

Yaskawa Electric Corporation

$\Sigma$ -7-Series AC Servo Drive

$\Sigma$ -7S,7W SERVOPACK with

MECHATROLINK-II/III Communications

$\Sigma$ -X-Series AC Servo Drive

$\Sigma$ -XS,XW SERVOPACK with

MECHATROLINK-4/III Communications

Sample Project File Ver.1.00

VGA, WVGA, WSVGA, WXGA

Common Edition

Technical Guide

Revision History

Revision No.	Date	Descriptions
00	25/12/2014	New
01	28/04/2015	Supports SP5000 Series
02	01/07/2022	Supports ST6000 Series Update 5-2-1 Target HMI Devices
03	29/06/2023	Supports Yaskawa Electric's $\Sigma$ -X-Series Update 5-2-1 Target HMI Devices

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For details on the settings, refer to:

"Σ(Sigma)-7-Series AC Servo Drive Σ(Sigma)-7S SERVOPACK with MECHATROLINK-III Communications References Product Manual",

"Σ(Sigma)-7-Series AC Servo Drive Σ(Sigma)-7W SERVOPACK with MECHATROLINK-III Communications References Product Manual",

"Σ(Sigma)-7-Series AC Servo Drive Σ(Sigma)-7S SERVOPACK with MECHATROLINK-II Communications References Product Manual",

"Σ(Sigma)-X-Series AC Servo Drive Σ(Sigma)-XS SERVOPACK with MECHATROLINK-4/III Communications References Product Manual",

"Σ(Sigma)-X-Series AC Servo Drive Σ(Sigma)-XW SERVOPACK with MECHATROLINK-4/III Communications References Product Manual"

from YASKAWA Electric Corporation.

- The User's Manual noted above and other material for the Σ-V series are available from the following website.  
<http://www.e-mechatronics.com>

\* To obtain the above document, visit the Yaskawa Electric Corporation's website.



# 1. Overviews

This sample project file is for the sample project to connect with the  $\Sigma$ -7-Series AC Servo Drive  $\Sigma$ -7S,7W SERVOPACK with MECHATROLINK-II/III Communications Type and the  $\Sigma$ -X-Series AC Servo Drive  $\Sigma$ -XS, XW SERVOPACK with MECHATROLINK-II/III Communications Type by Yaskawa Electric Corporation.

The main features are as follows;

1. Monitoring and editing of parameters.
2. Parameter back-up and restore, possible with SD card or USB stick.
3. Alarm and alarm history display
4. Show amplifier and motor information
5. Motion system, servo status and input signal
6. Supporting wiring check
7. Setup of various functions
8. Execute test operation (JOG and Program JOG)
9. Monitoring Trace Graph
10. Maintenance(Monitor, QR Code)
11. Indirect device designation supports function changes of multiple axis (up to 16).

## 2. Notes

1. The intellectual property rights for the files provided by Schneider Electric Japan Holdings Ltd. 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 is available on SP-5500TP (VGA:640×480), SP-5400WA (WVGA:800×480), ST-6500WA (WSVGA:1024×600), and ST-6600WA (WXGA:1280×800).
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. Restrictions

This screen data is taken from screenshots showing the representative features and functions of the GP 4000 / SP5000 / ST6000 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.

## 4. 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 "5System Configuration" of this Manual for Use.

Refer to sections "5-5Communication Cable" for networking cables and "5-6Communication Settings" for communication settings of this Manual 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 3 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 "6-4Screen 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.

## 5. System Configuration

### 5-1. System Configuration

The display unit is connected to the  $\Sigma$ -7-Series and  $\Sigma$ -X-Series via MP2000/MP3000 manufactured by Yaskawa Electric Corporation.

#### 5-1-1. 1:1 Connection Configuration

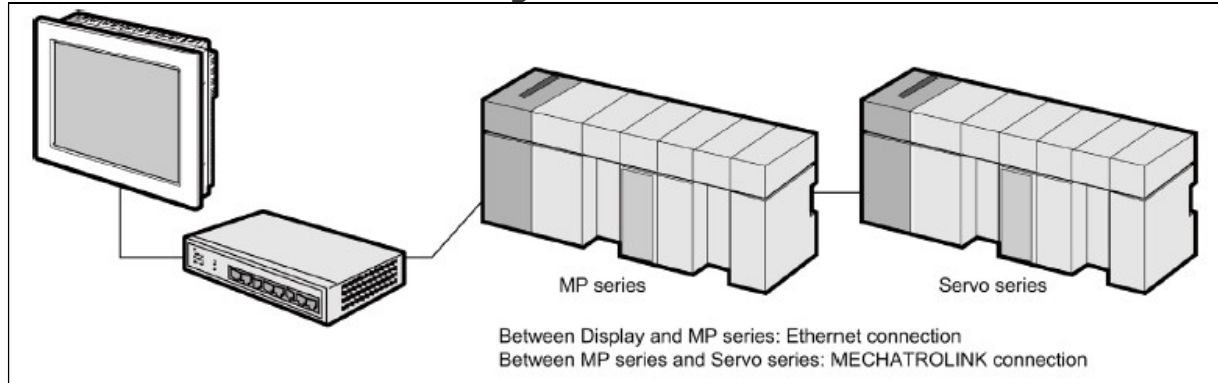


Figure 5-1-1 1:1 Connection Configuration

#### 5-1-2. 1:n Connection Configuration

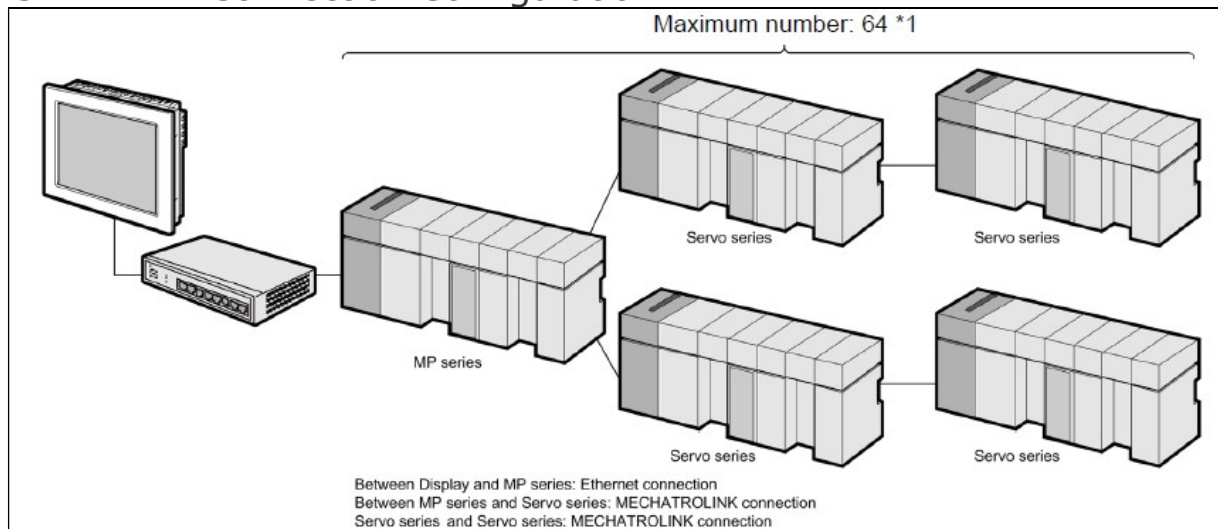


Figure 5-1-2 1:n Connection Configuration

For details on connections, refer to GP-ProEX Connection Manual.

## 5-2. Display with Touch Panel

### 5-2-1. 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.

MECHATROLINK-III

Σ-7S, Σ-XS

VGA : connection\_sp5500\_v\_YAS- Sigma7SM3\_ml\_Ver100.prx  
 WVGA : connection\_sp5400\_wv\_YAS- Sigma7SM3\_ml\_Ver100.prx  
 WSVGA : connection\_st6500\_wsv\_YAS-Sigma7SM3\_ml\_Ver100.prx  
 WXGA : connection\_st6600\_wx\_YAS-Sigma7SM3\_ml\_Ver100.prx

Σ-7W, Σ-XW

VGA : connection\_sp5500\_v\_YAS- Sigma7WM3\_ml\_Ver100.prx  
 WVGA : connection\_sp5400\_wv\_YAS- Sigma7WM3\_ml\_Ver100.prx  
 WSVGA : connection\_st6500\_wsv\_YAS-Sigma7WM3\_ml\_Ver100.prx  
 WXGA : connection\_st6600\_wx\_YAS-Sigma7WM3\_ml\_Ver100.prx

MECHATROLINK-II

Σ-7S

VGA : connection\_sp5500\_v\_YAS- Sigma7SM2\_ml\_Ver100.prx  
 WVGA : connection\_sp5400\_wv\_YAS- Sigma7SM2\_ml\_Ver100.prx

Table 5-2 Target HMI Devices

Series	Unit / Display Module	Target project module				Remark
		VGA	WVGA	WSVGA	WXGA	
GP4000 Series	GP-4104					
	GP-4105					
	GP-4106					
	GP-4107					
	GP-4114T					
	GP-4115T					
	GP-4116T					
	GP-4115T3					GP-Pro EX Over Ver.4.07.300
	GP-4201T					
	GP-4201TM (Modular Type)					
	GP-4201TW					
	GP-4203T					
	GP-4301T					
	GP-4301TM (Modular Type)					
	GP-4301TW					
	GP-4303T					
	GP-4311HT	OK*1				GP-Pro EX Over Ver.4.06.000
	GP-4401T	OK*1				
	GP-4401WW					
	GP-4501T (Analog Touch Panel)	OK				
	GP-4501T (Matrix Touch Panel)	OK*1				
	GP-4501TW					

	GP-4503T	OK*1				
	GP-4521T	OK *1				GP-Pro EX Over Ver.4.07.300
	GP-4601T (Analog Touch Panel)	OK *2				
	GP-4601T (Matrix Touch Panel)	OK *2				
	GP-4603T	OK *2				
	GP-4621T	OK *2				GP-Pro EX Over Ver.4.07.300
	GP-4G01 VGA (640*480)	OK *1				GP-Pro EX Over Ver.4.07.000
	GP-4G01 SVGA (800*600)	OK *2				GP-Pro EX Over Ver.4.07.000
	GP-4G01 WVGA (800*480)		OK *2			GP-Pro EX Over Ver.4.07.000
	GP-4000M (Rear Modular Type)					
LT4000 Series	LT-4201TM (Modular Type DIO)					
	LT-4201TM (Modular Type Analog)					
	LT-4301TM (Modular Type DIO)					
	LT-4301TM (Modular Type Analog)					
	LT-4000M (Rear Module DIO)					
	LT-4000M (Rear Module Analog)					

Series	Unit / Display Module	Target project module				Remark
		VGA	WVGA	WSVGA	WXGA	
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)			OK *2	OK *2	GP-Pro EX Over Ver.4.07.300
	SP-5800WC FWXGA (1366*768)			OK *2	OK *2	GP-Pro EX Over Ver.4.07.300
	SP-5400WA WVGA (800*480)		OK			

	SP-5500WA WXGA (1280*800)		OK *2	OK *2	OK *1	
	SP-5600WA WXGA (1280*800)		OK *2	OK *2	OK *1	
	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-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)			OK *2	OK *2	GP-Pro EX Over Ver.4.07.300
	SP-5800WC FWXGA (1366*768)			OK *2	OK *2	GP-Pro EX Over Ver.4.07.300
	SP-5400WA WVGA (800*480)		OK *1			
	SP-5500WA WXGA (1280*800)		OK *2	OK *2	OK *1	
	SP-5600WA WXGA (1280*800)		OK *2	OK *2	OK *1	
	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)			OK *2	OK *2	GP-Pro EX Over Ver.4.07.300



	SP-5800WC FWXGA (1366*768)			OK *2	OK *2	GP-Pro EX Over Ver.4.07.300
	SP-5400WA WVGA (800*480)		OK *1			
	SP-5500WA WXGA (1280*800)		OK *2	OK *2	OK *1	
	SP-5600WA WXGA (1280*800)		OK *2	OK *2	OK *1	
	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	OK *2	OK *1	GP-Pro EX Over Ver.4.08.200
	SP-5790WA FWXGA (1366*768)			OK *2	OK *2	GP-Pro EX Over Ver.4.08.200

Series	Unit / Display Module	Target project module				Remark
		VGA	WVGA	WSVGA	WXGA	
ST6000 Series	ST-6200 WA					GP-Pro EX Over Ver.4.09.250
	ST-6400 WA		OK *1			GP-Pro EX Over Ver.4.09.250
	ST-6500 WA			OK	OK *2	GP-Pro EX Over Ver.4.09.250
	ST-6600 WA			OK *2	OK	GP-Pro EX Over Ver.4.09.250
	ST-6700 WA			OK *2	OK *2	GP-Pro EX Over Ver.4.09.250
	ST-6300T	OK *1				GP-Pro EX Over Ver.4.09.400
	ST-6500T	OK *2				GP-Pro EX Over Ver.4.09.400
STM6000 Series	STM-6200 WA					GP-Pro EX Over Ver.4.09.350
	STM-6400 WA		OK *1			GP-Pro EX Over Ver.4.09.350
	STM-6B00 WQVGA (480*272)					GP-Pro EX Over Ver.4.09.350
	STM-6B00 (WVGA) WVGA (800*480)		OK *1			GP-Pro EX Over Ver.4.09.350

- \*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 be available to support all functions.  
When using an Open Box (SP-5B40, SP-5B41, SP-5B41\*), SD card is required.

## 5-2-2. Options

Use the options (from Schneider Electric Japan Holdings Ltd.) shown below, if necessary.

### (1) USB Options

Table 5-2-1 USB Options

No.	Name	Model	Descriptions
1	USB transfer cable (2m)	CA3-USBCB-01	Used for transferring screen data. (host → host)
2	USB cable (5m)	FP-US00	Used for connecting peripherals. (host/slave)
3	USB Front Cable (1m)	CA5-USBEXT-01	An extension cable that installs the USB port to the front face of the operation panel.
4	USB Transfer Cable (USBA/mini B) (1.8 m)	ZC9USCBMB1	Used for transferring screen data from PC (USB A) to GP (USB miniB).
5	USB Panel-mount Extension Cable (USB mini B) (1 m).	ZC9USEXMB1	An extension cable that installs USB (mini B) interface to the front face of the operation panel.

### (2)SD/USB Storage

In these screen samples shown in this manual, SD/USB storage is used to back up/restore the parameter. To save the data, the SD card as shown in the table below is required.

Use a commercially-available USB storage. For details on the USB storage to be used, visit Schneider Electric Japan Holdings Ltd.'s website and refer to the information on operation-checked devices.

Table 5-2-2 SD Card

No.	Name	Model	Descriptions
1	SD memory card (4GB)	PFXZCBSD4GC41	SD memory card (4GB, CLASS 4)

## 5-3. Software

Table 5-3-1 Software

No	Manufacturer	Name of articles	Model	Descriptions
1	Schneider Electric Japan Holdings Ltd.	GP-PROEX	PFXEXEDV40	MP Ethernet / MECHATROLINK Driver Ver.1.19.14 or later

These sample projects were created with the version of GP-Pro EX in the table below. Please update the version if it is less than the version created.

Please download the MP Ethernet/MECHATROLINK Driver (Ver.1.19.14) from our website.

Table 5-3-2 HMI Software version

No	Notation	HMI software version	Comments
1	VGA	GP-PRO EX Ver.4.03.100	
	WVGA	GP-PRO EX Ver.4.03.100	
2	WSVGA	GP-PRO EX Ver.4.09.300	*1
3	WXGA	GP-PRO EX Ver.4.09.300	*1

\*1: You can use the Version Reverter to version down the created software version of the project file to Ver. 4.03.100.

## 5-4. Connection Devices

The connection target of these screen samples is YASKAWA Electric Corporation's AC Servo Drives  $\Sigma$ -7-Series and  $\Sigma$ -X-Series, but it is not direct connection type and YASKAWA Electric Corporation's MP2000/MP3000 series are required.

Ethernet is used for connection between GP and the MP series, and MECHATROLINK-II/III is used for connection between the MP series and the  $\Sigma$ -7-Series and  $\Sigma$ -X-Series.

Table 5-4-1 Connection Devices

No	Manufacturer	Name	Series	Model	Note
1	Yaskawa Electric Corporation	Machine controller	MP2000 series MP3000 series		Requirement: Ethernet for host I/F MECHATROLINK-II/III for motion control I/F
2	Yaskawa Electric Corporation	SERVOPACK	$\Sigma$ -7-Series $\Sigma$ -X-Series *1		Refer to Table 5-4-2.

\*1: "MP Ethernet / MECHATROLINK Driver" Ver. 1.19.14 or later is required to connect to  $\Sigma$ -X series.

Table 5-4-2 SERVOPACK

No.	SERVOPACK Type	Model
1	$\Sigma$ -7S MECHATROLINK-II communications references	SGD7S****10A
2	$\Sigma$ -7S MECHATROLINK-III communications references	SGD7S****20A
3	$\Sigma$ -7W MECHATROLINK-III communications references	SGD7W****20A
4	$\Sigma$ -XS MECHATROLINK-4/III Communications References	SGDXS****A40A****
5	$\Sigma$ -XW MECHATROLINK-4/III Communications References	SGDXW***A40A****

\* The target model of these screen samples is MECHATROLINK-II/III communications reference SERVOPACK . The following types of SERVOPACKs are not applicable.

- $\Sigma$ -7S Analog Voltage/Pulse Train References SGD7S-□□□□00A□□□
- $\Sigma$ -7S Command Option Attachable Type SGD7S-□□□□E0A□□□□□□
- $\Sigma$ -7S MECHATROLINK-4 Communications References SGD7S-□□□□A40A□□□
- $\Sigma$ -XS Analog Voltage/Pulse Train References SGDXS-□□□□A00A□□□□
- $\Sigma$ -XS EtherCAT Communications References SGDXS-□□□□AA0A□□□□
- $\Sigma$ -XW EtherCAT Communications References SGDXW-□□□□AA0A□□□□
- $\Sigma$ -XT MECHATROLINK-4/III Communications References SGDXT-□□□□A40A□□□□
- $\Sigma$ -XT EtherCAT Communications References SGDXT-□□□□AA0A□□□□

For details on the model type, refer to the catalog and manuals from Yaskawa Electric Corporation.

## 5-5. Communication Cable

Cables connecting the GP4000 / SP5000 / ST6000 series with MP are shown below.

Table 5-5-1 Cable Connection

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

For details on connection between the MP series and the  $\Sigma$ -7-Series and  $\Sigma$ -X-Series, refer to the manual from YASKAWA Electric Corporation.

## 5-6. Communication Settings

### 5-6-1. Pro-EX Communication Settings

Although an MP controller is required for relaying connections, it is not necessary to register the MP controller as a connection device. In the Device/PLC settings of the servopack, specify MP controller's IP address, Servopack's Circuit No, and Station No.

#### (1) $\Sigma$ -7S SERVOPACK(MECHATROLINK-III)

The screenshot shows the 'Device/PLC 1' configuration window. The 'Summary' section includes Manufacturer (YASKAWA Electric Corporation), Series (MP/INVERTER/SERVO Ethernet), Port (Ethernet (UDP)), and Text Data Mode (1). The 'Communication Settings' section includes Port No. (1024), Timeout (3 sec), Retry (2), and Wait To Send (0 ms). The 'Device-Specific Settings' section includes Allowable Number of Devices/PLCs (32), a list of devices (No. 1, Device Name SV00, Settings Series=Sigma-7S Series SERVOPACK(M-III), IP Address 1, Device ID 1), and Indirect Device settings (No. 1, Indirect Device Indirect1, Settings Series=Sigma-7S Series SERVOPACK(M-III), IP Address [#INTERNAL]USR28000, Device ID Address 1, Initial ID 1).

Figure 5-6-1 GP-ProEX Communication Settings

## (2) Σ-7W SERVOPACK(MECHATROLINK-III)

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer YASKAWA Electric Corporation Series MP/INVERTER/SERVO Ethernet Port Ethernet (UDP)

Text Data Mode 1 [Change](#)

Communication Settings

Port No. 1024 ☒ Auto

Timeout 3 (sec)

Retry 2

Wait To Send 0 (ms) [Default](#)

Device-Specific Settings

Allowable Number of Devices/PLCs 32 [Add Device](#) [Increase Allowable Number of Devices/PLCs](#) [Indirect Device Configuration](#)

No.	Device Name	Settings	Device ID	Add Indirect Device	Update Indirect Device Settings
1	SV00	Series=Sigma-7W Series SERVOPACK(M-III).IP Address:	1		

No.	Indirect Device	Device ID Address	Initial ID
1	Indirect1	Series=Sigma-7W Series SERVOPACK(M-III).IP Address: [#INTERNAL]USR28000	1

Figure 5-6-2 GP-ProEX Communication Settings

## (3) Σ-7S SERVOPACK(MECHATROLINK-II)

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer YASKAWA Electric Corporation Series MP/INVERTER/SERVO Ethernet Port Ethernet (UDP)

Text Data Mode 1 [Change](#)

Communication Settings

Port No. 1024 ☒ Auto

Timeout 3 (sec)

Retry 2

Wait To Send 0 (ms) [Default](#)

Device-Specific Settings

Allowable Number of Devices/PLCs 32 [Add Device](#) [Increase Allowable Number of Devices/PLCs](#) [Indirect Device Configuration](#)

No.	Device Name	Settings	Device ID	Add Indirect Device	Update Indirect Device Settings
1	SV00	Series=Sigma-7S Series SERVOPACK(M-II).IP Address:	1		

No.	Indirect Device	Device ID Address	Initial ID
1	Indirect1	Series=Sigma-7S Series SERVOPACK(M-II).IP Address: [#INTERNAL]USR28000	1

Figure 5-6-3 GP-ProEX Communication Settings

#### (4) Σ-XS SERVOPACK(MECHATROLINK-III)

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer YASKAWA Electric Corporation Series MP/INVERTER/SERVO Ethernet Port Ethernet (UDP)

Text Data Mode 1 [Change](#)

Communication Settings

Port No. 1024 ☒ Auto

Timeout 3 (sec)

Retry 2

Wait To Send 0 (ms) [Default](#)

Device-Specific Settings

Allowable Number of Devices/PLCs 32 [Add Device](#) [Increase Allowable Number of Devices/PLCs](#) [Indirect Device Configuration](#)

No.	Device Name	Settings	Device ID	Add Indirect Device	Update Indirect Device Settings
1	SV00	Series=Sigma-XS Series Servo pack(M-III).IP Address=	1		

No.	Indirect Device	Device ID Address	Initial ID
1	Indirect1	Series=Sigma-XS Series SERVOPACK(M-III).IP Address [#INTERNAL]USR28000	1

Figure 5-6-4 GP-ProEX Communication Settings

#### (5) Σ-XW SERVOPACK(MECHATROLINK-III)

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer YASKAWA Electric Corporation Series MP/INVERTER/SERVO Ethernet Port Ethernet (UDP)

Text Data Mode 1 [Change](#)

Communication Settings

Port No. 1024 ☒ Auto

Timeout 3 (sec)

Retry 2

Wait To Send 0 (ms) [Default](#)

Device-Specific Settings

Allowable Number of Devices/PLCs 32 [Add Device](#) [Increase Allowable Number of Devices/PLCs](#) [Indirect Device Configuration](#)

No.	Device Name	Settings	Device ID	Add Indirect Device	Update Indirect Device Settings
1	SV00	Series=Sigma-XW Series Servo pack(M-III).IP Address=	1		

No.	Indirect Device	Device ID Address	Initial ID
1	Indirect1	Series=Sigma-XW Series SERVOPACK(M-III).IP Address [#INTERNAL]USR28000	1

Figure 5-6-5 GP-ProEX Communication Settings

5-6-1-2. Communication Settings

Table 5-6-1Set Value

Item	Range	Initial Setting
Port No	1024 - 65535	1024
Auto allocation	OFF - ON	ON
Timeout	1 - 127	3
Retry	0 - 255	2
Wait To Send weight	0 - 255	0

5-6-1-3. Individual Device Settings

(1) Σ-7S SERVOPACK(MECHATROLINK-III)

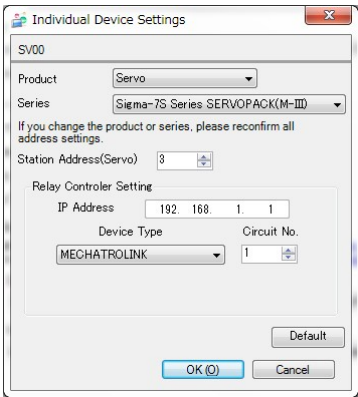


Figure 5-6-6 Individual Device Settings

Table 5-6-2 Set Value

Item	SV00 Initial Setting
Product	Servo
Series	Sigima-7S Series SERVOPACK(M-III)
IP Address	192.168.1.1
Circuit No.	1
Station Address(Servo)	3

## (2) Σ-7W SERVOPACK(MECHATROLINK-III)

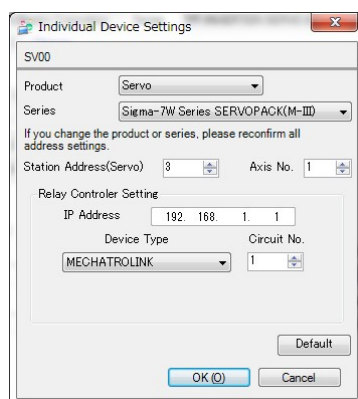


Figure 5-6-7 Individual Device Settings

Table 5-6-3 Set Value

Item	SV00 Initial Setting
Product	Servo
Series	Sigma-7W Series SERVOPACK(M-III)
IP Address	192.168.1.1
Circuit No.	1
Station Address(Servo)	3

## (3) Σ-7S SERVOPACK(MECHATROLINK-II)



Figure 5-6-8 Individual Device Settings

Table 5-6-4 Set Value

Item	SV00 Initial Setting
Product	Servo
Series	Sigma-7S Series SERVOPACK(M-II)
IP Address	192.168.1.1
Circuit No.	1
Station Address(Servo)	65



#### (4) $\Sigma$ -XS SERVOPACK(MECHATROLINK-III)

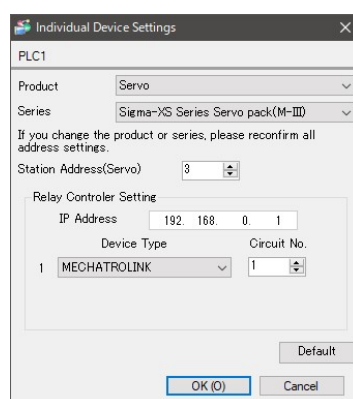


Figure 5-6-9 Individual Device Settings

Table 5-6-5 Set Value

Item	SV00 Initial Setting
Product	Servo
Series	Sigma-XS Series SERVOPACK(M-III)
IP Address	192.168.1.1
Circuit No.	1
Station Address(Servo)	3

#### (5) $\Sigma$ -XW SERVOPACK(MECHATROLINK-III)

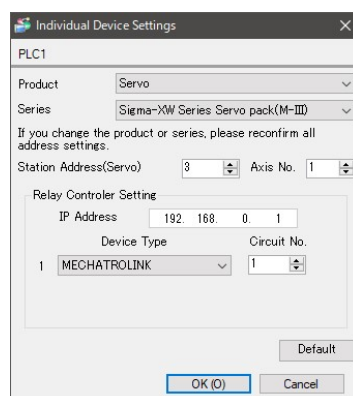


Figure 5-6-10 Individual Device Settings

Table 5-6-6 Set Value

Item	SV00 Initial Setting
Product	Servo
Series	Sigma-XW Series SERVOPACK(M-III)
IP Address	192.168.1.1
Circuit No.	1
Station Address(Servo)	3

#### 5-6-1-4. Indirect Device Settings

This screen sample is the sample created using the indirect device settings and in which one device is connected. Connection to two or more devices can be made easily due to the indirect device settings. To support two or more devices, execute "Add Device/PLC" and "Update Indirect Device Settings" in System Settings, and then specify the Device ID Address on the screen. For details, refer to Chapter 7.5 of "GP-ProEX Reference Manual."

#### 5-6-2. MP Series Settings

Use the support tool (MPE720) for communication settings. For details, refer to the manual of Yaskawa Electric Corporation and our device connection manual (MP Ethernet/Mechatronics Link).

#### 5-6-3. $\Sigma$ -7-Series and $\Sigma$ -X-Series Settings

Use the Servopack's DIP switch and rotary switch for communication settings. For details, refer to the manual of Yaskawa Electric Corporation and our device connection manual (MP Ethernet/Mechatronics Link). When using the  $\Sigma$ -X series, be sure to set switch 3 of DIP switch (S3) to OFF.

### 5-7. Notes for using the Open Box (SP-5B40 / SP-5B41 / SP-5B41\*)

- 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.
- The default output destination folder of the CSV file is "D:\¥CFA00¥IO\_CHK". You can change the output destination folder in the "WinGP Settings".
- In "Display Unit-WinGPS Settings" in the Gp-Pro EX, Please refer to the "Historical Data Retention 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".



## 6. Screen Composition

### 6-1. Base Screen Allocation

#### 6-1-1. Base Screen List and Outline

Table 6-1-1 Base Screen List and Outline

No.	Screen Content screen	Base No	Description
1	Title	5xxx	For details, refer to Base Screen List and Details (Title)
2	Parameter	51xx to 52xx	For details, refer to Base Screen List and Details (Parameter)
3	Alarm	53xx	For details, refer to Base Screen List and Details (Alarm)
4	Monitor	54xx	For details, refer to Base Screen List and Details (Monitor)
5	Setup	56xx to 57xx	For details, refer to Base Screen List and Details (Setup)
6	Test Run	58xx	For details, refer to Base Screen List and Details (Test Run)
7	Maintenance	6xxx	For details, refer to Base Screen List and Details (maintenance)
8	Trace	4xxx	For details, refer to Base Screen List and Details (Trace)
9	Graph	9xxx	Graph parts Screen

#### 6-1-2. Base Screen List and Details (Title)

Table 6-1-2 Base Screen List and Details (Title)

No.	Item on Screen	Base No.	Description
1	Title	5000	Displays a title. Changes languages.
2	Axis selection	5001	Selects an axis.
3	Menu	5010	Displays a menu.

### 6-1-3. Base Screen List and Details (Parameter)

Table 6-1-3 Base Screen List and Details (Parameter)

No.	Item on Screen	Base No.	Description
1	Parameter Menu	5100 to 5101	Displays the parameter-related menu.
2	Parameter edit menu	5102	Displays the menu to select the parameter to be displayed.
3	Parameter (Pn0xx-)	5111 to 5112	Displays the function selection (Pn0xx-).
4	Parameter (Pn1xx-)	5121 to 5125	Displays the gain (Pn1xx-).
5	Parameter (Pn2xx-)		Displays the position (Pn2xx-).
		5131 to 5132	$\Sigma$ -7S, $\Sigma$ -XS SERVOPACK(MECHATROLINK-III)
		5131 to 5131	$\Sigma$ -7W, $\Sigma$ -XW SERVOPACK(MECHATROLINK-III)
		5131 to 5132	$\Sigma$ -7S, $\Sigma$ -XS SERVOPACK(MECHATROLINK-II)
6	Parameter (Pn3xx-)	5141 to 5142	Displays the speed (Pn3xx-).
7	Parameter (Pn4xx-)	5151 to 5155	Displays the torque (Pn4xx-).
8	Parameter (Pn5xx-)	5161 to 5165	Displays the sequence (Pn5xx-).
9	Parameter (I/O signal)		Displays the I/O signal.
		5171	$\Sigma$ -7S, $\Sigma$ -XS SERVOPACK(MECHATROLINK-III)
		5171 to 5173	$\Sigma$ -7W, $\Sigma$ -XW SERVOPACK(MECHATROLINK-III)
		5171	$\Sigma$ -7S, $\Sigma$ -XS SERVOPACK(MECHATROLINK-II)
10	Parameter (MECHATROLINK)		Displays MECHATROLINK.
		5181 to 5197	$\Sigma$ -7S, $\Sigma$ -XS SERVOPACK(MECHATROLINK-III)
		5181 to 5197	$\Sigma$ -7W, $\Sigma$ -XW SERVOPACK(MECHATROLINK-III)
		5181 to 5195	$\Sigma$ -7S, $\Sigma$ -XS SERVOPACK(MECHATROLINK-II)
11	Parameter initialization	5201 to 5207	Initializes the parameter.
12	Parameter (Backup)	5211 to 5214	Backs up the parameter.
13	Parameter (Restore)	5221 to 5225	Restores the parameter.
14	Parameter (PnAxx-)		Displays the common parameter (PnAxx-).
		5261 to 5266	$\Sigma$ -7S, $\Sigma$ -XS SERVOPACK(MECHATROLINK-III)
		5261 to 5266	$\Sigma$ -7W, $\Sigma$ -XW SERVOPACK(MECHATROLINK-III)
		-	$\Sigma$ -7S SERVOPACK(MECHATROLINK-II)

### 6-1-4. Base Screen List and Details (Alarm)

Table 6-1-4 Base Screen List and Details (Alarm)

No.	Item on Screen	Base No.	Description
1	Alarm Trace	5301 to 5306	Displays the alarm trace.
2	Error history	5311 to 5312	Displays the error history.

## 6-1-5. Base Screen List and Details (Monitor)

Table 6-1-5 Base Screen List and Details (Monitor)

No.	Item on Screen	Base No.	Description
1	Monitor/Menu	5400	Displays the monitor-related menu.
2	Product information	5411 to 5412	Displays the product information.
3	System monitor	5420 to 5423	Displays the system monitor.
4	State monitor	5431 to 5432	Displays the status monitor.
5	Operation monitor	5441 to 5442	Displays the operation monitor.
6	Input signal monitor	5451	Displays the input signal monitor.
7	Output signal monitor	5461	Displays the output signal monitor.
8	Check Wiring	5471 to 5482	Displays the wiring confirmation.

## 6-1-6. Base Screen List and Details (Setup)

Table 6-1-6 Base Screen List and Details (Setup)

No.	Item on Screen	Base No.	Description
1	Setup Menu	5600	Displays the setup-related menu.
2	Servopack axis name setting	5611	Specifies the servopack axis name.
3	Absolute Encoder Setting Menu	5620 to 5621	Displays the absolute value encoder setting-related menu.
4	Absolute Encoder Setting	5631 to 5639	Specifies the absolute value encoder.
5	Multi-turn setting	5641 to 5649	Specifies the multi-turn setting.
6	Offset Adjustment Menu	5650	Displays the offset adjustment-related menu.
7	Analog Monitor Output	5671 to 5676	Adjusts the analog monitor output.
8	Motor Current Detection Offset	5681 to 5689	Adjusts the motor current detection signal offset.
9	Search Origin	5701 to 5709	Search the origin point.
10	Parameter WRITE Prohibit Setting	5711 to 5712	Specifies parameter WRITE prohibiting.
11	Search Origin (Servo ON)	5713 to 5714	Performs the determination processing for $\Sigma$ -Vmini.
12	Software Reset	5761 to 5766	Resets the software.

## 6-1-7. Base Screen List and Details (Test Run)

Table 6-1-7 Base Screen List and Details (Test Run)

No.	Item on Screen	Base No.	Description
1	Test Run Menu	5800	Displays the menu related to the test run.
2	Jog Operation	5811 to 5818	Performs Jog operation.
3	Program JOG Operation	5821 to 5835	Performs the program JOG operation.

## 6-1-8. Base Screen List and Details (maintenance)

Table 6-1-8 Base Screen List and Details (Maintenance)

No.	Item on Screen	Base No.	Description
1	Maintenance Menu	6000	Displays Maintenance Menu
2	QR Code	6010 to 6018	Displays QR Code
3	Maintenance	6100 to 6132	Displays Maintenance Monitor

## 6-1-9. Base Screen List and Details (Trace)

Table 6-1-9 Base Screen List and Details (Trace)

No.	Item on Screen	Base No.	Description
1	Trace Menu	4001	Top menu screen
2	Trace Setting	4101 to 4108	Trace Setting screen
3	Trace setting content display	4120	Trace setting content display screen
4	Trace change	4121 to 4128	Trace change display screen
5	Trace Setting	4191 to 4198	Screen for Call Screen
6	Trace Start	4201 to 4207	Trace Start screen
7	Graph Menu	4310	Graph menu screen
8	Graph Maintenance	4311	Maintenance (change of the default) screen
9	CSV Data Save	4312	CSV data save screen of graph data
10	Various graph displays	4321 to 4342	Various graph displays
11	Data graph	4348 to 4349	Screen for Call Screen (All graphs)
12	Graph parts	9901 to 9913	Screen for Call Screen (Graph parts)

## 6-2. Window Screen Allocation

Table 6-2-1 Window Screen Allocation

No.	Item on Screen	Base No.	Description
1	Axis Change Menu	1000	Changes the axes.
2	Product Information (Servopack, Serial No.)	1001	Displays the serial No. of the servopack.
3	Product Information (Motor, Serial No.)	1002	Displays the serial No. of the motor.
4	Program JOG operation pattern 0-5	1010 to 1015	Selects the program JOG operation pattern.
5	Language Change button	1100	Changes the language.
6	Trace Trigger set	1101 to 1102	Trace Window Display
7	Graph Window	1201 to 1217	Graph Window Display

## 6-3. Edit-disabled Screen

Since some of the screen data is locked by the system, the message indicating that data cannot be edited may be displayed.

The screens displayed in red in the screen list cannot be edited.

# 6-4. Screen Transitions

The transitions of these screen screens are shown below.  
The pages are changed by pressing down the "←" and "→" buttons. Pressing down the "×" button returns the current screen to the original one. Pressing down the upper left part of the screen displays the axis change window.

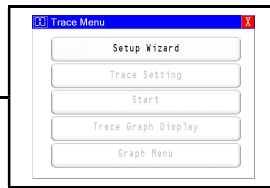
## 6-4-1. Menu Composition

The menu composition of the entire screen is shown below.

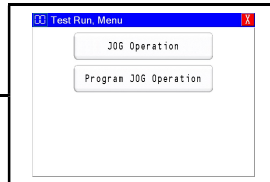




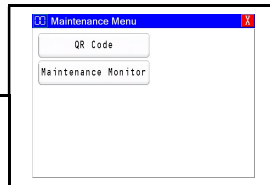
(Trace)



(Test Run/Menu)



(Maintenance/Menu)



## 6-4-2. Parameter Composition

The parameter screen composition is shown below.

[Parameter Menu]

(Parameter Display)

Parameter Display Edit Menu	
Function Select (Pn0xx-)	Sequence (Pn5xx-)
Gain (Pn1xx-)	I/O signal
Position (Pn2xx-)	MECHATROLINK (Pn8xx-)
Speed (Pn3xx-)	Common Parameters (Pn4xx-)
Torque (Pn4xx-)	

(Parameter (Function selection: Pn0xx -))

Parameter Editing	
Basic Function Selection	000
Application Function Selections 1	000
Application Function Selections 2	000
Application Function Selections 6	000
Application Function Selections 7	000
Application Function Selections 8	000
Application Function Selections 9	000
Application Function Selections A	000
Application Function Selections B	000
Application Function Selections C	000

Parameter Editing	
Basic Function Selection	000
Application Function Selections 1	000
Application Function Selections 2	000
Application Function Selections 6	000
Application Function Selections 7	000
Application Function Selections 8	000
Application Function Selections 9	000
Application Function Selections A	000
Application Function Selections B	000
Application Function Selections C	000

(Parameter (Gain: Pn1xx -))

Parameter Editing	
Speed Loop Gain	0
Speed Loop Integral Time Constant	0
Position Loop Gain	0
Moment of Inertia Ratio	0
Second Speed Loop Gain	0
Second Speed Loop Integral Time Constant	0
Second Position Loop Gain	0
Feedforward	0
Feedforward Filter Time Constant	0
Gain Application Selections	000

Parameter Editing	
Anti-Resonance Frequency	0
Anti-Resonance Gain Correction	0
Anti-Resonance Damping Gain	0
Anti-Resonance Filter Time Constant 1 Correction	0
Anti-Resonance Filter Time Constant 2 Correction	0
Anti-Resonance Damping Gain 2	0
Tuningless Function-Related Selections	000
Mode Switching Level for Speed Reference	0
Mode Switching Level for Acceleration	0

(Parameter (Position: Pn2xx -))

Parameter Editing	
Maximum Limit	0
Position Control Function Selections	000
Number of External Encoder Scale Pulses	0
Electronic Gear Ratio (Numerator)	0
Electronic Gear Ratio (Denominator)	0
Number of Encoder Output Pulses	0
Fully-Closed Control Selections	000
Position Control Expansion Function Selections	000
Backlash Compensation	0
Backlash Compensation Time Constant	0

Parameter Editing	
Encoder Output Resolution	0
Linear Encoder Scale Pitch	0

(Parameter (Speed: Pn3xx -))

Parameter Editing	
Jogging Speed	0
Soft Start Acceleration Time	0
Soft Start Deceleration Time	0
Speed Feedback Filter Time Constant	0
Deceleration Time for Servo OFF and Forced Stops	0
Speed Feedforward Average Movement Time	0
Vibration Detection Selections	000
Vibration Detection Sensitivity	0
Vibration Detection Level	0
Maximum Motor Speed	0

Parameter Editing	
Encoder Output Resolution	0
Linear Encoder Scale Pitch	0

(Parameter (Torque: Pn4xx -))

Parameter Editing	
First Stage Feed Torque Reference Filter Time Constant	0
Forward Torque Limit	0
Reverse Torque Limit	0
Forward External Torque Limit	0
Reverse External Torque Limit	0
Emergency Stop Torque	0
Speed Limit during Torque Control	0
Torque-Related Function Selections	000
First Stage Hysteresis Filter Frequency	0
First Stage Hysteresis Filter Q Value	0

Parameter Editing	
Polarity Detection Reference Acceleration/Deceleration Time	0
Polarity Detection Constant Speed Time	0
Polarity Detection Reference Waiting Time	0
Polarity Detection Range	0
Polarity Detection Level Level	0
Polarity Detection Confirmation Force Reference	0
Polarity Detection Allowable Error Range	0
Speed Ripple Compensation Enable Speed	0

(Parameter (Sequence: Pn5xx -))

Parameter Editing	
Dynamic Brake Resistor Capacity	0
Regenerative Resistance	0
Dynamic Brake Resistance	0
Application Switch for Safety Function	000
Constant of Deceleration for Safety Function A	0
Constant of Deceleration for Safety Function B	0
Motor Stop Detection Level for Active Mode	0
Active Mode Hold Time	0
Position Error Level for Releasing Active Mode	0
Speed Reference Level for Releasing Active Mode	0

Parameter Editing	
Dynamic Brake Resistor Capacity	0
Regenerative Resistance	0
Dynamic Brake Resistance	0
Application Switch for Safety Function	000
Constant of Deceleration for Safety Function A	0
Constant of Deceleration for Safety Function B	0
Motor Stop Detection Level for Active Mode	0
Active Mode Hold Time	0
Position Error Level for Releasing Active Mode	0
Speed Reference Level for Releasing Active Mode	0

### (Parameter (I/O signal))

### (Parameter (MECHATROLINK))

### (Parameter (PnAxx-))

### (Parameter Edit: Security input → Parameter Display Edit Menu)

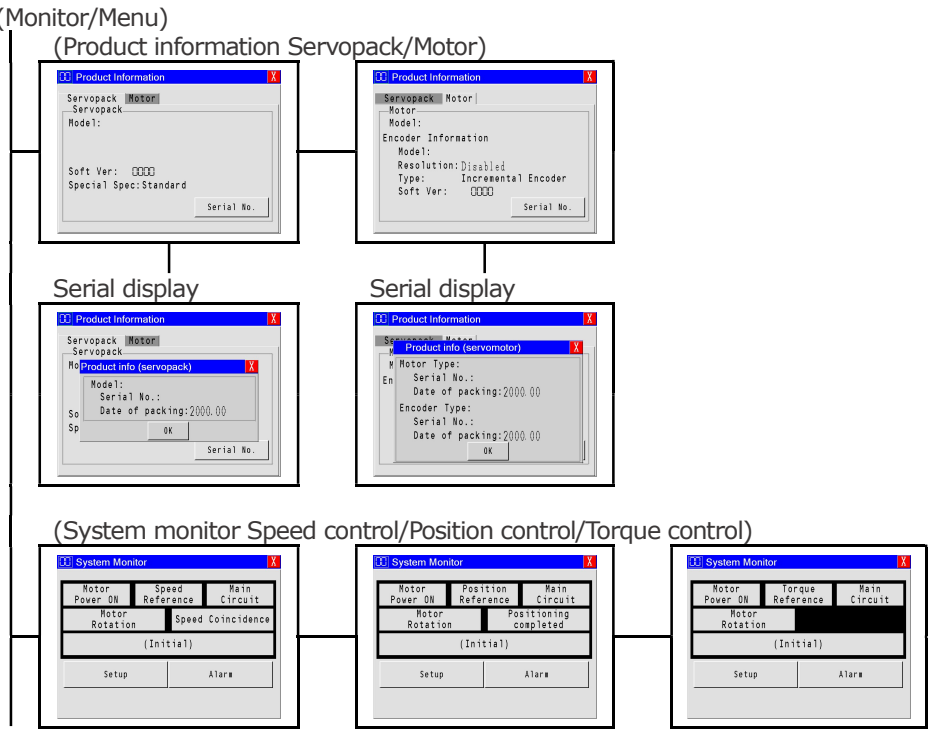
### (Parameter Initialization)


### (Parameter (Backup))

### (Parameter (Restore))

# 6-4-3. Monitor Composition

The composition of the monitor screen is shown below.



[illegible]

**State Monitor 2/2**

Serial Ready (S-RDR)	OFF
Coprocessor (COP)	OFF
Speed (LMMVLT)	OFF
Grain (IRMGCHST)	OFF
Memory (MMAS)	OFF
Neural (NDR)	OFF
C-Port (C-PRACE)	OFF
Quoting Pulse Output A	OFF
Quoting Pulse Output B	OFF
Quoting Pulse Output C	OFF

Operation Monitor 1/2	
Current Alarm State	
Motor Alarm Speed	(mm/s)
Reference Speed	(mm/s)
Internal Torque Reference	(%)
Motor Actual Torque	(%)
Torque Actual (Average)	(%)
Input Reference Pulse Speed	(mm/s)
Input Counter/Reference Error	(Reference Unit)
Regeneration Load Factor	(%)
Input Reference Pulse Count	(Reference Unit)
Input Reference Speed Consumption	(%)
Input Reference Pulse Counter	(Reference Unit)
Feedback Pulse Counter	(Reference Pulse Unit)
Input Reference Pulse Counter	(Reference Encoder Pulse Unit)
Input Operating Time	

The screenshot shows a window titled "Operation Monitor 2/2". It contains a table with the following columns: "Error", "Trace", "Back", "Time", and "Stamp". The table lists ten occurrences of errors, each with a unique ID and a timestamp. The "Error" column contains the text "Occurrence No. +N" where N ranges from 0 to 9. The "Trace", "Back", and "Time" columns are empty. The "Stamp" column contains the text "ns".

Error	Trace	Back	Time	Stamp
Occurrence No. 0				ns
Occurrence No. 1				ns
Occurrence No. 2				ns
Occurrence No. 3				ns
Occurrence No. 4				ns
Occurrence No. 5				ns
Occurrence No. 6				ns
Occurrence No. 7				ns
Occurrence No. 8				ns
Occurrence No. 9				ns

Input Signal Monitor	
SI0 (CN1-13)	Lo(Close)
SI1 (CN1-7)	Lo(Close)
SI2 (CN1-8)	Lo(Close)
SI3 (CN1-9)	Lo(Close)
SI4 (CN1-10)	Lo(Close)
SI5 (CN1-11)	Lo(Close)
SI6 (CN1-12)	Lo(Close)

The screenshot shows a software window titled "Output Signal Monitor". It contains a table with four rows of data. Each row has two columns: a signal identifier and a status value.

Signal Identifier	Status
ALM(CM1-3, 4)	Lo(Close)
S01(CM1-1, 2)	Lo(Close)
S02(CM1-23, 24)	Lo(Close)
S03(CM1-25, 26)	Lo(Close)

**Check Wiring**

Model: \_\_\_\_\_

Wire Size: 18 AWG

Forward Output Mode: None

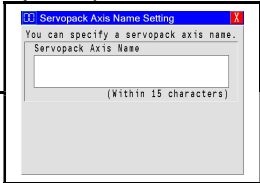
Wiring:

Component	Wiring	Value
18 AWG-1	18 AWG-2	1.0
18 AWG-3	18 AWG-4	1.0
18 AWG-5	18 AWG-6	1.0
18 AWG-7	18 AWG-8	1.0
18 AWG-9	18 AWG-10	1.0
18 AWG-11	18 AWG-12	1.0
18 AWG-13	18 AWG-14	1.0

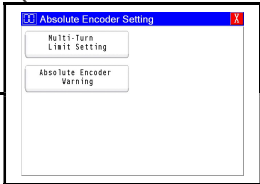
# 6-4-4. Setup Composition

The composition of the setup screen is shown below.  
(Setup Menu)

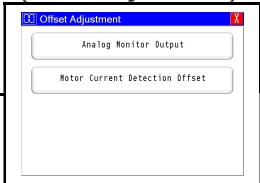
(Servopack Axis Name Setting)



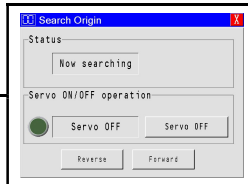
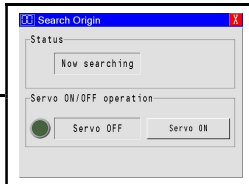
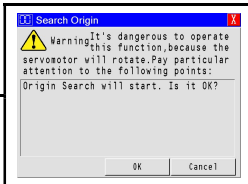
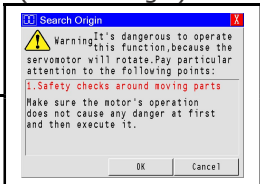
(Absolute Encoder Setting)



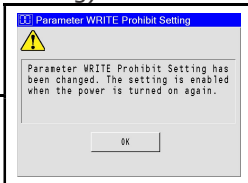
(Offset Adjustment)



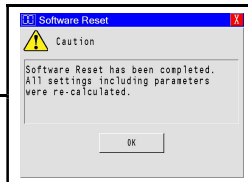
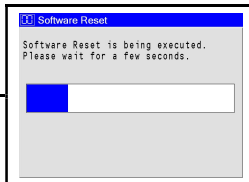
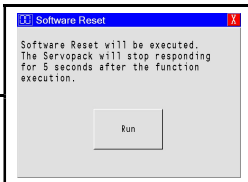
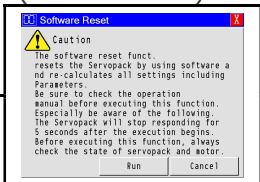
(Search Origin)



(Parameter WRITE Prohibit Setting)



(Software Reset)

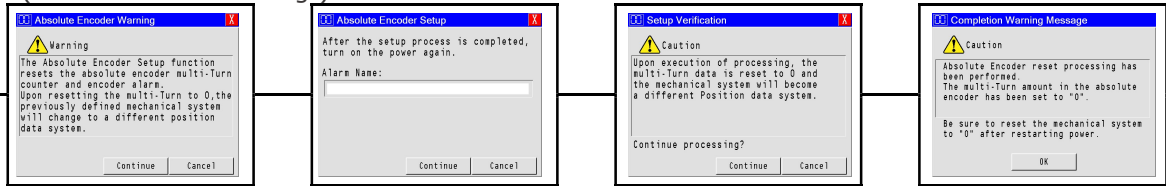


### 6-4-4-1. Setup (Absolute Encoder Settings Compositions)

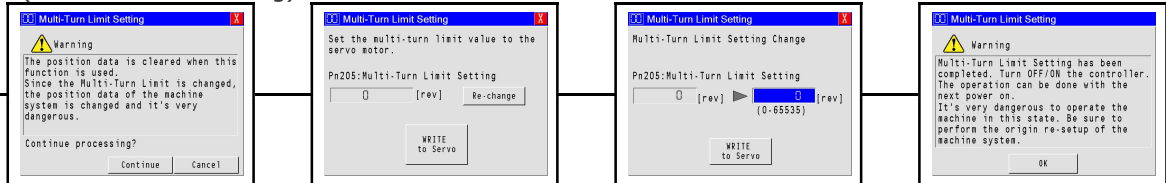
The composition of the absolute value encoder setting screen is shown below.

[(Absolute encoder setting)/Menu]

(Absolute Encoder Settings)



(Multi-Turn Limit Setting)

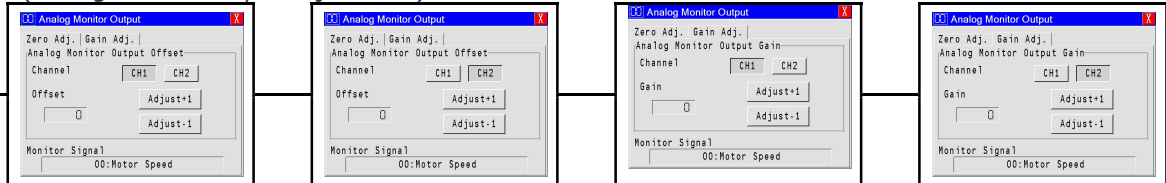


### 6-4-4-2. Setup/Offset Adjustment Composition

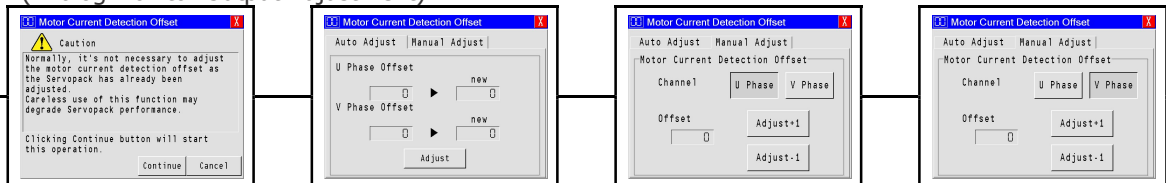
The composition of the offset adjustment screen is shown below.

[Offset Adjustment /Menu]

(Analog Monitor Output Adjustment)



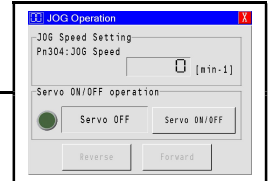
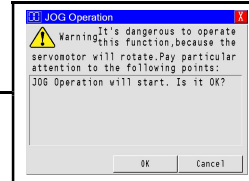
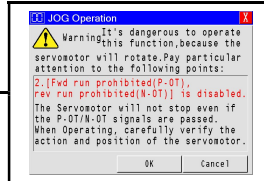
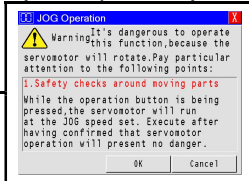
(Analog Monitor Output Adjustment)



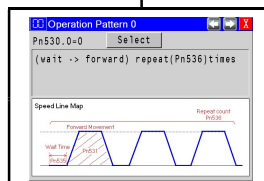
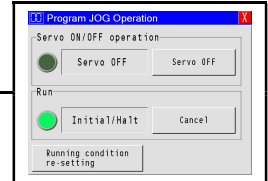
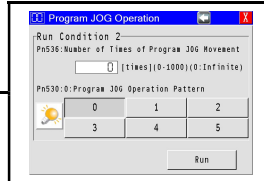
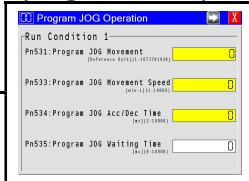
## 6-4-5. Test Run Composition

The composition of the test run screen is shown below.  
(Test Run/Menu]

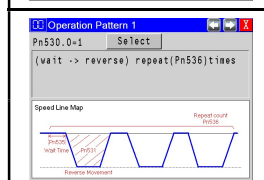
(JOG Operation)



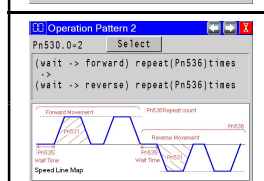
(Program JOG Operation)



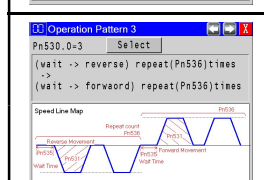
(Program JOG operation pattern 0)



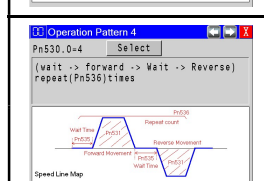
(Program JOG operation pattern 1)



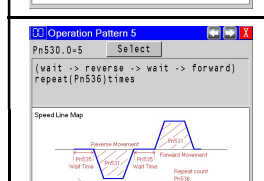
(Program JOG operation pattern 2)



(Program JOG operation pattern 3)



(Program JOG operation pattern 4)

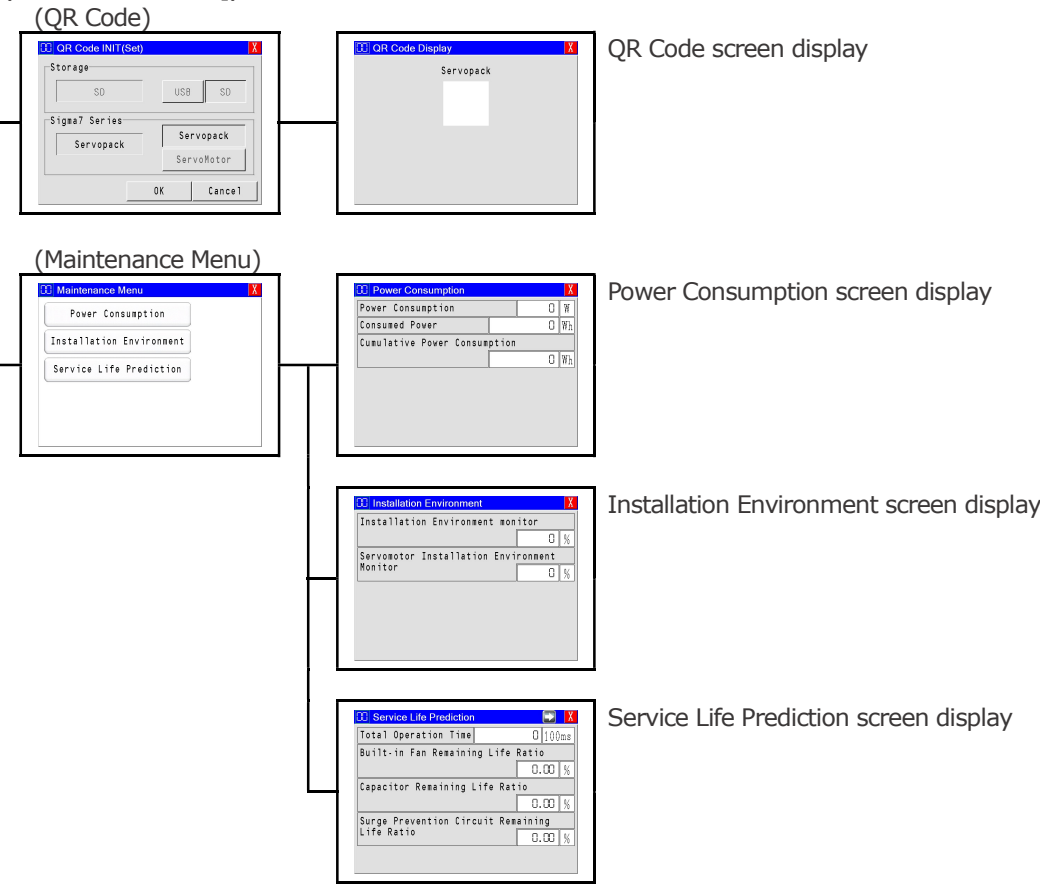


(Program JOG operation pattern 5)



# 6-4-6. Test Run Composition

The composition of the maintenance screen is shown below.  
(Maintenance Menu)]



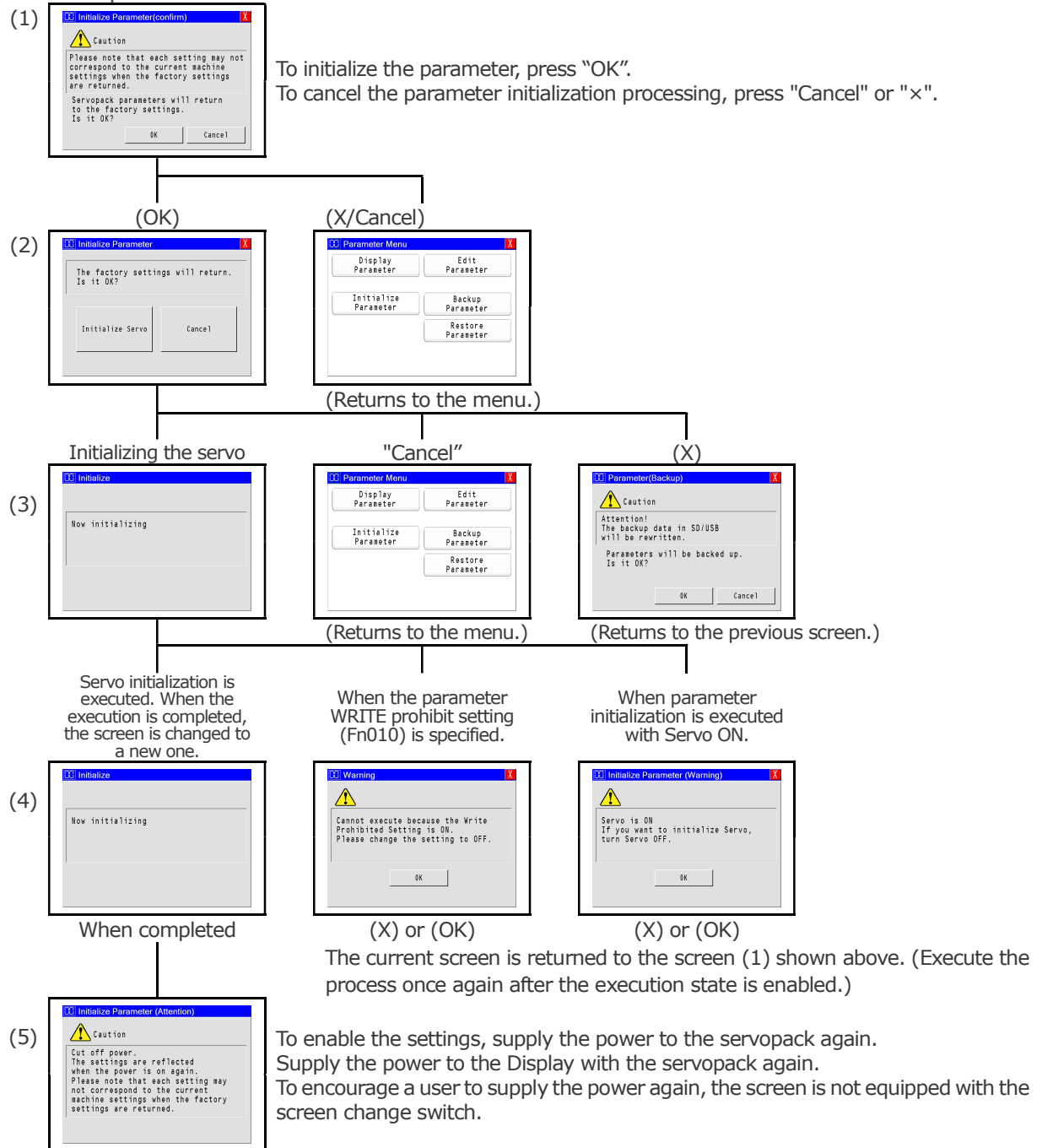
## 6-5. Details of Functions

The sequence in the screen and the screen procedure are explained for each function.

For details on each function, refer to the manual from YASKAWA Electric Corporation.

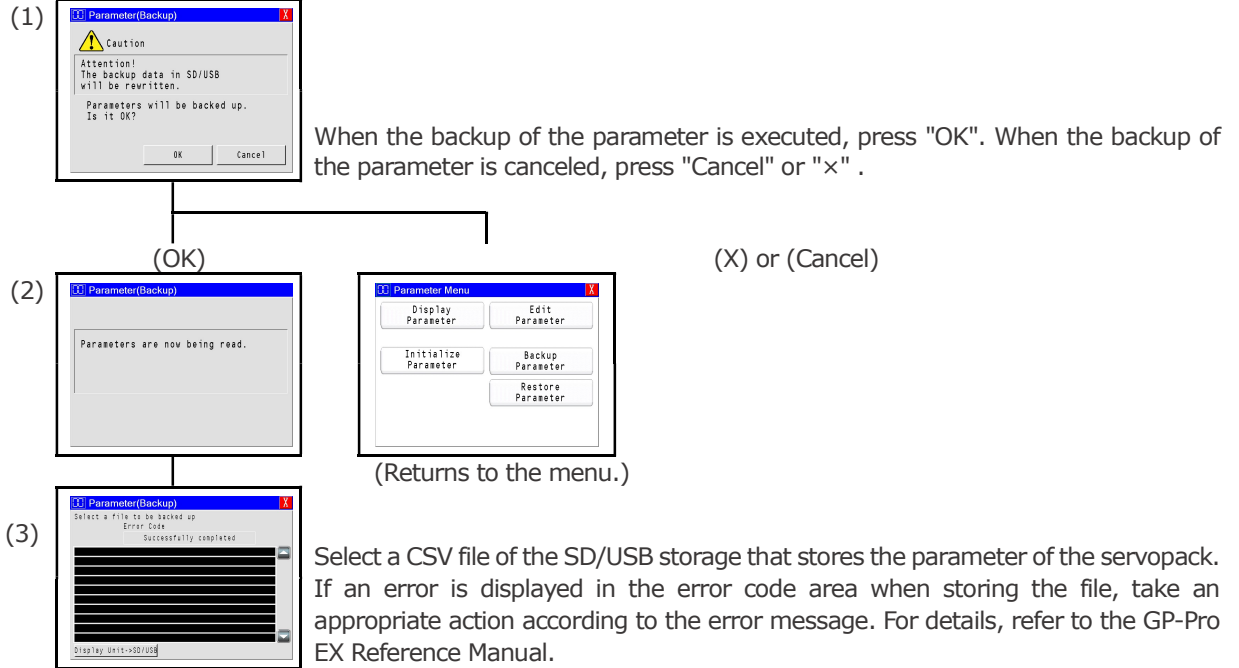
### 6-5-1. Parameter Initialization

The composition of "Initialize Parameter" is shown below.



## 6-5-2. Parameter Backup

The composition of the parameter (backup) is shown below.



(2) Reading the parameter shown in (2) above is described in D-script.

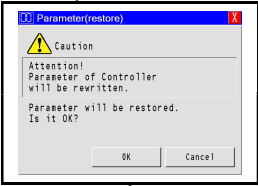
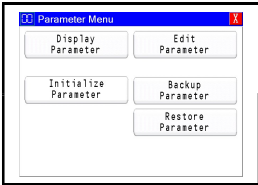
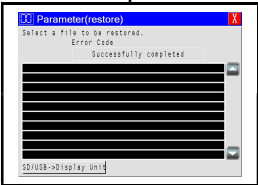
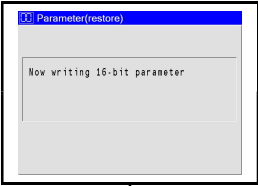
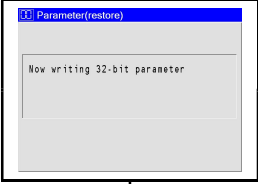
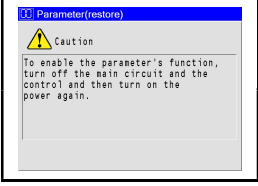
It is necessary to store the CSV file to be backed up in the SD/USB storage. For the mechanism of storage, refer to (10-2Parameter (Backup/Restore))

For details on D-script and CSV data transfer, refer to the GP-Pro EX Reference Manual.

\* Be sure to remove the USB after a removal process is completed on the USB Connection State screen.

### 6-5-3. Parameter (Restore)

The composition of "Parameter (restore)" is shown below.

- (1)  To restore the parameter, press "OK". To cancel the restore processing of the parameter, press "Cancel" or "x".
-  "x" or "Cancel"  
(Returns to the menu.)
- (2)  Select the CSV file of the SD/USB storage where the parameter to be written in the servopack is stored, and write it in the Display. If an error is displayed in the error code area when storing the file, take an appropriate action according to the error message. For details, refer to the GP-Pro EX reference manual.
- When data is read in the Display completely, the screen is changed to a new one.
- (3)  16-bit parameter is written in the servopack.  
When all parameters are written, the screen is changed to a new one.
- Screen is switched due to writing of the 16-bit parameter.
- (4)  32-bit parameter is written in the servopack.  
When all parameters are written, the screen is changed to a new one.
- Screen is changed due to writing of the 32-bit parameter.
- (5)  If an error occurs at the time of writing the parameter, an error message is displayed at the lower part of the screen. The error may be caused by the mistake in the value of the parameter and parameter number. Perform verification of the CSV file and D-script, referring to the manual from YASKAWA Electric Corporation. To enable the settings, supply power to the servopack again. Supply the power to the Display with the servopack again. To encourage a user to supply the power once again, the screen is not equipped with the screen change switch.  
Note: Do not turn off the power for some time even after a screen is changed to the one indicating the parameter restore is completed.

Parameter writing in (3) and (4) shown above is described in D-script.

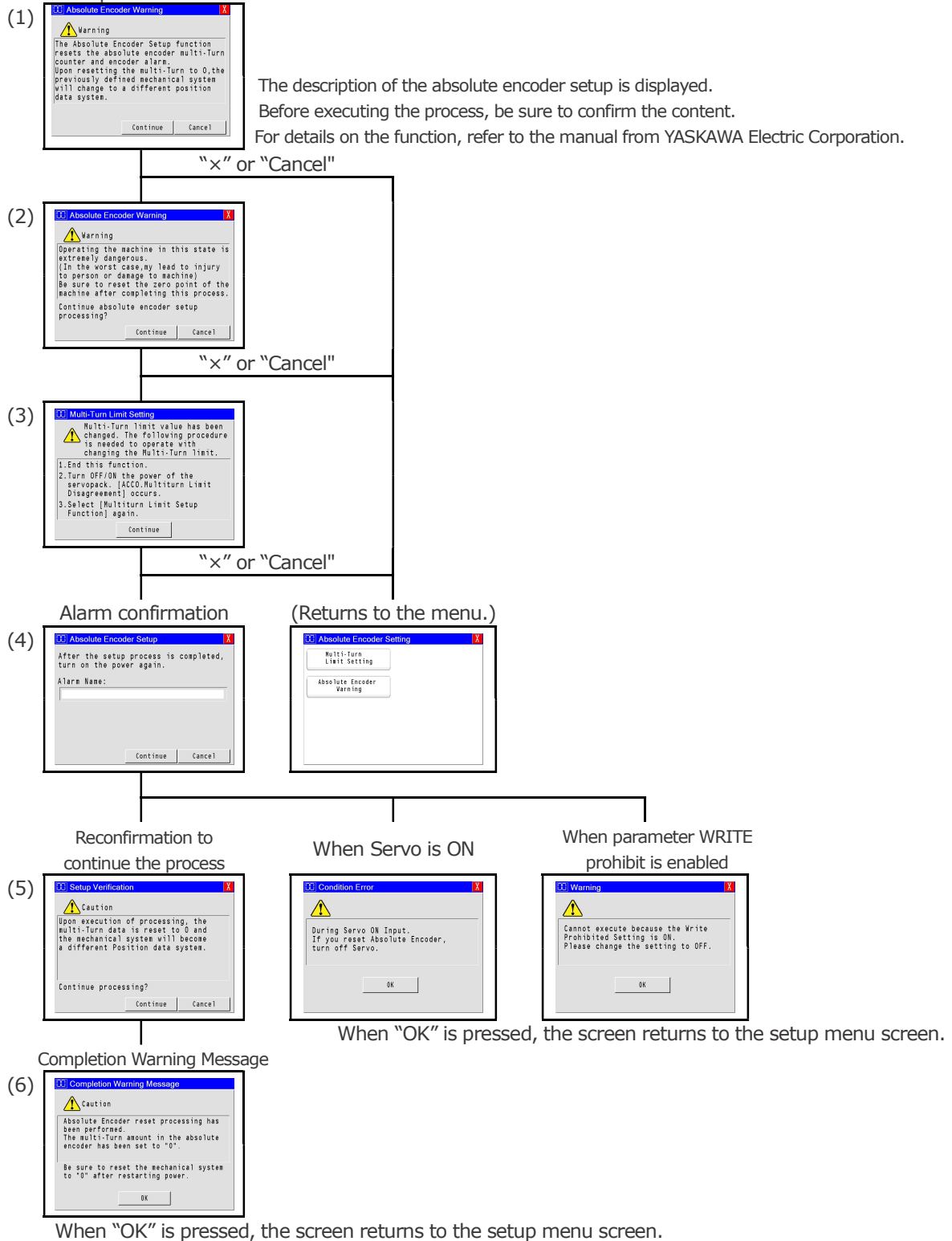
It is necessary to store the CSV file to be restored in the SD/USB storage. For the mechanism of storage, refer to (10-2Parameter (Backup/Restore)

. For details on D-script and CSV data transfer, refer to the GP-Pro EX Reference Manual.

\* Be sure to remove the USB after a removal process is completed on the USB Connection State screen.

## 6-5-4. Absolute Encoder Reset

The composition of the absolute encoder reset is shown below.



The absolute encoder reset cannot be set in the following cases.

- The motorless test function is enabled, and the encoder is not connected.
- An incremental type encoder is used. (Includes the case when absolute is used as an incremental (Setting: Pn002.2=1)).
- The motor is being energized.
- User constant must not be written.

Be sure to turn ON/OFF the servopack power after this processing is executed.

\* Warning

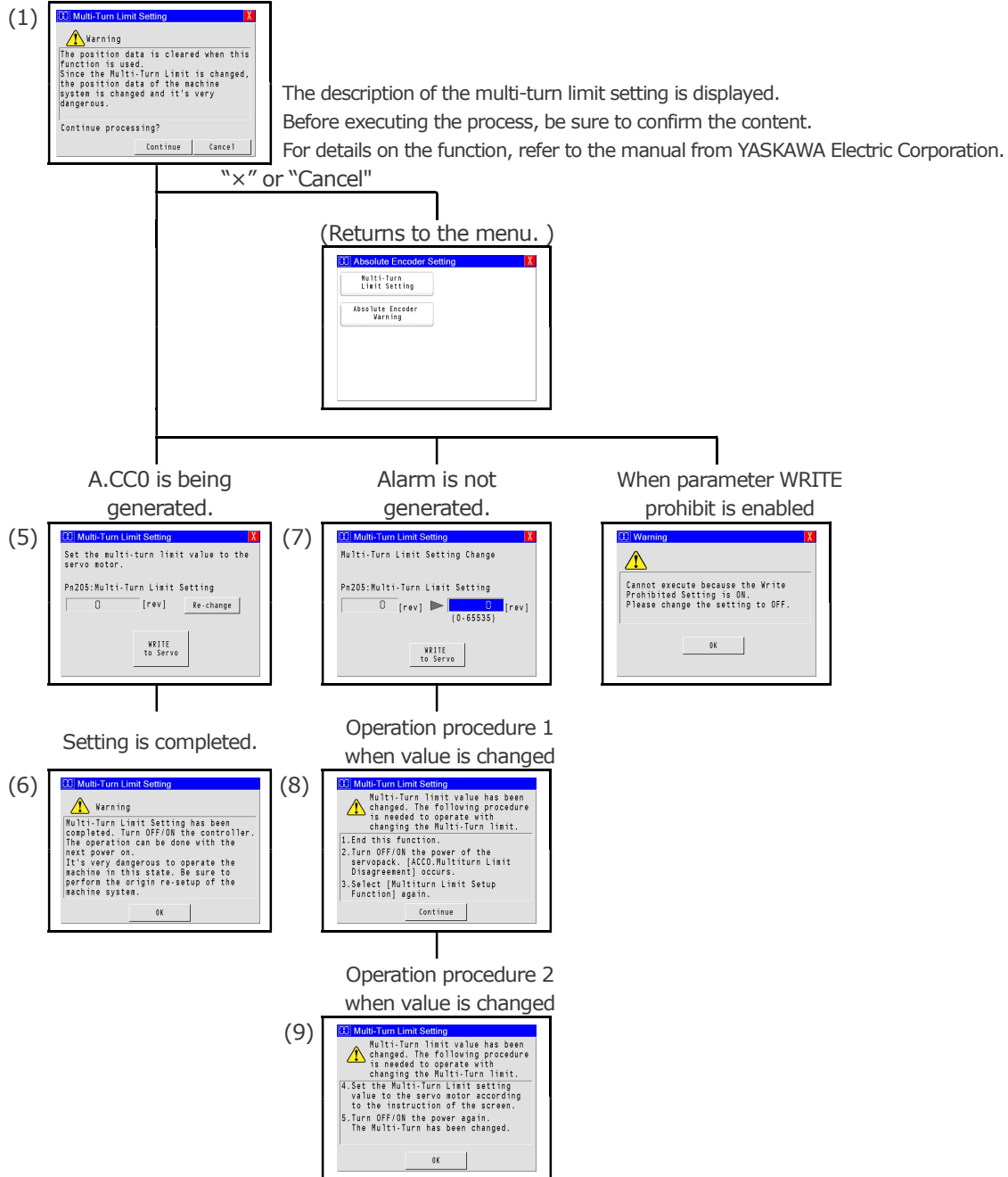
When this processing is executed, the amount of a multi rotation of the connected absolute encoder is cleared to "0", and the positions of the machine system may be turned to be incorrect ones. Under such conditions, it is very dangerous to run the machine. (The condition may cause fatal accidents and damages to the human body and machine.)

Extreme care should be taken to execute this processing.

For details, refer to manuals from YASKAWA Electric Corporation.

## 6-5-5. Multi-Turn Limit Settings

The composition of the multi-turn limit setting is shown below.





The Multi-Turn Limit cannot be set in the following cases.

- An incremental type encoder is used. (Includes the case when absolute is used as an incremental (Setting: Pn002.2=1)).
- The motorless test function is enabled, and the encoder is not connected.
- The multi-turn limit disagreement is not generated. (This is the state in which "A.CC0" is not generated.)
- User constant must not be written.

Be sure to turn ON/OFF the servopack power after this processing is executed.

\* Warning

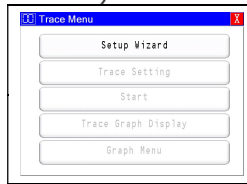
When this processing is executed, the amount of a multi rotation of the connected absolute encoder is cleared to "0" and the limit value for the multi-turn amount is changed, thereby causing the positions of the machine system to be incorrect ones. Under such conditions, it is very dangerous to run the machine. (The condition may cause fatal accidents and damages to the human body and machine.) Extreme care should be taken to execute this processing.

For details, refer to manuals from YASKAWA Electric Corporation.

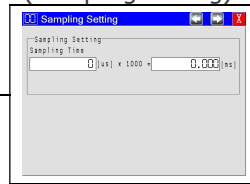
## 6-5-6. Trace Menu Composition

The trace menu composition of the entire screen is shown below.

(Trace Menu)

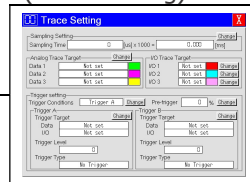


(Sampling Setting)



· Content to be traced is set.

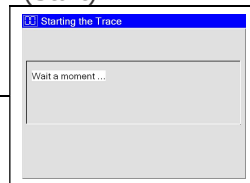
(Trace Setting)



· Content of the trace setting is listed for display.

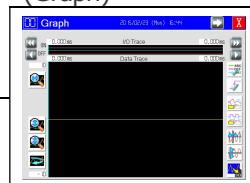
· Settings can be partially changed.

(Start)



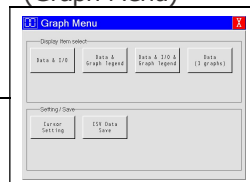
· Trace data is acquired from  $\Sigma$ -7-Series or  $\Sigma$ -X-Series.

(Graph)



· Graphs of the I/O and data trace are displayed.

(Graph Menu)



· A screen is changed to various graph screens.

· A screen is changed to the maintenance screen of the graph.

## 7. System Setting

System settings are detailed in this chapter. Settings should be changed according to the device, equipment, and facility you use.

### 7-1. Display Setting, and Screen Capture Setting of "Operation Setting"

This sample project file has the following system settings for screen capture. When using an HMI that does not support SD cards, change the data storage destination to USB storage.

#### 7-1-1. Capture Setting

Table 7-1-1 Capture setting

Capture Operation	Save in	Control address	Monochrome Invert
Available	SD card	[#INTERNAL]USR18020	---

#### 7-1-2. Screen/Capture Setting

Table 7-1-2 Screen/Capture Setting

File number automatic addition	File automatic operation deletion	Loop	Capture Image
Available	---	Available	100

## 8. Common Settings

The common settings are shown below.

For details on the setting, refer to the GP-Pro EX Reference Manual.

### 8-1. Alarm Settings

The alarm settings to use may be changed if necessary, according to the device, equipment, and facility.

For details on the additional changes with the servopack, refer to the manual from YASKAWA Electric Corporation.

#### 8-1-1. Alarm Block

The block used by the alarm is shown in the table below. "Active" and "History" are used for the alarm display. The number of memory is the default value of GP-ProEX.

Table 8-1-1 alarm block

No.	Block No.	Display	Registration axis	Note
1	Block 4	"History" and "Active"	Address of the 1 <sup>st</sup> axis	

#### 8-1-2. Alarm Registration

The alarm code of the 1<sup>st</sup> axis of the warning and alarm of the servopack described in the YASKAWA Electric Corporation's manual is registered. Change and add the alarm registration of the axis, if necessary.

## 8-2. Recipe Setting and CSV Data Transfer

This function is used for Parameter (backup and restore).

Change the settings if necessary, according to the device, equipment, and facility.

### 8-2-1. CSV Condition Settings

For "Write Mode", you can select either "All Files" or "Overwrite Data Only".

The condition settings used for these screen samples are as follows.

Table 8-2-1 CSV Condition Settings

No.	Condition No.	Name	Address	No of Data	File No
0	0	Data-0	[#INTERNAL]USR20000	460	0-0
1	101	Data-Ch1	[#INTERNAL]USR00100	1024	101-101
2	102	Data-Ch2	[#INTERNAL]USR01200	1024	102-102
3	103	Data-Ch3	[#INTERNAL]USR02300	1024	103-103
4	104	I/O-Ch1	[#INTERNAL]USR03400	1024	104-104
5	105	I/O-Ch2	[#INTERNAL]USR04500	1024	105-105
6	106	I/O-Ch3	[#INTERNAL]USR05600	1024	106-106

### 8-2-2. CSV File

The storage destination ("SD card" and "USB storage") to be used for Recipe Setting (CSV Data Transfer) is specified. Specify the output destination of the project information according to the storage destination.

Specify the CSV file which satisfies the condition settings.

## 8-3. Security Settings

Security Settings are used for the functions of "Parameter Display Edit Menu" and "Parameter WRITE prohibit Setting" in these screen samples.

Change the password settings to be used in the device, equipment, and facility, if necessary.

### 8-3-1. Password Settings

The password of these screen samples is shown below.

Table 8-3-1 Password Settings

Level	Password
1	1234

## 8-3-2. Security Level List

The list of the security levels of these screen samples is shown below.

Table 8-4 Security Level

Screen Number	Security Level	Title
B5101	1	Parameter Display Edit Menu (start determination)
B5711	1	Parameter Write Prohibit Setting/Selection

In these screen samples, the security level is used for the parts of the function shown below.

- Parameter (interlock function of [Allow Input] in data display parts)

## 8-4. Text Registration

A detailed content of the sub-display to be displayed is registered in the text when the screen is pressed in the Alarm History screen.

Change each text of Text Registration, if necessary according to the device, equipment, and facility.

An additional change is required due to the difference in the software version of the servopack.

For the content to be registered in the text, refer to the YASKAWA Electric Corporation's manual.

Text can be edited with the external text editor and spreadsheet by using the export and import functions.

## 9. Address Map

### 9-1. Internal Address List

Table 9-1-1 USR Device

Address	Bit	Content
20000		Parameter transfer area (Backup/Restore area)
20999		Parameter transfer area (Backup/Restore area)
21000		Data transfer display/Transfer status
21000	00	Status: During transfer
	01	Status: Completion of transfer
	12	Error code (00-15)
	13	Error code (00-15)
	14	Error code (00-15)
	15	Error code (00-15)
21001		Data transfer display/ Transfer error code (Digitalization)
21030		Switch 6 for function selection application (Analog monitor 1 signal selection)
21031		Switch 7 for function selection application (Analog monitor 2 signal selection)
21040		Data for current detection (U-phase) zero adjustment/for display when screens are changed
21041		Data for current detection (V-phase) zero adjustment/for display when screens are changed
21050		Software reset/execution waiting counter
21060	00	Jog operation/Normal rotation
"	01	Jog operation/Reverse rotation
"	02	Jog operation/Normal rotation determination 2 <sup>nd</sup> time or later
"	03	Jog operation/Reverse rotation determination 2 <sup>nd</sup> time or later
21071		Program JOG operation/Count during operation instruction
21072		Program JOG operation pattern
21081		Pn205: Multi-turn limit setting/For display when screens are changed
21082		Pn205: Multi-turn limit setting/For setting
21090		Pn530:0: For program JOG operation pattern explanation window (Bit is specified with Word.)
"	00	Pn530:0: Window bit for program JOG operation pattern 0 explanation
"	01	Pn530:0: Window bit for program JOG operation pattern 1 explanation
"	02	Pn530:0: Window bit for program JOG operation pattern 2 explanation
"	03	Pn530:0: Window bit for program JOG operation pattern 3 explanation
"	04	Pn530:0: Window bit for program JOG operation pattern 4 explanation
"	05	Pn530:0: Window bit for program JOG operation pattern 5 explanation
21100		Maintenance Flag
	00	QR Code Storage setting(0:USB, 1:SD/CF)
	01	QR Code(SERVOPACK)
	02	QR Code(Servomotors)
23200	00	Absolute value encoder setting interlock 0: Absolute value cannot be set. 1: Absolute value can be set.
28000		Indirect Device addresses (0, 1-15)

# 9-2. Variables

Table 9-2-1 Internal Variables

Address	Content
DummyLP	Dummy for lamp display



## 10. Appendix

This chapter describes the important notes when the screen samples are used.

### 10-1. Parameter Display Edit Menu (Out-of-range settings)

For parameter edit, "Data Display ([Allow Input])" of GP-Pro EX is used.

Color is changed in the setting range of the parameter described in the YASKAWA Electric Corporation's manual using "Warning/Color setting/Details" of "Data Display ([Allow Input])".

The upper and lower limit ranges are specified in "Range" of the "Warning/color setting" tab in the properties of Data Display.

When the parameter value stored in the servopack is within the specified range, background color (plate color) is displayed in white. In the case of the out-of-range value, background color (plate color) is displayed in yellow.

When a parameter is edited, input can be performed up to the upper/lower limit value for "16-bit" or "32-bit". If setting is made exceeding the specified setting range, an error response is returned from the servopack. In that case, the error is displayed in the lower part of the display.

In these screen samples, version upgrade of the servopack is taken into consideration, and color change is used in the "Range" setting so as to support the input edit even when the parameter range is changed.

### 10-2. Parameter (Backup/Restore)

For Backup/Restore of the parameter, CSV data transfer of "Data Overwrite (Recipe)" of GP-Pro EX is used.

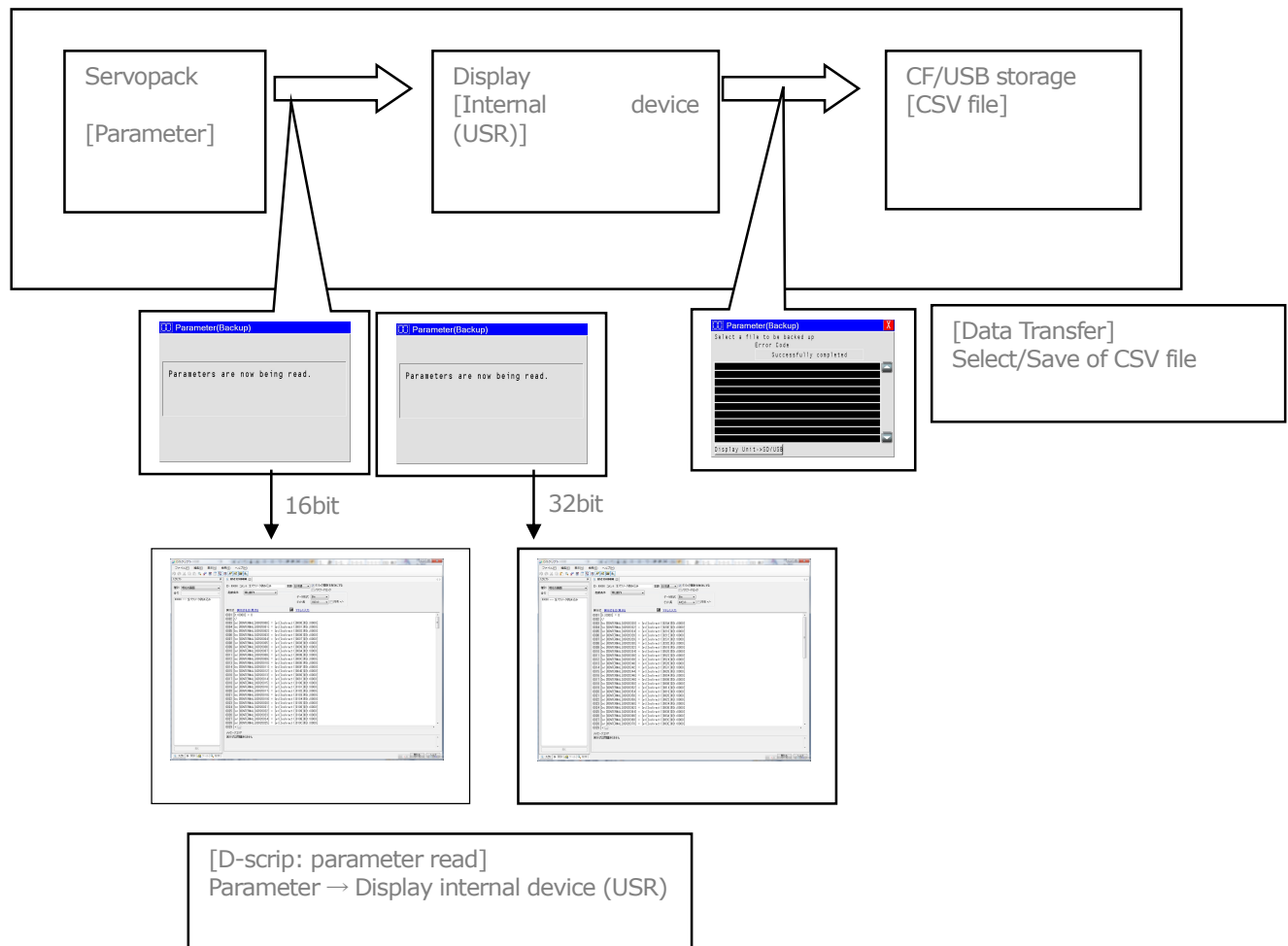
For details on the CSV data transfer function, refer to the GP-Pro EX Reference Manual.

In Parameter (Backup/Restore), as shown below, the parameter of the servopack is read/written/stored from/to the SD/USB storage by way of the internal device (USR) of the Display.

The parameter of the servopack is not read/written directly with the SD/USB storage. The discontinuous parameter is consolidated in the internal device (USR) of the Display. The parameter is read/written from/to the SD/USB storage by way of the internal device (USR) of the Display.

## 10-2-1. Parameter (Backup)

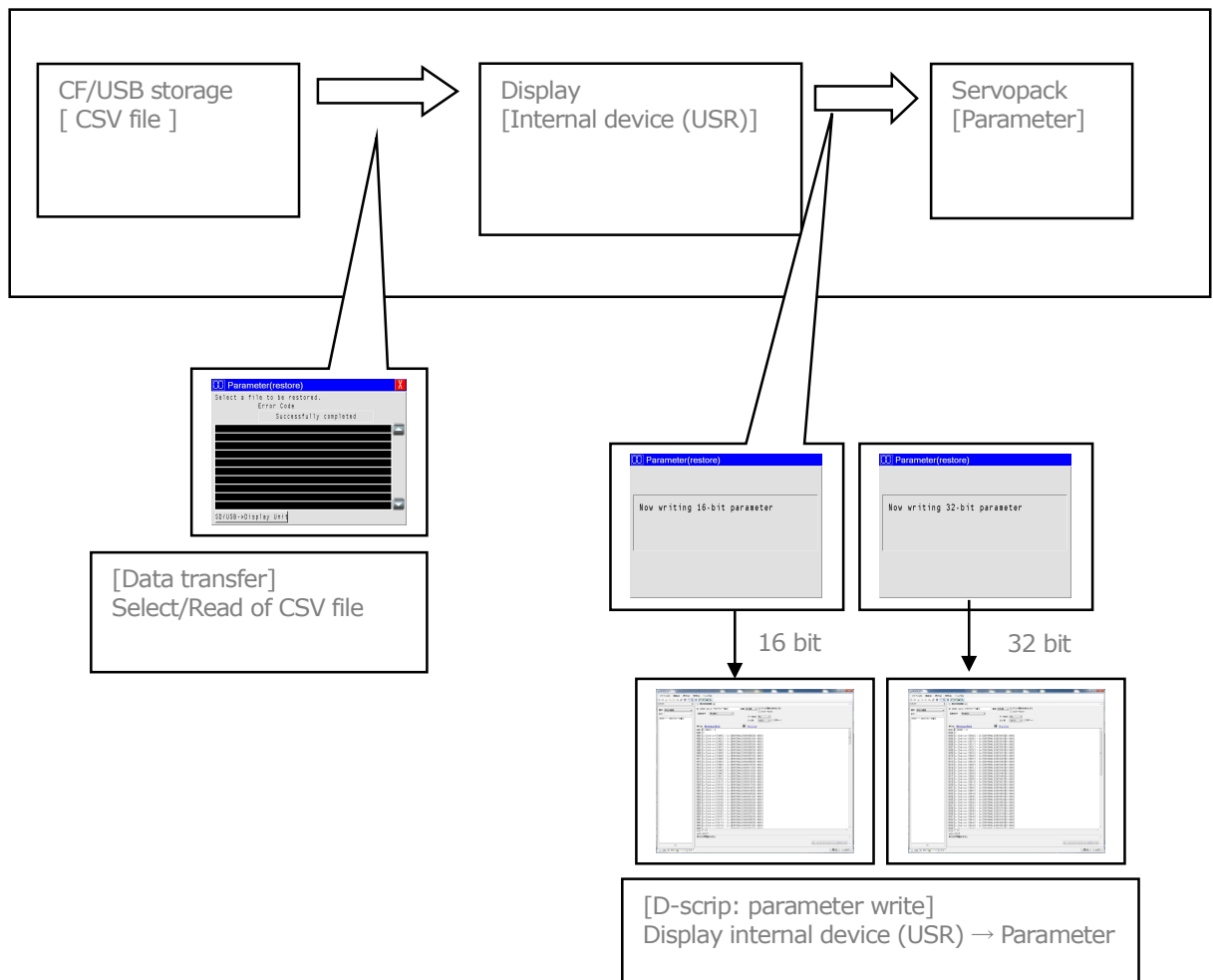
The flow of the parameter backup is shown below.



When increase/decrease of parameters occurs, change the D-script.

## 10-2-2. Parameter Restore

The flow of the parameter restore is shown below.



When increase/decrease of parameters occurs, change the D-script. (Be careful of 16-bit and 32-bit types.)

Note: Do not turn off the power immediately after the screen is changed to the screen indicative of parameter restore completion.

### 10-2-3. Output Destination

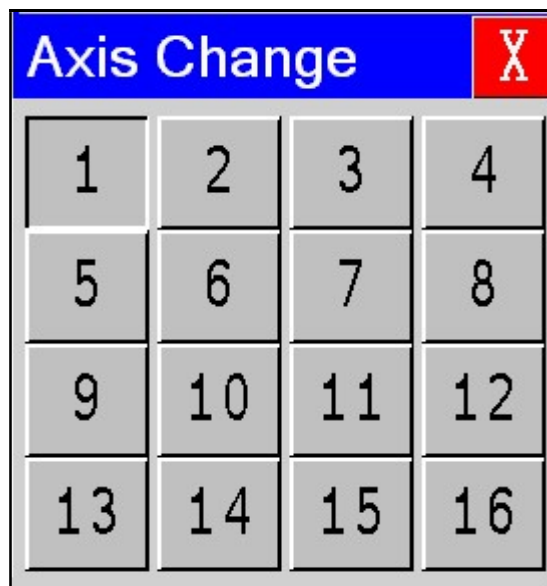
The SD/USB storage is used for parameter backup/restore.  
Set the output destination to the SD card and the USB storage.

### 10-2-4. Save Destination

Check the checkbox for "SD card" or "USB storage" for the recipe storage destination.  
Store the created data in "SD card" or "USB storage."

## 10-3. Axis Change

Pressing the left end of the upper part of the screen displays the window to change the axis as shown below.



Pressing "1" – "16" changes the display for the axis.

When the axis number frame is displayed as shown below, the axis can be changed.



: Axis Change is enabled. When touched, the window of the axis change is displayed.

When the axis number frame is displayed in white, the axis cannot be changed.




: Axis Change is disabled.

Pressing "1" – "16" stores the value of the device ID in an indirect specification address.

Add or delete the axis change switch according to the device, equipment, and facility.

## 10-4. Language Change

When you keep pressing the  key on the lower right in the title screen for 2 seconds, a window to change the language is displayed.

