OMRON

Programmable Terminal NA Series

Practice Guide
Demonstration Screen for Safety CPU

NA5-15□101□
NA5-12□101□
NA5-9□001□
NA5-7□001□

SYSMAC always in control

V447-E1-03

■ Introduction

This guide provides reference information when using Safety CPU Unit IAG Library. It does not provide safety information. Be sure to obtain the NA-series Programmable Terminal User's Manuals, read and understand the safety points and other information required for use, and test sufficiently before actually using the equipment.

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- Computer virus and other technically harmful program, and
- Unauthorized access.

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(c) Applications in a harsh condition or environment (e.g. outdoor facilities, facilities with potential of chemical contamination or electromagnetic interference, facilities with vibration or impact, facilities on continual operation for a long period)

(d) Applications under conditions or environment which are not described in the catalogues

- Omron products in the catalogues are not intended to be used in automotive applications (including two-wheel vehicles). Please DO NOT use Omron products in automotive applications. Contact our sales personnel for automotive products.

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- Warranty Period: One year after your purchase. However, except when there is a separate statement in the catalogues.
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(a) Free repairing of the malfunctioning Omron products (except electronic/mechanical components) at Omron maintenance service sites.

(b) Free replacement of the malfunctioning Omron products with the same number of substitutes.

- Exceptions: This warranty does not cover malfunctions caused by any of the followings.

(a) Usage in the manner other than its original purpose
(b) Usage out of the conditions
(c) Usage out of Note about Use in these conditions
(d) Remodeling/repairing by anyone except Omron
(e) Software program by anyone except Omron
(f) Causes which could not be foreseen by the level of science and technology at the time of shipment of the products.
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Contents

1 Related Manuals

Cat. No.	Model	Title
V117	NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	Programmable Terminal User's Manual (Hardware)
V118	NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	Programmable Terminal User's Manual (Software)
V120	NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	Programmable Terminal Startup Guide
Z395	NX-SL5□□□ NX-SI□□□□ NX-SO□□□□ NX-CSG□□□	Safety Control Unit/Communication Control Unit User's Manual
Z396	NX-CSG□□□	Communication Control Unit User's Manual Built-in Function

2 Precautions

(1) When building an actual system, check the specifications of the component devices of the system, use within the ratings and specified performance, and implement safety measures such as safety circuits to minimize the possibility of an accident.
(2) For safe use of the system, obtain the manuals of the component devices of the system and check the information in each manual, including safety precautions, precautions for safe use.
(3) It is the responsibility of the customer to check all laws, regulations, and standards that the system must comply with.

(5) The information in this guide is current as of February 2019.
It is subject to change without notice because of product's update.

Special information in this document is classified as follows:

Precautions for Safe Use

Describes precautions on what to do and what not to do to ensure safe usage of the product.

Precautions for Correct Use

Describes precautions on what to do and what not to do to ensure proper operation and performance.

Additional Information

Additional information to read as required.
This information is provided to increase understanding or make operation easier.

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3 Overview

3-1 Functions and Features

We introduce a demonstration screen has that enables the functions of Safety CPU Unit to be used on NA.
The demo screen makes settings possible without using Sysmac Studio in work sites. Even the operator who does not know how to use the tools can acquire data.
In addition, since parts are prepared for each function, the designer's man-hours can be reduced.
Implemented functions are as follows:

1) LED monitoring function of safety I/O unit
2) Production data of controllers, safety CPU, and I/O units monitoring function
3) Registration of safety signature information of safety CPU unit and Current Value Reading function
4) Safety data logging function
5) Downloading restored files function

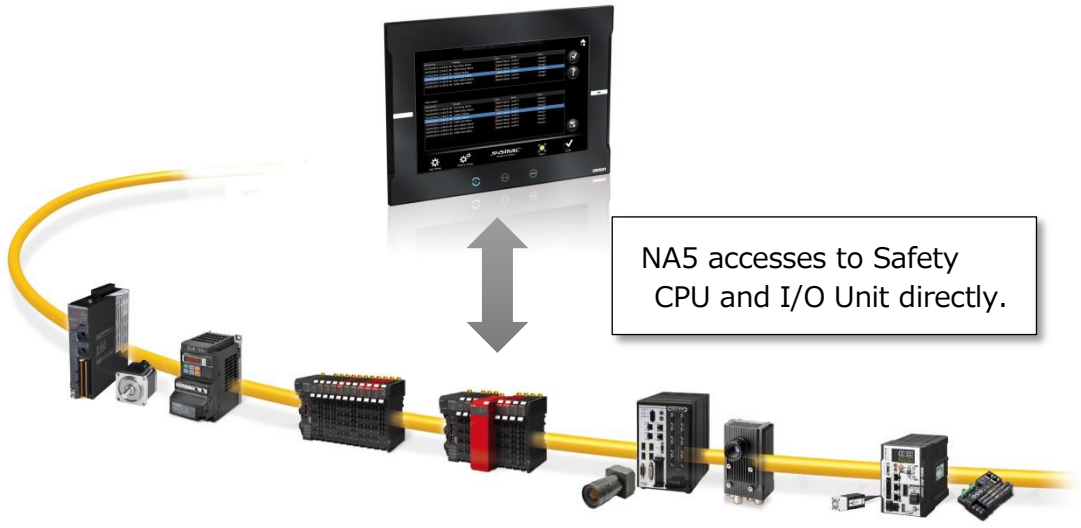
In this demo screen, an NA accesses to Safety PLC and I/O directly to obtain necessary information.
It brings new features as described below.

■Easy introduction and start-up

A controller does not need to share global variables and as before. Also fine-tuning between communication ladder programs, a controller, and HMI are not required. It enables the controller to start up quickly.

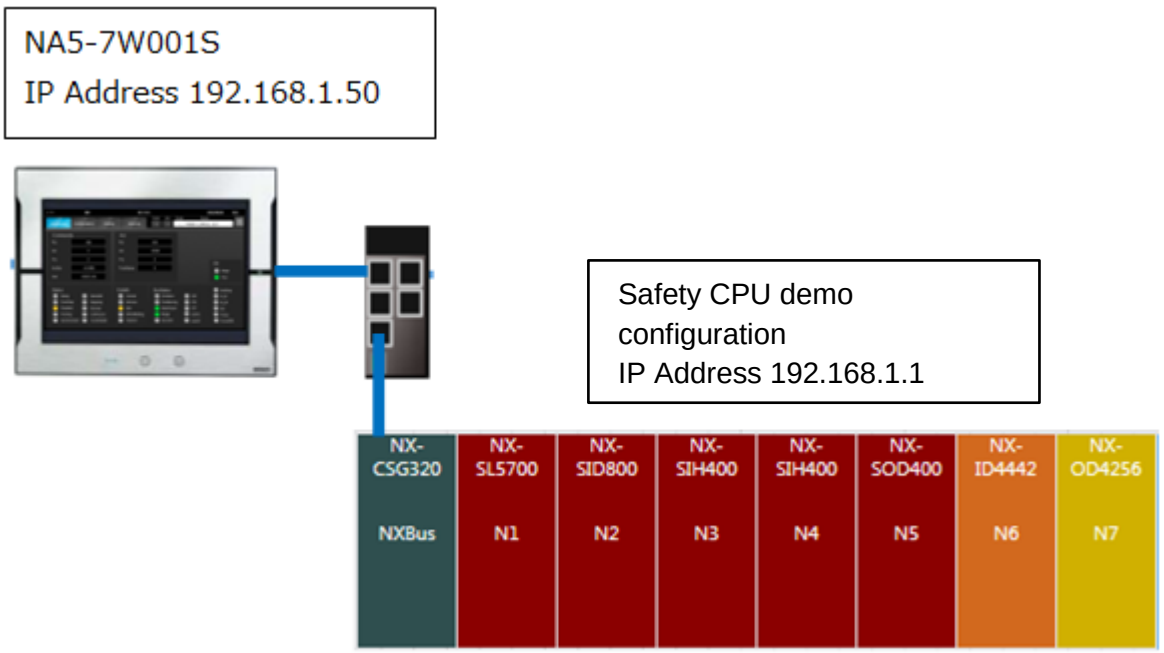
■No disturbance in high-speed and high-precision.

A controller doesn't have a monitor and communication program for settings not originally related to high-speed and high-precision control. It enables minimize the influence of tact on the control program.



3-2 Demonstration Configuration

The operation is validated with the following components.
It is possible to connect another safety CPU configuration to the demonstration project.
Refer to *4-3-1 Add External Devices* and *4-3-2 Add Internal Devices* for the setting method.



Manufacturer	Device	Model	Version
Omron	Safety network controller	NX-CSG320	Ver. 1.00
Omron	Indicator (HMI)	NA5-12W101S	NA 1.10 Runtime 1.10.23 OS 7.2.1
Omron	SysmacStudio	SYSMAC-SE□□□□	Ver1.25
Omron	PC (OS: Windows7)		
Omron	Safety CPU unit	NX-SL5700	
Omron	Safety input unit	NX-SID800 NX-SIH400	
Omron	Safety output unit	NX-SOD400	
Omron	Digital input unit	NX-ID4442	
Omron	Digital output unit	NX-OD4256	
	EtherNet/IP cable x2		
Omron	Switching hub	W4S1-05B	

3-3 Project File and Supporting Range

3-3-1 Project Files

The following project files are downloaded.

Screen Size (in.)	File Name
NA7/ 9	SafetyCPU_Demo_7inch_RevB2.csm2
NA12/ 15	SafetyCPU_Demo_12inch_RevB2.csm2

3-3-2 Supported Models and Specification

This demo screens support the following models.

Programmable Terminal	Supported Version	Remarks
NA5-□□W	1.10 or above	-

Safety CPU Unit	Supported Version	Remarks
NX-SL5500	No version limit	
NX-SL5700	No version limit	
NX-SL3300	No version limit	Data logging and Restored file download are not supported.
NX-SL3500	No version limit	Data logging and Restored file download are not supported.

NX1 Controller	Supported Version	Remarks
NX1-□□□□	No version limit	

Safety Control Unit	Supported Version	Remarks
NX-CSG320	No version limit	

Precautions for Correct Use

The devices don’t work with the older versions than the mentioned above.

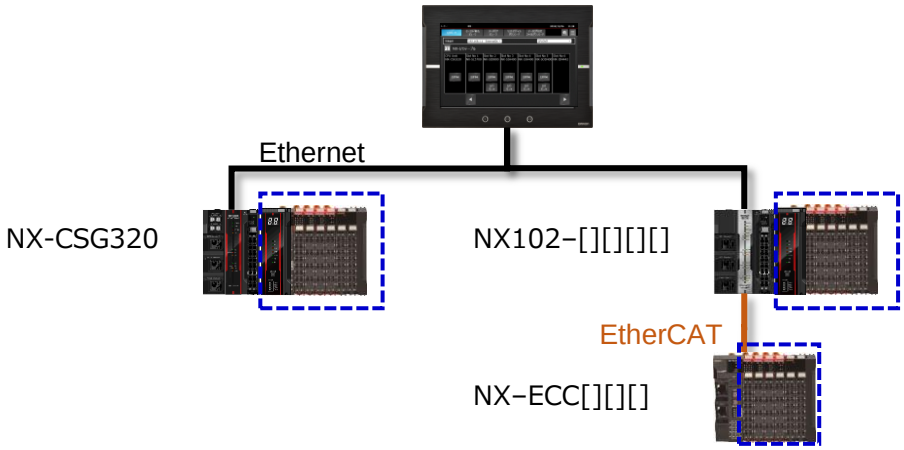
Precautions for Correct Use

When SL5000 series devices are used with NX102 series CPU unit, the device can be connected with NX bus.

Precautions for Correct Use

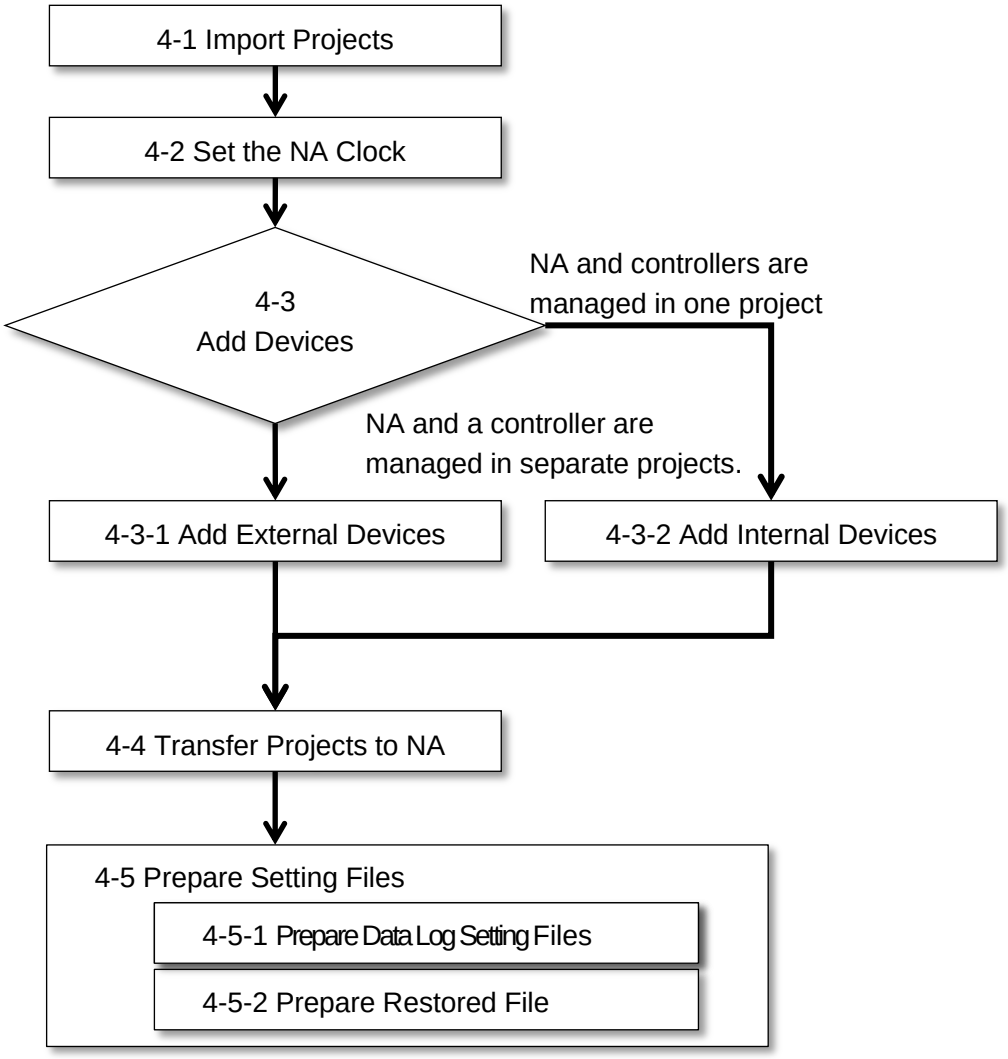
SL3000 series devices are connectable with the NX bus of NX102 series CPU unit.

NA5 can access to the NX102 CPU unit connected via Ethernet, the Safety CPU and I/O unit mounted on CPU racks of CSG unit, and the Safety CPU and I/O unit connected to an NX coupler unit, which is configured with NX102 series CPU unit via EtherCAT.



4 Preparation for Demo Screen

The preparation procedure for safety CPU demonstration screen is shown in the flowchart below.
It is necessary to register a Safety CPU to monitor in “4-3 Add Devices”. Make a registration of an external device or internal device according to your project management.



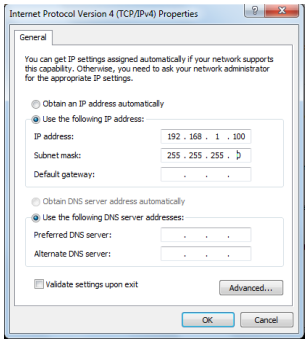
Additional Information

In the step “4-3 Add Devices”, you can add the controller easily only by setting an IP address if you don't need to share variables with NX102 or CSG for demonstration purposes only. Refer to “4-3-1 Add External Devices”.

4-1 Import Projects

1. Set the PC's IP address to 192.168.1.100.

Make sure that the IP address of the PC does not overlap with the IP address of the devices that configures the connected system.

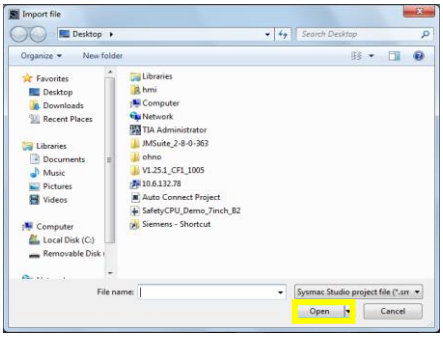


2. Startup Sysmac Studio.

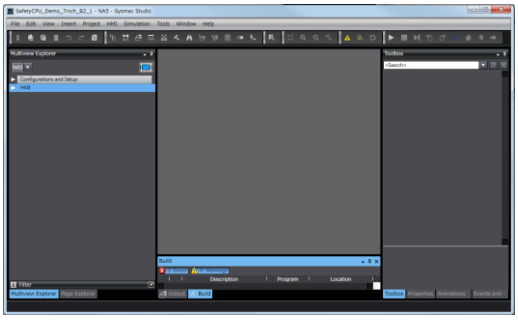
*Sysmac Studio Ver1.25 shall be installed.

3. Select Import.

4. The dialog box shown on the right appears. Select a project file of the Safety CPU demo screen and select Open.

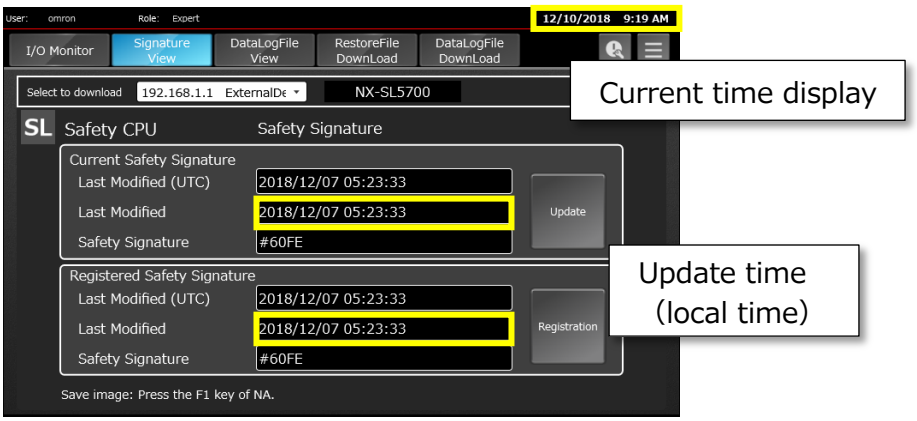


5. The project file is imported and opened automatically.



4-2 Set the NA Clock

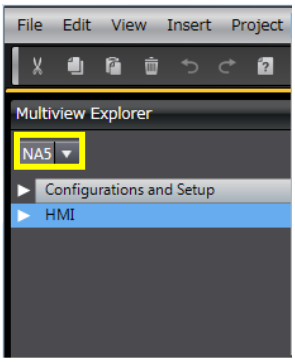
This section describes the setting for NA's clock.
Be sure to set the clock because the current time display on this demo screen and the update time (local time) of Safety Signature function refer to the clock.



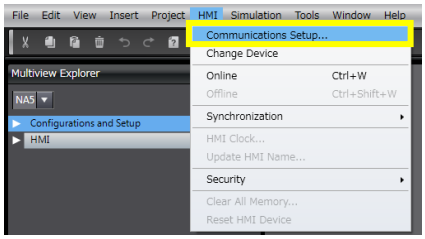
1. Power on NA.

2. In the top window of Multiview Explorer, set the device to be edited to NA5.

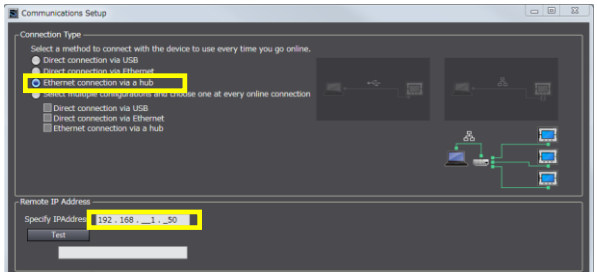
   *If NA5 is already set, setting is not necessary.



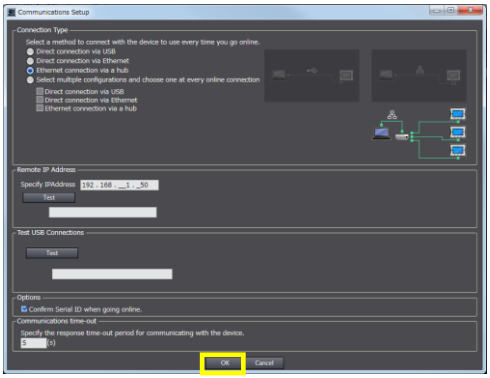
3. Click HMI – Communication Setup.



4. Select Ethernet Connection via a Hub and set the destination IP address to 192.168.1.50.
   If the NA's IP address is different, change the setting in System Menu or others.

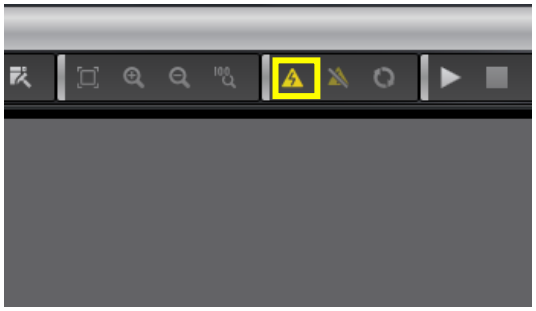


5. Click OK.

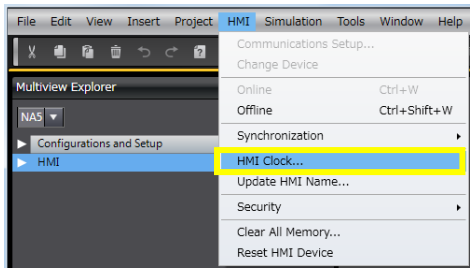


6. Select the Online icon in the Toolbar.

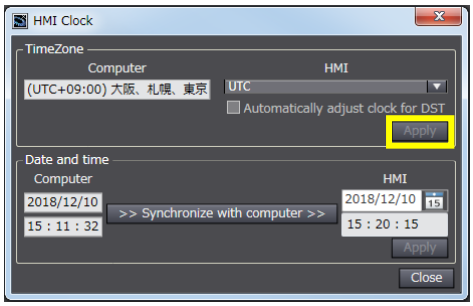
   If the version of the NA is V1.09 or less, upgrading is demanded when you connect online.
   Upgrade the current NA version following to the dialog.
   After upgrading is completed, the NA is reset. Select Online in the Toolbar again.



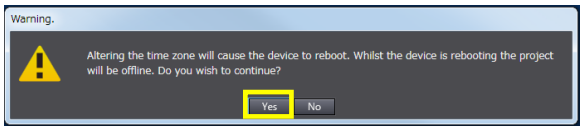
7. Click HMI – HMI Clock.

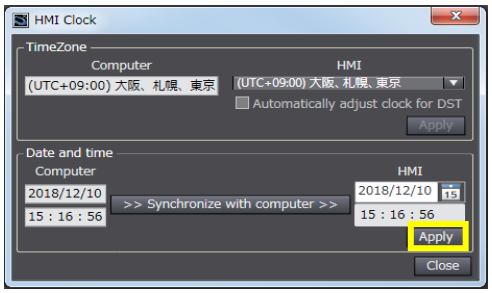
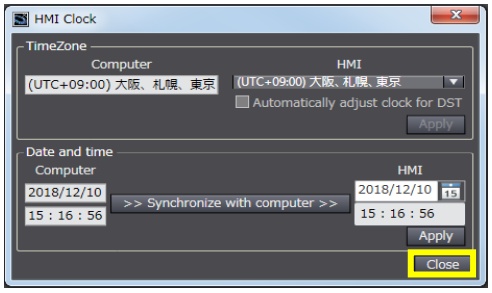


8. Select the proper time zone according to the area where the devices used. Then click Apply.



9. Click Yes.



10. After a restart, click Synchronize with Computer - Apply.	
11. Click Close.	
12. Click the Offline icon in the Toolbar.	

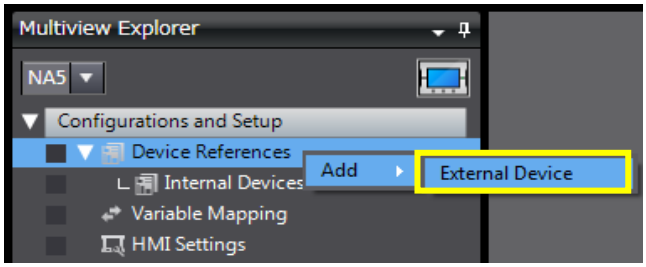
4-3 Add Devices

In this project file, it is necessary to register the safety CPU to be monitored. There are two methods: adding as an external device and as an internal device. NA can monitor multiple safety CPUs. The maximum number of registable units is 16, including controllers to which the safety CPU is not connected.

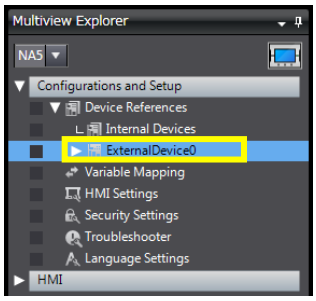
4-3-1 Add External Devices

This section describes how to add devices to another project.
If there is no need to communicate between NX102/CSG and NA except monitoring the Safety PLC, such as demonstrations, you don't have to set the IP address to add the safety CPU unit. This method is recommended.

1. Right-click Config/Setting – Device Reference. Then Left-click Add – External Device.

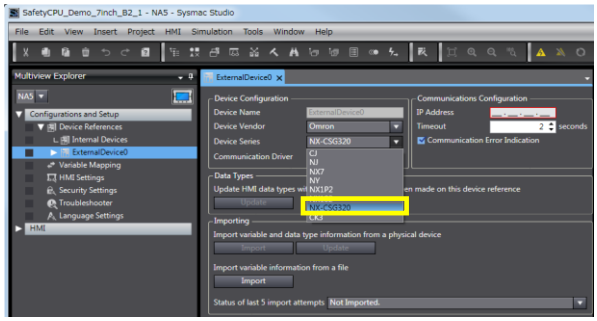


2. ExternalDevice0 is added. Double-click it.



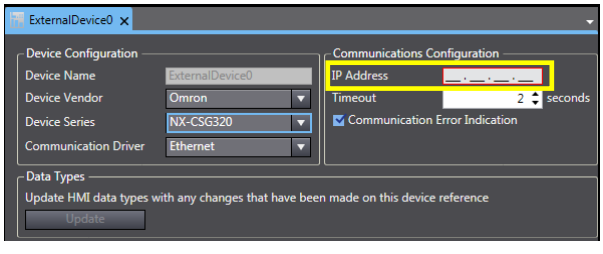
3. Click Device and select NX-CSG320.

   * NX102 is also available.



4. Enter the IP address.

   The safety CPU unit to be connected is added.

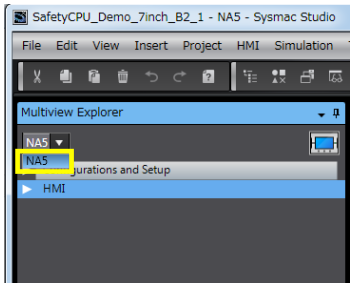


4-3-2 Add Internal Devices

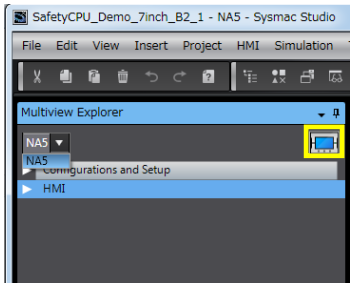
In this section, how to add devices to a project is described. If you need communication and display/operation screen other than this demo screen between NX102/CSG and NA (e.g. designing an actual customer's equipment), the following procedure is recommended.

1. In the top window of Multiview Explorer, set the device to be edited to NA5.

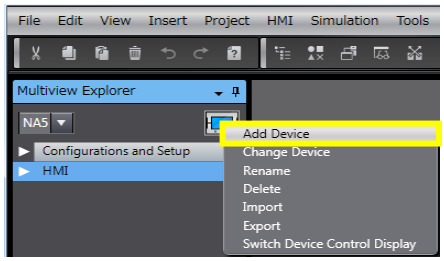
   * If NA5 is already set, setting is not necessary.



2. Right-click the NA icon.

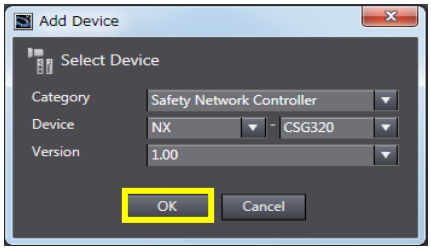


3. Left-click Add Device.



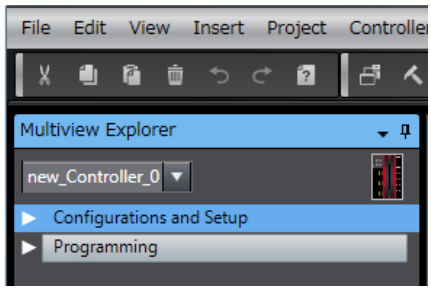
4. Set the device as shown on the right and click OK. Select the unit's version in use for Version.

   * NX102 is also available.



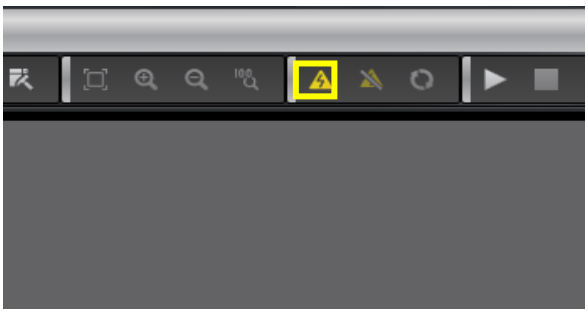
5. A controller is added. Implement necessary settings.

   The Safety CPU Unit to be connected is added.

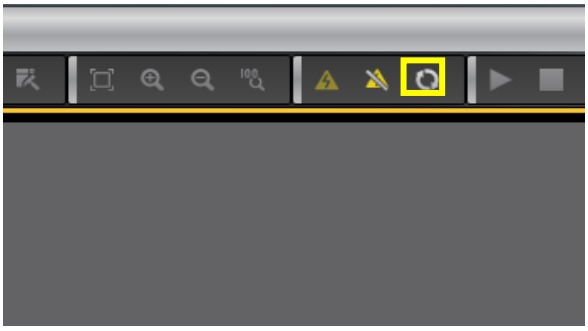


4-4 Transfer Projects to NA

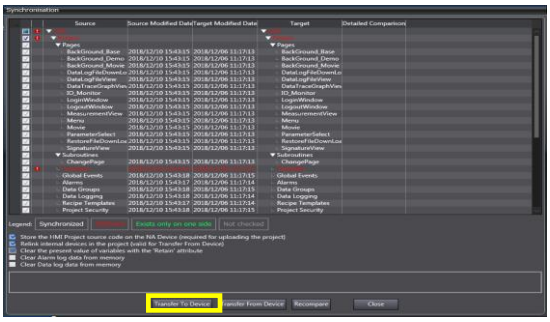
1. Click Online in the Toolbar.



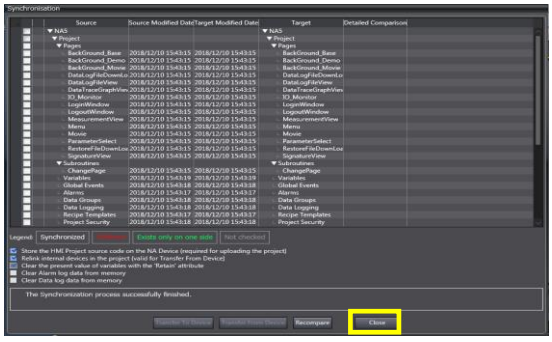
2. Click the Sync icon in the Toolbar.



3. When the Synchronization Window is displayed, click Transfer to Device to start transfer.



4. When the transfer is completed, press Close.



5. If the NA restarts and the initial screen which was set in the project file displayed, download is completed.

   *The menu screen is displayed for the default setting.

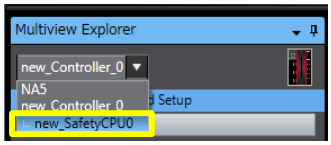
4-5 Prepare Setting Files

4-5-1 Prepare Data Log Setting File

To download a data log setting file, you need to create the data log setting file with Sysmac Studio and to save it to the folder *DataLogSettingFile* in a USB memory that plugged in NA.

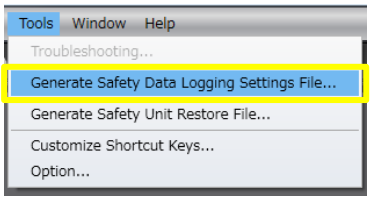
1. Create data log setting files using Sysmac Studio.
   Import the safety project to log its data.

2. Switch to Safety CPU Unit by Multiview Explorer.

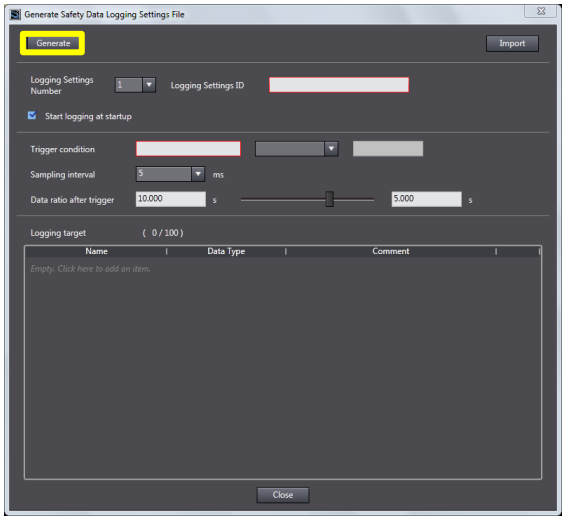


3. Select Online.

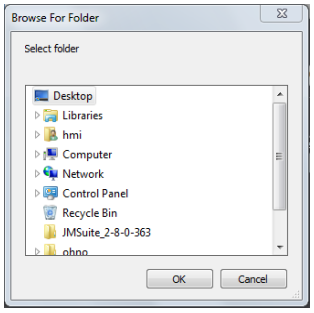
4. Click Tools – Generate Safety Data Logging Settings File.

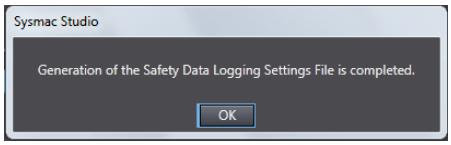
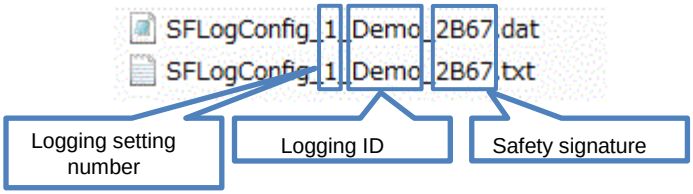


5. Enter the setting items. Press the Generate button.



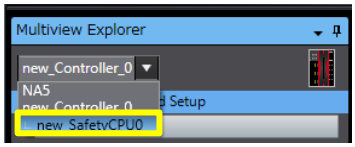
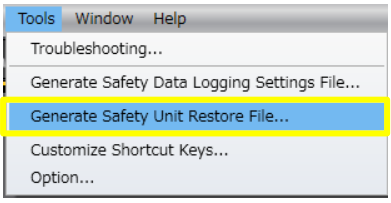
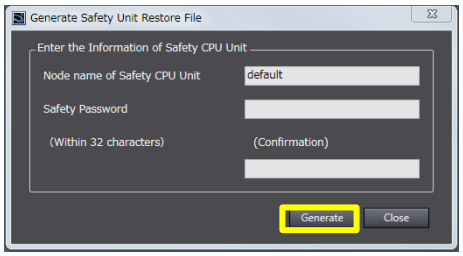
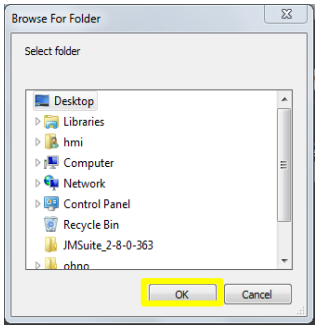
6. Designate a destination in your PC.



7. This message appears after the setting files generated. Press OK.	
8. Check the generated data setting files. The file name contains the logging setting number, the logging ID, and the safety signature.	[Sample] 
9. Create a folder named *DataLogSettingFile* under the Root directory of the USB memory used for NA.	
10. Save the data setting files to the DataLogSettingFile folder in the USB memory. Insert the stick memory to NA.	

4-5-2 Prepare Restored File

Before downloading a restored file, you have to create the restored file with Sysmac Studio and to store it in the *Restorefile* folder in the USB memory that is to be plugged in NA.

1. Create a restore file using Sysmac Studio. Import the safety project to restore.	
2. Switch to Safety CPU Unit by Multiview Explorer.	
3. Select Online.	
4. Click Tools - Generate Safety Unit Restore File.	
5. Enter the information about the safety CPU. Press Generate.	
6. Designate a destination and Click OK. A backup file (SLSystem.dat) is created in the appointed place.	

7.	Create a folder named *Restorefile* under the Root directory in the USB memory for NA.	
8.	Save the safety CPU unit's restored file (SLSystem.dat) created by Sysmac Studio to the folder. Insert the USB memory into NA5.	

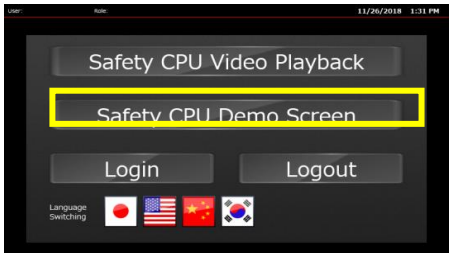
5 Demonstration Procedure for Each Function

5-1 Monitor Safety I/O LEDs

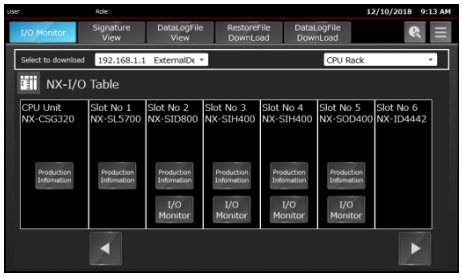
LED status of Safety I/O unit can be checked on NA without opening the control panel. The procedure is shown below.

5-1-1 Check the Unit LED Status

1. Press Safety CPU Demo Screen.

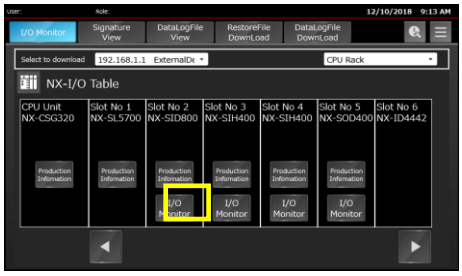


2. I/O Table Screen for the connected controller appears.
   If six or more units are installed, press the button ◄ or ► to move to the right or left.

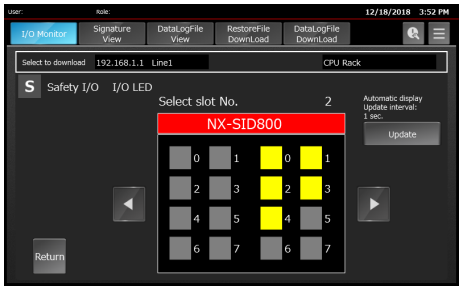


3. Press the I/O Monitor button for the I/O you want to check.

   The buttons for Slot No2 NX-SID800 are shown in the right.



4. The status of the selected I/O is indicated.
   Press the ◄ or ► buttons to see other I/O units. The display is automatically updated at 2-second intervals. It is possible to update with the Update button.

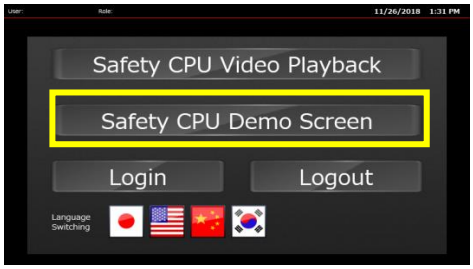


Precautions for Correct Use

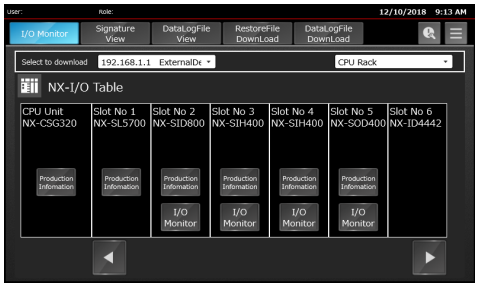
It is not possible to monitor I/O status of Safety CPU Unit and ordinary I/O Unit.

5-1-2 Display the Unit Production Information

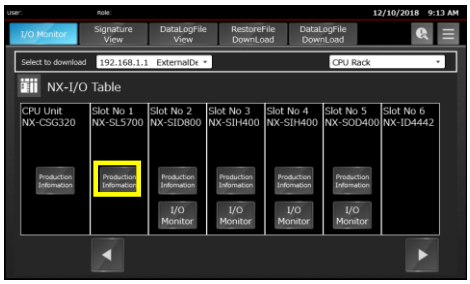
1. Press Safety CPU Demo Screen.



2. I/O Table Screen for the connected controller appears.
   If six or more units are installed, press the button ◄ or ► to move to the right or left.



3. Press the Production Information button of the unit which you want to check.



4. The information on the selected unit is displayed. You can see the details as following:

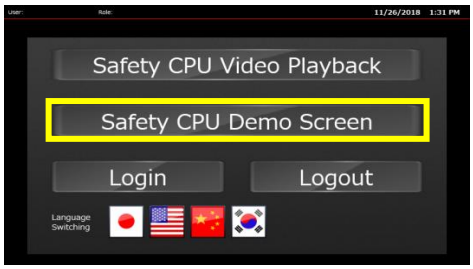
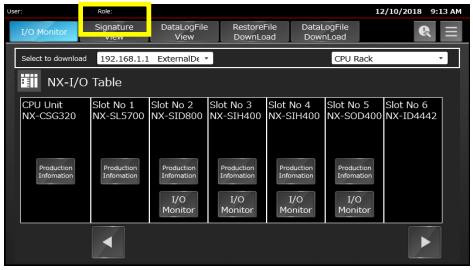
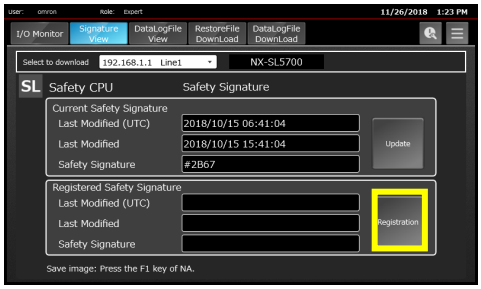
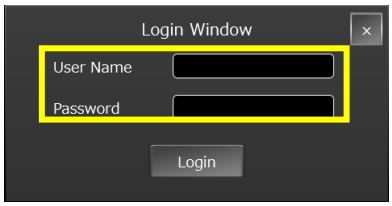
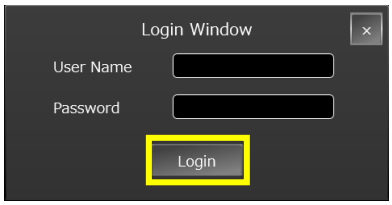
   ・Slot No.
   ・Model
   ・Unit Version
   ・Lot No.
   ・Serial No.
   ・Hardware Version

5-2 Register and Confirm Safety Signature

The safety CPU program should be always operating correctly through equipment design to its operation. In this section, the procedure to check that the safety signature is not unintentionally tampered from the status of machine design by using the NA at site at the time of startup is described.

5-2-1 Registration

First, register the correct safety signature in NA when designing the equipment or changing its safety program.

1. Press Safety Demo Screen.	
2. Press the Signature View button.	
3. Press Registration.	
4. Login Window appears. Enter the followings: User Name: omron Password: omron123	
5. Press the Login button.	

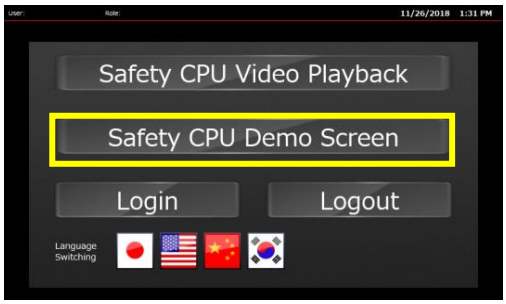
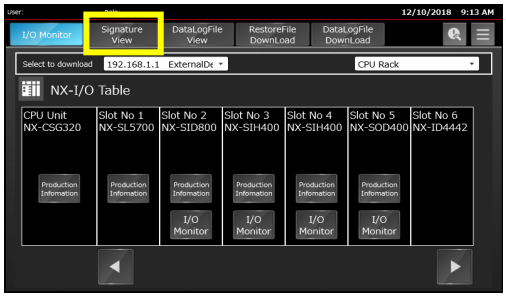
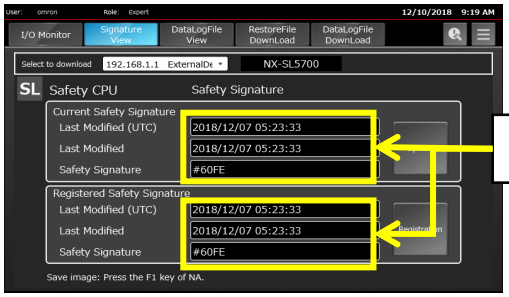
6. The current safety signature information and the registration time are recorded in the registered safety signature.

Precautions for Correct Use

Even if you have logged in before registering the safety signature after starting the NA, the login screen will appear to prevent incorrect entry. Log in again according to Step 4.

5-2-2 Confirmation

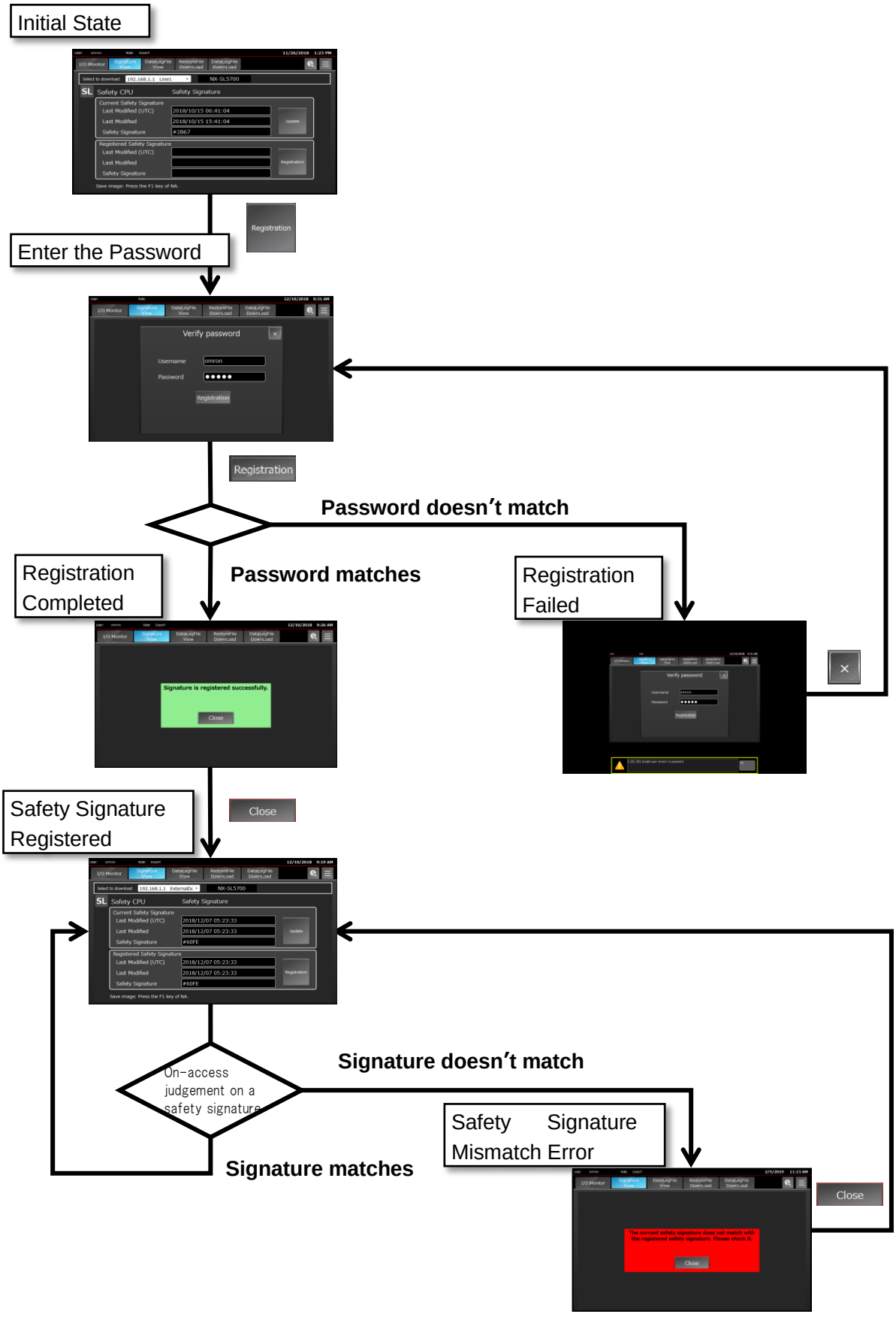
This section shows how to acknowledge the status of the safety signature which registered in accordance with the registration procedure in 5-2-1 Registration.
Register the safety signature before you read this section.

1. Turn off the power of the Safety CPU demo configuration and turn it on again.	
2. Press Safety Demo Screen.	
3. Press the Signature View button.	
4. Confirm that Current Safety Signature and Registered Safety Signature are the same.	

Additional Information

To save a screenshot in a USB memory, press the NA Function Key 1. It is possible to record the person who has confirmed the signature by saving the screenshot.

5-2-3 Screen Transition

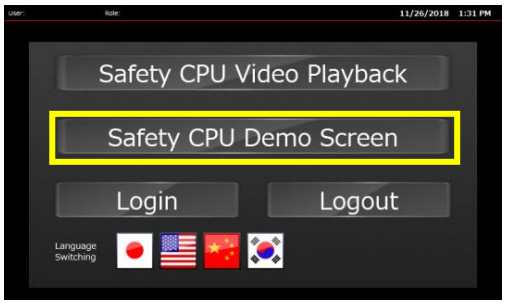
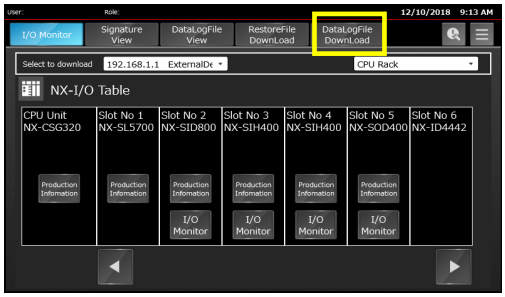
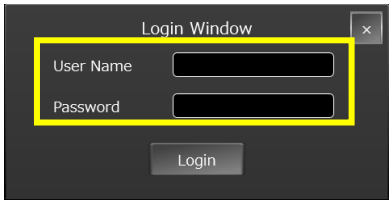
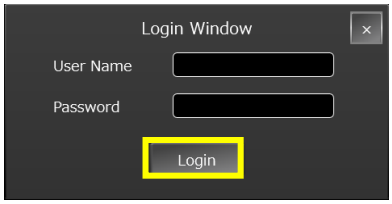
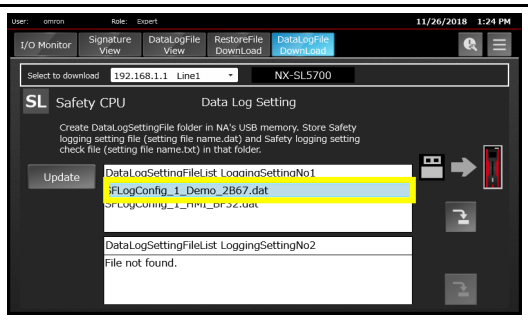


5-3 Display Data Logging Results

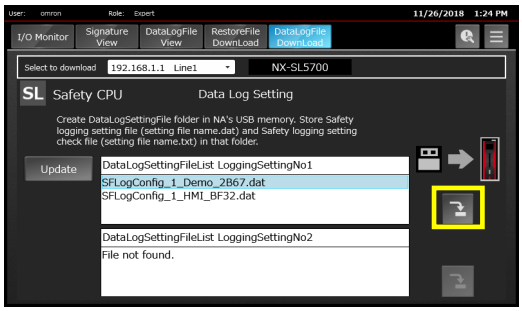
Safety CPU Unit can acquire log data based on Data Log Setting file generated by Sysmac Studio. This section describes how to download Data Log Setting files and to display the logging results in NA5 trend graph.

5-3-1 Download Data Log Setting File and Implement Data Logging

Create data log setting files with Sysmac Studio and save them to the designated folder in the NA5 USB memory. Then transfer them to the memory card of NX102/CSG unit in which the Safety CPU Unit is installed.
Refer to “4-5-1 Prepare Data Log Setting Files” for the procedure to create data log setting files.

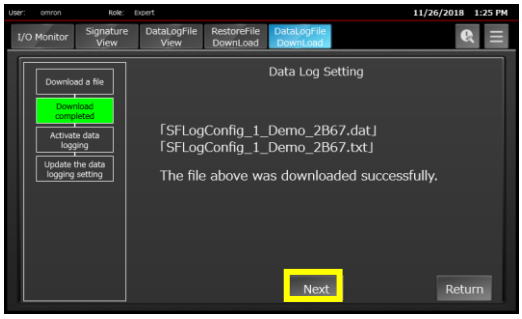
1. Press Safety CPU Demo Screen.	
2. Press the Data Log File Download button.	
3. Login window appears. Enter the followings: Username: omron Password: omron123	
4. Press Login. * Once you logged in, it is not necessary to log in for the second time or later.	
5. Download screen is displayed. Choose the file to download.	

6. Press the download icon.

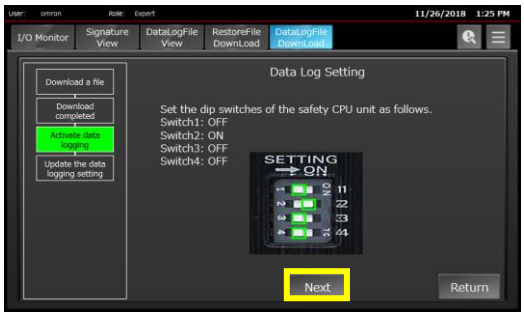


7. The filename to be downloaded is displayed. Press the Execute button.

8. The completion dialog box appears. Press the Next button.

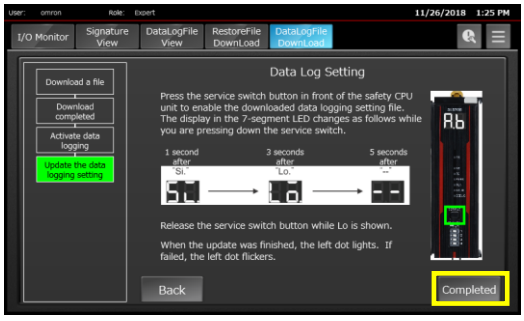


9. On/ off the DIP switches according to the direction shown on the screen.
Press the Next button.



10. Hold down the SERVICE switch in front of the safety CPU following to the direction.
Release your finger from the switch after confirming the 7-segment display in the top of the unit has turned as described in the right.

Press the Completed button.



Precautions for Correct Use

If you have logged in before downloading the Data Log Setting file, the login screen does not appear. Press Data Log File Download to go to the file download window.

Precautions for Correct Use

The error message below appears when:

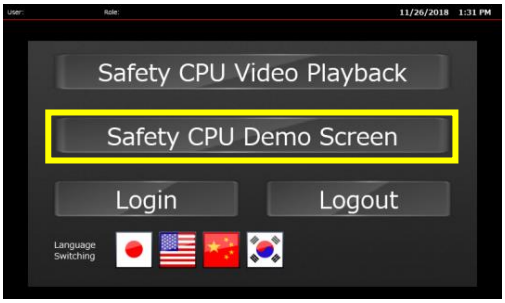
- the USB memory is not inserted into NA,
- the designated destination folder does not exist, or
- the restored file does not exist.

Be sure that the USB memory is plugged and the *Restorefile* folder has been prepared there.

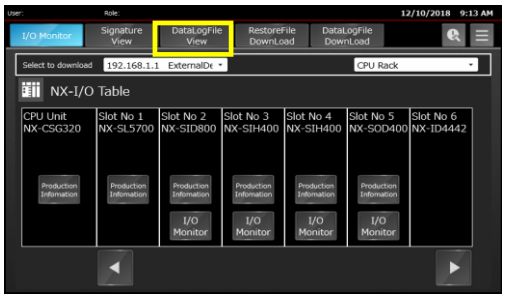
5-3-2 Graphic Display

NA5 reads the results of data logging and displays them in a trend graph form.

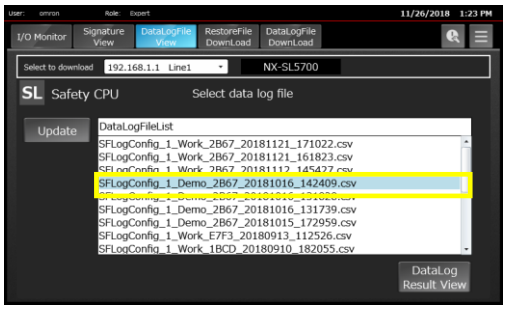
1. Press Safety CPU Demo Screen.



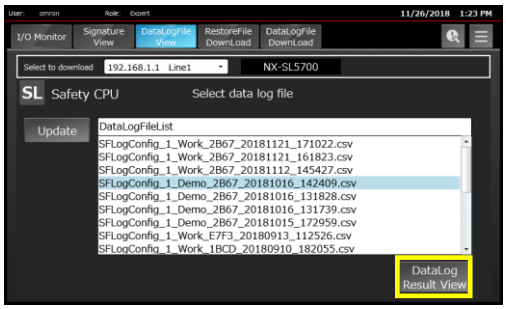
2. Press the DataLogFileView button.



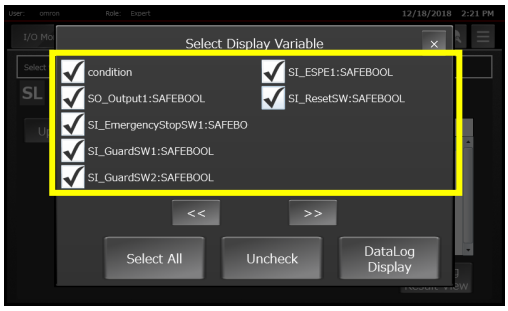
3. Select the data log file to display.

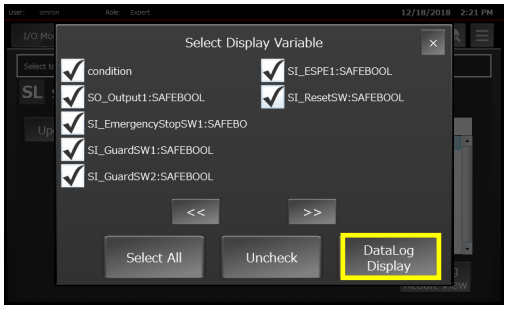
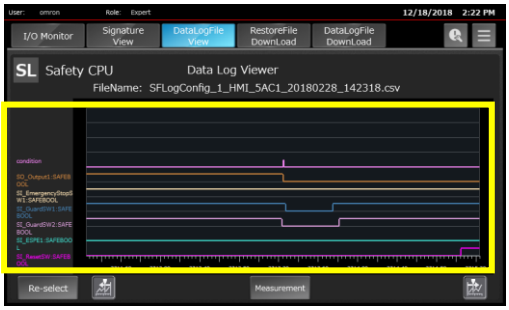


4. Press the DataLog Result View button.



5. The variables that logged in the file are listed. Select the variable to display.

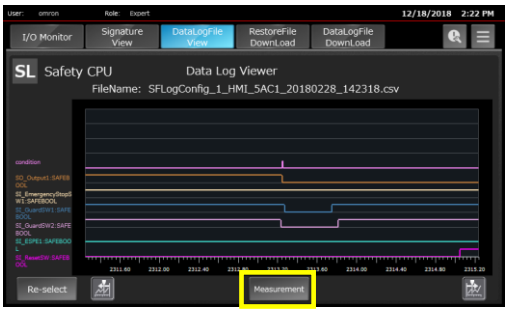


6. Press the DataLog Display button.	
7. The timing chart of the variable which selected in the previous step (Step 6).	

5-3-3 Measurement of Time between Two Points on the Graph

Display the difference between the rise and fall times of any of the variables in the data logging results displayed in trend graphs.

1. Press the Measurement button at the bottom of the Timing Chart screen of a variable.

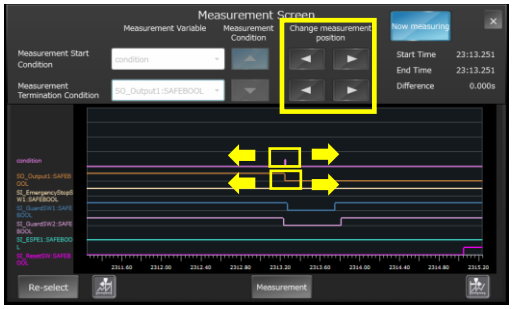


2. The measurement screen is displayed.
   Select two variables as a measurement start condition and a measurement termination condition.

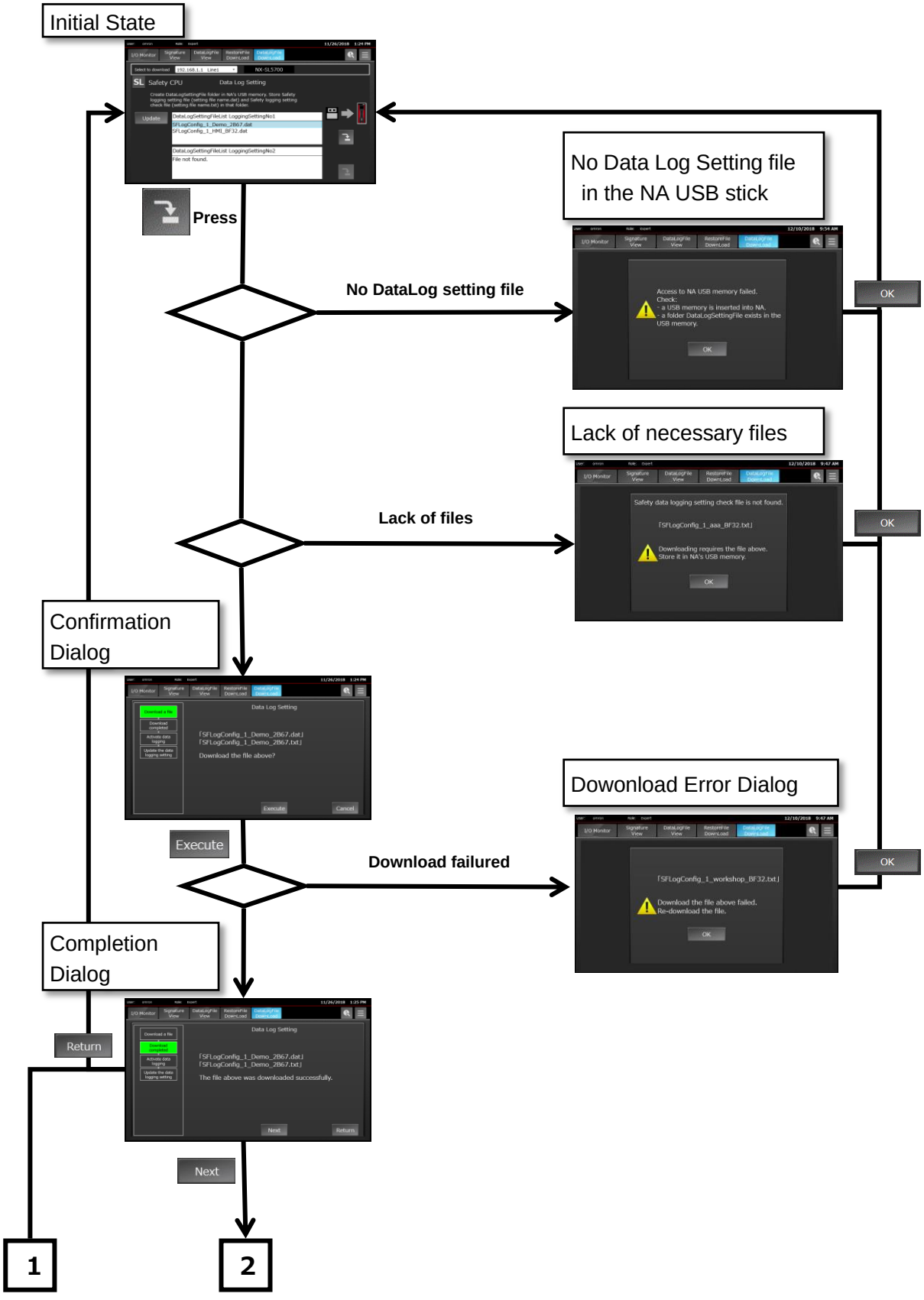
3. Set the measuring conditions of the selected variable, Rising or Falling.

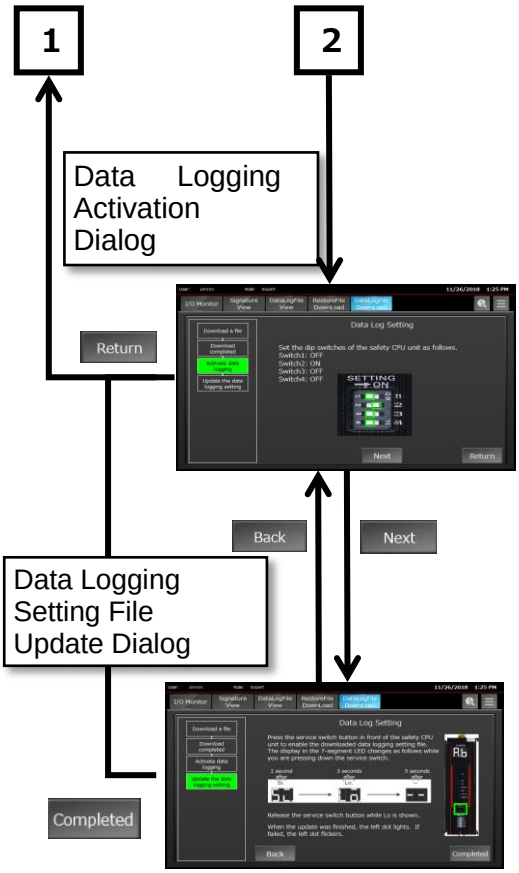
4. Press the Start Measurement button to display the difference of time between the two conditions.

5. Press the ◄ or ► button to change the object to measure. You can find the next (or previous) data that satisfies the measurement conditions.



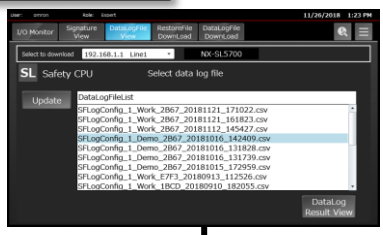
5-3-4 Screen Transition: Downloading Data Log Setting File




1
2
Data Logging Activation Dialog
Return
Back
Next
Data Logging Setting File Update Dialog
Completed

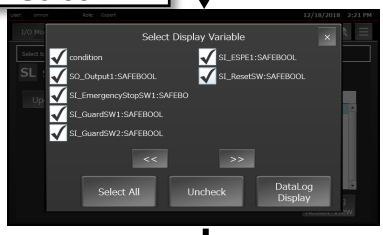
5-3-5 Screen Transition: Graphic Display

Data Log File Selection Screen



DataLog Result View

Display Variable Selection Screen



DataLog Display

Timing Chart Screen

Measurement

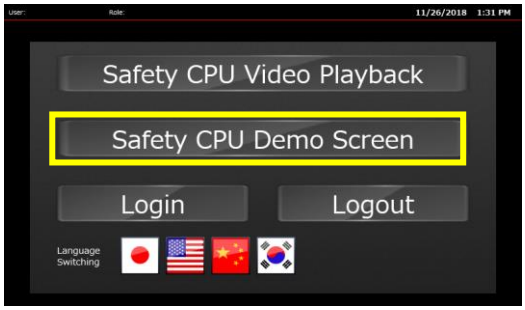
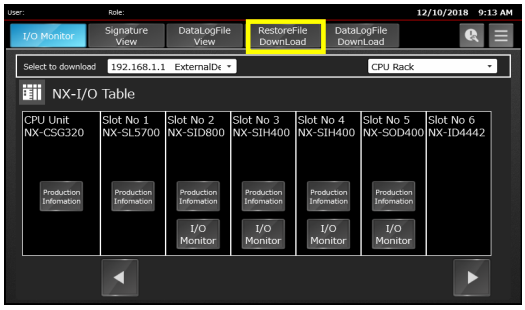
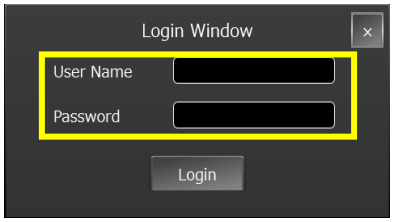
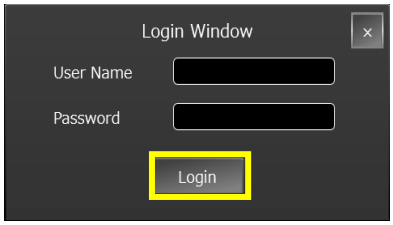
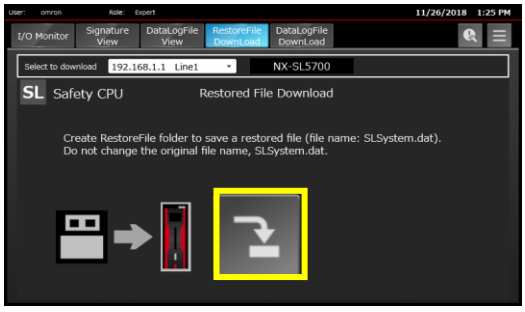
Measurement Screen

5-4 Restore Safety Programs at the Site

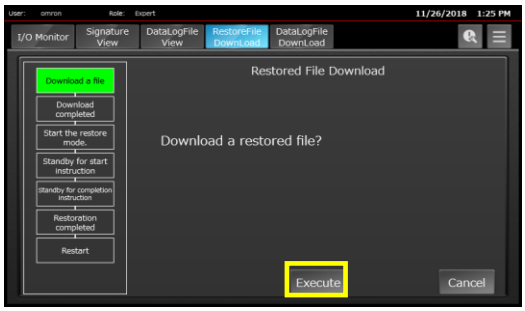
The safety program of the safety CPU unit is changed with Sysmac Studio. Conventionally, the program restoring at site required Sysmac Studio. However, this demo screen enables the program to be downloaded from the USB memory of the NA.

5-4-1 Download Restored Files

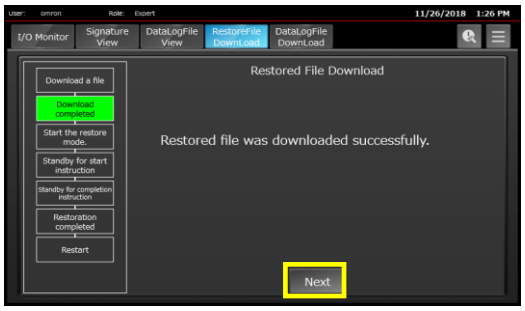
Transfer a restored file from NA's USB memory to NX102/CSG unit's memory card. Refer to "4-5-2 Prepare Restored File" for the file creating procedure.

1. Press Safety CPU Demo Screen.	
2. Press the RestoreFile Download button.	
3. Login window appears. Enter the followings: Username: omron Password: omron123	
4. Press Login.	
5. Restored File Download screen appears. Press the Download button.	

6. Confirmation dialog window is displayed. Press the Execute button.

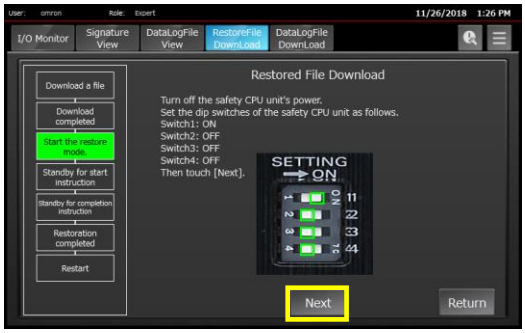


7. If the download is successfully completed, press Next.



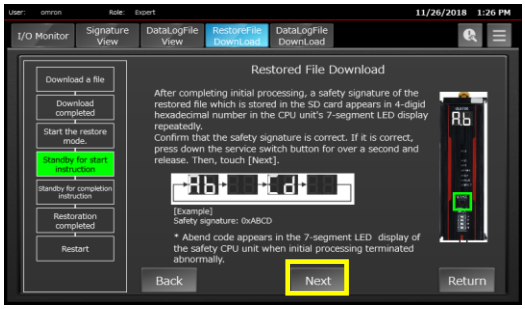
8. Start the Restore mode.
On/ off the power switch or DIP switches of the safety CPU unit as instructed on the screen.

Then, press Next.



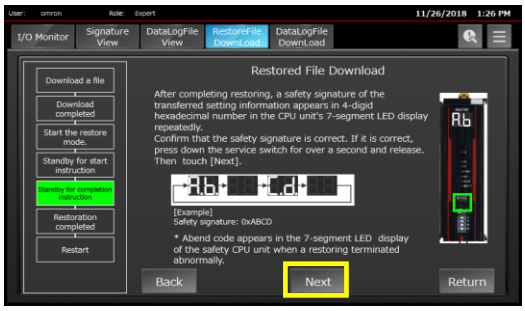
9. The NA is standing by for a start instruction.

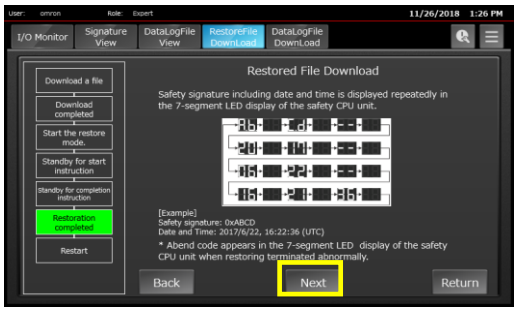
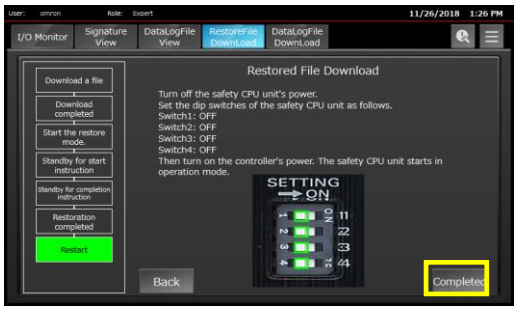
Press Next after confirming that the screen display is right.



10. The NA is standing by for a completion instruction.
Operate the service switch of the actual safety CPU unit.

Then, press Next.



11. Restoring has been completed. A safety signature including the date is displayed repeatedly. Ensure the display is correct. Then press Next.	
12. Reboot the safety CPU unit. Operate the power switch and DIP switches of the safety CPU unit in accordance with instructions on the screen. Press Completed.	

Precautions for Correct Use

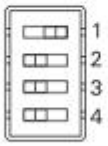
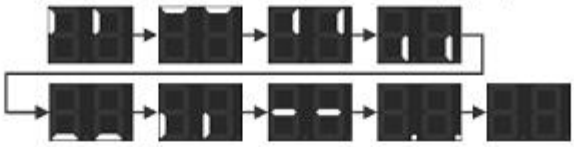
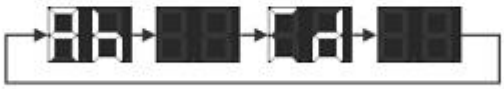
If you have logged in before downloading the restored file, the login screen does not appear. Click the Restored File Download button to go to Restore File Download screen.

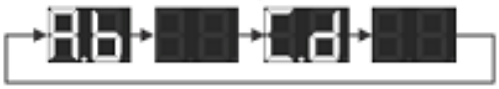
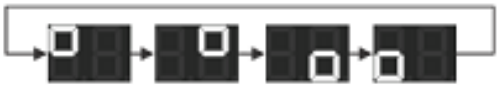
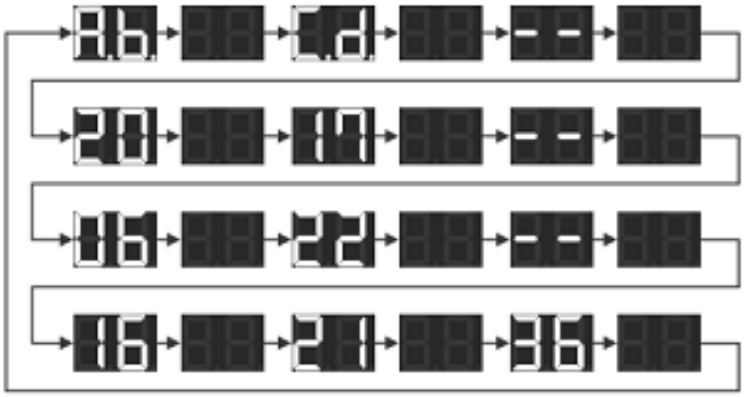
Precautions for Correct Use

Do not change the original filename, "SLSystem.dat".

Additional Information

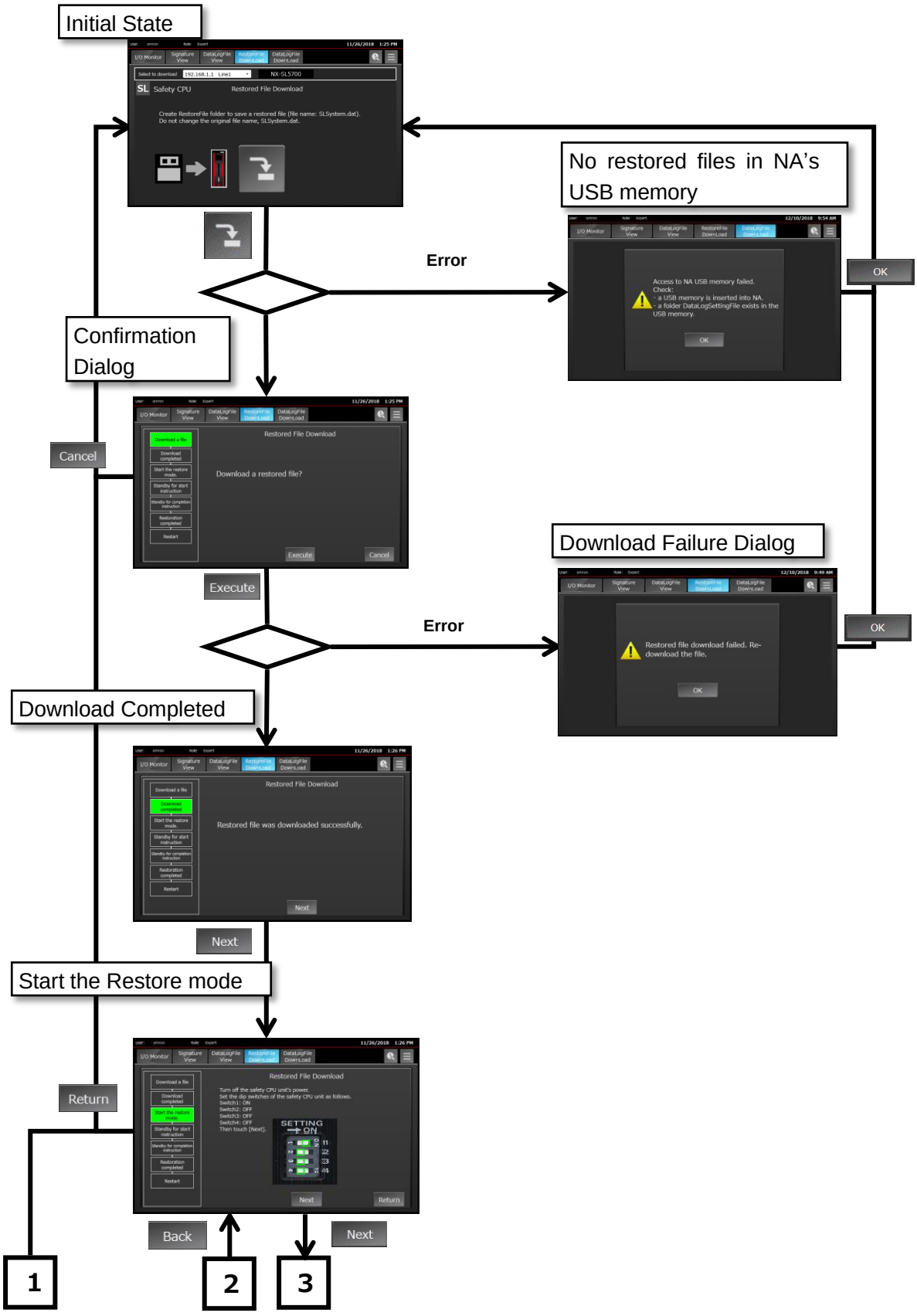
You can also restore the safety program using the dip switches and LED display on the front of the safety CPU unit.

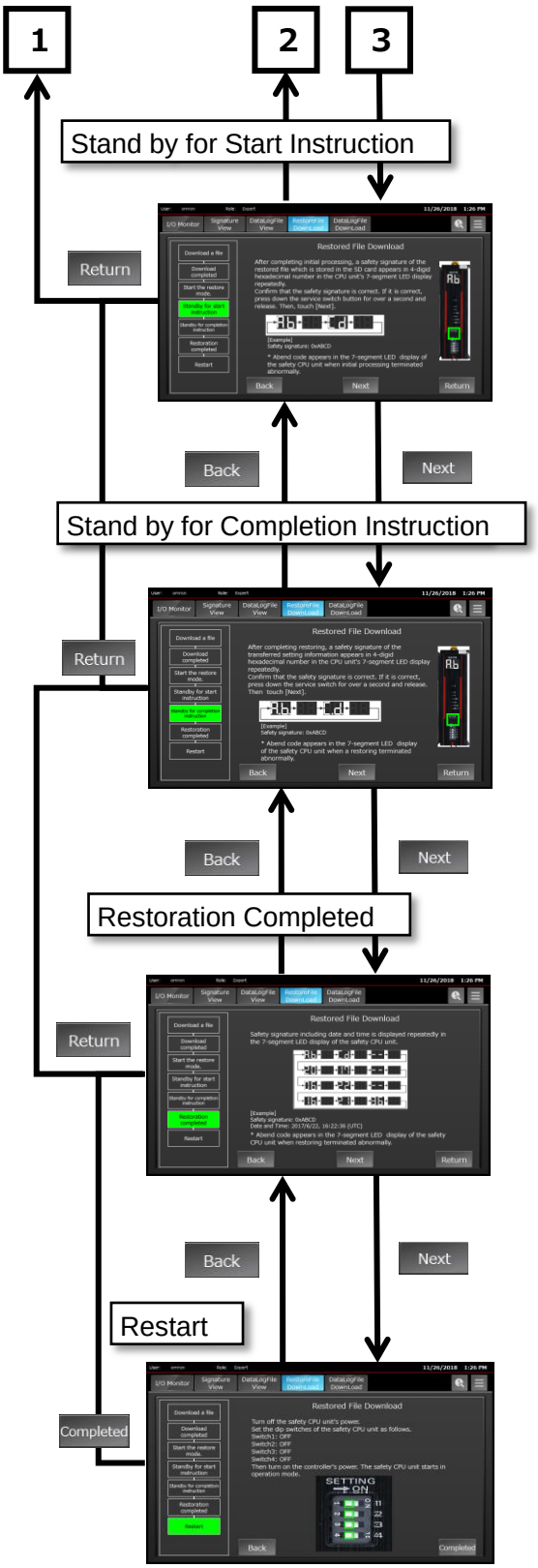
Processing stage	Procedure and Display
Insert an SD Memory Card	Insert the SD Memory Card where the Safety Unit Restore File are stored under the root directory into the NX102 CPU Unit.
Start RESTORE Mode	Set the pins 1 to 4 of the DIP switch on the Safety CPU Unit as follows: 1 to ON, 2 to OFF, 3 to OFF, and 4 to OFF, and turn ON the power supply to the Controller. The Safety CPU Unit starts in RESTORE mode. SETTING ➡ ON 
Initializing	Seven-segment indicators in the Safety CPU Unit repeat turning ON and OFF in sequence for each, to test if the devices are lit properly.  • If initialization ended in an error, an error code is shown in the seven-segment indicators in the Safety CPU Unit.
Wait for Start command	The safety signature of the Safety Unit Restore File stored in the SD Memory Card is repeatedly shown as a four-digit hexadecimal number in the seven-segment indicators in the Safety CPU Unit.  (Example: Supposing the safety signature is 0xABCD) Check the safety signature. If it is correct, press and hold the service switch for one second or more and release. Processing starts.

Processing stage	Procedure and Display
Processing	Seven-segment indicators in the Safety CPU Unit repeat turning ON and OFF in four at a time.  • If processing ended in an error, an error code is shown in the seven-segment indicators in the Safety CPU Unit.
Wait for Completion Command	The safety signature for the settings information transferred to the Safety CPU Unit is repeatedly shown as a four-digit hexadecimal number in the seven-segment indicators of the Safety CPU Unit.  (Example: Supposing the safety signature is 0xABCD) Check the safety signature. If it is correct, press and hold the service switch for one second or more and release. Completion processes starts.
Processing Completion	Seven-segment indicators in the Safety CPU Unit repeat turning ON and OFF in four at a time.  • If processing ended in an error, an error code is shown in the seven-segment indicators in the Safety CPU Unit.
Done	The safety signature including the date and time (UTC) is repeatedly shown in the seven-segment indicators of the Safety CPU Unit.  (Example: Supposing the safety signature is 0xABCD, and the date is 16:21:36 of June 22, 2017 (UTC))
Restart	After turning OFF the power supply to the Controller, set the pins 1 to 4 of the DIP switch on the Safety CPU Unit as follows: 1 to OFF, 2 to OFF, 3 to OFF, and 4 to OFF, and turn ON the power supply to the Controller. The Safety CPU Unit starts in RUN mode. 

5-4-2 Screen Transition: Safety Program Restoring

The following is the flow of restoring the safety program at site.

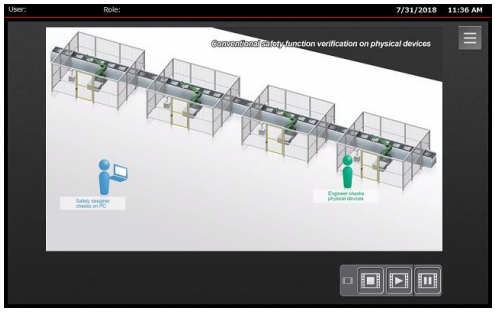
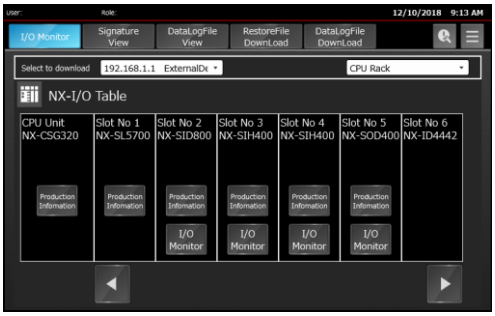
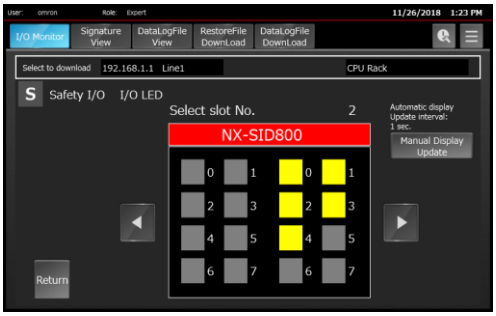
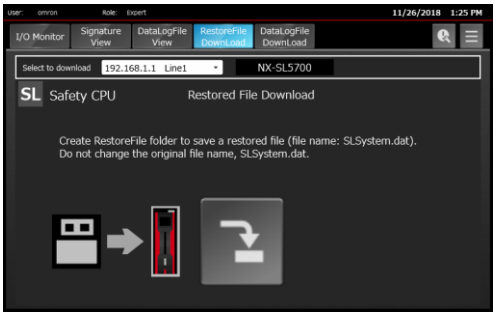
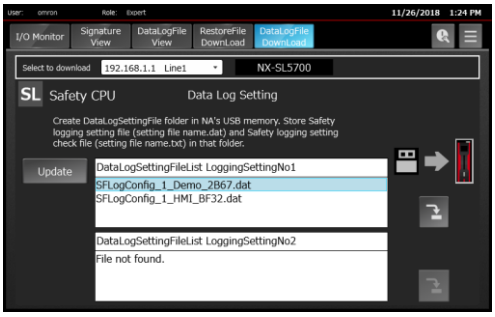


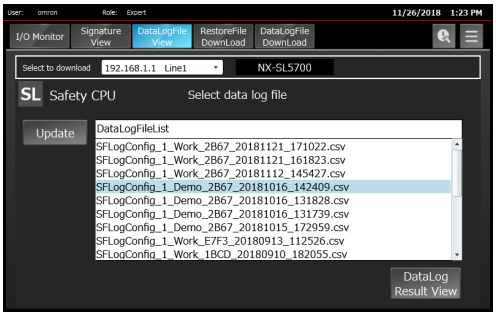
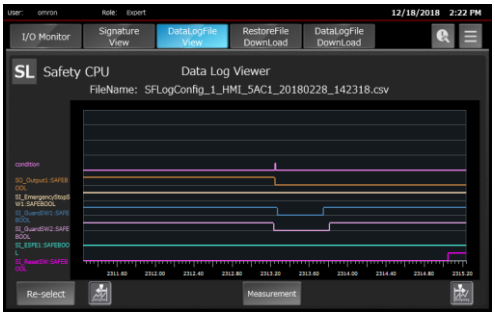
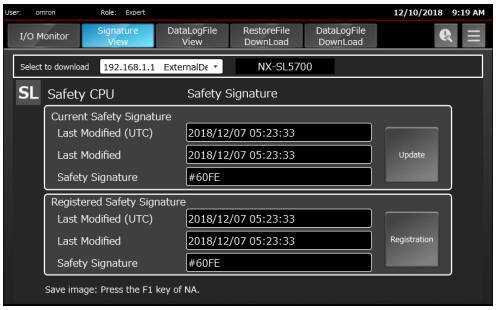

1
2
3
Stand by for Start Instruction
Return
Back
Next
Stand by for Completion Instruction
Return
Back
Next
Restoration Completed
Return
Back
Next
Restart
Completed

6 Appendix: Specifications

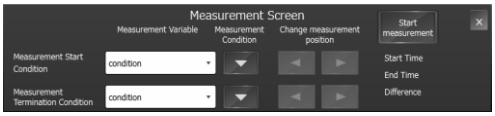
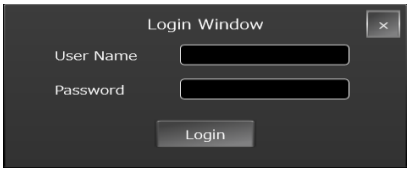
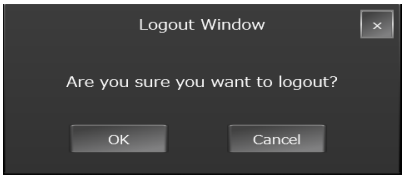
6-1 Screen Overview

・Base Screens

Menu (Initial Screen)	Safety CPU Demo Movie
	
Jump to other screens from this screen.	Play demonstration movies.
I/O Table	**Safety I/O LED Monitor**
	
Display I/O tables of the controller.	Indicate LED status of the Safety I/O.
Restored File Download	**Data Log Setting File Download**
	
Download restored files of the Safety CPU Unit to the controller.	Download data log settings of the Safety CPU Unit to the controller.

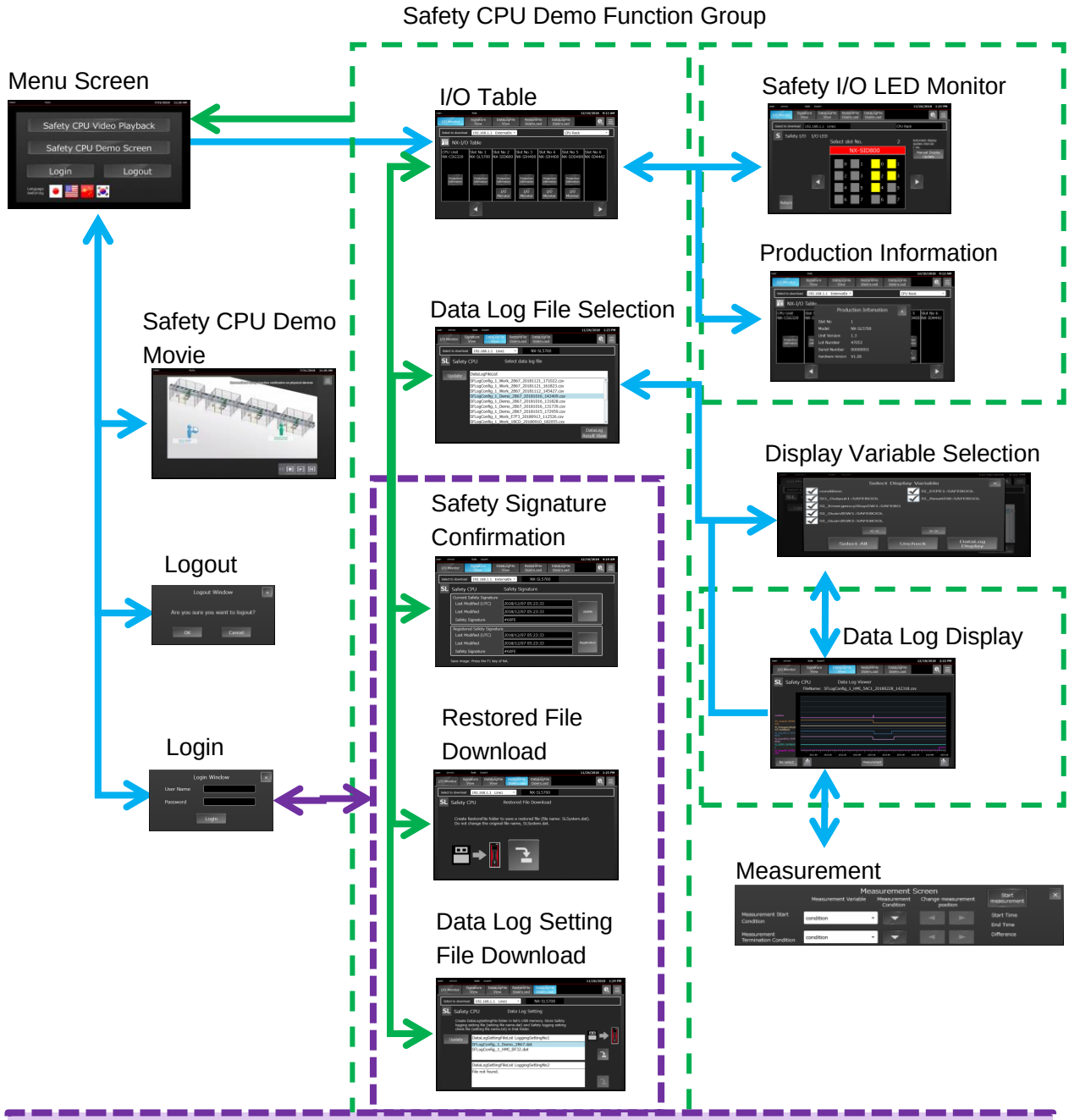
Data Log File Selection	Data Log Display
 Select the data log file to display.	 Display the selected data log file's timing chart.
Safety Signature Confirmation	
 Display the information about safety signature of the Safety CPU Unit.	

・Pop-up Screens

Display Variable Selection	Measurement
 Select the variable to display from the variables logged in the file selected on the Data Log File Selection screen.	 Display the difference between the two variables which are displayed on Data Log Display screen.
Login	**Logout**
 Execute login process.	 Execute logout process.

6-2 Screen Transition and Security Level

Screen Transition Diagram

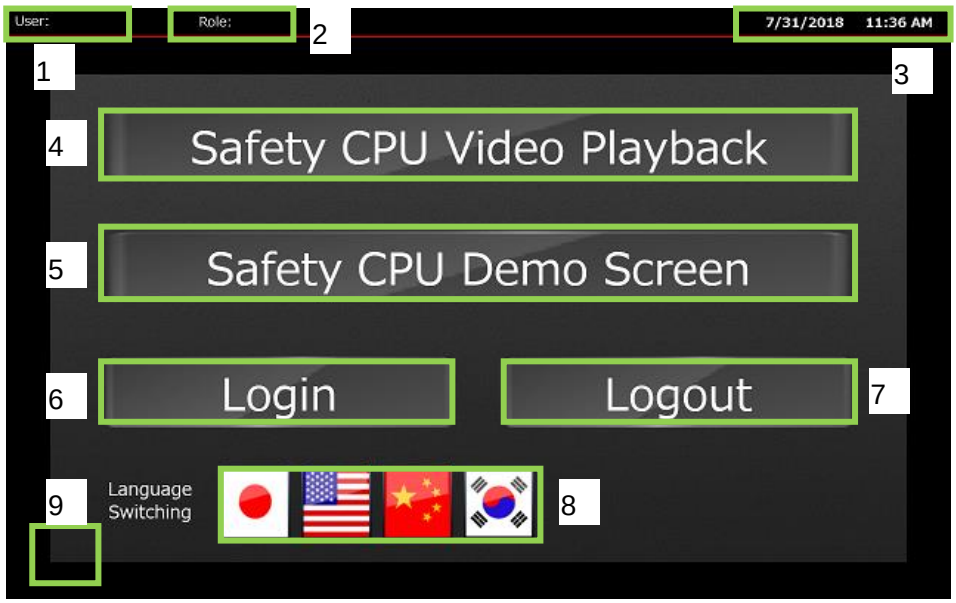


6-3 Detail Screen Specifications

6-3-1 Menu Screen

This screen is displayed when Safety CPU demo unit startups.
You can jump to each functional screen from here.

・Configuration

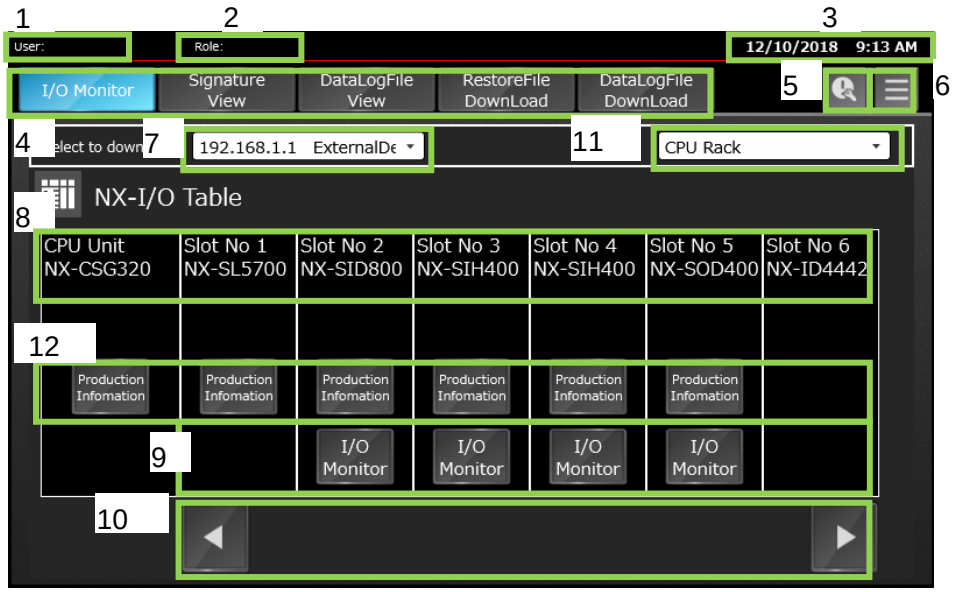


No	Part	Description
1	Data Display	Displays the user name who logging in.
2	Data Display	Shows the logging in user's authority.
3	Data Display	Displays the current time.
4	Button	Jumps to Safety CPU Demo Movie Screen.
5	Button	Jumps to Safety CPU Demo Screen.
6	Button	Jumps to Login Screen.
7	Button	Jumps to Logout Screen.
8	Button	Switches languages.
9	Button	Hidden button. Press and hold for 2 seconds to switch Chinese to Taiwanese. Every time you press and hold the button for 2 seconds, Chinese and Taiwanese are alternated.

6-3-2 I/O Table Screen

On this screen, the I/O table of the selected controller is displayed.

・Configuration

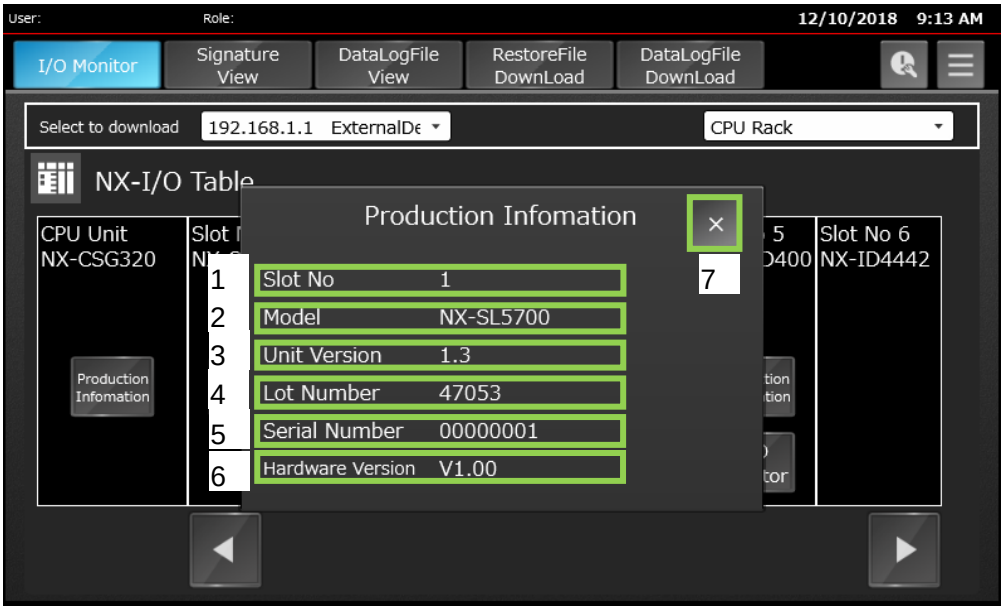


No	Part	Description
1	Data Display	Displays the user name who logging in. It's due to NA's security function.
2	Data Display	Shows the logging in user's authority. It's due to NA's security function.
3	Data Display	Displays the current time.
4	Button	Jumps to each Safety CPU Demo Screen.
5	Button	Jumps to the troubleshooter screen of the connected controller.
6	Button	Jumps to Menu Screen.
7	DropDown Button	Selects the controller to display its I/O table. Displays the I/O table of the controller chosen from the dropdown list.
8	Data Display	Displays the I/O table of the connected controller.
9	Button	Jump to the Safety I/O LED Monitor Screen of the selected slot number.
10	Button	Moves the display range when 6 or more units are connected to the controller.
11	DropDown Button	Selects the I/O table to display in [8].
12	Button	Displays the selected unit's production information.

6-3-3 Production Information Screen

Press the Detail button on a safety I/O to see the detail information about a unit.

・Configuration

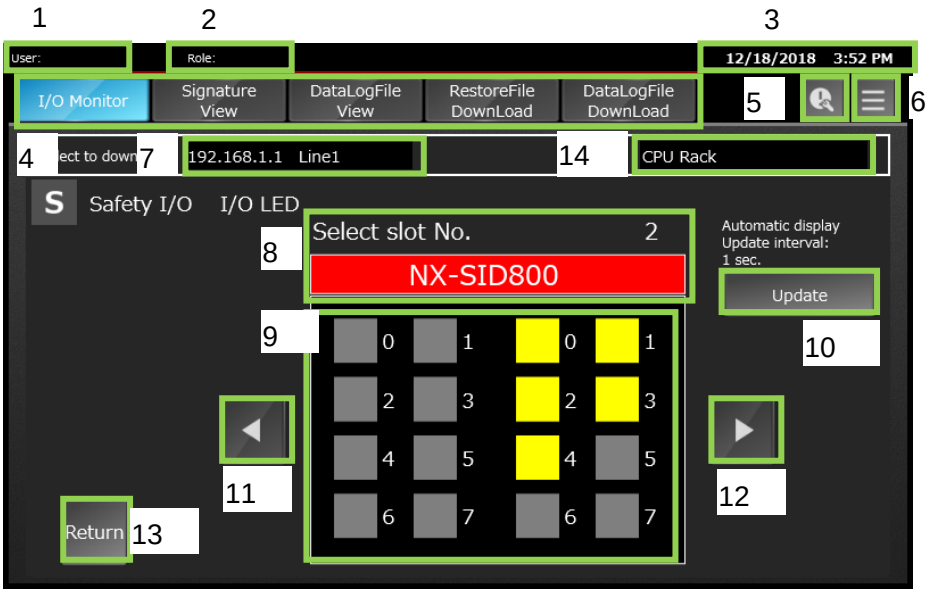


No	Part	Description
1	Data Display	Displays the slot number.
2	Data Display	Displays the unit's model.
3	Data Display	Displays the unit's version.
4	Data Display	Displays the lot number.
5	Data Display	Displays the serial number.
6	Data Display	Displays the hardware version.
7	Button	Closes the window.

6-3-4 Safety I/O LED Monitor Screen

This screen displays the LED monitor of the unit selected in “6-3-2 I /O Table Screen”.
This screen supports safety I/O units (NX SI Series and NX SO Series).
The LED status is updated at 1 second intervals. Manual update at any timing is also possible. Press the Update button (No10).
Note: It does not support the normal NX-I/O unit.

・Configuration



No	Part	Description
1	Data Display	Displays the user name who logging in.
2	Data Display	Shows the logging in user’s authority.
3	Data Display	Displays the current time.
4	Button	Jumps to each Safety CPU Demo Screen.
5	Button	Jumps to the troubleshooter screen of the connected controller.
6	Button	Jumps to Menu Screen.
7	Data Display	Displays the connecting controller’s name and IP address. They are not to be changed on this screen.
8	Data Display	Shows the selected slot number and model
9	Data Display	Displays the LED status of Safety I/O Unit.
10	Button	Updates the displaying LED status manually.
11	Button	Indicates the LED status of the unit on the left.
12	Button	Indicates the LED status of the unit on the right.
13	Button	Jumps to I/O Table Screen.
14	Data Display	Shows the selected system. Settings cannot be changed in this screen.

6-3-5 Safety Signature Confirmation Screen

The information about the safety signature owned by the connected safety CPU is displayed on this screen.
A safety program designer is able to register safety signature information in NA. It is necessary to login with the designer authority of the safety program when you register a safety signature.
Two safety signatures, one is owned by a safety CPU and the other is registered in NA, are compared. If the safety signatures are not the same, the error dialog appears. Refer to “5-2-3 Screen Transition” for details.

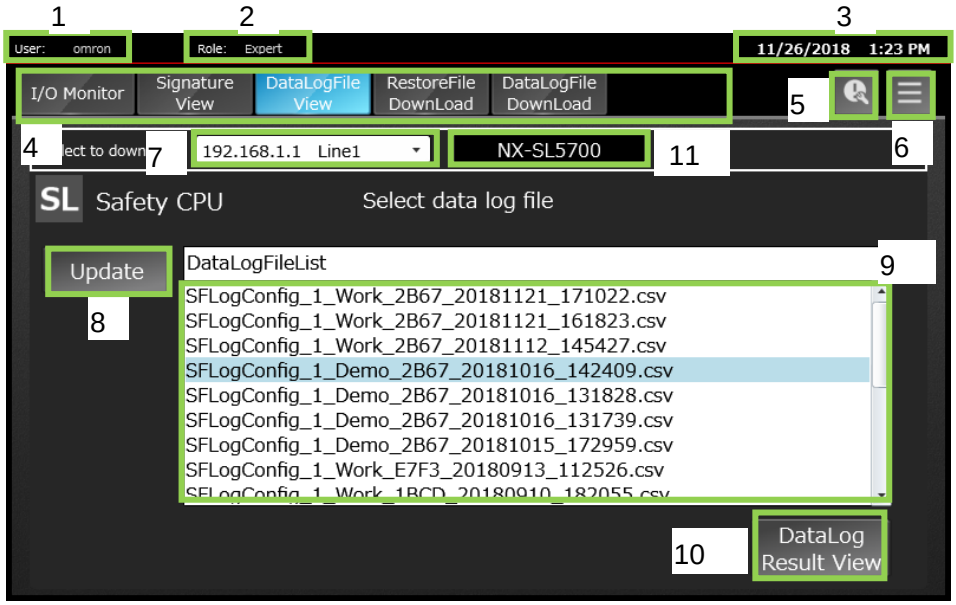
・Configuration

No	Part	Description
1	Data Display	Displays the user’s name who is logging in.
2	Data Display	Displays the logging-in user’s authority.
3	Data Display	Displays the current time of NA.
4	Button	Jumps to each safety CPU demo screen.
5	Button	Jumps to the troubleshooter screen of the connected controller.
6	Button	Jumps to the Menu screen.
7	DropDown Button	Selects the controller to display its safety signature information. The safety signature of the controller which is selected from the dropdown list is shown in [8].
8	Data Display	Displays the safety signature information of a safety CPU.
9	Button	Updates safety signature information.
10	Data Display	Shows the registered safety signature’s information.
11	Button	Registers the safety signature information of a safety CPU in NA.
12	Data Display	Displays the unit model of the connected safety CPU.

6-3-6 Data Log File Selection Screen

A list of data logging result files saved in Safety CPU's SD card is displayed. You can select a file from this list.
Press the DataLog Result View button (No.10) after selecting the file and the screen will be changed to Variable Selection Screen.

・Configuration

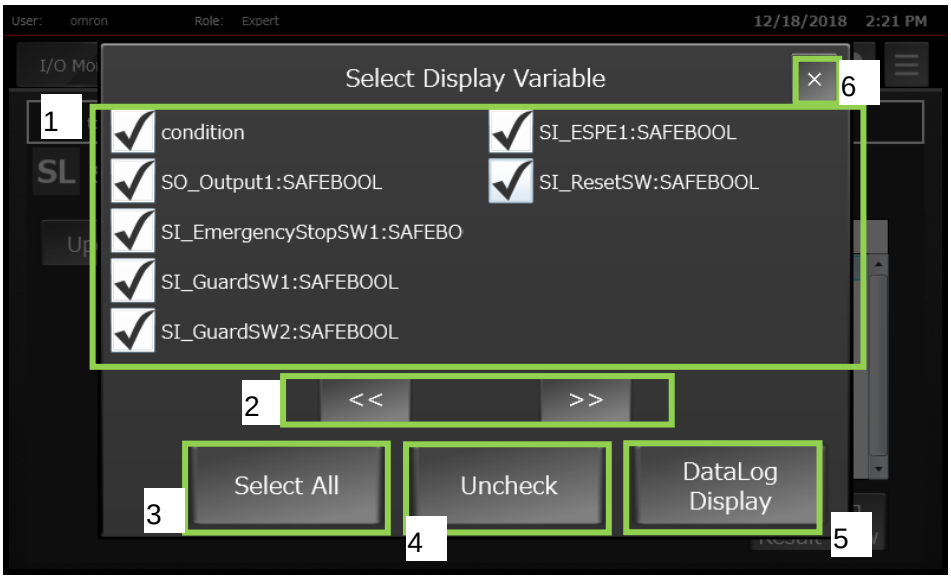


No	Part	Description
1	Data Display	Displays the user name who logging in.
2	Data Display	Shows the logging in user's authority.
3	Data Display	Displays the current time.
4	Button	Jumps to each Safety CPU Demo Screen.
5	Button	Jumps to the troubleshooter screen of the connected controller.
6	Button	Jumps to Menu Screen.
7	DropDown Button	Selects the controller to display its data log file. Displays the data log file list of the controller selected from the dropdown list in [9].
8	Button	Updates the data log file list displayed in 9.
9	ListBox	Displays a list of data log files stored in the SD card of the Safety CPU. A file is selected in this box.
10	Button	Opens the file selected in 9 and move to Variable Selection Screen.
11	Data Display	Shows the connected safety CPU's unit model.

6-3-7 Display Variable Selection Screen

A list of variables that logged in the data log file selected in the previous section, “6-3-6 Data Log File Selection Screen”, is shown in this screen.
Select the variable to display on Data Log Display Screen.
You can choose up to 10 variables.

・Configuration



No	Part	Description
1	Check Button	Display the variables that are logged in the data log file. Select any variables here. Up to 10 variables are displayed on one screen.
2	Button	Available if 10 or more variables are logged. Switches the variables to be displayed.
3	Button	Selects all the variables on the screen.
4	Button	Deselects all the variables selected with [1].
5	Button	Moves to the Data Log Display screen. This button doesn’t work unless at least one variable is selected ([1]).
6	Button	Closes this screen to jump to the Data Log File Selection screen.

6-3-8 Data Log Display Screen

Data log of the variable which selected in “6-3-7 Variable Selection Screen”.

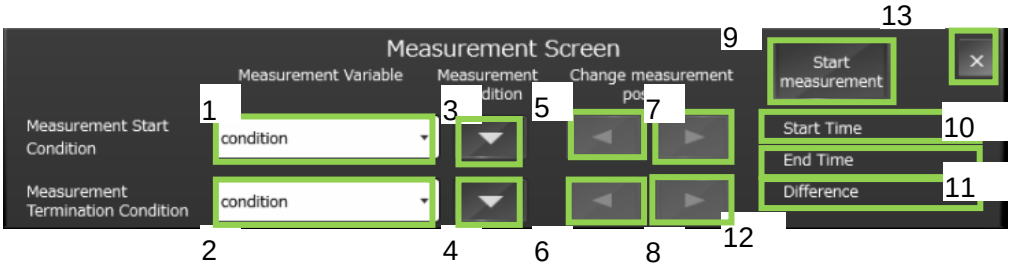
・Configuration

No	Part	Description
1	Data Display	Displays the user name who logging in.
2	Data Display	Shows the logging in user’s authority.
3	Data Display	Displays the current time.
4	Button	Jumps to each Safety CPU Demo Screen.
5	Button	Jumps to the troubleshooter screen of the connected controller.
6	Button	Jumps to Menu Screen.
7	Data Display	Shows the selected data log file name.
8	Data Display	Displays the selected variable.
9	BrokenLineGraph	Indicates the data logging result of the selected variable.
10	Button	Jumps to Variable Selection Screen.
11	Button	Left-scrolls through a graph of the data logging result.
12	Button	Right-scrolls through a graph of the data logging result.
13	Button	Jumps to Measurement Screen.

6-3-9 Measurement Screen

The elapsed time for the two triggers of the variable that is displayed on Data Log Display Screen, described in 6-3-8, is measured in this screen.

・Configuration

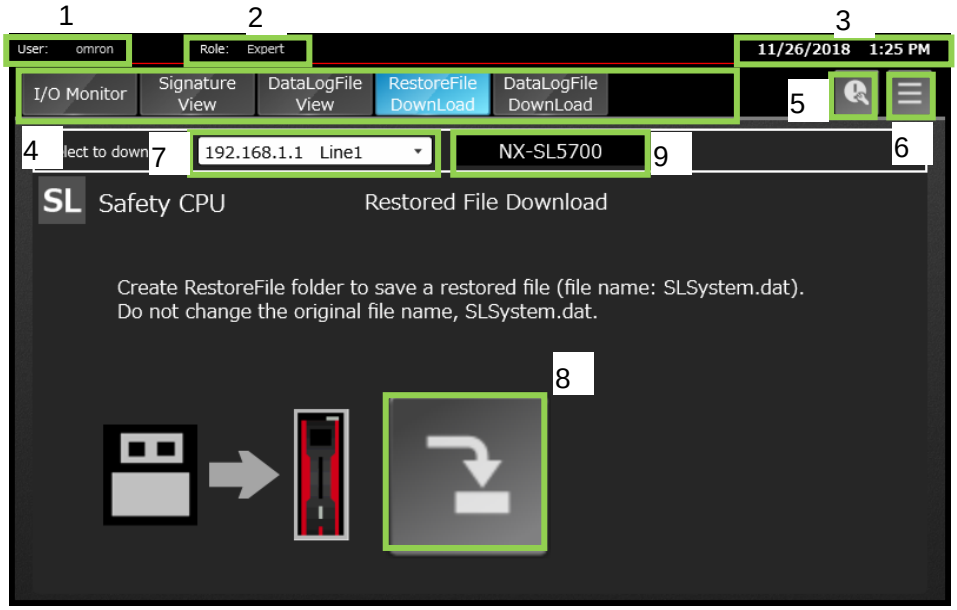


No	Part	Description
1	Drop Down	Selects a variable for the measurement start condition.
2	Drop Down	Selects a variable for the measurement termination condition.
3	Button	Selects a measurement condition for the measurement start condition: rising or falling.
4	Button	Selects a measurement condition for the measurement termination condition: rising or falling.
5	Button	Searches for a position that satisfies the trigger condition forward from the position where the trigger is currently applied under the measurement start condition.
6	Button	Searches the position where the trigger condition is satisfied forward from the position where the trigger is currently applied under the measurement termination condition.
7	Button	Searches the position that satisfies the trigger condition backward from the position where the trigger is currently applied under the measurement start condition.
8	Button	Searches the position that satisfies the trigger condition backward from the position where the trigger is currently applied under the measurement termination condition.
9	Button	Starts measuring.
10	Data Display	Displays the time when the trigger condition of the measurement start condition is satisfied.
11	Data Display	Displays the time when the trigger condition of the measurement termination condition is satisfied.
12	Data Display	Displays the difference between the measuring start time and end time.
13	Button	Closes this screen.

6-3-10 Restored File Download Screen

Download the restored file of the Safety CPU Unit stored in NA's USB memory to controller's SD card.
Create a new folder "RestoreFile" in the USB memory beforehand. Store the file (SLSystem.dat) to be restored in the folder.

・Configuration

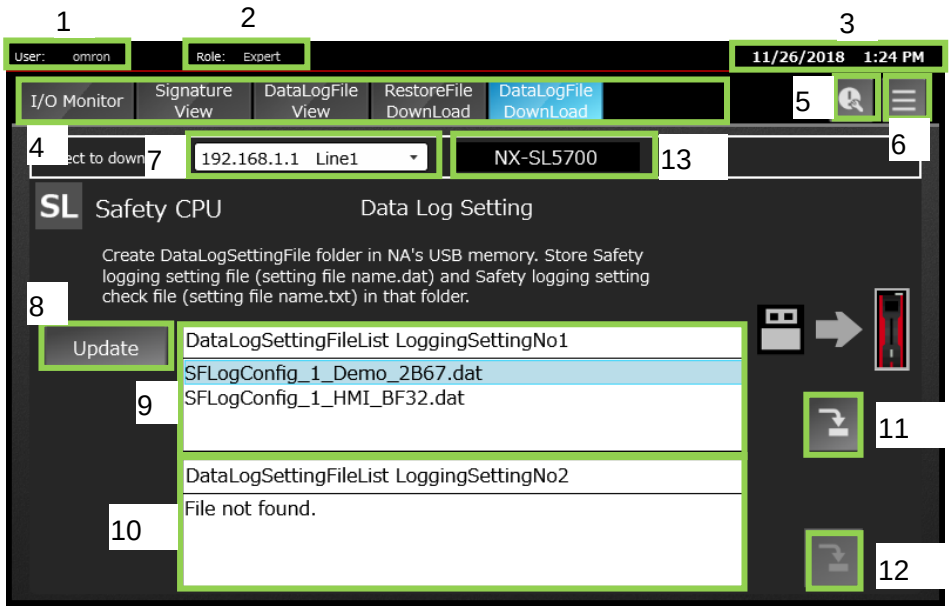


No	Part	Description
1	Data Display	Displays the user name who logging in.
2	Data Display	Shows the logging in user's authority.
3	Data Display	Displays the current time.
4	Button	Jumps to each Safety CPU Demo Screen.
5	Button	Jumps to the troubleshooter screen of the connected controller.
6	Button	Jumps to Menu Screen.
7	DropDown Button	Select a controller in where a restored file is downloaded. A restored file will be downloaded in the controller selected from the dropdown list.
8	Button	Downloads the restored file.
9	Data Display	Shows the connected safety CPU's unit model.

6-3-11 Data Log Setting File Download Screen

Download a data log setting file stored in NA's USB memory to controller's SD card.
Create a new folder "DataLogSettingFile" in the USB memory beforehand.　Store a safety logging setting file (setting file name.dat) and a safety logging setting check file (setting file name.txt) in the folder.

・Configuration



No	Part	Description
1	Data Display	Displays the user name who logging in.
2	Data Display	Shows the logging in user's authority.
3	Data Display	Displays the current time.
4	Button	Jumps to each Safety CPU Demo Screen.
5	Button	Jumps to the troubleshooter screen of the connected controller.
6	Button	Jumps to Menu Screen.
7	DropDown Button	Select a controller in where a restore file is downloaded. The restored file will be downloaded in the controller selected from the dropdown list.
8	Button	Downloads the restore file.
9	ListBox	Displays to select a logging file list of logging setting No.1.
10	ListBox	Displays to select a logging file list of logging setting No.2.
11	Button	Downloads the logging file selected in 9.
12	Button	Downloads the logging file selected in 10.
13	Data Display	Displays the connected safety CPU's unit model.

6-3-12 Safety CPU Demo Movie Screen

Safety CPU demonstration movies are played on this screen. Both Japanese and English are available.
Different movie is played according to the language.

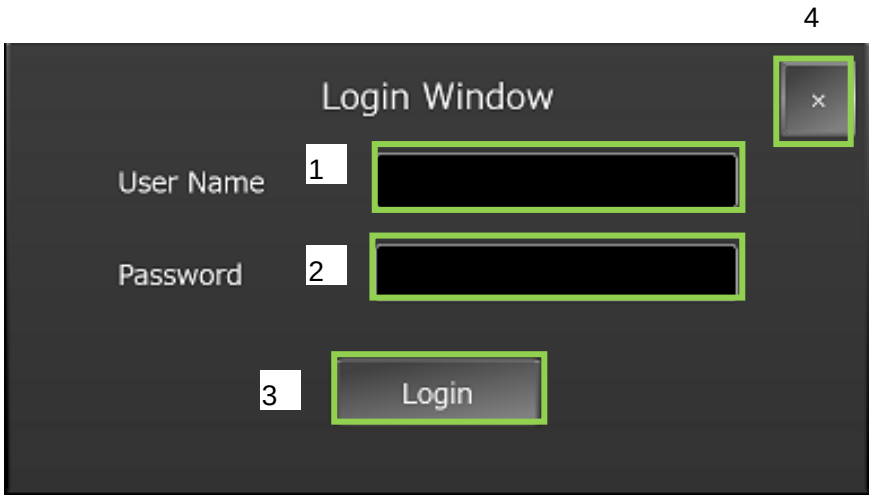
・Configuration

No	Part	Description
1	Data Display	Displays the user name who logging in.
2	Data Display	Shows the logging in user’s authority.
3	Data Display	Displays the current time.
4	Media Player	Plays the Safety CPU demo movie.
5	Button	Jumps to Menu Screen.
6	Button	Stops the movie.
7	Button	Starts the movie.
8	Button	Pauses

6-3-13 Login Screen

Execute login processing here.

・Configuration

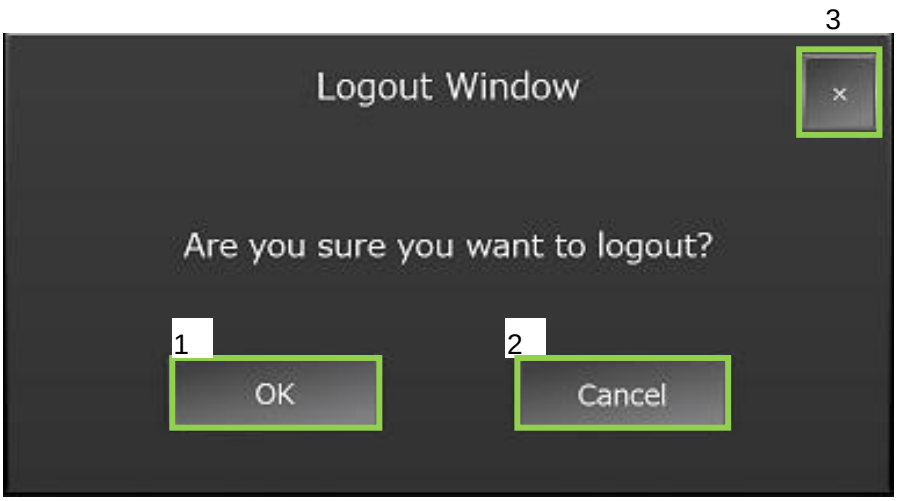


No	Part	Description
1	Data Edit	Enters Username
2	Data Edit	Enters user password.
3	Button	Implements login processing.
4	Button	Closes this screen.

6-3-14 Logout Screen

In this screen, a logout process is implemented.

・Configuration



No	Part	Description
1	Button	Implements logout processing.
2	Button	Closes this screen without logout processing.
3	Button	Closes this screen.

Revision History

Revision Code	Date	Revision Description
01	July 2018	Original production
02	December 2018	Added new functions
03	February 2019	Correction of erroneous description

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