia Caraca						
Logic Screen						
I/O Screen						
Symbol Variable						
System Variable (Bit)						
System Variable (Integ						
Bit Address						
Word Address						
Bit Variable						
Integer Variable						
Eleat Variable						
Deal Uselable						
Real variable						
Imer Variable						
Counter Variable	l					
Date Variable						
Time Variable 🗨	[
Acquiring current value from th	e simulator					
Address Hill Lor	sic (Can I/O					
Las riderooo lang						

• If [Address View] does not display, select [Preview (W)] and then [Address (D)] from the [View (V)] menu, or click **b**.

- If [I/O View] or [Logic View] is displayed over the [Address View], click the [Address] tab to bring [Address View] to the front.
- **5** In the [Address View], set the screen number from [Number] to switch the address display screen.

(For example, 10)

- **6** To toggle the bit address ON or OFF, click in the [State] field. To change the value in a word address in [Address View], select the value in the [State] field and make the change.
- 7 Select [Exit from Simulation (X)] from the [Simulation (S)] menu or click 🚺 to exit the simulation feature. [GP-Pro EX Simulation] and [Address View] will be closed.
 - NOTE
 The backup file data for SRAM is deleted after the simulation ends. To save the backup file, select [Configure Memory (M)] from the [Option (O)] menu or click
 If you select the [Backup the PLC device] check box from the [Configure Device Memory] dialog box, the data of the same address can be read when the same file is opened again.

32.3 Checking the operation of the I/O driver on the PC

32.3.1 Introduction

Before transferring the project file, you can confirm the current address value by simulating the address allocated to the I/O Terminal of the I/O Driver to control external I/O. Some I/O Drivers allow you to switch Input ON/OFF and update the current value when you enter a value.



32.3.2 Setup Procedure

Please refer to the Settings Guide for details.
 "32.5.1 Setting Guide for [GP-Pro EX Simulation]" (page 32-17)
 "32.5.3 [I/O View] Settings Guide" (page 32-24)



1 Open the project file you want to simulate. From the [Project (F)] menu, select [Simulation (L)].

Proj	ect (F)	
	New (N)	
	Open (<u>O</u>)	Ctrl+O
	Save (5)	Ctrl+S
	Save as (<u>A</u>)	
	Information (<u>I</u>)	+
	System Settings (<u>C</u>)	
🥣	Edit (<u>E</u>)	
Q	Preview (<u>W</u>)	
	Simulation (L)	Ctrl+T
	Transfer Project (<u>G</u>)	•
M	Monitor (<u>M</u>)	
	Utility (<u>T</u>)	•
	Print (<u>P</u>)	•
	Recent Project (<u>1</u>)	×
	Exit (X)	

NOTE

- You can also use the keyboard shortcut Ctrl+T to start simulation.
- You can also click simulation from the State bar to start simulation.

2 [GP-Pro EX Simulation] is displayed.

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5imulation (S) View (V) Opti	ons (O) Preview (W)						
M M M							
							
unction							
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Sareen	Cate	gorizing	line				
		lenu Scre	en				
			S H				
							_
0	ational		Onematica				
uper	ativilai		operation				
oper	umetance		Guido				
circ	umstance		Guide				•
circ	umstance		Guide				•
Oper circ	umstance		Guide View		_	_	<u> </u>
Object	umstance	I III IIII Open Si	Guide View Creen Search Options				<u>-</u>
Object Current Screen System Area	umstance	All Types	Guide View creen Search Options				<u> </u>
Object Current Screen System Area All Items	Number 2	(III) Open So All Types	Guide View creen Search Options				<u>-</u>
Object Object Current Screen Base Screen	umstance	All Types	Guide View creen Search Options	Address	State	5	-
Object Object Current Screen System Area All Items Base Screen Window Screen	Number 2 All Devices/PLCs Screen A Base 2	All Types	Guide View Creen Search Options P T Dec (+/-) T Function Monitor Word Address	Address [PLCI]D00050	State	5 	
Object Current Screen All Items Base Screen Window Screen Header/Footer	Number 2 All Devices/PLCs Screen + Base 2 Base 2	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	Creen Search Options Creen Search Options Creen Se	Address [PLC1]00050 [PLC1]00050	State 0 0	5 †2 †2	
Object Current Screen System Area All Items Base Screen Window Screen Header/Footer Alarm	umstance Number ∄ All Devices/PLCs Screen ▲ Base 2 Base 2 Base 2	(1) (Guide View T Dec (+/-) Function Monitor Word Address Monitor Word Address	Address [PLC1]D00050 [PLC1]D00050 [PLC1]D00050	State 0 0 0	5[+ + +	
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Object Object Current Screen System Area All Items Base Screen Window Screen Header/Footer Alarm Samping Settings Recipe Settings	Number 2 All Devices/PLCs Screen * Base 2 Base 2 Base 2 Base 2 Base 2		Guide View View T Dec (+/) F Punction Monitor Word Address	Address [PLC1]D00050 [PLC1]D00050 [PLC1]D00051 [PLC1]D00052 [PLC1]D00052	State 0 0 0 0 0 0 0 0	5 + + + + + + + +	
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Object Current Screen System Aree All Items Base Screen Window Screen Header/Footer Alarm Sampling Settings Recipe Settings Security Settings	Umstance		Creen Search Options	Address [PLC1]000050 [PLC1]000051 [PLC1]000051 [PLC1]000052 [PLC1]000053 [PLC1]000052	State 0 0 0 0 0 0 0 0 0 0 0	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	
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Object Current Screen System Area All Items Base Screen Window Screen Header/Footer Alarm Sampling Settings Recipe Settings Security Settings Acquiring current value from th	Umstance		Guide View Creen Search Options Dec (+/-) Function Monitor Word Address Monitor Word Address	Address [PLC1]000050 [PLC1]000050 [PLC1]000051 [PLC1]000052 [PLC1]000052 [PLC1]000052 [PLC1]000052 [PLC1]000052 [PLC1]000052	State 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 + + + + + + + + + +	
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Chiest Current Screen System Area All tems Base Screen Window Screen Header/Footer Alarm Sampling Settings Recipe Settings Recipe Settings Recipe Settings Construct Settings Acquiring current value from the Address IN Lo each	Number 2 All Devices/PLCs Base 2 Base		Guide View Creen Search Options Image: Creen Dec (+/) Image: Creen Monitor Word Address Monitor Word Address Monitor Word Address	Address [PLC1]D00050 [PLC1]D00050 [PLC1]D00051 [PLC1]D00052 [PLC1]D00052 [PLC1]D00052 [PLC1]D00052 [PLC1]D00052 [PLC1]D00052	State 0 0 0 0 0 0 0 0 0 0	5 + + + + + + + + + + + + +	

NOTE

• If you simulate a different project file or the current project file after you make edits, select [Simulation (L)] from the [Project (F)] menu again.

3 Select [Preview (W)] and point to [I/O(I)] from the [View (V)] menu, or click **(I/O View)** appears.





• If [Address View] or [Logic View] is displayed over the [I/O View], click the [I/O] tab to bring the [I/O View] to the front.

- 4 In [I/O View], you can view or change the current value of the address allocated to the I/O Terminal of the I/O Driver. Select the I/O Driver to display from [I/O Driver List]. The Basic screen of the I/O Driver displays.
 - (For example: DIO Driver)



5 Click to extend the window of the Driver display area over the entire screen.

View		1
DIO		
	>> Details	
	Input	l
	0 1 2 3 4 5	l
		l
	Output	l
		l
		l
		l
		l
		l
		l
		l
		l
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		l
		l
		l
Address 🔣 Logic	@_1/0	il.
		100

6 By pointing the cursor to the icon, the name of the variable displays.



7 By clicking [Details], the detail screen of the I/O Driver displays.

iew	× * * * * * * * * * * * * * * * * * * *
	0 🗄 🖸
DIO	🗍 DIO 🔣
	<< Basic
	input
	U Power Un Button
	3
	4
	5
	Output
	0 🔲 Lamp
	1
Address 🍙 1/0	

- 8 Click when you want to switch ON/OFF the bit address. This changes the ON/OFF state by clicking.
- **9** To enter a new value for the current Integer type address, enter the value and then press the [ENTER] key.

This updates the current value.



- 10 Select [Exit from Simulation (X)] from the [Simulation (S)] menu of [GP-Pro EX Simulation] or click local to exit the simulation feature. [GP-Pro EX Simulation], [Address View], and [I/O View] will close.

32.4 Checking the Logic Operation on the PC.

32.4.1 Introduction

You can check the operation of the logic program before you transfer the project file and without connecting to the GP.

You can check the symbol variable ON/OFF state or current values. This is useful for debugging the logic program.



You can check the operation of a logic program on the PC.

32.4.2 Setup Procedure

Please refer to the Settings Guide for details.
 "32.5.1 Setting Guide for [GP-Pro EX Simulation]" (page 32-17)
 "32.5.4 [Logic View] Settings Guide" (page 32-26)



1 Open the project file you want to simulate. From the [Project (F)] menu, select [Simulation (L)].

Proj	ect (F)	
	New (<u>N</u>)	
	Open (<u>O</u>)	Ctrl+O
	Save (<u>5</u>)	Ctrl+S
	Save as (<u>A</u>)	
	Information (<u>I</u>)	•
	System Settings (\underline{C})	
1	Edit (<u>E</u>)	
•	Preview (<u>W</u>)	
	Simulation (L)	Ctrl+T
	Transfer Project (<u>G</u>)	•
M	Monitor (<u>M</u>)	
	Utility (<u>T</u>)	•
	Print (P)	•
	Recent Project (<u>]</u>)	•

NOTE

You can also use the keyboard shortcut Ctrl+T to start simulation.
You can also click simulation from the State bar to start simulation.

2 [GP-Pro EX Simulation] is displayed.

GP-Pro EX Simulation							_ 🗆 ×
mulation (S) View (V) Opti	ions (O) Preview (W)						
🗟 🎯 🕅 🖃 🗉) 🔯 🛒 📮						
Function Screen Screen	Cate	gorizing Ienu Scre	line en				_
0per circ	ational cumstance		Operation Guide View				<u> </u>
Oper circ Object	ational umstance	I I I Open So	Operation Guide View creen Search Options				
Oper circ Object Current Screen System Area All tems	ational umstance Number 2 All Devices/PLCs	M Deen Si All Types	Operation Guide View creen Search Options P Dec (+/-) V				
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Oper circ Object Current Screen System Area All Items Base Screen Window Screen Header (Fonter	Number 2 All Devices/PLCs Base 2 Base 2		Operation Guide View creen Search Options P Dec (+/) Function Monitor Word Address Monitor Word Address	Address [PLC1]D00050 [PLC1]D00050	State	S 19	
Oper circ Object Current Screen All Items Base Screen Window Screen Header/Footer Alern	Autional Number 2 All Devices/PLCs Screen - Base 2 Base 2 Base 2		Operation Guide View Creen Search Options Dec [+/-] Function Monitor Word Address Monitor Word Address Monitor Word Address	Address PLC1]000050 [PLC1]000050	State 0 0	S	
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Oper circ	All Devices/PLCs Screen A Base 2 Base 2		Operation Guide View Creen Search Options Dec (+/-) Function Monitor Word Address Monitor Word Address	Address [PLC1]000050 [PLC1]000050 [PLC1]000051 [PLC1]000053 [PLC1]000053 [PLC1]000051 [PLC1]000061	State 0 0 0 0 0 0 0 0 0 0	5 	
Oper circl	A tional Lumstance Al Devices/PLCs Screen - Base 2 Base 2		Operation Guide View Creen Search Options Dec (+/-) Function Monitor Word Address Monitor Word Address	Address [PLC1]000050 [PLC1]000050 [PLC1]000051 [PLC1]000052 [PLC1]000053 [PLC1]000052 [PLC1]000052 [PLC1]000052 [PLC1]000052	State 0 0 0 0 0 0 0 0 0 0 0	S 49 49 49 49 49 49 49 49 49 49 49 49 49	
Oper circl Current Screen System Area All Ttems Base Screen Window Screen Header/Footer Alarm Sampling Settings Recipe Settings Security Settings Security Settings Acquiring current value from t	Autional Lumstance All Devices/PLCs Screen - Base 2 Base		Operation Guide View Creen Search Options Dec (+/) T Function Monitor Word Address Monitor Word Address Monitor Word Address Monitor Word Address Monitor Word Address Monitor Word Address Monitor Word Address	Address [PLC1]D00050 [PLC1]D00050 [PLC1]D00051 [PLC1]D00052 [PLC1]D00052 [PLC1]D00052 [PLC1]D00052 [PLC1]D00052	State 0 0 0 0 0 0 0 0	S - - - - - -	

• If you simulate a different project file or the current project file after you make edits, select [Simulation (L)] from the [Project (F)] menu again.

NOTE

3 Select [Preview (W)] and point to [Logic (L)] from the [View (V)] menu, or click **[**[Logic View] is displayed.

iew	
Screen List MAIN A Manufacturin	► ■ M ■ © # 1000 ÷
SUB-01 Reset Lounter	
Address 👸 Lo	iejc 🦓 I/O

- If [Address View] or [I/O View] is displayed on the front, click the [Logic] tab to bring the [Logic View] to the front.
- From [Screen List], double-click the logic program you want to display.In the [Logic View], operational status of the logic program is shown with green lines.(For example, MAIN A Manufacturing System)

iew	×
Screen List	▶ ■ M ■ Ŏ 器 1000 ÷
SUB-01 Reset Counter	MAIN (A Manufacturing System)
	1 -MAIN START (0)
	2 (1) OFF Lamp OFF
	3 w) \$ue-or 《
	Soddriječion Tine 4 0FF 2000 PT ET 0
	SourceSuppleMuton IceSuppleMuton IceSuppleMuton IceSuppleMuton 5 0FF 0FF 0FF
	SmallDxp8uton MOV 6 0FF 4000 51 01 2000 2000 2000 2000 2000
	SmillcpQuanty CTU Q
Address	c 🕼 VO 🕅 Function

5 In order to switch the symbol variables ON/OFF, right-click to select [ON]/[OFF] or [Force ON]/[Force OFF].



6 In order to change the current value of the symbol variables, right-click the value and select [Edit] or double-click on the value to change it. This updates the current value.



- 7 To stop the logic program, click 🔳 (Stop) or select 🛄 (Pause).
- 8 Select [Exit from Simulation (X)] from the [Simulation (S)] menu of [GP-Pro EX Simulation] or click local to exit the simulation feature. [GP-Pro EX Simulation], [Address View], [I/O View], and [Logic View] will close.
 - The backup file data for SRAM is deleted after the simulation ends. To save the backup file, select [Configure Memory (M)] from the [Option (O)] menu or click . If you select the [Backup the PLC device] check box in the [Device Memory Settings] dialog box, the data of the same address can be read when the same file is re-opened.

32.5 Settings Guide

32.5.1 Setting Guide for [GP-Pro EX Simulation]



Setting		Description			
		 In [Simulation screen], select [Utility] and point to [Save Screen] Or click at to saves the screen image in a JPEG file format. 			
		 NOTE You can specify the quality of the screen capture screen to save in the [Screen/Video Capture Settings]'s [Capture Image Quality] field. 			
		C:\Program Files\Pro-face\GP-Pro EX ***\CFA00\CAPTURE (*** stores the version number)			
		Save in (GP-Pro EX 2.20 or later on Windows® 2000 or XP) C:\Documents and Settings\All Users\Documents\Pro-face\GP-Pro EX ***\Simulator\CFA00\CAPTURE (*** stores the version number)			
	Simulation				
		File Name "CAP + year, month, day, hours, minutes, seconds, and automatically generated three digit number + .jpg". You cannot change how this file- name is generated.			
L		• [Simulation Exit] Exit simulation.			
ı Ba		NOTE			
Menu		 You can exit the simulation by using any of the following methods: Click X in [GP-Pro EX Simulation] 			
		•Click 🚺 on the tool bar			
		•Right-click the simulation display area. Select [Close] from the menu.			
		• [Toolbar]			
		Switch the show/hide for the Toolbar.			
		• [Status Bar] Switch the show/hide for the Status			
		 Select [View] and point to [Address]/[I/O] 			
		•Address View			
		Switch the show/hide for the Address View.			
	Display	address for the simulation function Click b to display/bide. For more			
	Display	information on [Address View], see the following.			
		🐨 "32.5.2 [Address View] Setting Guide" (page 32-21)			
		•I/O View			
		Switch the show/hide for the I/O View. This displays or hides the cur- rent value of the virtual device/PLC address set in the I/O View screen			
		Click is to display/hide. For more information on [I/O View], see the following.			
		[©] "32.5.2 [Address View] Setting Guide" (page 32-21)			

Setting		Description			
Menu Bar		 Memory settings When you select this, the [Device Memory Settings] dialog appear as follows. You can backup or initialize the data of the virtual device/PLC address.			
	Option	 Device Memory Settings Back up PLC Device Initialize PLC Device OK Cancel Back up PLC Device When you exit the simulation, specify whether to back up the virtual device/PLC address. By backing up, you can retrieve the data from the same address when you open the same file. Initialize PLC Device Select [Initialize PLC Device] to clear all of the virtual device/PLC address data to 0. 			
	View	 [Tile Horizontally] When you display multiple views, windows appear tiled from top to bottom. You can click into the same operation. [Tile Vertically] When you display multiple views, the views can be laid out into a right and left half. You can click into the same operation. 			
Tool Bar		 Select the show/hide of Address View. Select display/hide for I/O View. Select display/hide for Logic View. Divide views horizontally. Divide views vertically. Produce a hard copy of an HMI screen. Configure Device Memory. Exit simulation. 			
Simulation Display Area		Displays the simulation results for the project file on the Edit screen, where you can check the operation of the file			
View Display Area		This is the area for displaying [Address View], [I/O View] and [Logic View]. [Address View], [I/O View] and [Logic View] can be separated from [GP-Pro EX Simulation] when you drag and drop.			
Vie	w Switch Tab	Tabs of the Views on the screen display. Click a tab to change the view.			
Sta	itus Bar	Displays the model of display unit.			

Right-click menu

The following menu appears when you right-click the simulation view screen.

Change Panel

	Setting	Description
Scre	en Change	The [Display Number Select] dialog box appears. You can switch the display screen.
	Screen Number	Specify the base screen number that you want to switch to in the range of 1 to 9999. Only screens in the project can be opened in the Simulation.
	List	Displays the screen number and title.
	Open	Open the selected screen.
	Close	Close the dialog box.

32.5.2 [Address View] Setting Guide

view 💌						
Object			-			
	Number 2	📲 🕨 🛛 Open Sc	reen Search Options 🎾			
watch List		11				
Current Screen	All Devices/PLCs 💌	All Types	▼ Dec (+/-) ▼			
System Area			,			
All Items	Screen 🔺	ID/Numb	Function	Address	State	S
Base Screen	Base 2	DD_0000	Monitor Word Address	[PLC1]D00050	0	+
Window Screen	Base 2	DD_0000	Monitor Word Address	[PLC1]D00060	0	÷
Header/Footer	Base 2	DD_0000	Monitor Word Address	[PLC1]D00061	0	÷
Alarm	Base 2	DD_0000	Monitor Word Address	[PLC1]D00062	0	+
Sampling Settings	Base 2	DD_0000	Monitor Word Address	[PLC1]D00063	0	+
Pecipe Settings	Base 2	DD_0001	Monitor Word Address	[PLC1]D00051	0	+
Convilue Cohings	Base 2	DD_0002	Monitor Word Address	[PLC1]D00052	0	+
Securicy Securitys	Base 2	DD_0003	Monitor Word Address	[PLC1]D00053	0	÷.
Operation Log Settings	Base 2	GR_0000	Monitor Address	[PLC1]D00055	0	
Schedule Settings	Base 2	GR_0001	Monitor Address	[PLC1]D00056	0	÷.
Sound Settings	Base 2	GR_0002	Monitor Address	[PLC1]D00057	0	÷.
Text Table	Base 2	GR_0003	Monitor Address	[PLC1]D00058	0	÷
Global D-script	Base 2	GR_0004	Monitor Address	[PLC1]D00055	0	-
Extended Script	Base 2	GR_0005	Monitor Address	[PLC1]D00056	0	
Licer-defined Euroction	Base 2	GR_0006	Monitor Address	[PLC1]D00057	0	-
Charge Deallight Cales	Base 2	GR_0007	Monitor Address	[PLC1]D00058	0	*
Change Backlight Color	Base 2	SL_0000	Bit Address	[PLC1]M0180	(OFF)	-
Video Module Window :	Base 2	SL_0001	Bit Address	[PLC1]M0181	(OFF)	*
System Settings						
Logic Screen						
I/O Screen						
Symbol Variable						
System Variable (Bit)						
System Variable (Integ						
Dit Address						
Dic Maaress						
Word Address						
Bit Variable						
Integer Variable						
Float Variable						
Real Variable						
Timer Variable						
Counter Variable						
Date Variable						
Time Variable						
	I					
Acquiring current value from the simulator						
E Address Big Los						
Est Muuress [Chill Lot		J				

Setting	Description
	Select the object items of the address you want to display in [Address View].
Object	 NOTE If the objects are other than [Symbol Variable], the variables which are not used do not display in [Address View] of simulation even though you have registered variables. When the objects are [Symbol Variable], all variables display regardless of whether they are used or not.
	Define the screen number you want to view with 5 digits or less.
Number	 NOTE You can only specify this when selecting [Base Screen], [Window Screen], or [Video Module Window] as the [Object]. If you set up a [Screen Number] that cannot be saved, the number will appear in red.
(())	The address information of the connected device for the screen before or after the screen input in [Screen Number].
Open Screen	Displays the screen that contains the [Screen Number] on [Simulation View].

Setting	Description			
Search Options	If you search for a string in [Screen], [ID/No./Rung], [Function], and [Address], all address information that includes the string is displayed.			
Device/PLC	Select the device/PLC in the project file that you want to view: [All Devices/PLCs], [PLC1], [#INTERNAL], or [Symbol Variable].			
Туре	Select the address type to display. When you select [All Types], all types of addresses display.			
	For the displa-)], [Hex], [I	ay [State] and dat BCD] or [Float].	a input formats, select [Oct], [Dec], [Dec (+/ The format of all the display data changes.	
	Bit Length	Format	Input/Display Range	
		Dec	0 to 65535	
		Dec(+/-)	-32768 to 32767	
		Цох	0 to FFFF(h)	
	16 Bit	nex	0 to FFFF(h)	
Format		Oct	0 to 177777(o)	
Format		Oci	0 to 177777(o)	
		BCD	0 to 9999	
		Dec	0 to 4294967295	
		Dec(+/-)	-2147483648 to 2147483647	
	32 Bit	Нех	0 to FFFFFFF(h)	
	52 Dil	TIEX	0 to FFFFFFF(h)	
		BCD	0 to 99999999	
		Float	±1.175494351e-38 to ±3.402823466e+38	
Display Select Area	 The address information selected from [Object], [Number], [Device/PLC] and [Type] is displayed. You can select one line at the same time. Multiple lines cannot be selected at the same time. Screen Screen The active screen number and the settings are displayed. Location The ID of components in use, the group of address, the block number and the line number are displayed. Feature Displays which address is used by each function. Address Displays the device/PLC name and address State The current value changed to a [Type] string is displayed. If the current value cannot be displayed, [Retrieving] is displayed. Saves the watch list/Delete watch list Saves or deletes the active device/PLC address. 			

Setting	Description
	Saves the active device/PLC address in the watch list. When you save addresses in the watch list, you can confirm all addresses at one time.
Save watch list	 NOTE When you select [Watch List] in [Object], you can only [delete]. The Watch List is common for all projects. Once an address is added to the watch list, that item is not removed unless specified. When a previously added address is not used in the current simulated project, then the address appears in red. Although you cannot display or edit red address values, you can remove them.
Current Value Editing	Change the current value. The assignable value range varies by the selected [Format].
Status Bar	The following message shows the communication status of the simulation. Initialize: Starting communication with the simulator. Communication (Normally):Retrieving current value from the simulator. Communication Error:Unable to connect to the simulator.

32.5.3 [I/O View] Settings Guide



Driver Detail Display

Setting	Description		
I/O Driver List	Displays the list of the I/O Driver registered in the current edited project file. Select the I/O Driver to display in the Driver Detail Display Area.		
Driver Detail Display Area	From the simulation, you can check the performance operation of the I/O Driver selected from the I/O Driver List. The Display Method differs depending on the selected I/O Driver.		
Introduction	Change the Detail Screen/Basic Screen.		
Current Value	 Bit Type Displays (ON)/ (OFF). NOTE When you click , it switches ON/OFF for some I/O Drivers. You cannot perform output operations. DIO Driver, FLEX NETWORK Driver's DIO, LT Built-in DIO (STD) Driver's standard IO, EX module (EXM) Driver's DIO IO When the status is , you can move the focus with the [TAB], [Up], [Down], [Left], and [Right] keys. Also, you can switch ON/OFF with the [SPACE] key. LT Built-in DIO Driver (STD)'s PWM Output/PLS Output, EXM Module (EXM) Driver's Analogue IO You can move the focus by [TAB]. 		

	Setting	Description
Driver Detail Display Area	Current Value	 Integer Type Displays numeric values. When you start typing, the current value display stops. Enter numeric values and press the [ENTER] key. If you press a key other than the [ENTER] key or do other operations, anything you type is canceled. Switch Decimal/Hexadecimal Switch Decimal/Hexadecimal systems are supported. Click St to display the numeric numbers in hexadecimal and click to display them in decimal. You can switch the decimal/hexadecimal for every variable. Slider Bar When you select the FLEX NETWORK Driver, you can move the slider bar depending on the position of the knob. Click the [ENTER] key to update the current value on the slider position. Integer You can move the focus by [TAB]. Range When you select the analog of the FLEX NETWORK Driver, select the Input/Output range.
I/O I Tab	Driver Change	Displays tabs of displayed I/O drivers. Click a tab to switch to the individual I/O Driver settings.
Change View		 Displays the windows in Driver Display Area in layers. Displays the windows in Driver Display Area in the upper and lower half. Maximizes the windows in Driver Display Area.





Logic Program Detail Display

Setting	Description	
Screen List	Displays the list of the logic names/titles of the logic programs created in the current edited project file. Double-click to display the logic program in the logic program display area.	
Tool Bar	 Runs the logic program. Stops the logic program. Resets the logic program. Pauses the logic program. Executes one scan of the logic. Enables/Disables the forced change. Image: Specifies the logic program's detailed display area's update rate. 	
Logic Name/Title	The logic names and titles of the logic programs displayed on the logic program display area will be displayed.	
Logic Program Display Area	Results of the simulation of the logic program selected in the Screen List are displayed. Green lines show the operating status. You can check/change ON/OFF and the current values of the symbol variables.	

32.6 Restrictions

32.6.1 Restrictions on Simulation

- Some functions may operate properly in simulation even if they are configured beyond the upper limit number of parts or addresses. Check the upper limit values for each part in the corresponding chapter, as limits may differ depending on the model.
- You can run Simulation on one project at a time.
- If the project does not pass the error check (from the [Project (F)] menu point to [Utility (T)] and select [Error Check (E)]), it will not run in Simulation.
- Simulation does not work while WinGP is running.
- With Microsoft Windows XP Service Pack 2, when you start Simulation it may display an error message indicating that the Windows firewall is blocking the application. In that case, select [Release Block] and continue with the Simulation operation.
- When the installation destination of the GP-Pro EX has more than 200 characters and simulation is started, the error message "You cannot start simulation because the maximum number of characters has been exceeded" appears. Simulation will not run normally. Reinstall GP-Pro EX to an installation destination with a path less than 200 single-byte characters long.
- To simulate a different project file, select [Simulation] from the [Project (F)] menu again.
- When setting the display orientation to [Portrait], the display is rotated 90-degrees when you run simulation.



- The virtual device/PLC backup file cannot be read when simulation of a different project file is running, or when the device/PLC configuration has changed in the project. Simulation is started without the previously stored data.
- Some unsupported functions in the model may operate in simulation because simulation does not identify the display model. (For example, a project may have sound settings for models with sound output functions (AGP-3550T), and then you change to a different model (AGP-3500T). When the project is simulated, the sound output function operates. However, the sound output function does not run when this project is transferred to the GP. See the following description of supported functions for each model.
 "1.3 List of Supported Features by Model" (page 1-8)
- The SRAM function for PC/AT series, PS series, or PL series can use up to 320 KB during simulation.
- The communication scan value is always set to zero because simulation does not communicate with the device/PLC. Communication status information is not received correctly in simulation.

- In the [Display Unit]'s [System Area] tab, if the [System Area Start Address] is not set up, the project cannot display the System Area data.
- In Simulation, you cannot set up clocks or calendars that use the System Area or system variables.
- When writing data to PLC devices with D-Script, the write results are not reflected immediately. It takes some time to communicate with GP units, but the writing results are immediately reflected in simulation. If you create D-Script taking into account the time lag to write data to PLC devices, simulation results may differ from the actual operation on GP units.
- During Simulation, if you use the [Display] menu's [Option Settings] command to change the language settings, an error message prevents the operation. To change the language, you need to exit Simulation.
- You cannot exit GP-Pro EX while running simulation. Exit the simulation first.
- The SRAM backup data during simulation is cleared after you exit simulation.
- The following are features unsupported in Simulation.

Feature	Details/Menu
System Menu• [Offline], [CF Start], [IP Address], [RGB Settings], [Address tor], [Logic Monitor], [Device Monitor], [Ladder Monitor]	
Offline	Cannot display the offline screen.
 Print Feature Printing alarm banner, alarm history, and sampling data, prin associated with CSV display parts, printing commands in scr and printing screen images does not work. 	
Bar Code Reader	• Cannot read in data from a bar code reader.
AUX Output	Cannot run AUX Output.
Playing Movies	 The Movie Player does not display. When using a [File Manager] part set to [Select Movie], the File Manager will not display. The Save to CF or FTP and the Event Recorder functions do not work.
SRAM Backup	• All data stored in SRAM, such as alarm history, sampling data, rec- ipes, internal device backup, and the Japanese FEP converter, is deleted when exiting Simulation.
Brightness/ Contrast Settings	• The Brightness and Contrast adjustment bar does not display.
Reverse Display	• Even when [Reverse Display] is set in a Monochrome model, the display of the simulation is not reversed.
Standby Mode	The Standby Mode function does not work.

Feature	Details/Menu
Retentive Variables	• In the [Edit Symbol Variables] dialog box, even though the Symbol is set to Retentive, the data is erased when exiting Simulation.
Detect Backlight	• Detecting if the backlight is burned out does not work.
Remote PC Access	The Remote PC Access Window Display does not display.
Change Backlight	Changing the backlight color does not work.
Monitor	Address Monitor, Logic Monitor, Device Monitor, and Ladder Monitor features do not work.
Cross-hairs Cursor	• The cross-hairs cursor feature does not work.
WinGP	 Device access APIs and handling APIs do not work, and error messages do not save. The switch features mapped to the function keys on the keypad do not work. After performing the simulation on the IPC, the IPC function keys will not work, either.
Special Switch	Operation Lock, Transfer Device/PLC Data
Logic Feature	 Logic, Scan Time, #L_Clock100ms, #L_Clock1sec, #L_Clock1min, Timer Instruction, PID Instruction, and Constant Number System may differ from the actual actions. Watch Dog Timer, Logic Monitor, and Address Monitor features do not work. The calculation system of Ladder Instructions may differ from the Display. (For example, Instructions dealing with real numbers, SCL Instructions, AVG Instructions)
Online Monitor	Online monitor does not work.
Transfer	 [Transfer] tool's LAN/USB Transfer [Memory Loader] tool's CF Card/USB Transfer
Function Key Features of Hand- held GP	 The operation switch should function only as a normal function key. Multiple function keys will not work when pressed at the same time.

32.6.2 Restrictions on Address View

• The contents displayed on [Address View] are identical to those displayed in the [Cross Reference (R)] window.

You cannot display or change an address (including an indirect address) that is not displayed in [Cross Reference (R)].

- If the objects are other than [Symbol Variable], variables that are not in use are not displayed in the simulation [Address View], even if the variables are registered.
- You cannot directly input the device address to [Watch List] on [Address View].
- You cannot display or edit D-Script temporary addresses.

32.6.3 Restrictions on I/O View

- Output operations cannot be performed.
- Analog data of the FLEX NETWORK Driver can display to one decimal place.
- When [Data Range] is set to [Fixed] in the EXM Driver (Model: EXM-AMM3HT), operations for the upper and lower limit cannot be run.
- When you select the STD, EXM, and CANopen drivers, I/O Driver-dependent display is not available. Registered variables display and non-allocated terminals do not display.

32.6.4 Restrictions on Logic View

- Online edit, PID monitor, and logic editing are not allowed.
- You cannot display the list of the current values. Please use [Address View].
- When switching the screen by setting the screen number (for example, #H_CurrentScreenNo) using INIT in a logic program, some operations may run differently from the actual operation.