

Yaskawa Electric Corporation
Robot Controller Sample Project File for
DX100、DX200

Technical Guide



Revision History

Revision No.	Date	Descriptions
00	28/07/2017	New
01	24/04/2020	Update 4.2. Target HMI Devices

Table of Contents

1. Overview.....	1
2. Restrictions and Notes	1
3. How to use this project file	2
4. Device configuration	3
4.1. System configuration.....	3
4.2. Target HMI Devices.....	4
4.3. Software.....	8
4.4. Connection devices.....	8
4.5. Cable wiring	8
4.6. Communication settings.....	9
4.6.1. Pro-EX communication settings	9
4.6.2. Communication settings for connection devices	9
4.6.3. Indirect device settings	9
5. Screen configuration.....	11
5.1. Screen types.....	11
5.2. Screen transitions	13
6. Detailed screen explanation.....	15
6.1. Shared	15
6.1.1. Screen overview	15
6.1.2. Screen image	15
6.1.3. D Script	16
6.2. Startup screen (B0001)	17
6.2.1. Screen overview	17
6.2.2. Screen image	17
6.3. Robot Controller List screen (B8600)	18
6.3.1. Screen overview	18
6.3.2. Screen image	18
6.3.3. D Script	19
6.4. PANEL Setting screen (B8680).....	20
6.4.1. Screen overview	20
6.4.2. Screen image	20
6.4.3. D Script	21
6.5. I/O Monitor screens (B8620-B8623)	23
6.5.1. Screen overview	23
6.5.2. Screen image	23
6.5.3. D Script	24
6.5.4. Text registry (8001 – 8142)	25
6.6. JOB Monitor screen (B8630).....	26

6.6.1. Screen overview	26
6.6.2. Screen image	26
6.6.3. D Script	27
6.7. JOB List screen (B8631).....	29
6.7.1. Screen overview	29
6.7.2. Screen image	29
6.7.3. Job program selection window	30
6.7.4. D Script	31
6.8. Robot Status monitor screens (B8640).....	32
6.8.1. Screen overview	32
6.8.2. Screen image	32
6.8.3. D Script	33
6.9. Servo Monitor screen (B8641)	34
6.9.1. Screen overview	34
6.9.2. Screen image	34
6.9.3. D Script	35
6.10. Tool Information screen (B8645)	36
6.10.1. Screen overview	36
6.10.2. Screen image	36
6.10.3. D Script	36
6.11. System Monitor screen (B8646).....	37
6.11.1. Screen overview	37
6.11.2. Screen image	37
6.11.3. D Script	37
6.12. Alarm Monitor screen (B8660).....	38
6.12.1. Screen overview	38
6.12.2. Screen image	38
6.12.3. Alarm Details window.....	39
6.12.4. D Script	40
6.13. Alarm History screen (B8661)	41
6.13.1. Screen overview	41
6.13.2. Screen image	41
6.13.3. D Script	42
6.14. Predictive Maintenance screen (B8670)	43
6.14.1. Screen overview	43
6.14.2. Screen image	43
6.14.3. D Script	45
6.15. Advanced Setting screen (B8671).....	46
6.15.1. Screen overview	46
6.15.2. Screen image	46

6.15.3. D Script	47
6.16. CMOS Backup screen (B8672)	48
6.16.1. Screen overview	48
6.16.2. Screen image	48
6.16.3. D Script	48
6.17. Byte Variable Monitor screen (B8690)	49
6.17.1. Screen overview	49
6.17.2. Screen image	49
6.17.3. D Script	49
6.18. Integer Variable Monitor screen (B8691)	50
6.18.1. Screen overview	50
6.18.2. Screen image	50
6.18.3. D Script	50
6.19. Double Int Variable Monitor screen (B8692)	51
6.19.1. Screen overview	51
6.19.2. Screen image	51
6.19.3. D Script	51
6.20. Real Variable Monitor screen (B8698).....	52
6.20.1. Screen overview	52
6.20.2. Screen image	52
6.20.3. D Script	52
6.21. String Variable Monitor screen (B8693)	53
6.21.1. Screen overview	53
6.21.2. Screen image	53
6.21.3. D Script	53
6.22. Robot Position Variable Monitor screen (B8694)	54
6.22.1. Screen overview	54
6.22.2. Screen image	54
6.22.3. D Script	55
6.23. Base Position Variable Monitor screen (B8695).....	56
6.23.1. Screen overview	56
6.23.2. Screen image	56
6.23.3. D Script	56
6.24. Station Position Variable Monitor screen (B8696)	57
6.24.1. Screen overview	57
6.24.2. Screen image	57
6.24.3. D Script	57
6.25. Register Monitor screen (B8697).....	58
6.25.1. Screen overview	58
6.25.2. Screen image	58

6.25.3. D Script	58
7. Global D script	59
8. Address maps	60
8.1. List of internally-used addresses.....	60
8.2. Symbol variable list	66

Refer to the DX100 Instructions for Use for operations and details about configuration content.

1. Overview

This is a sample project connection with the Robot Controller, DX100/DX200 manufactured by Yaskawa Electric Corporation. When using the Robot, we provide the following features to help improve understanding.

- ✓ Robot Controller status (such as mode, operation status) can be checked on a GP unit.
- ✓ Up to 8 controllers can be connected.
- ✓ The status of the I/O controller can be monitored in real-time.
- ✓ Displays movement of the robotic arm on a GP unit.
- ✓ The current position of the robotic arm can be displayed in real-time.
- ✓ Details of current alarm and alarm history can be viewed on a GP unit.
- ✓ The variable and address value can be displayed at once, thus making monitoring easier.
- ✓ Predictive Maintenance and CMOS Backup screens are provided as a maintenance function.

Notes : For WVGA (800×480 pixels), there is function button area at the right of the screen.
Please read the manual, " Functions Added to Sample Project File for SP5000 Wide Model".

2. Restrictions and Notes

A) Restrictions

This screen data is taken from screenshots showing the representative features and functions of the GP4000 Series.

When using the sample project file, be sure to reference our product manual or the connection device manual, including the usage restrictions and safety precautions. In addition, please be aware that we are unable to accept responsibility for damage arising from reasons that cannot be attributable to us, loss of customer opportunity or profit arising from the malfunction of our product, damage arising from special circumstances regardless of whether or not we had foreknowledge of those circumstances, secondary damage, compensation for accidents, damage to our products, or other business-related guarantees.

B) Notes

1. The intellectual property rights for the files provided by Digital Electronics Corporation belong to us.
2. Downloaded files and the data extracted from those files are no guarantees of our product specifications. Please be aware of this fact.
3. The liability for use of this service lies with the customer.
4. In any case, this is not intended as a warranty for any work for a system that makes use of the data on these screens.
5. This program runs on the GP-4501T (VGA: 640 x 480, 65536 colors) series of devices.
6. Any modifications made to this service by a customer are entirely at the responsibility of the customer.

7. Please be aware that we cannot respond to any inquiries for the purpose of modifying these data.
8. The content and information in the data on these screens and documentation are subject to change without prior notification.

3. How to use this project file

When using this project file (henceforth known as “the file”), be sure to confirm the following details:

- 1) When using the file as-is
Confirm the communication settings.
When using this file as-is, transfer it in GP-Pro EX to a display console with a touch panel.
When connecting, refer to section “4. Device Configuration” of this Instructions for Use.
For networking cables, refer to sections “4.5. Networking cables” and “4.6. Communication settings” of this Instructions for Use.
- 2) How to combine with other files
In GP-Pro EX, select [Project] → [Utilities] → [Copy from Another Project].
For further details, refer to “Chapter 5 From Startup to Shutdown” in our reference manual.
However, there are issues to be aware of, such as overlapping screen numbers, so also refer to sections 3) and later.
- 3) Screen numbers when combining
There may be times when things get overwritten, such as when there are duplicate screen numbers.
When combining the file with a file currently being created, be aware of the screen numbers.
Refer to section “5.2. Screen transitions” for screen numbers that are being used by the file.
When combining with 2), it is possible to designate a copy destination screen number before starting to copy. Before combining, be sure to either designate a screen number when copying, or change the screen number in advance.
When changing a screen number, be sure to also change the screen number for the screen replacement switch.
Be aware that if no changes are made to the screen replacement destination screen number, unexpected operations may occur.
- 4) Changing addresses
When changes are made to the address of a connection device that has been configured on the screen, it will not operate properly.
Do not make changes to these addresses.

4. Device configuration

4.1. System configuration

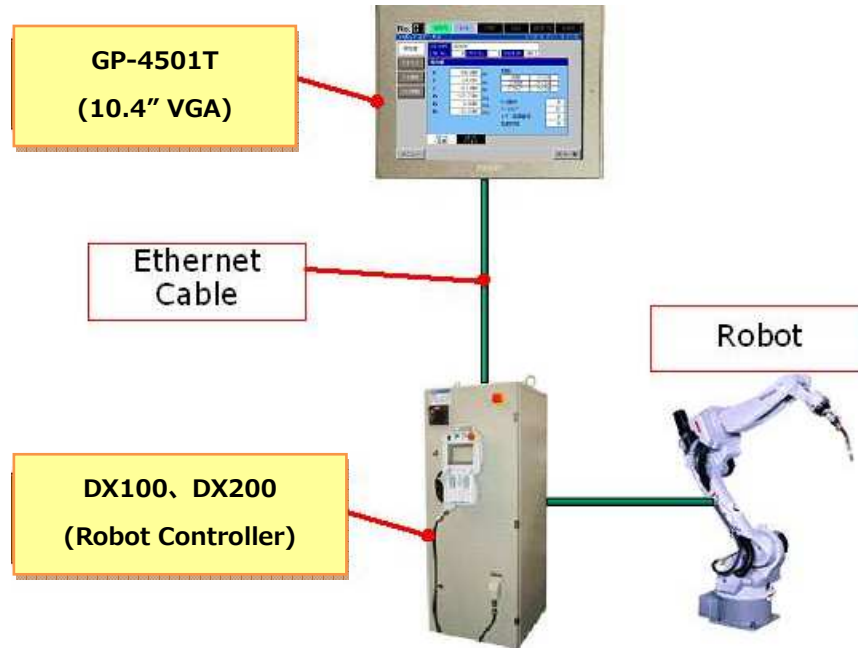


Figure 4-1 System configuration

NOTES

- ◆ The power source specifications for GP differ depending on the device type.
- ◆ A robot and a station and a base each one by one is connected to a robot controller, in this Sample Project.
- ◆ For further details, check the catalogs or hardware manuals.
- ◆ DX100 requires system software (DS3.00-00 version or later).
- ◆ DX200 requires system software (DS1.00-00 version or later).
- ◆ For DX100/DX200 settings information and operation please refer to the DX100/DX200 manual.
- ◆ When using Alarm details function please download the Alarm file and save to the CF/SD card.

4.2. Target HMI Devices

The following shows the display device types for use with this sample project file.

The module name below is the module selecting on GP-Pro-EX

The notation in table point the below project file.

VGA : connection_sp5500_v_YAS-DX100_200_ml_V200.prx

WVGA : connection_sp5400_wv_YAS-DX100_200_ml_V200.prx

Table 4-2 Target HMI Devices

Series	Unit / Display Module	Target project module		
		VGA	WVGA	Remark
SP5000 Power Box (SP-5B10)	SP-5500TP VGA (640*480)	OK*1		
	SP-5500TP SVGA (800*600)	OK*2		
	SP-5600TP VGA (640*480)	OK *1		
	SP-5600TP SVGA (800*600)	OK *2		
	SP-5600TP XGA (1024*768)			
	SP-5600TA XGA (1024*768)			GP-Pro EX Over Ver.4.08.200
	SP-5660TP VGA (640*480)	OK *1		
	SP-5660TP SVGA (800*600)	OK *2		
	SP-5660TP XGA (1024*768)			
	SP-5700TP VGA (640*480)	OK *1		
	SP-5700TP SVGA (800*600)	OK *2		
	SP-5700TP XGA (1024*768)			
	SP-5700WC FWXGA (1366*768)			GP-Pro EX Over Ver.4.07.300

	SP-5800WC FWXGA (1366*768)			GP-Pro EX Over Ver.4.07.300
	SP-5400WA WVGA (800*480)		OK	
	SP-5500WA WXGA (1280*800)		OK *2	
	SP-5600WA WXGA (1280*800)		OK *2	
	DC Power Supply Adapter SVGA (800*600)	OK *2		GP-Pro EX Over Ver.4.08.000
	DC Power Supply Adapter XGA (1024*768)			GP-Pro EX Over Ver.4.08.000
SP5000 Open Box (SP-5B40, SP-5B41)	SP-5500TP SVGA (800*600)	OK *2		
	SP-5600TP SVGA (800*600)	OK *2		GP-Pro EX Over Ver.4.06.100
	SP-5600TP XGA (1024*768)			
	SP-5600TA XGA (1024*768)			GP-Pro EX Over Ver.4.08.200
	SP-5660TP SVGA (800*600)	OK *2		GP-Pro EX Over Ver.4.06.100
	SP-5660TP XGA (1024*768)			
	SP-5700TP SVGA (800*600)	OK *2		GP-Pro EX Over Ver.4.06.100
	SP-5700TP XGA (1024*768)			
	SP-5700WC FWXGA (1366*768)			GP-Pro EX Over Ver.4.07.300
	SP-5800WC FWXGA (1366*768)			GP-Pro EX Over Ver.4.07.300
	SP-5400WA WVGA (800*480)		OK *1	
	SP-5500WA WXGA (1280*800)		OK *2	
	SP-5600WA WXGA (1280*800)		OK *2	

	DC Power Supply Adapter SVGA (800*600)	OK *2		GP-Pro EX Over Ver.4.06.300
	DC Power Supply Adapter Other Resolution			GP-Pro EX Over Ver.4.06.300
SP5000 Standard Box (SP-5B00)	SP-5500TP VGA (640*480)	OK *1		
	SP-5500TP SVGA (800*600)	OK *2		
	SP-5600TP VGA (640*480)	OK *1		
	SP-5600TP SVGA (800*600)	OK *2		
	SP-5600TP XGA (1024*768)			
	SP-5600TA XGA (1024*768)			GP-Pro EX Over Ver.4.08.200
	SP-5660TP VGA (640*480)	OK *1		
	SP-5660TP SVGA (800*600)	OK *2		
	SP-5660TP XGA (1024*768)			
	SP-5700TP VGA (640*480)	OK *1		
	SP-5700TP SVGA (800*600)	OK *2		
	SP-5700TP XGA (1024*768)			
	SP-5700WC FWXGA (1366*768)			GP-Pro EX Over Ver.4.07.300
	SP-5800WC FWXGA (1366*768)			GP-Pro EX Over Ver.4.07.300
	SP-5400WA WVGA (800*480)		OK *1	
	SP-5500WA WXGA (1280*800)		OK *2	
	SP-5600WA WXGA (1280*800)		OK *2	

	DC Power Supply Adapter SVGA (800*600)	OK *2		GP-Pro EX Over Ver.4.08.000
	DC Power Supply Adapter XGA (1024*768)			GP-Pro EX Over Ver.4.08.000
SP5000X eXtreme Box (SP-5B90)	SP-5490WA WVGA (800*480)		OK *1	GP-Pro EX Over Ver.4.08.200
	SP-5690WA WXGA (1280*800)		OK *2	GP-Pro EX Over Ver.4.08.200
	SP-5790WA FWXGA (1366*768)			GP-Pro EX Over Ver.4.08.200

*1. Usable by making changes to the display type in the project file. But change layout or connection device settings if necessary.

*2. Usable by making changes to the display model and convert resolution in the project file.
But change layout or connection device settings if necessary.

* A SD card or USB stick has been available to support all functions.

When using an Open Box (SP-5B40, SP-5B41), SD card is required.

4.3. Software

Table 4-3 Software

No	Manufacturer	Product Name	Series	Model	Comments
1	Digital Electronics Corporation	GP-PROEX		EXEDV40	Ver. 4.03.000

These screen samples were created in GP-Pro EX version Ver. 4.03.000. Be sure to update to the latest version if using versions prior to Ver. 4.03.000 Please download the High Speed Ethernet Server Driver (Ver. 1.13.05) from our website.

4.4. Connection devices

Table 4-4 Connection devices

No	Manufacturer	Product Name	Series	Model	Comments
1	Yaskawa Electric Corporation	Robot controller		DX100	High-speed Ethernet server functionality. Ver. DS3.00-00 or later.
2	Yaskawa Electric Corporation	Robot controller		DX200	High-speed Ethernet server functionality. Ver. DS1.00-00 or later.

The "High-speed Ethernet" functionality is needed in order to connect a DX100/DX200 robot controller to a GP. In addition, there are DX100/DX200 optional features that cannot be used along with this feature, so please contact the Yaskawa Electric Corporation if you wish to use them.

[Command Remote Selection]

In order to view controller status please make sure that (82015 # command remote selection) should be selected in the teaching pendant.

4.5. Cable wiring

The following shows the cables that connect the GP series to the DX100/DX200.

Connector	Communication	Pin No.	Signal	Comment
RJ45	IEEE 802.3u	1	TX+	Transmit (+)
		2	TX-	Transmit (-)
		3	RX+	Receive (+)
		4		Not used
		5		Not used
		6	RX-	Received (-)
		7		Not used
		8		Not used

Figure 4-5 Cable wiring

4.6. Communication settings

4.6.1. Pro-EX communication settings

Be sure to configure the IP address of the DX100/DX200 console.

Figure 4-6-1 GP-Pro EX communication settings

Table 4-6-1 Communication settings

Item	Range	Default
Port No.	1024 - 65535	1024
Auto	OFF - ON	ON
Timeout	1 - 127	3
Retry	0 - 255	2
Wait To Send	0 - 255	0

4.6.2. Communication settings for connection devices

Be sure to configure the IP address on the DX100/DX200 console.

Table 4-6-2 Connection device communication settings

Communication settings	Communication device-side
Model	DX100/DX200
IP Address	192.168.255.1
Port	10040

4.6.3. Indirect device settings

Indirect device settings were used to draw 8 device connection samples for these cockpit parts. Indirect device settings can be used to easily connect 9 or more devices. If “Add Indirect Device” and “Update Indirect Device Settings” are selected, and a device designation address is configured onscreen, it will enable support for 9 or more devices.

Refer to Chapter 7.5 of the GP-Pro EX manual.

4.1. Notes for using the Open Box(SP-5B40)

·An appropriate performance may not be attained due to loads of the program executed at the same time.

Customers are requested to perform sufficient operation check in the usage environments in customer's responsibility.

·In "Display Unit-WinGP Settings" in the Gp-Pro EX, Please refer to the "Historical Data Retentive Settings-Save in" to "SRAM". "Display Settings" is set as required.

·"Storage" in the setting screen, please set to "SD".

·If the write filter settings are enabled, disable them before transferring the project file. SP5000-specific functions such as "launcher" and "Write Filter", please refer to the "SP5000 series Open Box Reference Manual "

5. Screen configuration

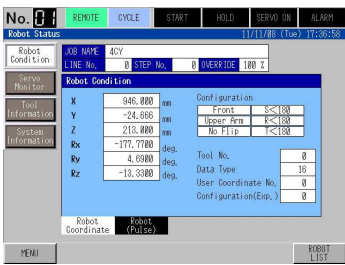

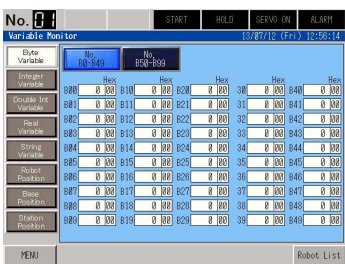
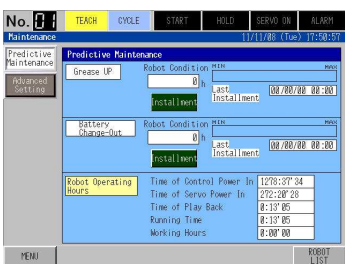
The content below is an explanation based on the “YAS_DX100_GP3500T_Ver1.00.101.prx” project data.

5.1. Screen types

These cockpit parts provide the following 7 types of function screens.

Table 5-1 Screen types

Screen Title	Screen Image	Function
Robot Controller List		<ul style="list-style-type: none"> - Displays the status of each controller - Transitions to individual monitors
PANEL Setting		<ul style="list-style-type: none"> - Settings to change languages - Robot type settings - Settings for number of controller connections etc.
I/O Monitor		<ul style="list-style-type: none"> - IO status display and settings
JOB Monitor		<ul style="list-style-type: none"> - Displays the currently selected job - File name - Displays executing line, step, override - Program details - Displays registered jobs - Selects jobs - File name - Program details

Screen Title	Screen Image	Function
Robot Status		<ul style="list-style-type: none"> - Displays Robot Condition - Displays Servo Monitor - Displays Tool Information - Displays System Information
Alarm Monitor		<ul style="list-style-type: none"> - Displays current alarm - Displays Alarm History
Variable Monitor Register Monitor		<ul style="list-style-type: none"> - Variable List - Register List
Maintenance		<ul style="list-style-type: none"> - Grease UP, Battery Change-Out management - Displays power in time



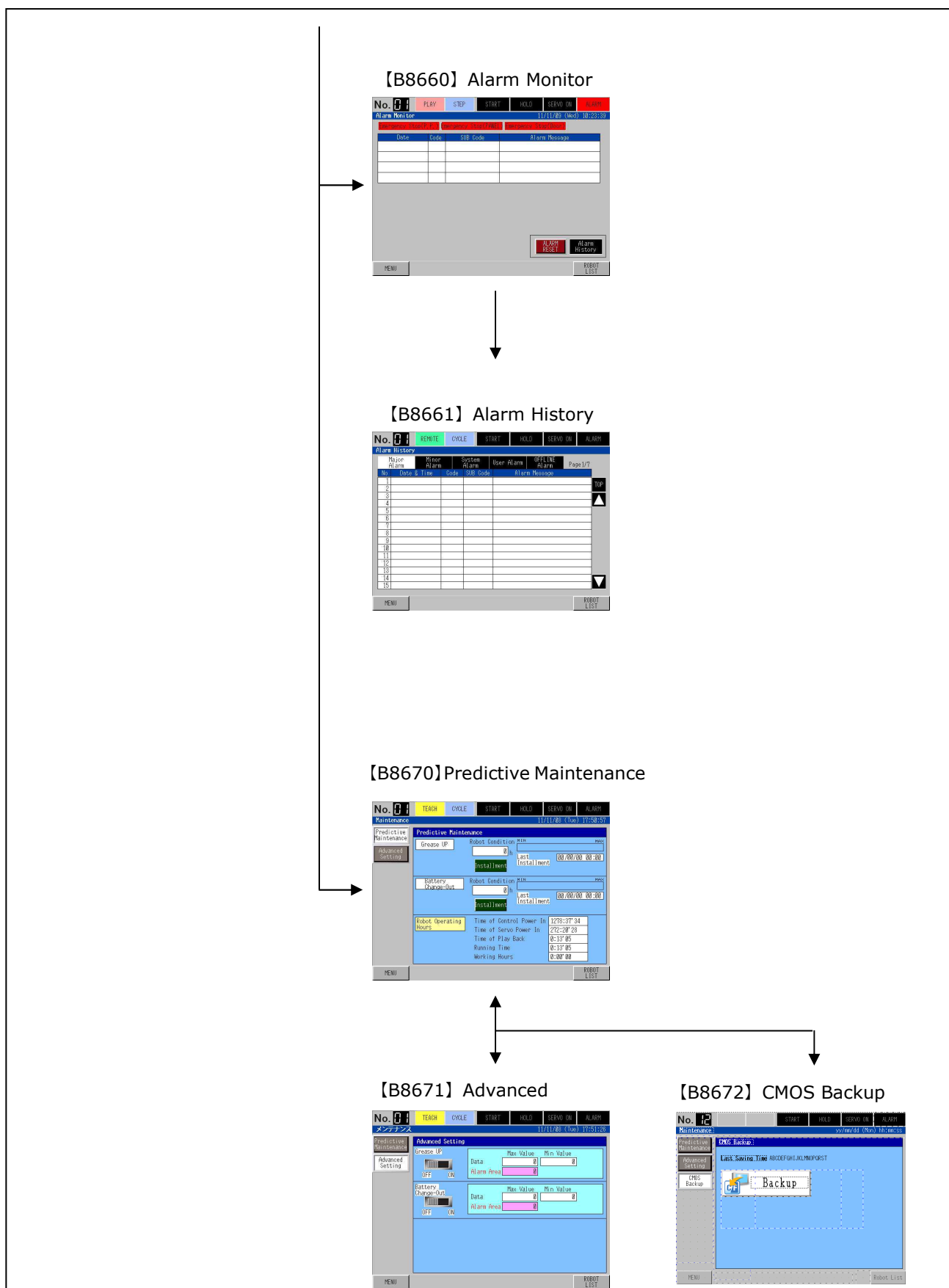


Figure 5-2-2 Screen transitions 2

6. Detailed screen explanation

6.1. Shared

6.1.1. Screen overview

This content is displayed on all screens, with the exception of the Startup screen, PANEL Setting screen, Robot Controller List screen.

Displays the number and status of a robot controller. Displays a menu.

6.1.2. Screen image

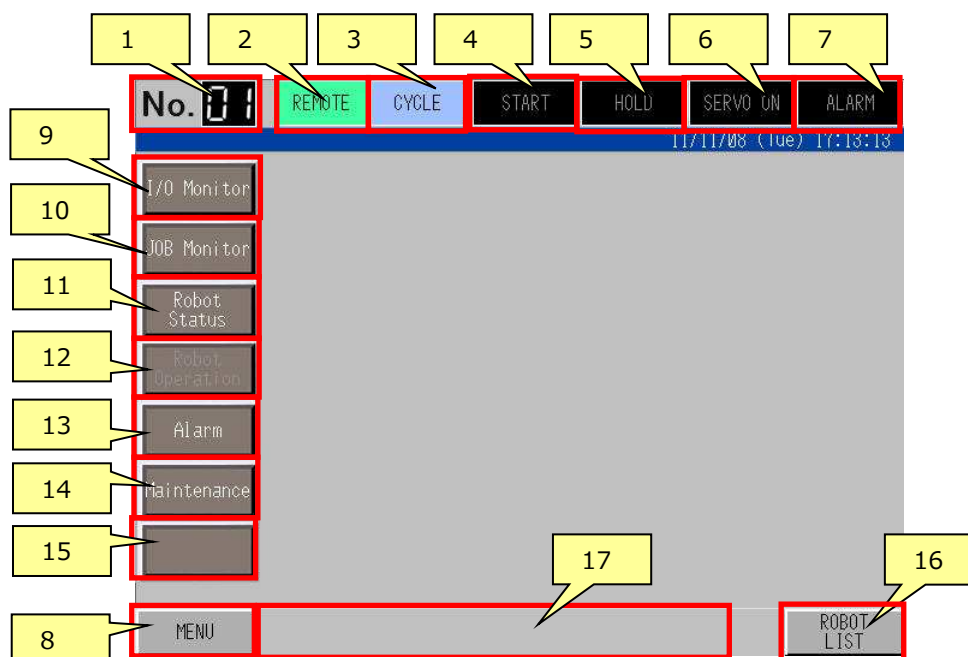


Figure 6-1 Screen image

Table 6-1 Description of parts

No.	Item	Part	Description
1	Robot number	Data display device	Displays the number of the currently selected robot controller. Allows input of the robot controller number.
2	Mode	Lamp	Displays the mode of the robot controller. (REMOTE/TEACH/PLAY)
3	Operating Mode	Lamp	Displays the operating mode of the robot controller. (STEP/CYCLE/CONSECUTIVE)
4	START	Lamp	Displays the operational status for the robot.
5	HOLD	Lamp	Displays the HOLD status for the robot.
6	SERVO ON	Lamp	Displays the SERVO ON status for the robot.
7	ALARM	Switch and lamp	Displays the error status for the robot. Touching here (for 1 second) will switch to the Alarm Monitor screen.

No.	Item	Part	Description
8	MENU	Switch	Touching here once will open the MENU bar, and touching here again will close the MENU bar.
9	I/O Monitor	Switch	Opens the I/O Monitor screen submenu.*1
10	JOB Monitor	Switch	Opens the JOB Monitor screen submenu.*1
11	Robot Status	Switch	Opens the Robot Status screen submenu.*1
12	Unused	Switch	Reserved for future use (Robot Operation)
13	Alarm	Switch	Switches to the Alarm Monitor screen.
14	Maintenance	Switch	Opens the Maintenance screen submenu.*1
15	Variable Monitor Register Monitor	Switch	Opens the variable/register screen submenu.* 1
16	Switch screens	Switch	Returns to the Robot Controller List screen.
17	Error Message	Character string display device and switch	Displays an error message for the operation.*2 Touching here will clear the displayed message.

NOTES: *1: Submenus will automatically close 3 seconds after they are displayed.

*2: The error messages are described below.

No.	Error Message	Content
1	Use REMOTE (programming pendant)	Since the programming pendant is in REMOTE mode, job programs, general input/output comments, and tool information cannot be loaded.
2	File load error	There was an error response from the robot controller when loading a job program, general input/output comments, or tool information.
3	Operation error (programming pendant)	There is an error on the programming pendant.
4	JOB program reading range over	JOB program exceeded the reading range(100 lines).*1

NOTE: *1: JOB monitor synchronization settings only.

6.1.3. D Script

- ID00005 Initial setting [Screen display completion falling bit]

Displays a menu bar.

6.2. Startup screen (B0001)

6.2.1. Screen overview

This is the cockpit parts startup screen.

6.2.2. Screen image



Figure 6-2 Screen image

Table 6-2 Description of parts

No.	Item	Part	Description
1	Draw version	Data display device	Displays the version of the draw data.
2	Switch screens	Switch	Switches screens to the Robot Controller List screen.

6.3. Robot Controller List screen (B8600)

6.3.1. Screen overview

Displays the status of a robot controller.

Switches screens to each of the separate robot controller monitor screens.

6.3.2. Screen image



Figure 6-3 Screen image

Table 6-3 Description of parts

No.	Part		Description
1	Robot 1	—	Content displayed is the currently running job program name and status for Robot 1 (refer to the shared screen).
1	Switch screens	Hidden switch	Switches to the screen for robot controller 1.
2	Robot 2	—	Content displayed is the currently running job program name and status for Robot 2 (refer to the shared screen).
2	Switch screens	Hidden switch	Switches to the screen for robot controller 2.
3	Robot 3	—	Content displayed is the currently running job program name and status for Robot 3 (refer to the shared screen).
3	Switch screens	Hidden switch	Switches to the screen for robot controller 3.
4	Robot 4	—	Content displayed is the currently running job program name and status for Robot 4 (refer to the shared screen).

No.	Part		Description
4	Switch screens	Hidden switch	Switches to the screen for robot controller 4.
5	Robot 5	–	Content displayed is the currently running job program name and status for Robot 5 (refer to the shared screen).
5	Switch screens	Hidden switch	Switches to the screen for robot controller 5.
6	Robot 6	–	Content displayed is the currently running job program name and status for Robot 6 (refer to the shared screen).
6	Switch screens	Hidden switch	Switches to the screen for robot controller 6.
7	Robot 7	–	Content displayed is the currently running job program name and status for Robot 7 (refer to the shared screen).
7	Switch screens	Hidden switch	Switches to the screen for robot controller 7.
8	Robot 8	–	Content displayed is the currently running job program name and status for Robot 8 (refer to the shared screen).
8	Switch screens	Hidden switch	Switches to the screen for robot controller 8.
9	Robot controller usage settings	Switch	Sets the robot controllers listed on the Robot Controller List screen to be used or not used. If a robot controller is not used, it will not communicate. ○: Used Blank: Not used NOTE: Robot 1 cannot be set to "Not used"
10	Switch screens	Switch	Switches to the PANEL Setting screen.

NOTE: For robot controllers 1 through 8, the number of devices set on the PANEL setting screen is displayed.

6.3.3. D Script

- ID0000 Robot connection setting [when updating the robot connection setting]
Configures the robot controller to connect to, in accordance with the set number of controller connections.
- ID00001 Select robot [When the select robot button]
Selected settings. → Current settings.

6.4. PANEL Setting screen (B8680)

6.4.1. Screen overview

Screen settings are performed on this screen.

6.4.2. Screen image

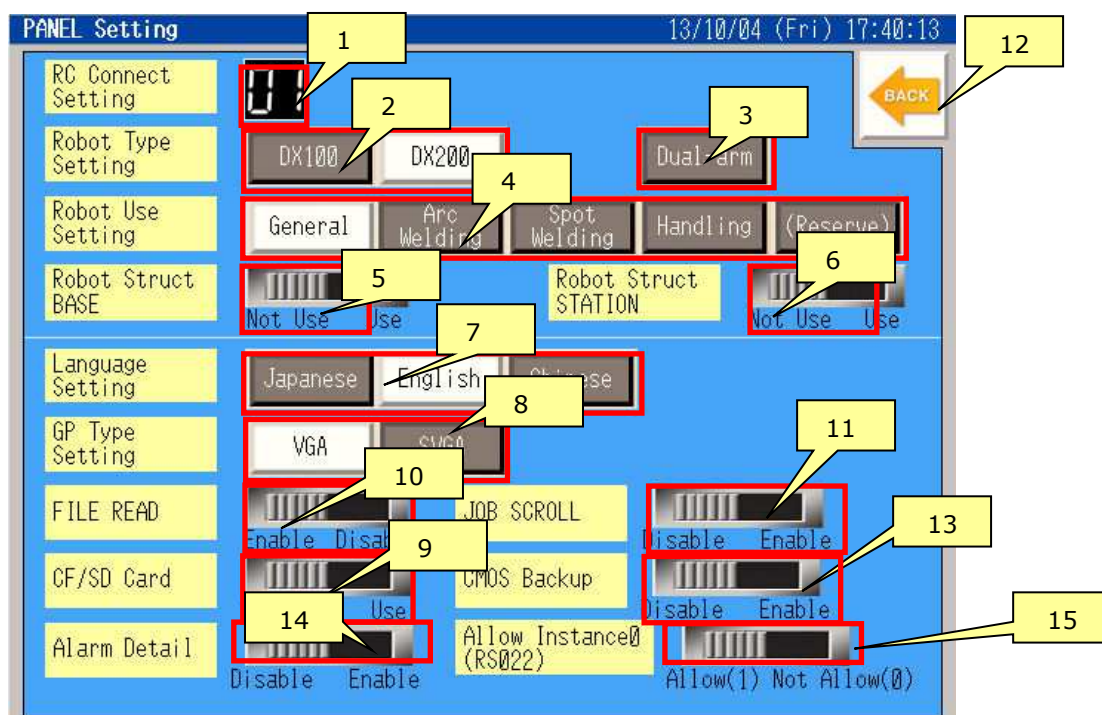


Figure 6-4 Screen image

Table 6-4 Description of parts

No.	Item	Part	Description
1	RC Connect Setting	Data display device	Selects the number of robot controllers to connect to. The set number of devices is displayed on the Robot Controller List screen. Setting range: 1 – 8 Default: 1
2	Robot Type Setting	Switch	Selects Robot type
3	Dual-arm	Switch	ON if the robot is dual-arm. OFF: - (default) ON: Dual-arm robot
4	Robot Use Setting	Selector switch	Performs settings in accordance with the type of robot to connect to. General (default) / Arc Welding / Spot Welding / Handling
5	Robot Struct BASE	Selector switch	Set when using BASE. Default: No

No.	Item	Part	Description
6	Robot Struct STATION	Selector switch	Set when using STATION. Default: No
7	Language Setting	Selector switch	Switches between Japanese, English, and Chinese languages.
8	GP Type Setting	Selector switch	Sets the GP resolution. VGA (default) / SVGA
9	CF card setting	Switch	Sets whether or not CF cards are to be used. OFF: Do not use CF cards (default) ON: Use CF cards NOTE: If OFF, the Alarm Details window will not display. Also, CMOS Backup is disabled.
10	File Read Invalid	Selector switch	Performs settings that disable loading of job programs, general input/output comments, and tool information. OFF: Enable file loading (default) ON: Disable file loading
11	Job Sync. Setting	Selector switch	Sets whether or not to synchronize screens to the actual job, in the event everything cannot be displayed on one JOB Monitor screen. OFF: Do not synchronize (default) ON: Synchronize
12	Switch screens	Switch	Returns to the Robot Controller List screen.
13	CMOS Backup	Selector switch	Enables or disables CMOS backup. Disable: CMOS backup disabled Enable: CMOS backup enabled (default value)
14	Alarm detail	Selector switch	Disable or Enable for Alarm detail screen Disable: (default value) Enable:
15	Instance 0 Specified permit	Selector switch	Allow instance 0 or Not allow instance 0 Settings of the RS022 parameter in the Ethernet high-speed servers. Allow (1) : Allow instance 0 (default value) Not Allow (0) : Not allow instance 0

6.4.3. D Script

- ID0000 Robot connection setting [when updating the robot connection setting]

Configures the robot controller to connect to, in accordance with the set number of controller connections.

- ID00001 Back_Button [When the BACK button]

Depending on Alarm detail and CMOS backup, each function of interlock conditions is created.

- ID00002 Reserve button control [Always run]

Control the reserve button.

Reserved.

6.5. I/O Monitor screens (B8620-B8623)

6.5.1. Screen overview

Monitors the controller I/O status.

6.5.2. Screen image

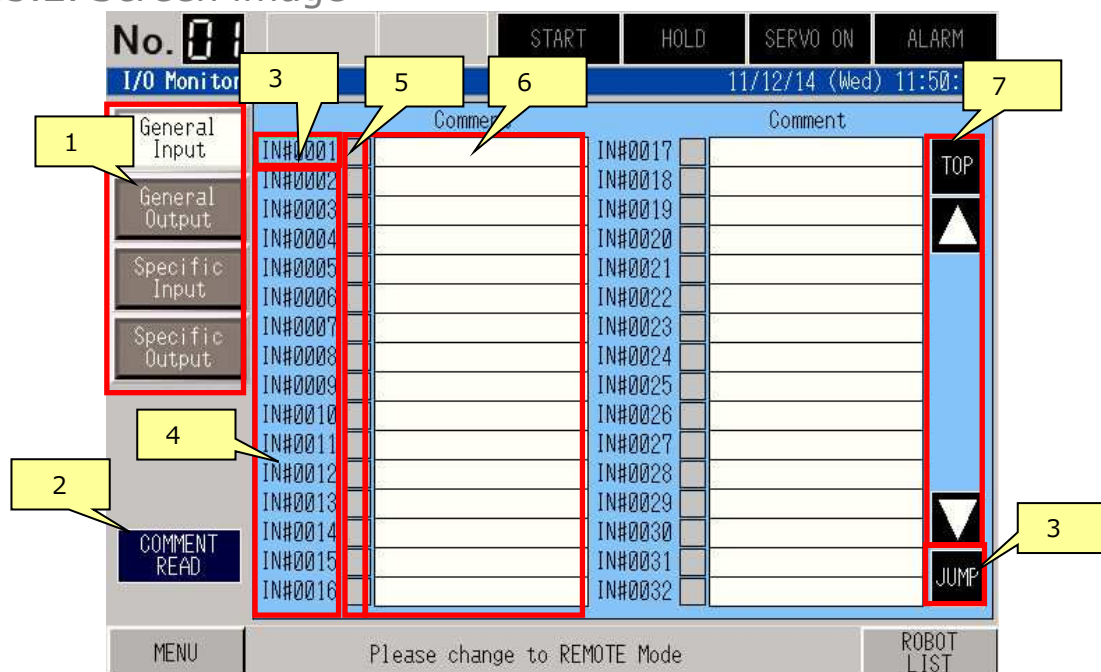


Figure 6-5-1 Screen image

Table 6-5 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	Switches to the selected screen. The selected screen will display in reverse. <ul style="list-style-type: none"> - General Input screen - General Output screen - Specific Input screen (exclusively for robot input) - Specific Output screen (exclusively for robot output)
2	Comment Read	Switch	Read I/O comment.
3	Jump to	Switch	Shows the input keyboard for the number to be jumped to. NOTE: 8bit increments. Ex)If you input "20",then jump to "17"
4	I/O number	Data display device	Displays the current I/O status. NOTE: 32 I/O points will display on 1 screen.
5	I/O status display	Lamp	Shows the I/O number being displayed.

No.	Item	Part	Description
6	Comment	Character string display	Displays the character string that corresponds to the I/O number. General Input and Output comments are loaded directly via the robot controller. Specific Inputs and Outputs are displayed out to registered content on the text screen.
7	Scroll	Switch	Switches the displayed I/O screen page. TOP: Returns to the top screen. △ : Switches to the previous screen. ▽ : Switches to the next page.

6.5.3. D Script

- ID00005 Initial setting [Screen display completion falling bit]
Initializes the display.
Sets the comment file load flag.
- ID00002 I/O data storage [Always run]
Loads I/O number and I/O data.
- ID00000 File load setting [While comment file load flag is ON]
The comment file (IONAME.DAT) is loaded via the robot controller.
- ID00001 Page UP [While next page PB is depressed]
Switches to the next page of the currently displayed job program.
- ID00003 Page DOWN [While previous page PB is depressed]
Switches to the previous page of the currently displayed job program.
- ID00004 JUMP Dataset [While jump PB is depressed]
Contains the first number in the display.
- ID00006 JUMP Execute [When the value is set]
Change display starting with set number.

6.5.4. Text registry (8001 – 8142)

The text registry is used in order to display Specific I/O comments.

The content of this registry can be changed. (The line numbers correspond to display variables)

- Specific Input	(shared)	DX100:8001 – 8002	DX200: 8101 – 8102
	(general)	DX100:8011	DX200: 8111
	(arc)	DX100:8012	DX200: 8112
	(spot)	DX100:8013	DX200: 8113
	(handling)	DX100:8014	DX200: 8115
- Specific Output	(shared)	DX100:8021 – 8023	DX200: 8121 – 8123
	(general)	DX100:8031	DX200: 8131 – 8133
	(arc)	DX100:8032	DX200: 8134 – 8136
	(spot)	DX100:8033	DX200: 8137 – 8139
	(handling)	DX100:8034	DX200: 8140 – 8142

6.6. JOB Monitor screen (B8630)

6.6.1. Screen overview

Monitors the currently executing job on the robot controller.

6.6.2. Screen image

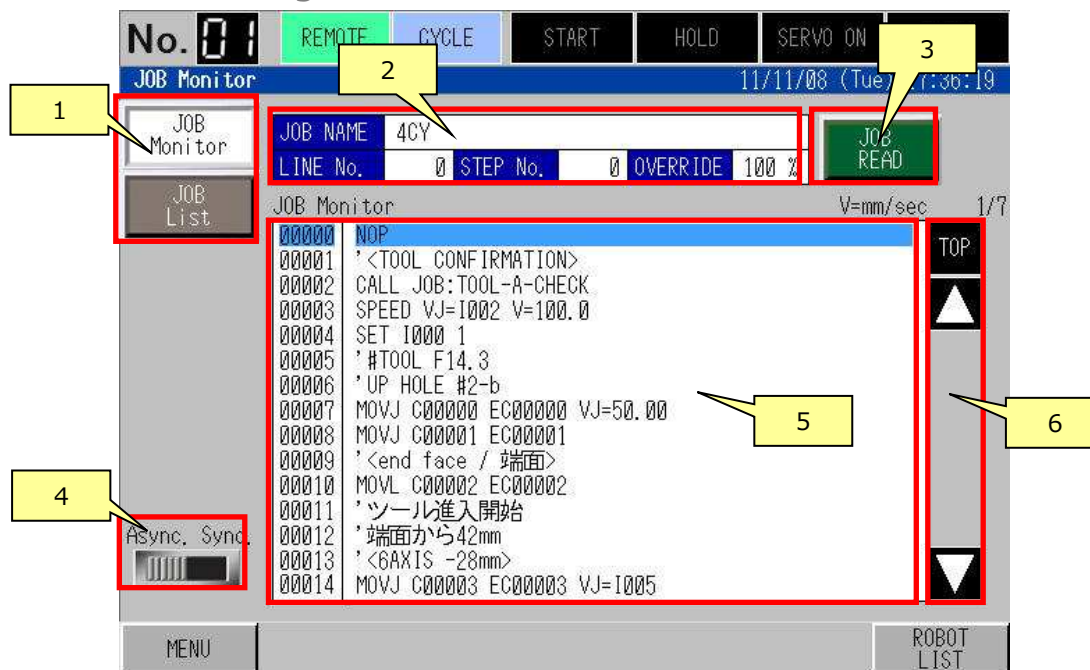


Figure 6-6 Screen image

Table 6-6 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	Switches to the selected screen. The selected screen will display in reverse. - JOB Monitor screen - JOB List screen
2	JOB NAME	—	Displays the status of currently running jobs. - Names of the currently executing job programs - Currently executing LINE No. - Currently executing STEP No.- OVERRIDE
3	JOB READ	Switch	Loads a job program.
4	Job sync setting	Selector switch	Sets whether or not to synchronize, in accordance with the actual job. Async.: Do not synchronize (default) Sync.: Synchronize

No.	Item	Part	Description
5	JOB Monitor	Character string display	<ul style="list-style-type: none"> - Displays the currently executing job programs. - The executing line is highlighted in blue. - Operations will differ depending upon the job sync settings. <ul style="list-style-type: none"> 1) If job sync setting is set to "Sync.": The job program will automatically load, and will scroll in accordance with the operation. 2) If job sync setting is set to "Async.": Press the JOB READ switch to load a job program, and manually scroll.
6	Scroll	Switch	<p>Displays if the job sync setting is "Async.".</p> <p>Operates if the line before and after the currently displayed job program is displaying.</p> <p>NOTE: A maximum of 100 lines will display.</p> <p>TOP: Returns to the top screen.</p> <p>△ : Displays the previous page.</p> <p>▽ : Displays the next page.</p>

NOTES:

- ◆ If the sync setting is ON, the program will display the job lines of up to 100 job programs, specifying the line 100 or higher, a warning will be displayed at the bottom, and the display area will be blank.
- ◆ If the file load settings are OFF, the job program will not display.

6.6.3. D Script

- ID00001 Initial setting [Screen display completion falling bit]
Initializes the display.
- ID00000 JOB_Read [While job load flag is ON]
Loads a program job file (*.JBI).
- ID00002 Job display [Always run]
Displays the executing line, and the loaded job program.
- ID00003 Page UP [While next page PB is depressed]
Switches to the next page of the currently displayed job program.
- ID00004 Page DOWN [While previous page PB is depressed]
Switches to the previous page of the currently displayed job program.
- ID00007 Job comparison [Always run]
Compares the name of the currently displayed job program with the currently executing job program.
If the names are different, it will set a job program load flag.

- ID00005 Page Top [While TOP PB is depressed]
Change display starting with first line of the JOB program.
- ID00008 Synchronize Setting [When the Job sync setting is changed]
Refresh display JOB program.
- ID00009 Reload JOB program [While JOB READ PB is depressed]
Reload JOB program

6.7. JOB List screen (B8631)

6.7.1. Screen overview

Displays a list of job programs and programs from among the robot controllers.

6.7.2. Screen image

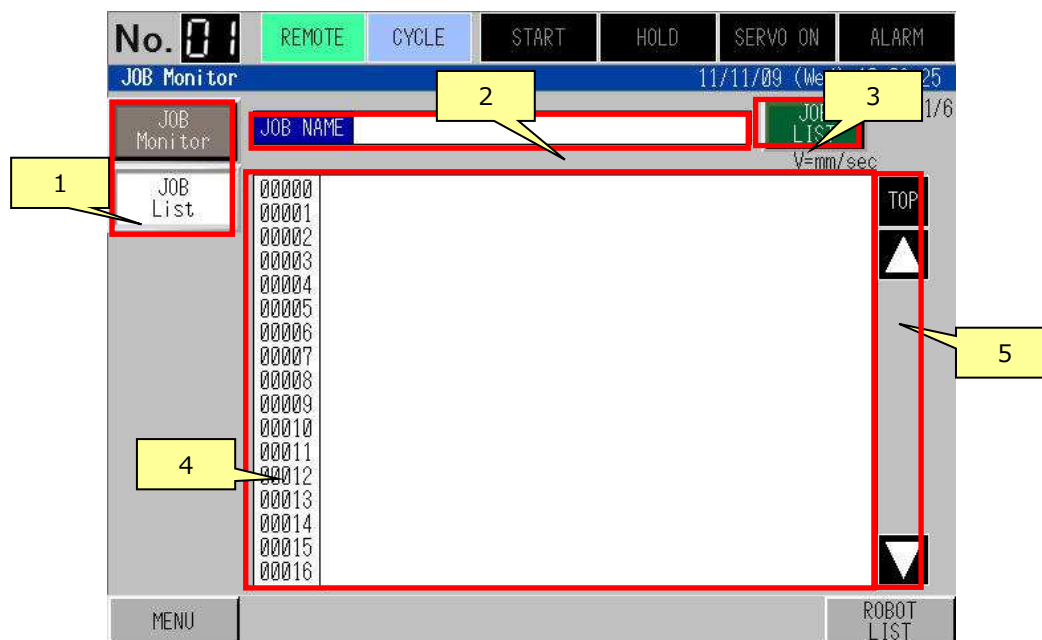


Figure 6-7-1 Screen image

Table 6-7-1 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	Switches to the selected screen. The selected screen will display in reverse. - JOB Monitor screen - JOB List screen
2	JOB NAME	Character string display	Displays the selected job program name.
3	JOB LIST	Switch	Displays a list of job programs being stored in the robot controller. For further details, refer to 7.7.3. "Job program selection window".
4	Job program display		Unrelated to the currently executing job program; displays the selected job program.
5	Scroll	Switch	Operates when switching the currently displayed job program page. TOP: Returns to the top screen. △ : Displays the previous page. ▽ : Displays the next page.

NOTES:

- ◆ A maximum of 100 lines of a job program will display.
- ◆ If the file load settings are OFF, the job program list and the job program will not display.

6.7.3. Job program selection window

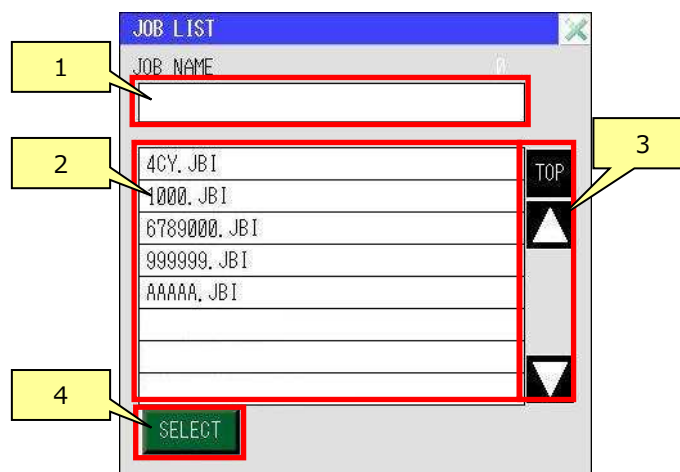


Figure 6-7-2 Screen Image

Table 6-7-2 Description of parts

No.	Item	Part	Description
1	JOB NAME	Character string display	Displays the selected job program name from a list.
2	Job program list	Character string display	Displays the folder name stored in the selected program. Programs can be selected by clicking on program names.
2	Job program name storage	Hidden switch	Touching a job program name displayed in the list will store that job program name in a job name.
3	Scroll	Switch	Operates when the job program list is scrolling. TOP: Returns to the top screen. △ : Displays the previous page. ▽ : Displays the next page.
4	SELECT	Switch	Reads out the selected job program. The selected job is not reflected in the robot controller; only the job program is displayed.

6.7.4. D Script

- ID00003 Initial setting [Screen display completion falling bit]
Initializes the display.
- ID00000 JOB_Read [While job load flag is ON]
Loads a program job file (*.JBI).
- ID00004 Job display [Always run]
Displays the loaded job program.
- ID00001 Page UP [While next page PB is depressed]
Switches to the next page of the currently displayed job program.
- ID00002 Page DOWN [While previous page PB is depressed]
Switches to the previous page of the currently displayed job program.
- ID00005 Page TOP [While TOP PB is depressed]
Change display starting with first line of the JOB program.

Job program selection window

- ID00002 JOBLIST load (OPEN) [When job program selection window is OPEN]
Loads a job program list.
- ID00001 File selection [When job program list is selected]
Selects a file name.
- ID00000 File name storage [When file selection is complete]
Stores a job program name.
- ID00003 JOBLIST load (execute) [When the job program list load flag is ON]
Loads a job program list.
- ID00004 Page UP [While next page PB is depressed]
Switches to the next page of the currently displayed job program list.
- ID00005 Page DOWN [While previous page PB is depressed]
Switches to the previous page of the currently displayed job program list.

6.8. Robot Status monitor screens (B8640)

6.8.1. Screen overview

Monitors robot positional data.

Switches between coordinate data and pulse data for monitoring.

6.8.2. Screen image

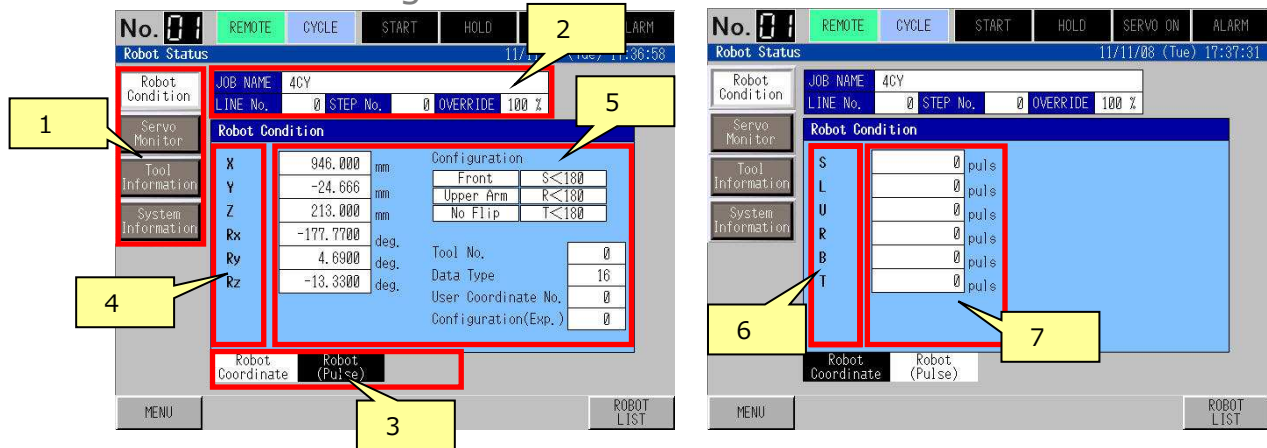


Figure 6-8 Screen image

Table 6-8 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	<p>Switches to the selected screen.</p> <p>The selected screen will display in reverse.</p> <ul style="list-style-type: none"> - Robot Condition monitor screen - Servo Monitor list screen - Tool Information screen- System Information screen
2	JOB NAME	—	<p>Displays the status of currently running jobs.</p> <ul style="list-style-type: none"> - Names of the currently executing job programs - Currently executing LINE No. - Currently executing STEP No. - OVERRIDE
3	Switch displays	Switch	<p>Switches the Robot Condition information being displayed.</p> <ul style="list-style-type: none"> - Robot (Coordinate data) - Robot (Pulse data) - BASE (Pulse data) - STATION (Pulse data) <p>NOTE: BASE and STATION are robot structures on the PANEL Setting screen. If BASE and STATION are set, a switch will be displayed.</p>
4	Axis information	Character string display	<p>Displays the name of the robot coordinates.</p>

No.	Item	Part	Description
5	Robot Condition information	Data display device	Displays robot coordinate data, Configuration, and Tool Information.
6	Axis information	Character string display	Displays the robot axis name.
7	Robot Condition information	Data display device	Displays the pulse data for each axis.

NOTE: When selecting a dual-arm robot, information for both robot 1 and 2 will be displayed.

6.8.3. D Script

- ID00001 Initial setting [Screen display completion falling bit]
Initialize error flags.
Sets the robot (coordinate) status flag to ON.
- ID00000 Display window setting [When robot (coordinate) flag is ON]
Designates a position where the Robot Status window screen will display.
Sets the Robot Status window OPEN flag to ON.

Robot Status window

- ID00000 Target axis display [Always run]
Loads a target axis name.

6.9. Servo Monitor screen (B8641)

6.9.1. Screen overview

Monitors the servo information for each axis.

6.9.2. Screen image

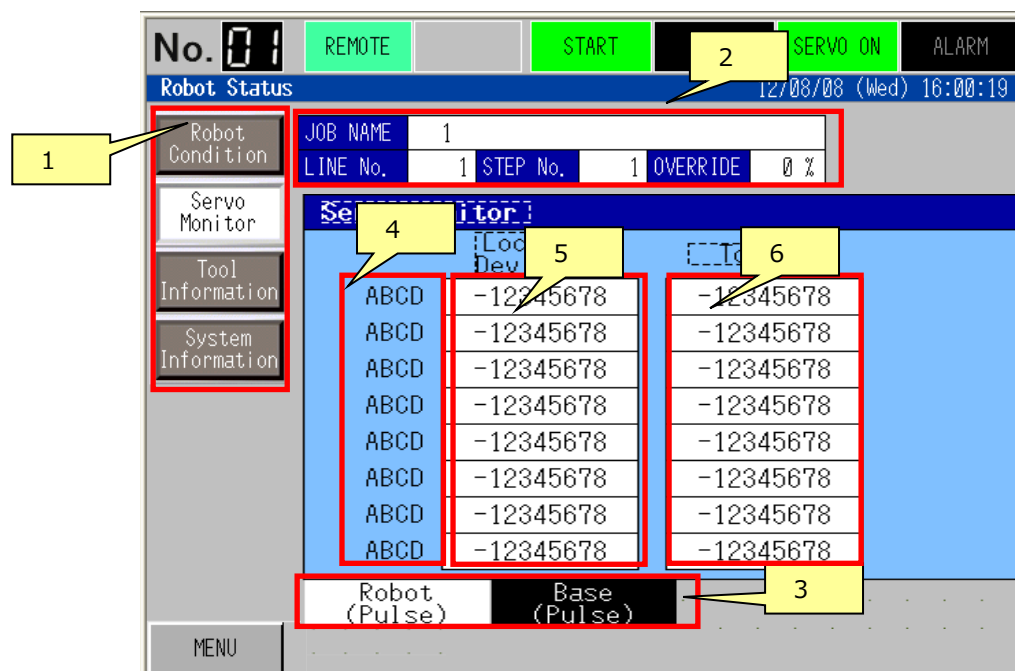


Figure 6-9 Screen image

Table 6-9 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	<p>Switches to the selected screen.</p> <p>The selected screen will display in reverse.</p> <ul style="list-style-type: none"> - Robot Condition monitor screen - Servo Monitor list screen - Tool Information screen - System Information screen
2	JOB NAME	—	<p>Displays the status of currently running jobs.</p> <ul style="list-style-type: none"> - Names of the currently executing job programs - Currently executing LINE No. - - Currently executing STEP No. - - OVERRIDE

No.	Item	Part	Description
3	Switch displays	Switch	<p>Switches the Robot Condition information being displayed.</p> <ul style="list-style-type: none"> - Robot (Pulse data) - BASE (Pulse data) - STATION (Pulse data) <p>NOTE: BASE and STATION are robot structures on the PANEL Setting screen. If BASE and STATION are set, a switch will be displayed.</p>
4	Axis information	Character string display	Displays the robot axis name.
5	Location Deviation	Data display device	Displays the positional deviation for each axis.
6	Torque	Data display device	Displays the torque value for each axis.

NOTE: When selecting a dual-arm robot, information for both robot 1 and 2 will be displayed.

6.9.3. D Script

- ID00001 Initial setting [Screen display completion falling bit]
Initialize error flags.
Sets the Servo Monitor flag to ON.
- ID00000 Display window setting [When robot (coordinate) flag is ON]
Designates a position where the Robot Status window screen will display.
Sets the Robot Status window OPEN flag to ON.

Robot Status window

- ID00000 Target axis display [Always run]
Loads a target axis name.

6.10. Tool Information screen (B8645)

6.10.1. Screen overview

Monitors tool information.

6.10.2. Screen image

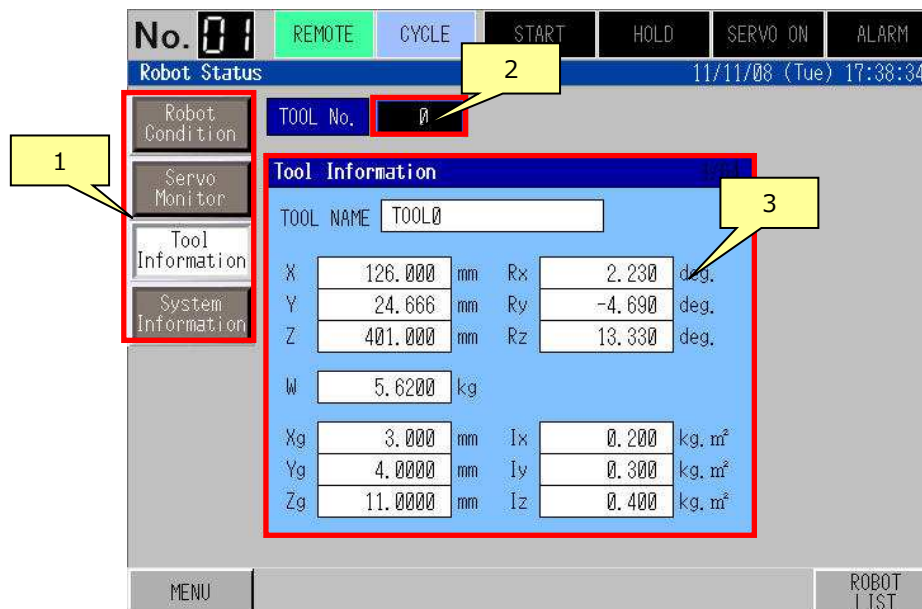


Figure 6-10 Screen image

Table 6-10 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	Switches to the selected screen. The selected screen will display in reverse. - Robot Condition monitor screen - Servo Monitor list screen - Tool Information screen - System Information screen
2	TOOL No.	Data display device	Inputs a TOOL No. to be displayed. TOOL No. (0 – 63)
3	Tool Information	—	Displays the Tool Information for the designated TOOL No. - TOOL NAME - Tool positional information

NOTE: If the file load settings are OFF, the Tool Information will not display.

6.10.3. D Script

- ID00000 File load setting [When tool number input is complete]

Tool Information is loaded via the TOOL.CND file.

- ID00001 Initial setting [Screen display completion falling bit]

Initialize error flags.

6.11. System Monitor screen (B8646)

6.11.1. Screen overview

Displays the system information of the robot controller.

6.11.2. Screen image

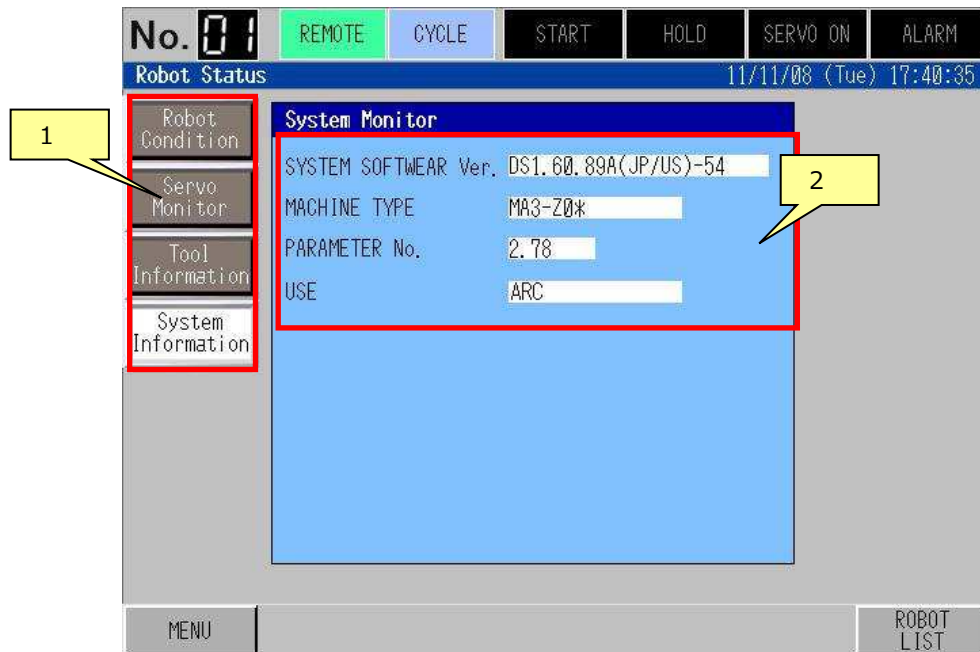


Figure 6-11 Screen image

Table 6-11 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	<p>Switches to the selected screen.</p> <p>The selected screen will display in reverse.</p> <ul style="list-style-type: none"> - Robot Condition monitor screen - Servo Monitor list screen - Tool Information screen - System Information screen
2	System Monitor	Character string display	<p>Displays the System Information of the robot controller.</p> <ul style="list-style-type: none"> - SYSTEM SOFTWARE Ver. - MACHINE TYPE - PARAMETER No. - USE

6.11.3. D Script

- ID00000 Initial setting [Screen display completion falling bit]
Initialize error flags.

6.12. Alarm Monitor screen (B8660)

6.12.1. Screen overview

Displays the currently generated error. (Maximum of 4 errors)

6.12.2. Screen image

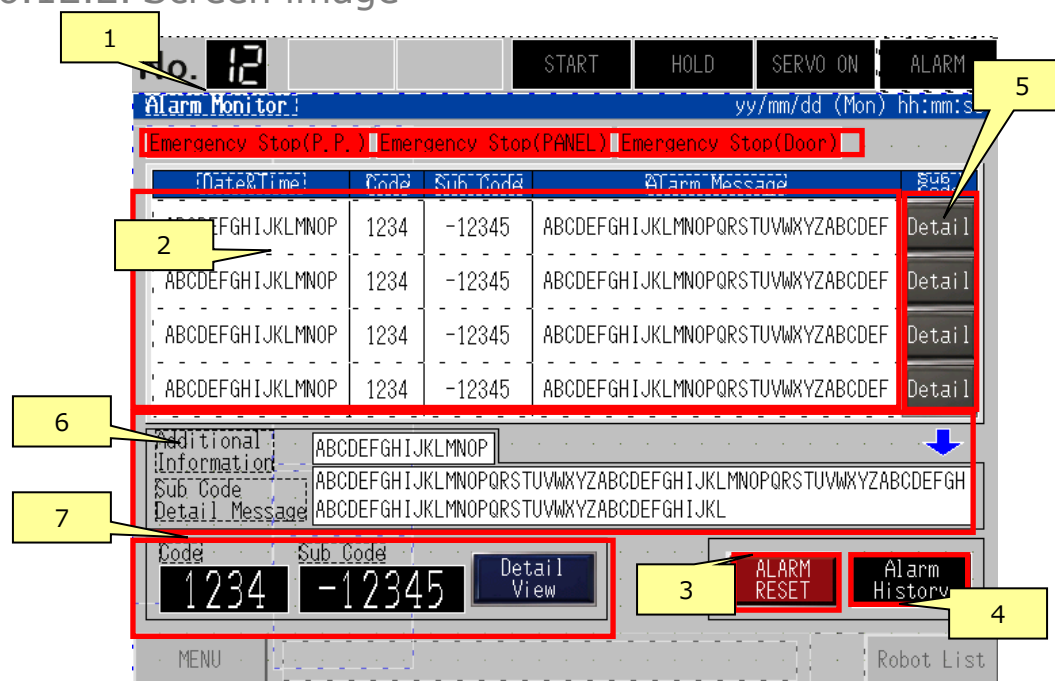


Table 6-12-1 Description of parts

No.	Item	Part	Description
1	Emergency Stop status	Lamp	Displays the Emergency Stop input status of the robot controller. <ul style="list-style-type: none"> - Emergency Stop (P.P.) - Emergency Stop (PANEL) - Emergency Stop (Door)
2	Alarm display	Character string display	Displays the currently generated alarm. A maximum of 4 alarms can be displayed at the same time. <ul style="list-style-type: none"> - Date - Code - SUB Code - Alarm Message
2	Alarm details	Hidden switch	Displays an Alarm Details window when the generated alarm is touched. NOTE: Valid if the CF card setting is ON.
3	ALARM RESET	Switch	Clears the currently generated alarm.
4	Switch screens	Switch	Switches to the Alarm History screen.
5	Sub Code Detail	Switch	Displays the sub code detail message in text box 6.
6	Sub Code	Character string	Displays the sub code details for the alarm selected by

No.	Item	Part	Description
	Detail Message	display	5. The displayed items are the additional information and the detail message.
7	Code Detail View	Data display device Switch	Displays the alarm details associated with the alarm code and sub code in a window. * Enabled only when the use CF card setting is on.

6.12.3. Alarm Details window

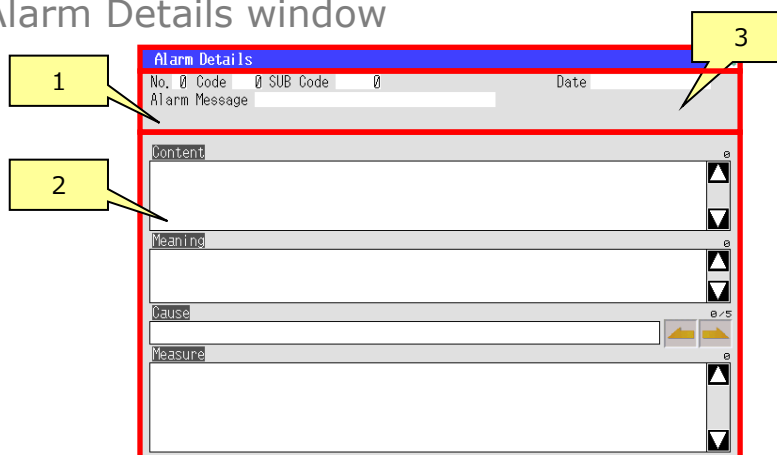


Figure 6-12-2 Screen Image

Table 6-12-2 Description of parts

No.	Item	Part	Description
1	Alarm information	—	Displays information about the selected alarm. For further details, refer to 6.12. "Alarm Monitor"
2	Alarm details	Character string display	Displays detailed information about the selected alarm. - Content - Meaning - Cause - Measure
3	Close window	Switch	Closes the Alarm Details window.

NOTES:

The Alarm Details display loads information from a CF card.

When using the Alarm Details display, be sure to pre-set the following items, in order:

- 1) Save the alarm data file to a CF card
- 2) Set the CF card to a display device
- 3) Set the CF card setting to ON in the PANEL Setting screen

6.12.4. D Script

- ID00000 Alarm Detail window available [Always run]
If Alarm detail files is in CF card, Alarm Detail window will be available.
- ID00001 Memcpy [Alarm Detail (Hidden SW) is depressed]
Copy Alarm code to different memory area. (for display in detail window)
- ID00002 Initial setting [When switching displays]
Initialize error flags.
Define Alarm sub code detail button for initial setting
- ID00003 Get Alarm code [Always run]
Get 1stto4th alarm code.
- ID00004 Detail button [When the Detail button is depressed]
Change sub code detail message display.

Alarm Details window

- ID00000 FILE READ(Cause) [Alarm Detail (Hidden SW) is depressed]
Read alarm detail from CSV-file in CF card.
- ID00001 cause(NEXT) [While NEXT PB is depressed]
Display next cause (MAX 5pages)
- ID00002 FILE READ [When job program selection window is OPEN]
Read alarm detail from CSV-file in CF card. (language difference)
- ID00003 cause(BACK) [While BACK PB is depressed]
Display previous cause.
- ID00004 FILE_READ_RESET [Timer every 1 second]
flag clear
- ID00005 Contents(DW) [While DOWN(content) PB is depressed]
Description of contents scroll down (MAX 10lines)
- ID00006 Contents(UP) [While UP(content) page PB is depressed]
Description of contents scroll up
- ID00007 Meaning(DW) [While DOWN(Meaning) PB is depressed]
Description of Meaning scroll down (MAX 10lines)
- ID00008 Meaning (UP) [While UP(Meaning) PB is depressed]
Description of Meaning scroll up
- ID00009 Measure(DW) [While DOWN(Measure) PB is depressed]
Description of Remedy scroll down (MAX 10lines)
- ID00010 Measure (UP) [While UP(Measure) PB is depressed]
Description of Remedy scroll up
- ID00012 Alarm Message [When the Alarm Details window is OPEN]
Store alarm message number

6.13. Alarm History screen (B8661)

6.13.1. Screen overview

Displays the past error history. (Displays a maximum of 100 errors)

6.13.2. Screen image

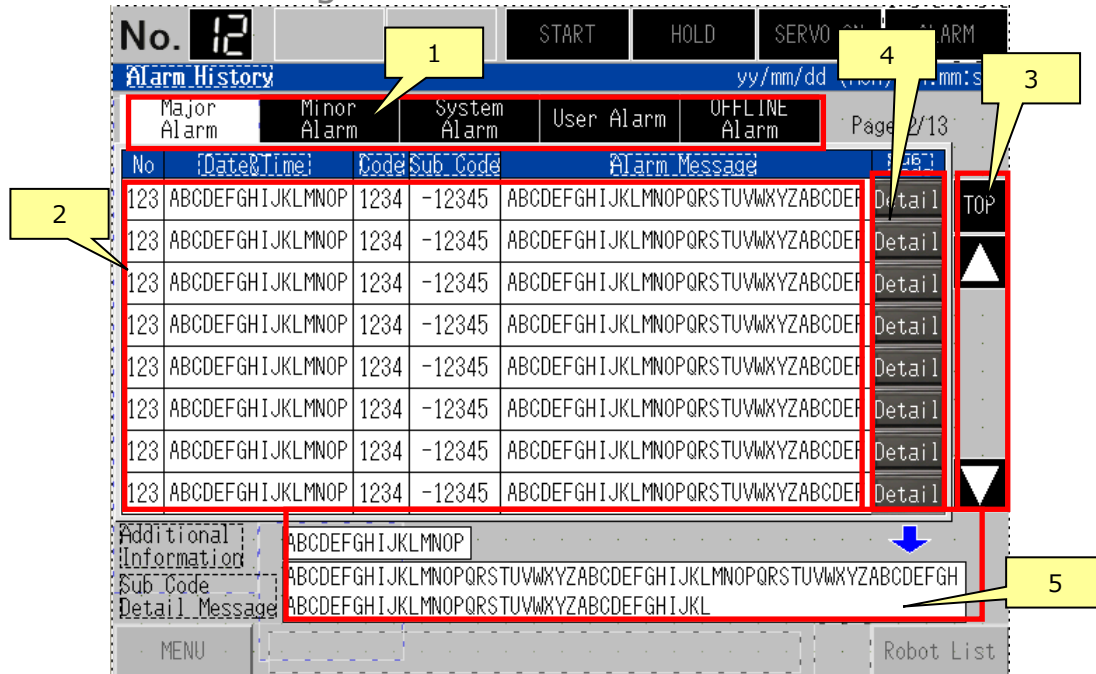


Figure 6-13 Screen image

Table 6-13 Description of parts

No.	Item	Part	Description
1	Switch displays	Switch	Switches the Alarm History items to be displayed. <ul style="list-style-type: none"> - Major Alarm - Minor Alarm - System Alarm - User Alarm - OFFLINE Alarm
2	Alarm History		Displays the Alarm History stored in a robot controller. (Each item stores 100 histories) <ul style="list-style-type: none"> - Date & Time - Code - SUB Code - Alarm Message
3	Scroll	Switch	Operates when the displayed alarm history scrolls. <p>TOP: Returns to the top screen.</p> <p>△ : Displays the previous page.</p> <p>▽ : Displays the next page.</p>
4	Sub Code Detail	Switch	Displays the sub code detail message in text box 6.

No.	Item	Part	Description
5	Sub Code Detail Message	Character string display	Displays the sub code details for the alarm selected by 5. The displayed items are the additional information and the detail message.

6.13.3. D Script

- ID00003 Initial setting [Screen display completion falling bit]
Initializes the display.
- ID00000 Alarm number storage [Always run]
Stores a number used for display.
- ID00004 Alarm storage [When switching displays]
Loads all Alarm History data as a batch.
- ID00001 Page UP [While next page PB is depressed]
Switches to the next page of the currently displayed Alarm History.
- ID00002 Page DOWN [While previous page PB is depressed]
Switches to the previous page of the currently displayed Alarm History.
- ID00005 Detail button [When the Detail button is depressed]
Change sub code detail message display.
- ID00006 TOP button [When the TOP button is depressed]
Change displayed Alarm History to TOP page.

6.14. Predictive Maintenance screen (B8670)

6.14.1. Screen overview

Monitors grease up, battery change-out intervals, etc. as maintenance information.

6.14.2. Screen image

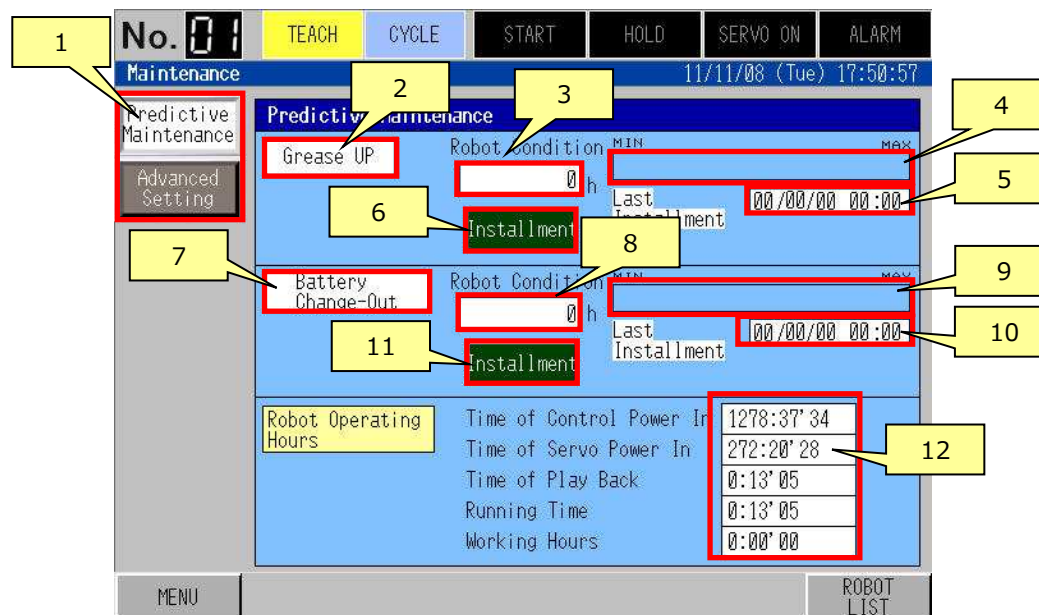


Figure 6-14 Screen image

Table 6-14 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	Switches to the selected screen. The selected screen will display in reverse. - Predictive Maintenance screen - Advanced Setting screen
2	Predictive Maintenance item 1	Lamp	Displays the execution state of the predictive maintenance (Grease UP) - While the green light is active
3	Robot Condition	Data display device	Displays the elapsed time since the Predictive Maintenance (Grease UP) was executed. Displays in time units.
4	Graph display	Graph	Displays the elapsed time as a bar graph (in yellow). Displays in red if the warning range on the Advanced Setting screen is exceeded.
5	Last Installment	Data display device	Displays the date of the Last Installment.

No.	Item	Part	Description
6	Installment	Switch	<p>Press the Installment switch for 2 or more seconds when performing Grease UP.</p> <p>The time the switch was pressed during the last installment will be stored, and the Robot Condition will be cleared.</p> <p>NOTE: When initially brought into use, there will be no set starting time, so the Installment switch should be pressed first.</p> <p>NOTE: If Grease UP is ON on the Advanced Setting screen, this switch will be enabled.</p>
7	Predictive Maintenance item 2	Lamp	<p>Displays the execution state of the Predictive Maintenance (Battery Change-Out)</p> <ul style="list-style-type: none"> - While the green light is active
8	Robot Condition	Data display	<p>Displays the elapsed time since the Predictive Maintenance (Battery Change-Out) was executed.</p> <p>Displays in time units.</p>
9	Graph display	Graph	<p>Displays the elapsed time as a bar graph (in yellow).</p> <p>Displays in red if the warning range on the Advanced Setting screen is exceeded.</p>
10	Last Installment	Data display device	Displays the date of the Last Installment.
11	Installment	Switch	<p>Press the Installment switch for 2 or more seconds when performing a Battery Change-Out.</p> <p>The time the switch was pressed during the last installment will be stored, and the Robot Condition will be cleared.</p> <p>NOTE: When initially brought into use, there will be no set starting time, so the Installment switch should be pressed first.</p> <p>NOTE: If Battery Change-Out is ON on the Advanced Setting screen, this switch will be enabled.</p>
12	Robot Operating Hours	Character string display	<p>Displays the Robot Operating Hours. (hh:mm:ss)</p> <ul style="list-style-type: none"> - Time of Control Power In - Time of Servo Power In - Time of Play Back - Running Time - Working Hours

6.14.3. D Script

- ID00000 Compute elapsed time [Always run]
Computes the time elapsed from the Last Installment to the current time.
- ID00001 Working Installment 1 [When the working Installment switch is depressed]
Stores the current date in the Last Installment, and clears the elapsed time.
- ID00002 Working Installment 1 [When the working Installment switch is depressed]
Stores the current date in the Last Installment, and clears the elapsed time.
- ID00003 Mainte1_Lamp [Always run]
Copy the bit status of mainte1
- ID00004 Mainte2_Lamp [Always run]
Copy the bit status of mainte2

6.15. Advanced Setting screen (B8671)

6.15.1. Screen overview

Performs settings to manage maintenance information (Predictive Maintenance).

6.15.2. Screen image

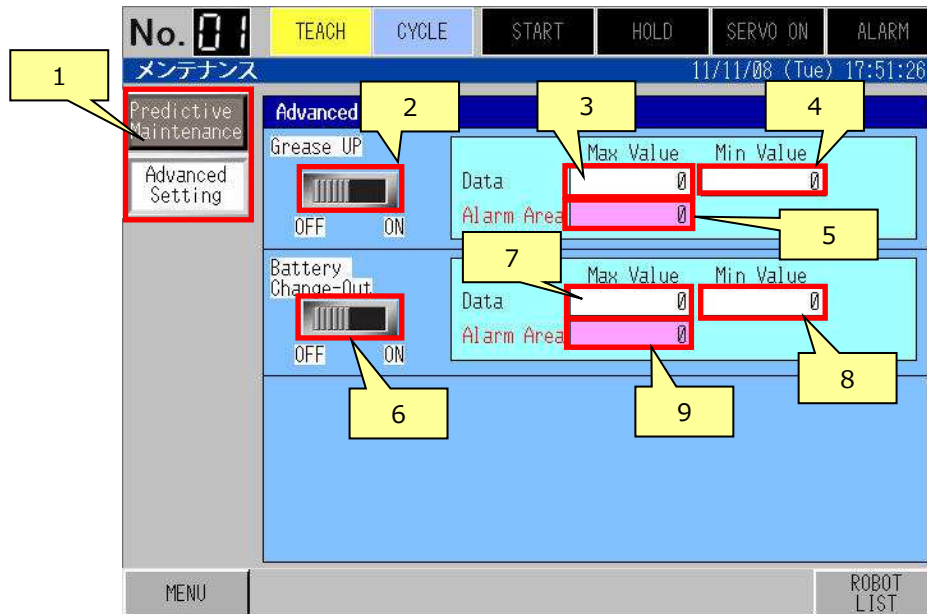


Figure 6-15 Screen image

Table 6-15 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	Switches to the selected screen. The selected screen will display in reverse. - Predictive Maintenance screen - Advanced Setting screen
2	Advanced Setting item 1	Selector switch	Performs Advanced Setting (Grease UP). OFF: Do not perform Advanced Setting (Grease UP) ON: Perform Advanced Setting (Grease UP) NOTE: If OFF, clear the Last Installment date.
3	Max Value	Data display device	Sets the Max Value of the elapsed time for Advanced Setting (Grease UP). Sets in time units.
4	Min Value	Data display device	Sets the Min Value of the elapsed time for Advanced Setting (Grease UP). Sets in time units. (Normally 0)
5	Alarm Area	Data display device	Sets an alarm time for the elapsed time of the Advanced Setting (Grease UP). Sets in time units.

No.	Item	Part	Description
6	Advanced Setting item 2	Selector switch	Sets Advanced Setting (Battery Change-Out). OFF: Do not perform Advanced Setting (Battery Change-Out) ON: Perform Advanced Setting (Battery Change-Out) NOTE: If OFF, clear the Last Installment date.
7	Max Value	Data display device	Sets the Max Value of the elapsed time for Advanced Setting (Battery Change-Out). Sets in time units.
8	Min Value	Data display device	Sets the Min Value of the elapsed time for Advanced Setting (Battery Change-Out). Sets in time units. (Normally 0)
9	Alarm Area	Data display device	Sets an alarm time for the elapsed time of the Advanced Setting (Battery Change-Out). Sets in time units.

6.15.3. D Script

- ID00000 Mainte1_Set [When Advanced Setting item 1 is ON selected]
Set the bit status of mainte1
- ID00001 Mainte1_Lamp [Always run]
Copy the bit status of mainte1
- ID00002 Mainte2_Set [When Advanced Setting item 2 is ON selected]
Set the bit status of mainte2
- ID00003 Mainte2_Lamp [Always run]
Copy the bit status of mainte2
- ID00004 Mainte1_Reset [Always run]
Clear the elapsed time of mainte1
- ID00005 Mainte1_Rese2 [Always run]
Clear the elapsed time of mainte2

6.16. CMOS Backup screen (B8672)

6.16.1. Screen overview

This screen saves the CMOS backup file (CMOSBK.BIN) on the controller to storage.

To load the CMOS backup file on the controller, rename it to CMOS.BIN and copy it to USB memory.

This screen cannot be used when the CF/SD card setting is off.

*This process takes a long time to complete (it may take well over 10 or 20 minutes).

*Please note that the screen cannot be operated when acquiring the file.

6.16.2. Screen image

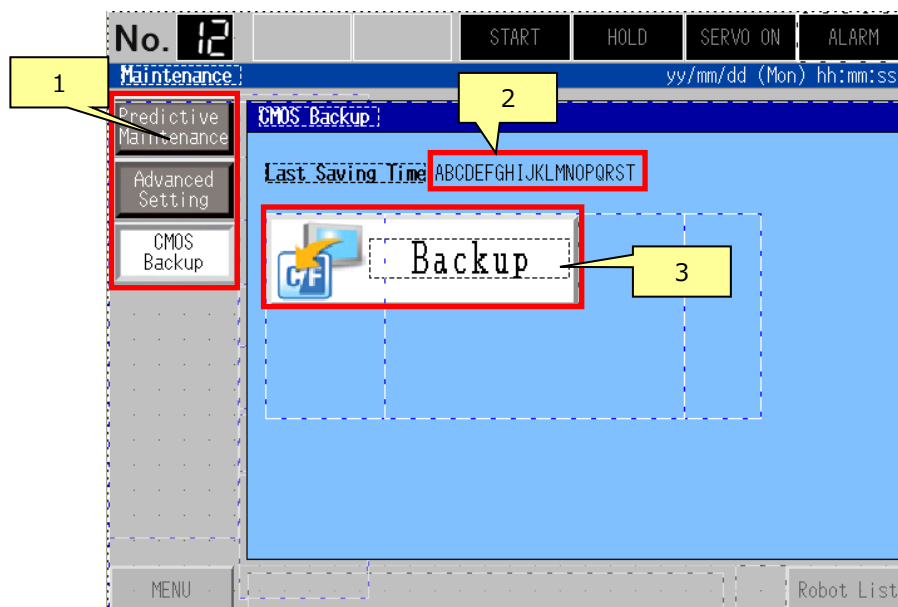


Figure 6-16 Screen image

Table 6-16 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	Switches to the selected screen. The selected screen will display in reverse. • Predictive Maintenance screen • Advanced Setting screen
2	Last Saving Time	Character string display	Displays the last backup time. Only a separate time is saved to the file, not the timestamp of the file. Therefore, the time is not displayed correctly when the CF/SD card is replaced.
3	Backup	Switch	Executes the backup.

6.16.3. D Script

- ID00000 Initialization [When switching screens]
Get and display the timestamp of the last saved file.
- ID00001 Start saving [When the Start save button is depressed]
Execute the backup process.
- ID00002 Backup button [When the Backup button is depressed]
Display the confirmation window

6.17. Byte Variable Monitor screen (B8690)

6.17.1. Screen overview

This screen displays a list of byte variables. The variables cannot be written to.

6.17.2. Screen image

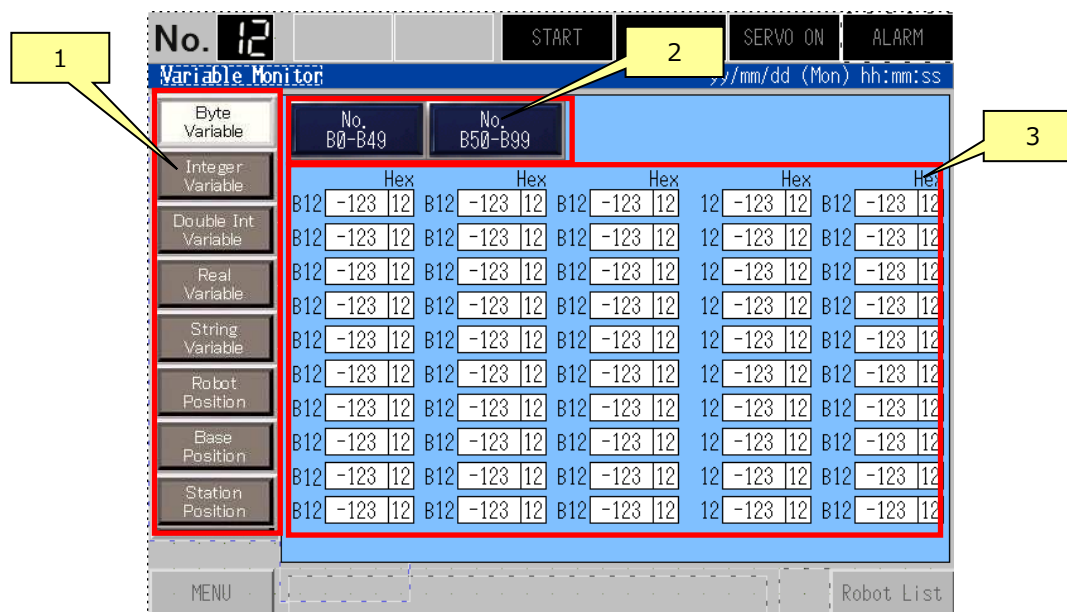


Figure 6-17 Screen image

Table 6-17 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	Switches to the selected screen. The selected screen will display in reverse. <ul style="list-style-type: none"> Byte Variable, Integer Variable, Double Int Variable, Real Variable, String Variable Robot Position, Base Position, Station Position
2	Switch pages	Switch	Changes the starting variable number to 0 or 50.
3	Data display	Switch	Displays 50 variables worth of data from the starting variable number. The display range is 0 to 99.

6.17.3. D Script

- ID00005 Initial setting [When switching screens]

Initialize the display memory.

- ID00001 0-49 [When No. 0-49 is depressed]

Initialize the display memory and switch the starting number.

- ID00003 50-99 [When No. 50-99 is depressed]

Initialize the display memory and switch the starting number.

- ID00002 Store variable data [Always]

Batch get byte variable data and set to the display area.

6.18. Integer Variable Monitor screen (B8691)

6.18.1. Screen overview

This screen displays a list of integer variables. The variables cannot be written to.

6.18.2. Screen image

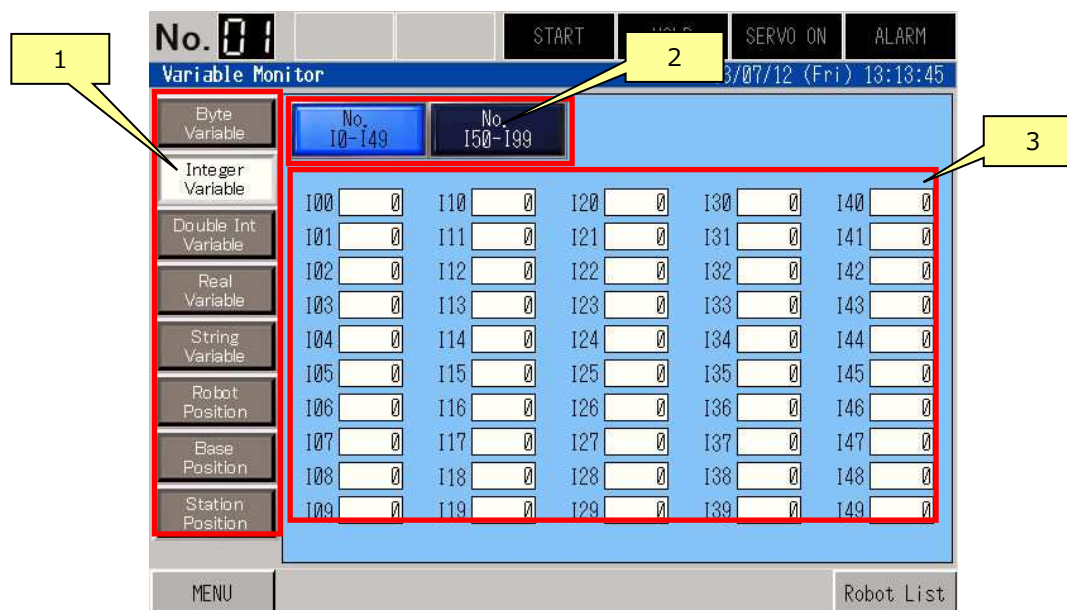


Figure 6-18 Screen image

Table 6-18 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	Switches to the selected screen. The selected screen will display in reverse. <ul style="list-style-type: none"> Byte Variable, Integer Variable, Double Int Variable, Real Variable, String Variable Robot Position, Base Position, Station Position
2	Switch pages	Switch	Changes the starting variable number to 0 or 50.
3	Data display	Switch	Displays 50 variables worth of data from the starting variable number. The display range is 0 to 99.

6.18.3. D Script

- ID00005 Initial setting [When switching screens]

Initialize the display memory.

- ID00001 0-49 [When No. 0-49 is depressed]

Initialize the display memory and switch the starting instance.

- ID00003 50-99 [When No. 50-99 is depressed]

Initialize the display memory and switch the starting number.

- ID00002 Store variable data [Always]

Batch get integer variable data and set to the display area.

6.19. Double Int Variable Monitor screen (B8692)

6.19.1. Screen overview

This screen displays a list of double integer variables. The variables cannot be written to.

6.19.2. Screen image

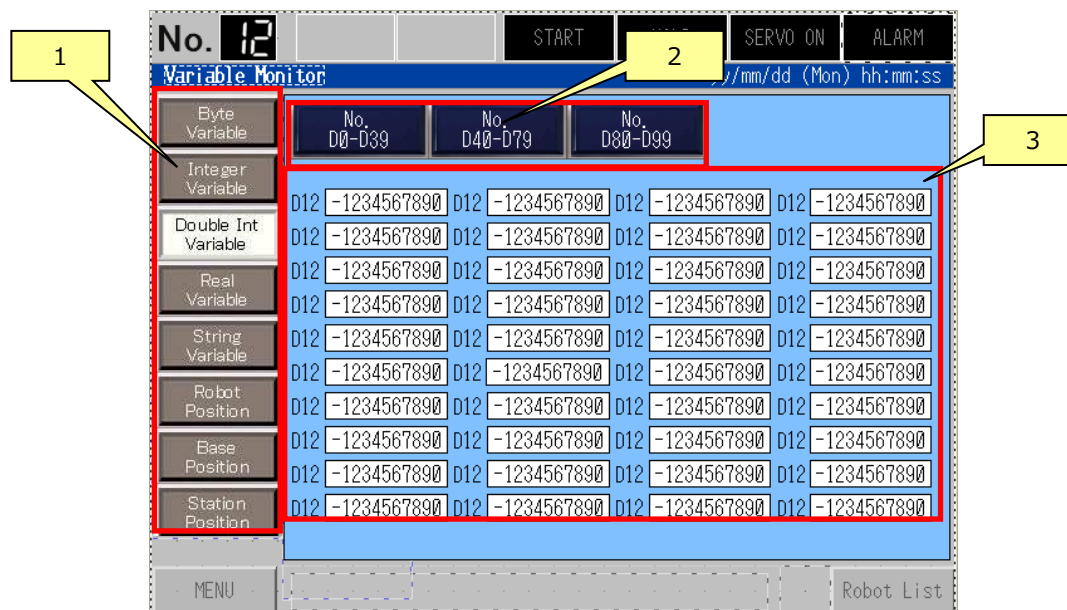


Figure 6-19 Screen image

Table 6-19 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	Switches to the selected screen. The selected screen will display in reverse. <ul style="list-style-type: none"> Byte Variable, Integer Variable, Double Int Variable, Real Variable, String Variable Robot Position, Base Position, Station Position
2	Switch pages	Switch	Changes the starting variable number from 0 in multiples of 40.
3	Data display	Switch	Displays 40 variables worth of data from the starting variable number. The display range is 0 to 99.

6.19.3. D Script

- ID00005 Initial setting [When switching screens]

Initialize the display memory.

- ID00001 0-39 [When No. 0-39 is depressed]

Initialize the display memory and switch the starting instance.

- ID00003 40-79 [When No. 40-79 is depressed]

Initialize the display memory and switch the starting instance.

- ID00000 80-99 [When No. 80-99 is depressed]

Initialize the display memory and switch the starting instance.

- ID00002 Store variable data [Always]

Batch get double integer variable data and set to the display area.

6.20. Real Variable Monitor screen (B8698)

6.20.1. Screen overview

This screen displays a list of real variables. The variables cannot be written to.

6.20.2. Screen image

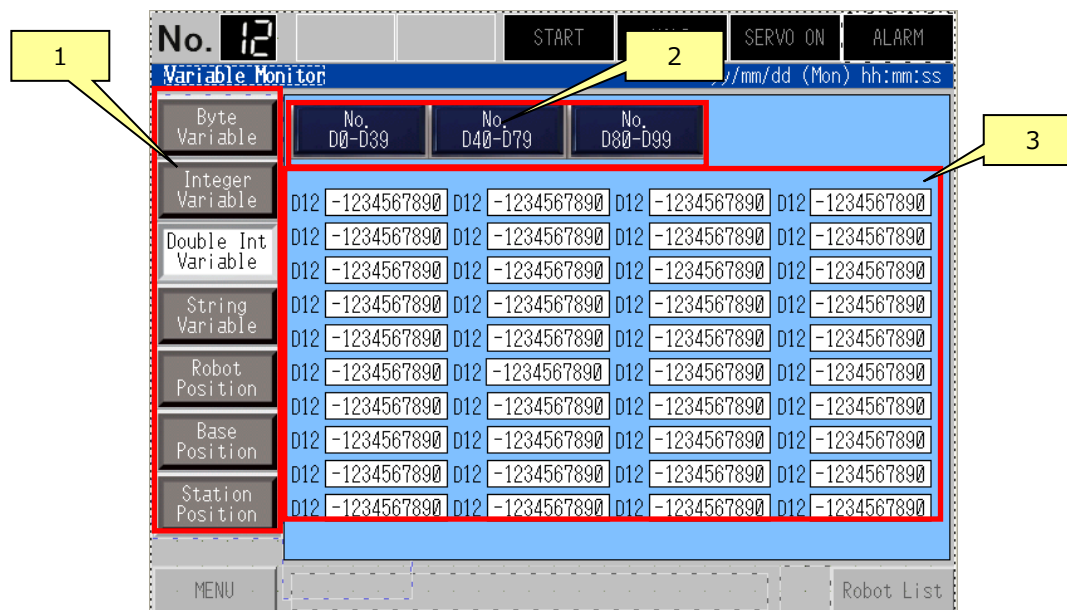


Figure 6-20 Screen image

Table 6-20 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	Switches to the selected screen. The selected screen will display in reverse. <ul style="list-style-type: none"> Byte Variable, Integer Variable, Double Int Variable, Real Variable, String Variable Robot Position, Base Position, Station Position
2	Switch pages	Switch	Changes the starting variable number from 0 in multiples of 40.
3	Data display	Switch	Displays 40 variables worth of data from the starting variable number. The display range is 0 to 99.

6.20.3. D Script

- ID00005 Initial setting [When switching screens]
Initialize the display memory.
- ID00001 0-39 [When No. 0-39 is depressed]
Initialize the display memory and switch the starting instance.
- ID00003 40-79 [When No. 40-79 is depressed]
Initialize the display memory and switch the starting instance.
- ID00000 80-99 [When No. 80-99 is depressed]
Initialize the display memory and switch the starting instance.
- ID00002 Store variable data [Always]
Batch get real variable data and set to the display area.

6.21. String Variable Monitor screen (B8693)

6.21.1. Screen overview

This screen displays a list of string variables. The variables cannot be written to.

6.21.2. Screen image

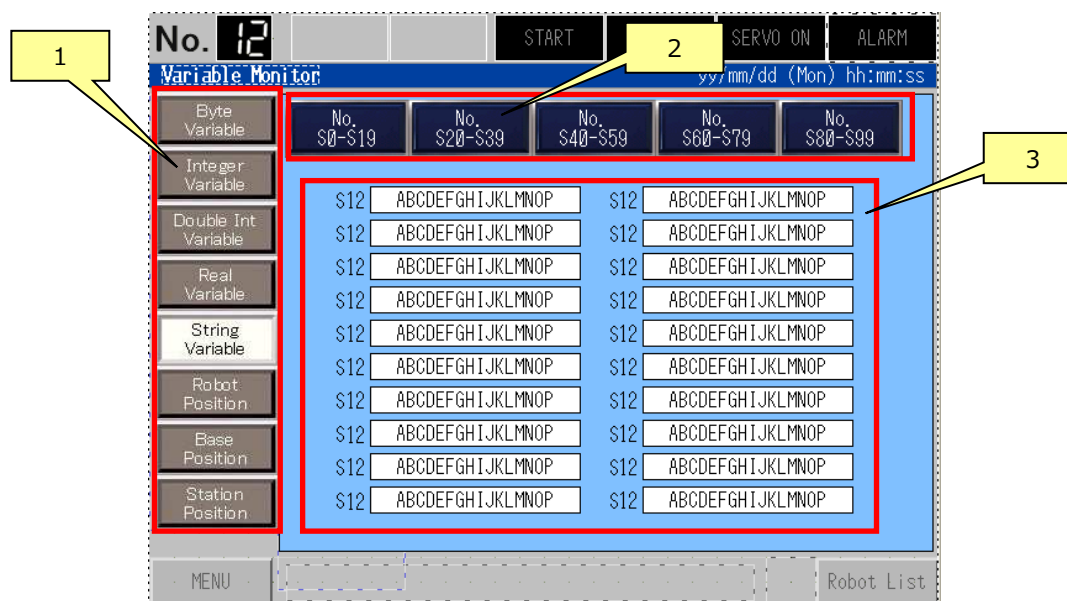


Figure 6-21 Screen image

Table 6-21 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	Switches to the selected screen. The selected screen will display in reverse. <ul style="list-style-type: none"> Byte Variable, Integer Variable, Double Int Variable, Real Variable, String Variable Robot Position, Base Position, Station Position
2	Switch pages	Switch	Changes the starting variable number from 0 in multiples of 20.
3	Data display	Switch	Displays 20 variables worth of data from the starting variable number. The display range is 0 to 99.

6.21.3. D Script

- ID00005 Initial setting [When switching screens]
Initialize the display memory.
- ID00001 0-19 [When No. 0-19 is depressed]
Initialize the display memory and switch the starting number.
- ID00003 20-39 [When No. 20-39 is depressed]
Initialize the display memory and switch the starting number.
- ID00000 40-59 [When No. 40-59 is depressed]
Initialize the display memory and switch the starting number.
- ID00004 60-79 [When No. 60-79 is depressed]
Initialize the display memory and switch the starting number.
- ID00002 Store variable data [Always]
Batch get string variable data and set to the display area.

6.22. Robot Position Variable Monitor screen (B8694)

6.22.1. Screen overview

This screen displays the robot position variables. The variables cannot be written to.

* When an undefined number is specified, an error message is displayed on the screen.

6.22.2. Screen image

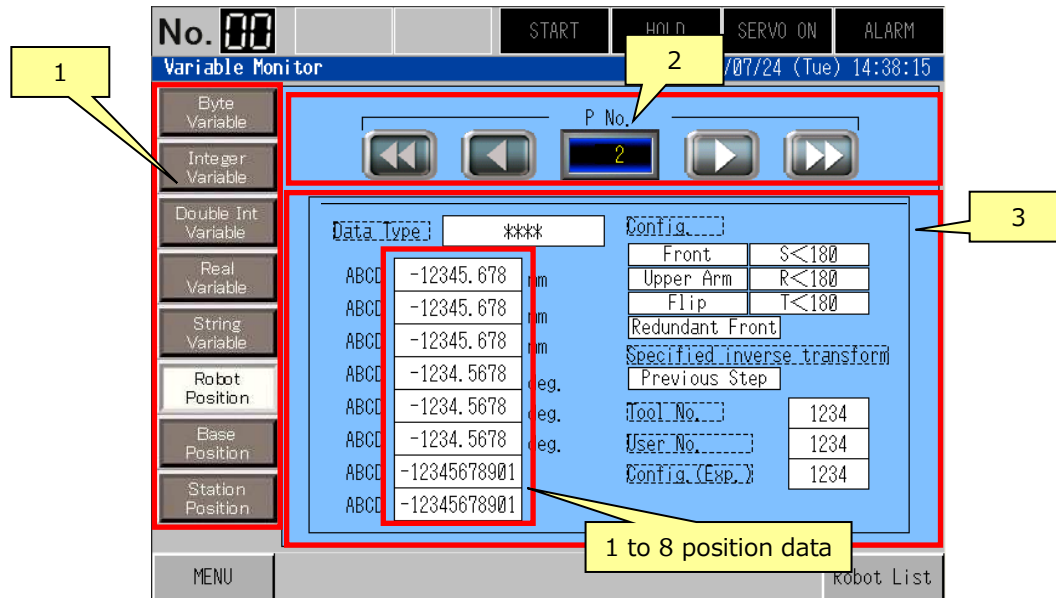


Figure 6-22 Screen image (Robot position)

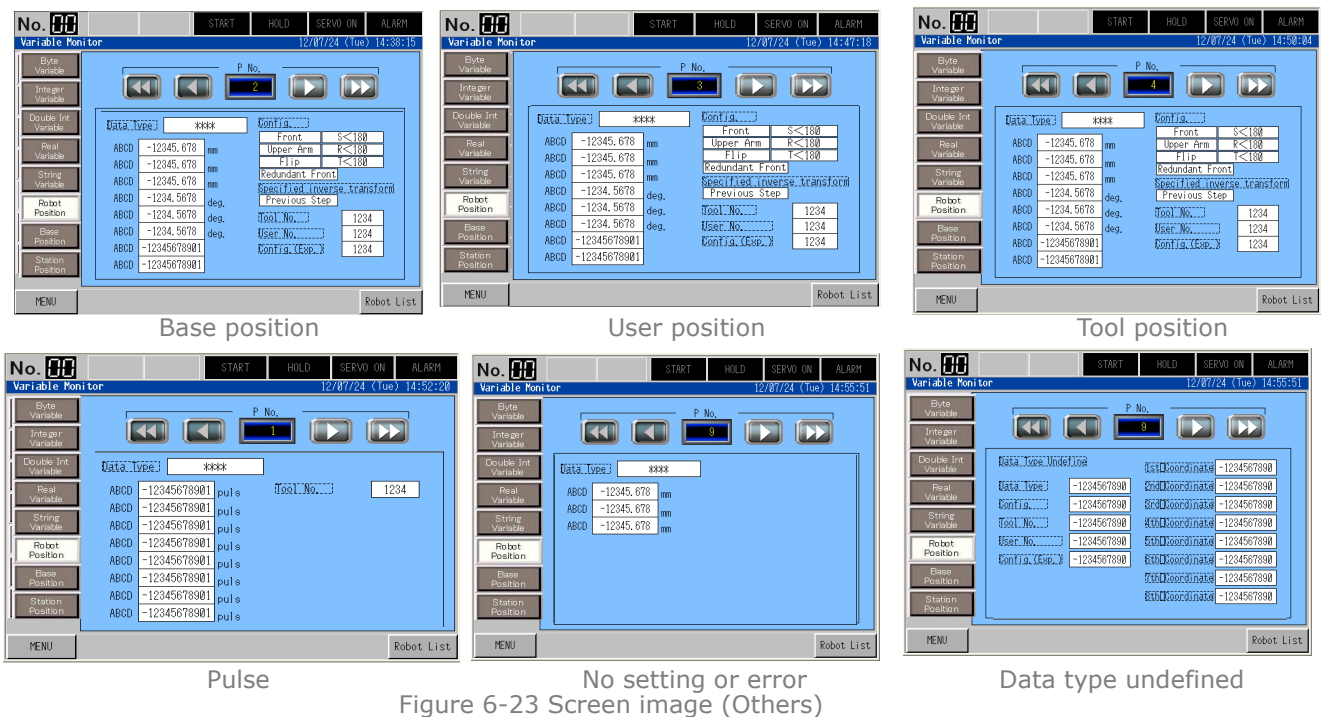


Figure 6-23 Screen image (Others)

Table 6-22 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	Switches to the selected screen. The selected screen will display in reverse. <ul style="list-style-type: none"> Byte Variable, Integer Variable, Double Int Variable, Real Variable, String Variable Robot Position, Base Position, Station Position
2	Switch pages	Switch	The single arrow buttons increase or decrease the

No.	Item	Part	Description
			variable number by one. The double arrow buttons increase or decrease the number by ten. You can also directly enter a number by tapping the number display box. The maximum is 127.
3	Data display	Switch	<p>Displays the data for the variable with the specified number.</p> <ul style="list-style-type: none"> The displayed items differ according to the data type. <p>Data Type: Pulse, Base position, Robot position, Tool position, User position</p> <ul style="list-style-type: none"> For Pulse, displays only 1 to 8 position data. The item names for the position data are acquired from the controller and displayed according to the data type. Acquired values are displayed for the Tool No., User No., and Config. (Exp.). Configuration displays characters according to bit values.

6.22.3. D Script

- ID00005 Initial setting [When switching screens]
Initialize the display memory.
- ID00000 Switch instance [When the number movement button is depressed]
Switch the display number.
- ID00002 Store variable data [Always]
Batch get robot position variable data and set to the display area.
- ID00001 Direct input E clear [When the number movement button is depressed]
Switch the display number and clear the alarm

6.23. Base Position Variable Monitor screen (B8695)

6.23.1. Screen overview

This screen displays the base position variables. The variables cannot be written to.

* When an undefined number is specified, an error message is displayed on the screen.

6.23.2. Screen image

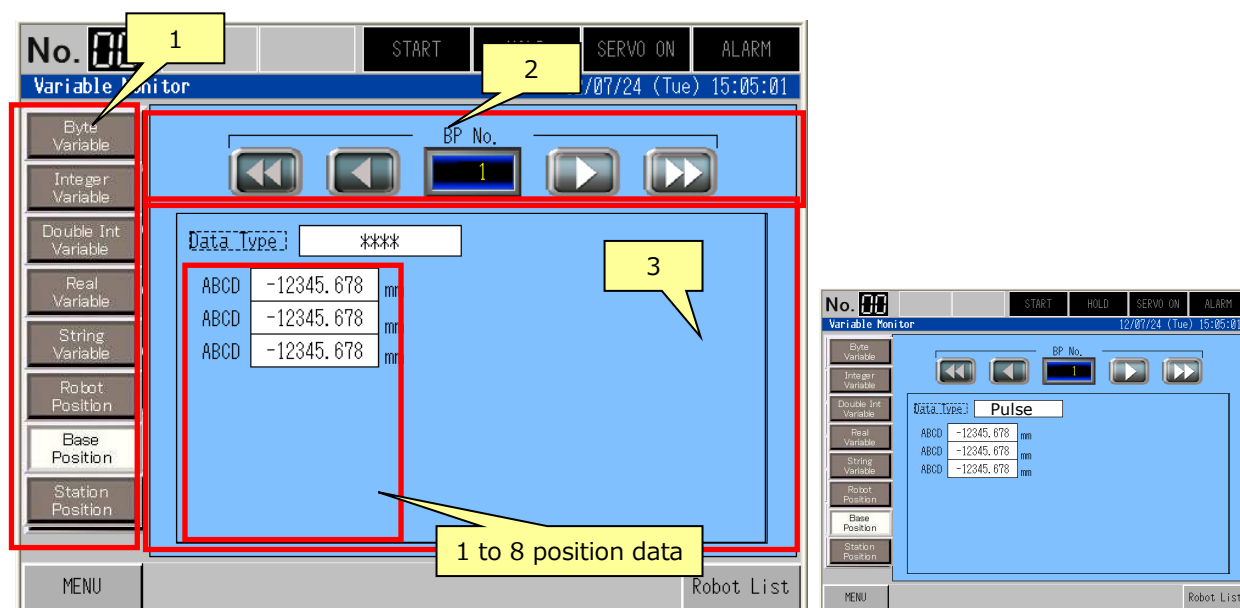


Figure 6-24 Screen image

Table 6-23 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	Switches to the selected screen. The selected screen will display in reverse. <ul style="list-style-type: none"> Byte Variable, Integer Variable, Double Int Variable, Real Variable, String Variable Robot Position, Base Position, Station Position
2	Switch pages	Switch	The single arrow buttons increase or decrease the variable number by one. The double arrow buttons increase or decrease the number by ten. You can also directly enter a number by tapping the number display box. The maximum is 127.
3	Data display	Switch	Displays the data for the variable with the specified number. <ul style="list-style-type: none"> The displayed items differ according to the data type. Data Type: Pulse, Base position Displays only 1 to 8 position data for both Pulse and Base position. The item names for the position data are acquired from the controller and displayed according to the data type.

6.23.3. D Script

- ID00005 Initial setting [When switching screens]

Initialize the display memory.

- ID00000 Switch instance [When the number movement button is depressed]

Switch the display number.

- ID00002 Store variable data [Always]

Batch get base axis position variable data and set to the display area.

- ID00001 Direct input E clear [When the number movement button is depressed]

Switch the display number and clear the alarm

6.24. Station Position Variable Monitor screen (B8696)

6.24.1. Screen overview

This screen displays the station position variables. The variables cannot be written to.

* When an undefined number is specified, an error message is displayed on the screen.

6.24.2. Screen image

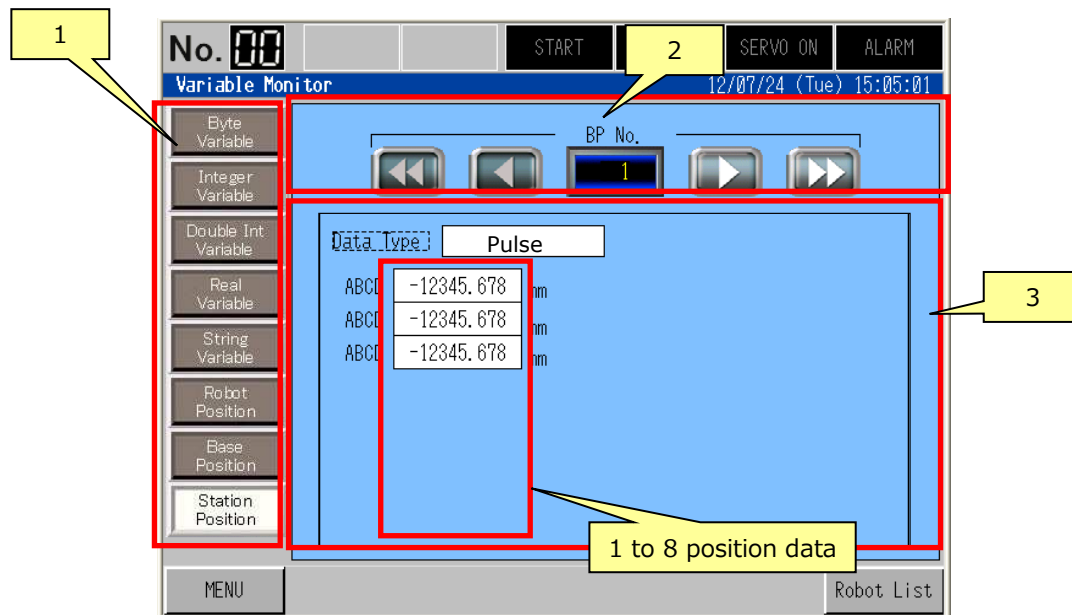


Figure 6-25 Screen image

Table 6-24 Description of parts

No.	Item	Part	Description
1	Switch screens	Switch	Switches to the selected screen. The selected screen will display in reverse. <ul style="list-style-type: none"> Byte Variable, Integer Variable, Double Int Variable, Real Variable, String Variable Robot Position, Base Position, Station Position
2	Switch pages	Switch	The single arrow buttons increase or decrease the variable number by one. The double arrow buttons increase or decrease the number by ten. You can also directly enter a number by tapping the number display box. The maximum is 127.
3	Data display	Switch	Displays the data for the variable with the specified number. <ul style="list-style-type: none"> The data type is Pulse only. Displays only the 1 to 8 position data. The item names for the position data are acquired from the controller and displayed.

6.24.3. D Script

- ID00005 Initial setting [When switching screens]
Initialize the display memory.
- ID00000 Switch instance [When the number movement button is depressed]
Switch the display number.
- ID00002 Store variable data [Always]
Batch get station position variable data and set to the display area.
- ID00001 Direct input E clear [When the number movement button is depressed]
Switch the display number and clear the alarm

6.25. Register Monitor screen (B8697)

6.25.1. Screen overview

This screen displays a list of registers. The registers cannot be written to.

6.25.2. Screen image

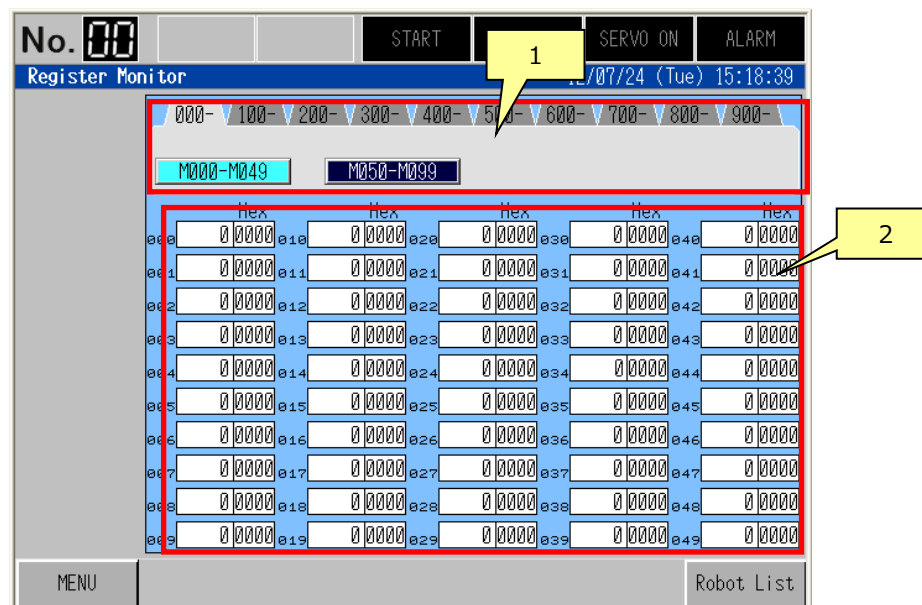


Figure 6-26 Screen image

Table 6-25 Description of parts

No.	Item	Part	Description
1	Switch pages	Switch	Determine the starting instance using the tabs and buttons.
2	Data display	Switch	Displays 50 instances from the starting instance. The instance range is 1 to 999.

6.25.3. D Script

- ID00005 Initial setting [When switching screens]
Initialize the display memory.
- ID00001 InstanceSW1 [When the instance button is depressed]
Initialize the display memory and switch the starting instance.
- ID00007 Change tab [When the tab button is depressed]
Perform instance button switch.
- ID00002 Store variable data [Always]
Batch get register data and set to the display area.

7. Global D script

Executed on all screens when the touch panel is started up.

The items executed are as follows:

- ID00000 Initial setting [Immediately after powering on]
Initializes the robot connection settings.
- ID00001 Close alarm detail window [When switching BASE screens]
Close alarm detail window.
- ID00002 Error reset [When switching BASE and window screens]
Clears error flags.
- ID00004 Communication error [When storing the file load command error code]
Sets the file load error flag to ON.
- ID00003 JOB Error clear [When close JOB Monitor screen]
Clear error flag.

8. Address maps

8.1. List of internally-used addresses

Table 8-1 Address maps

Address	Type	Description
LS955200 to LS955207	bit	Robot controller 1to8 SCAN ON/OFF
USR00000 to USR00012	16bit	File load control Address
USR00020 to USR00025	16bit	Current time B8672
USR12000 to USR12399	32bit/ String	Alarm current value acquisition area B8660
USR12500 to USR13486	32bit/ String	Alarm History acquisition B8661
USR13500 to 13558	String	Sub code detail message B8660, B8661
USR13000 to USR13007	16bit	Time data acquisition B8672
USR13870 to USR13879	String	Time stamp display B8672
USR12000 to USR12099	32bit	Variable data acquisition area B8690 to B8693, B8697
USR13500 to USR13652	32bit/ String	Variable screen, variable value display area B8690 to B8693, B8697
USR13800 to USR13849	16bit	Variable screen, variable number display area B8690 to B8693, B8697
USR12000 to USR12099	32bit	Axis position variable data acquisition and display area B8694 to B8696
USR13500 to USR13505	16bit	Axis position variable, Window display use B8694 to B8696
USR14000 to	String	Job program load area (105 lines x 50 characters) 3000 Word
USR17000 to	String	Job program load area (102 lines x 50 characters) 3000 Word
USR2000000 to USR2000007	bit	I/O Lamp NO.1toNO.8

Address	Type	Description
USR2000200 to USR2000207	bit	I/O Lamp NO.9toNO.16
USR2000400 to USR2000407	bit	I/O Lamp NO.17toNO.24
USR2000600 to USR2000607	bit	I/O Lamp NO.25toNO.32
USR20030 to USR20061	16bit	Exclusive input/output Screen Starting line No.1toNo.32
USR20065 to USR20096	bit	I/O number No.1toNo.32
USR20100 to USR20419	String	I/O comment No.1toNo.32 10 Word
USR20450 to USR20481	16bit	Exclusive input/output Screen Text number
USR21000 to USR21016	16bit	Job LINE No.
USR21040	16bit	STEP NO. storage
USR21041	16bit	Screen scrollNo.
USR2105000 to USR2105014	bit	LINE No. Lamp
USR21060 to	String	Job program name (Storage) 32 characters
USR21100 to	String	Job program name Load area 32 characters
USR21120 to	String	Job program name Word->Byte conversion 32 characters
USR21160 to	String	Job program name Added extension 32 characters
USR21200 to	String	Job program name Load area 32 characters
USR21220 to	String	Job program name Selection 32 characters
USR21300	16bit	Robot Position Window OPEN
USR21301	16bit	Robot Position Window No.
USR21302	16bit	Robot Position Window Xcoordinate
USR21303	16bit	Robot Position Window Ycoordinate
USR21310	16bit	Servo monitor Window OPEN
USR21311	16bit	Servo monitor Window No.
USR21312	16bit	Servo monitor Window Xcoordinate
USR21313	16bit	Servo monitor Window Ycoordinate

Address	Type	Description
USR21320 to USR21335	String (DW)	Axis name 1to8
USR21340 to USR21355	String (DW)	Axis name 1to8(Dual-arm)
USR21360	String	External axis (Dual-arm)
USR21361	String	"
USR2138000 to USR2138007	bit	Positional data 1to8 Display / not display
USR2138100 to USR2138107	bit	Positional data 1to8(Dual-arm) Display / not display
USR21400	16bit	Tool number
USR21410 to	String	Tool name 20 characters
USR21420 to USR21445	32bit	Tool information 1to13
USR21500 to	String	Job program name (Executing job) 32 characters
USR21516	32bit	Line No.
USR21530 to	String	Job program name (Master job) 32 characters
USR21600 to	String	Job program name Temporary Storage 32 characters
USR21632 to	String	Job program name Re-storage 32 characters
USR21700 to USR21844	String	Job program List 1to8
USR24000 to	String	Alarm detail (Content)
USR25000 to	String	Alarm detail (Meaning)
USR26000 to	String	Alarm detail (Cause)
USR26040 to	String	Alarm detail (Measure)
USR27000	16bit	Robot Controller No.
USR27030	32bit	Alarm code (No.1)
USR27032	32bit	Alarm sub-code (No.1)
USR27034	32bit	Alarm sub-code Type (No.1)
USR27036 to	String	Date generated 16 characters (No.1)
USR27044 to	String	Alarm message 32 characters (No.1)
USR270760	32bit	Alarm code (No.2)
USR27062	32bit	Alarm sub-code (No.2)
USR27064	32bit	Alarm sub-code Type (No.2)
USR27066 to	String	Date generated 16 characters (No.2)
USR27074 to	String	Alarm message 32 characters (No.2)

Address	Type	Description
USR27090	32bit	Alarm code (No.3)
USR27092	32bit	Alarm sub-code (No.3)
USR27094	32bit	Alarm sub-code Type (No.3)
USR27096 to	String	Date generated 16 characters (No.3)
USR27120	String	Alarm message 32 characters (No.3)
USR27122	32bit	Alarm code (No.4)
USR27124	32bit	Alarm sub-code (No.4)
USR27126 to	32bit	Alarm sub-code Type (No.4)
USR27134 to	String	Date generated 16 characters (No.4)
USR27300	32bit	Alarm code
USR27302	32bit	Alarm sub-code
USR27304	32bit	Alarm sub-code Type
USR27306 to	String	Date generated 16 characters
USR27314 to	String	Alarm message 32 characters
USR27350	16bit	Alarm detail (Content) offset
USR27351	16bit	Alarm detail (Meaning) offset
USR27352	16bit	Alarm detail (Measure) offset
USR27400 to USR27429	32bit	Alarm History No.1to15
USR27500 to USR27949	String	No.1toNo.15 Alarm 30 Word
USR28000	32bit	Predictive maintenance1 Current elapsed time
USR28002	32bit	Predictive maintenance1 Elapsed calculation (Year)
USR28004	32bit	Predictive maintenance1 Elapsed calculation (Month)
USR28006	32bit	Predictive maintenance1 Elapsed calculation (Day)
USR28008	32bit	Predictive maintenance1 Elapsed calculation (Hour)
USR28010	32bit	Predictive maintenance1 Elapsed calculation (Day) addition
USR28020	32bit	Predictive maintenance2 Current elapsed time
USR28022	32bit	Predictive maintenance2 Elapsed calculation (Year)
USR28024	32bit	Predictive maintenance2 Elapsed calculation (Month)
USR28026	32bit	Predictive maintenance2 Elapsed calculation (Day)
USR28028	32bit	Predictive maintenance2 Elapsed calculation (Hour)
USR28030	32bit	Predictive maintenance2 Elapsed calculation (Day) addition
USR28900 to USR28909	String	Message send data
USR29000	32bit	Last work installation 1 (Year) No.1
USR29002	32bit	Last work installation 1 (Month) No.1
USR29004	32bit	Last work installation 1 (Day) No.1

Address	Type	Description
USR29006	32bit	Last work installation 1 (Hour) No.1
USR29008	32bit	Last work installation 1 (Minute) No.1
USR29010	32bit	Last work installation 2 (Year) No.1
USR29012	32bit	Last work installation 2 (Month) No.1
USR29014	32bit	Last work installation 2 (Day) No.1
USR29016	32bit	Last work installation 2 (Hour) No.1
USR29018	32bit	Last work installation 2 (Minute) No.1
USR29020to	32bit	Last work installation 1 No.2
USR29030to	32bit	Last work installation 2 No.2
USR29040to	32bit	Last work installation 1 No.3
USR29050to	32bit	Last work installation 2 No.3
USR29060to	32bit	Last work installation 1 No.4
USR29070to	32bit	Last work installation 2 No.4
USR29080to	32bit	Last work installation 1 No.5
USR29090to	32bit	Last work installation 2 No.5
USR29100to	32bit	Last work installation 1 No.6
USR29110to	32bit	Last work installation 2 No.6
USR29120to	32bit	Last work installation 1 No.7
USR29130to	32bit	Last work installation 2 No.7
USR29140to	32bit	Last work installation 1 No.8
USR29150to	32bit	Last work installation 2 No.8
USR29320	32bit	Predictive maintenance1 (Upper limit) No.1
USR29322	32bit	Predictive maintenance1 (Lower limit) No.1
USR29324	32bit	Predictive maintenance1 (Alarm range) No.1
USR29326	32bit	Predictive maintenance2 (Upper limit) No.1
USR29328	32bit	Predictive maintenance2 (Lower limit) No.1
USR29330	32bit	Predictive maintenance2 (Alarm range) No.1
USR29332	32bit	Predictive maintenance1 (Upper limit) No.2
USR29334	32bit	Predictive maintenance1 (Lower limit) No.2
USR29336	32bit	Predictive maintenance1 (Alarm range) No.2
USR29338	32bit	Predictive maintenance2 (Upper limit) No.2
USR29340	32bit	Predictive maintenance2 (Lower limit) No.2
USR29342	32bit	Predictive maintenance2 (Alarm range) No.2
USR29344	32bit	Predictive maintenance1 (Upper limit) No.3
USR29346	32bit	Predictive maintenance1 (Lower limit) No.3
USR29348	32bit	Predictive maintenance1 (Alarm range) No.3
USR29350	32bit	Predictive maintenance2 (Upper limit) No.3
USR29352	32bit	Predictive maintenance2 (Lower limit) No.3

Address	Type	Description
USR29354	32bit	Predictive maintenance2 (Alarm range) No.3
USR29356	32bit	Predictive maintenance1 (Upper limit) No.4
USR29358	32bit	Predictive maintenance1 (Lower limit) No.4
USR29360	32bit	Predictive maintenance1 (Alarm range) No.4
USR29362	32bit	Predictive maintenance2 (Upper limit) No.4
USR29364	32bit	Predictive maintenance2 (Lower limit) No.4
USR29366	32bit	Predictive maintenance2 (Alarm range) No.4
USR29368	32bit	Predictive maintenance1 (Upper limit) No.5
USR29370	32bit	Predictive maintenance1 (Lower limit) No.5
USR29372	32bit	Predictive maintenance1 (Alarm range) No.5
USR29374	32bit	Predictive maintenance2 (Upper limit) No.5
USR29376	32bit	Predictive maintenance2 (Lower limit) No.5
USR29378	32bit	Predictive maintenance2 (Alarm range) No.5
USR29380	32bit	Predictive maintenance1 (Upper limit) No.6
USR29382	32bit	Predictive maintenance1 (Lower limit) No.6
USR29384	32bit	Predictive maintenance1 (Alarm range) No.6
USR29386	32bit	Predictive maintenance2 (Upper limit) No.6
USR29388	32bit	Predictive maintenance2 (Lower limit) No.6
USR29390	32bit	Predictive maintenance2 (Alarm range) No.6
USR29392	32bit	Predictive maintenance1 (Upper limit) No.7
USR29394	32bit	Predictive maintenance1 (Lower limit) No.7
USR29396	32bit	Predictive maintenance1 (Alarm range) No.7
USR29398	32bit	Predictive maintenance2 (Upper limit) No.7
USR29400	32bit	Predictive maintenance2 (Lower limit) No.7
USR29402	32bit	Predictive maintenance2 (Alarm range) No.7
USR29404	32bit	Predictive maintenance1 (Upper limit) No.8
USR29406	32bit	Predictive maintenance1 (Lower limit) No.8
USR29408	32bit	Predictive maintenance1 (Alarm range) No.8
USR29410	32bit	Predictive maintenance2 (Upper limit) No.8
USR29412	32bit	Predictive maintenance2 (Lower limit) No.8
USR29414	32bit	Predictive maintenance2 (Alarm range) No.8

8.2. Symbol variable list

Table 8-2 Variable list

Symbol variable	Data Type	Content	Holding
Act_Check	Bit variable	Work complete check	
Act_Ready	Bit variable	Robot designation	
Alarm_Cause_BACK	Bit variable	Alarm cause previous page	
Alarm_Cause_NEXT	Bit variable	Alarm cause next page	
Alarm_Cause_Read	Bit variable	Alarm cause read	
Alarm_Cont_DW	Bit variable	Alarm content scroll down	
Alarm_Cont_UP	Bit variable	Alarm content scroll up	
ALARM_File_Read	Bit variable	Alarm detail CSV file read	
ALARM_H_DW	Bit variable	Alarm History previous page	
ALARM_H_Read	Bit variable	Alarm History read	
ALARM_H_UP	Bit variable	Alarm History next page	
Alarm_Mean_DW	Bit variable	Alarm Meaning scroll down	
Alarm_Mean_UP	Bit variable	Alarm Meaning scroll up	
Alarm_Measure_DW	Bit variable	Alarm Measure scroll down	
Alarm_Measure_UP	Bit variable	Alarm Measure scroll up	
ALARM_Open_Enable[0]	Bit variable	Alarm detail window open enable 1	
ALARM_Open_Enable[1]	Bit variable	Alarm detail window open enable 2	
ALARM_Open_Enable[2]	Bit variable	Alarm detail window open enable 3	
ALARM_Open_Enable[3]	Bit variable	Alarm detail window open enable 4	
ALARM_Window	Bit variable	Alarm detail window open	
CF_Card_Set	Bit variable	CF card setting	Yes
CMOS_Backup_Flag	Bit variable	CMOS backup enabled/disabled	
Confirm_Window	Bit variable	CMOS backup confirmation window	
Confirm_Button	Bit variable	CMOS backup button	
CTL_Enable[0]	Bit variable	Robot Controller Enable Setting No.1	
CTL_Enable[1]	Bit variable	Robot Controller Enable Setting No.2	
CTL_Enable[2]	Bit variable	Robot Controller Enable Setting No.3	
CTL_Enable[3]	Bit variable	Robot Controller Enable Setting No.4	
CTL_Enable[4]	Bit variable	Robot Controller Enable Setting No.5	
CTL_Enable[5]	Bit variable	Robot Controller Enable Setting No.6	
CTL_Enable[6]	Bit variable	Robot Controller Enable Setting No.7	
CTL_Enable[7]	Bit variable	Robot Controller Enable Setting No.8	
Cycle_Set	Bit variable	Operating mode set	
Dual_ARM_Set	Bit variable	Dual-arm robot setting	

Symbol variable	Data Type	Content	Holding
FILE_LIST_Dw	Bit variable	File list Next page	
FILE_LIST_Up	Bit variable	File list Previous page	
File_Read_Disable	Bit variable	File read setting	Yes
FILE_Read_NG	Bit variable	File read error	
IO_No_DEC	Bit variable	IO NO scroll down	
IO_No_INC	Bit variable	IO NO scroll up	
IO_No_Jump	Bit variable	IO NO JUMP	
IO_No_Set	Bit variable	IO NO SET	
IO_Read_Set_IN	Bit variable	General input comment read	
IO_Read_Set_OUT	Bit variable	General output comment read	
JOB(ACT)_Check	Bit variable	Job program set check	
JOB(ACT)_Set	Bit variable	Executing job program set	
JOB(MAST)_Check	Bit variable	Master job set check	
JOB(MAST)_Set	Bit variable	Master job program set	
JOB_Exec_Check	Bit variable	Job execution set	
JOB_Exec_Set	Bit variable	Job execution	
JOB_Line_OFF	Bit variable	Job execution line OFF	
JOB_MON_PageNo_TOP	Bit variable	Job program monitor TOP page	
JOB_Read	Bit variable	Job program read	Yes
JOB_Read_Over	Bit variable	Job Program Read area over	
JOB_Sync_Set	Bit variable	Sync setting	Yes
JOBFILE_Read	Bit variable	Job program read (list)	
JOBFILE_Set	Bit variable	Selected job file name storage	
JOBLIST_Open	Bit variable	Job list open	
JOBLIST_Open1	Bit variable	Job Setting list open	
JOBLIST_Read	Bit variable	Job list read	
JOBLIST_Select_Set	Bit variable	Job program file select	
JOBMON_DW	Bit variable	Job monitor Previous page	
JOBMON_UP	Bit variable	Job monitor Next page	
Mainte_Set1	Bit variable	Work implementation 1	
Mainte_Set2	Bit variable	Work implementation 2	
Mainte1_Lamp	Bit variable	Preventative maintenance display 1	
Mainte1_ON[0]	Bit variable	Preventative maintenance display 1 controller 1	Yes
Mainte1_ON[1]	Bit variable	Preventative maintenance display 1 controller 2	Yes
Mainte1_ON[2]	Bit variable	Preventative maintenance display 1 controller 3	Yes
Mainte1_ON[3]	Bit variable	Preventative maintenance display 1 controller 4	Yes
Mainte1_ON[4]	Bit variable	Preventative maintenance display 1 controller 5	Yes

Symbol variable	Data Type	Content	Holding
Mainte1_ON[5]	Bit variable	Preventative maintenance display 1 controller 6	Yes
Mainte1_ON[6]	Bit variable	Preventative maintenance display 1 controller 7	Yes
Mainte1_ON[7]	Bit variable	Preventative maintenance display 1 controller 8	Yes
Mainte1_SW	Bit variable	Preventative maintenance setting 1	Yes
Mainte2_Lamp	Bit variable	Preventative maintenance display 2	
Mainte2_ON[0]	Bit variable	Preventative maintenance display 2 controller 1	Yes
Mainte2_ON[1]	Bit variable	Preventative maintenance display 2 controller 2	Yes
Mainte2_ON[2]	Bit variable	Preventative maintenance display 2 controller 3	Yes
Mainte2_ON[3]	Bit variable	Preventative maintenance display 2 controller 4	Yes
Mainte2_ON[4]	Bit variable	Preventative maintenance display 2 controller 5	Yes
Mainte2_ON[5]	Bit variable	Preventative maintenance display 2 controller 6	Yes
Mainte2_ON[6]	Bit variable	Preventative maintenance display 2 controller 7	Yes
Mainte2_ON[7]	Bit variable	Preventative maintenance display 2 controller 8	Yes
Mainte2_SW	Bit variable	Preventative maintenance setting 2	Yes
Menu_No_Set.X[0]	Bit variable	Menu select No.1	
Menu_No_Set.X[1]	Bit variable	Menu select No.2	
Menu_No_Set.X[2]	Bit variable	Menu select No.3	
Menu_No_Set.X[3]	Bit variable	Menu select No.4	
Menu_No_Set.X[4]	Bit variable	Menu select No.5	
Menu_No_Set.X[5]	Bit variable	Menu select No.6	
Menu_Open	Bit variable	Menu open	
Mode_Error	Bit variable	PP (REMOTE) Error	
Mode_Set	Bit variable	Mode setting	
Mode1_Check	Bit variable	Mode 1 Check	
Mode2_Check	Bit variable	Mode 2 Check	
Msg_Set	Bit variable	Message Setting	
Pulse_On	Bit variable	Axis position variable screen pulse display flag	
RB_MON_OPEN	Bit variable	Servo monitor open	
RB_POS_OPEN	Bit variable	Position monitor open	
Robot_Base	Bit variable	Robot structure setting (BASE)	Yes
Robot_Station	Bit variable	Robot structure setting (Station)	Yes
TEMP1	Bit variable	Temp	
Visible_Flag	Bit variable	Variable hidden flag	
Window_Disb_Bak	Bit variable	Previous CMOS save execution window flag value	
Window_Disb_Flag	Bit variable	CMOS save execution window flag	
Action_Set	Integer variable	Operation action (HOLD, SERVO ON)	
Alarm_Detail_Lamp	Integer variable	Alarm sub code detail button display	

Symbol variable	Data Type	Content	Holding
Alarm_Detail_Lock	Integer variable	For alarm sub code detail button interlock	
Alarm_Detail_No	Integer variable	Alarm sub code detail button selection number	
Alarm_Detail_No_Bak	Integer variable	Retain alarm sub code detail button selection number	
ALARM_H_Mode_Tmp	Integer variable	Alarm history Mode (storage)	
ALARM_No	Integer variable	Alarm number	
Mainte_Offset_Data1	Integer variable	Preventative mainte 1 Last Installment offset data	
Mainte_Offset_Data2	Integer variable	Preventative mainte 2 Last Installment offset data	
Mainte1_Alarm	Integer variable	Preventative maintenance 1 Alarm range	Yes
Mainte1_Alarm_Data	Integer variable	Preventative maintenance 1 Flag alarm value	
Mainte1_Lower	Integer variable	Preventative maintenance 1 Lower limit	Yes
Mainte1_Upper	Integer variable	Preventative maintenance 1 Upper limit	Yes
Mainte2_Alarm	Integer variable	Preventative maintenance 2 Alarm range	Yes
Mainte2_Alarm_Data	Integer variable	Preventative maintenance 2 Flag alarm value	
Mainte2_Lower	Integer variable	Preventative maintenance 2 Lower limit	Yes
Mainte2_Upper	Integer variable	Preventative maintenance 2 Upper limit	Yes
Menu_No_Set	Integer variable	Menu number set	
Robot_Use	Integer variable	Setting robot use	Yes
Alarm_Cause_CNT	Integer variable	Alarm cause scroll line number	
Alarm_Cont_CNT	Integer variable	Alarm content scroll line number	
ALARM_H_Mode	Integer variable	Alarm history Mode	
ALARM_H_No	Integer variable	Alarm history Current page number	
ALARM_H_PageNo	Integer variable	Alarm history Switch page number	
Alarm_Mean_CNT	Integer variable	Alarm meaning scroll line number	
Alarm_Measure_CNT	Integer variable	Alarm measure scroll line number	
ALARM_MSG_No	Integer variable	Alarm details Text number	
CTL_No_Max	Integer variable	Maximum number of robot controller connections	Yes
CTL_No_Min	Integer variable	Minimum number of robot controller connections	
CTL_No_Temp	Integer variable	Robot controller number (storage)	
CursorNo	Integer variable	Job program monitor current page number (display)	
Dumy	Integer variable	Temporary area	
FILE_LIST_No_START	Integer variable	Job program list TOP	
GP_Type	Integer variable	GP type setting	Yes
Instance_Lamp	Integer variable	Variable number specification button lamp	

Symbol variable	Data Type	Content	Holding
Instance_No	Integer variable	Variable number specification	
Instance_No_Bak	Integer variable	Variable number specification previous value	
IO_No	Integer variable	IO number	
IO_No_Temp	Integer variable	IO number (storage)	
JOB_MEM_No	Integer variable	JOB program monitor display first number	
JOB_MON_No	Integer variable	JOB program monitor current page number	
JOB_MON_PageNo	Integer variable	JOB program monitor target page number	
JOB_MON_PageNo_Total	Integer variable	JOB program monitor target page number MAX	
JOB_Read_TOP_Address	Integer variable	JOB program monitor read first number	
JOB_SET	Integer variable	Job setting window selection	
JOBLIST_Select	Integer variable	Job program list select	
Language_Set	Integer variable	Language setting	Yes
Mode1_Select	Integer variable	Model selection	
Mode2_Select	Integer variable	Operation mode select	
Robot_Type	Integer variable	Robot type setting	YES
Tab_Disb	Integer variable	Variable screen tab display	
Tab_No	Integer variable	Variable screen tab selection number	
Tab_No_Bak	Integer variable	Variable screen tab selection number previous value	
Variable_No_Interlock	Integer variable	Axis position variable button interlock	
Variable_No_Mov_PB	Integer variable	Axis position variable screen selection number	