

Machine Interface

Soft NA Series



Bringing technology to life

Sysmac - the platform that meets every requirement

Omron's NA Series HMI enables faster, more efficient control and monitoring. As part of the Sysmac automation platform, it transforms machine data into actionable information and helps visualize controls devices based on requirements at FA manufacturing sites.

With a widescreen displaying 16,770,000 colors, the NA Series is dynamic, intuitive and predictive. This makes industrial machines more attractive and competitive.





1S AC Servo System

FH Vision System

NX I/O
NX Safety

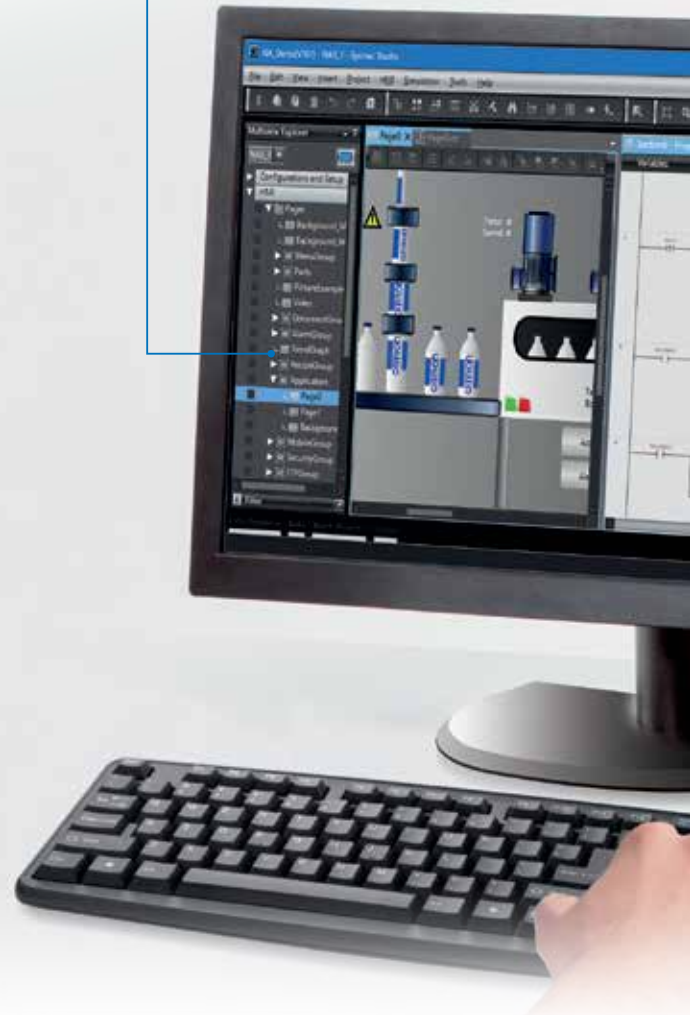
NJ/NX/NY Controller

Integrating your world

As the centerpiece of the Sysmac platform, Sysmac Studio brings together all areas of automation, including logic, motion, vision, safety and visualization. The NA Series can be programmed alongside other devices in a single integrated project to speed up development.

ONE Tag Database

- Share NJ/NX/NY Controller Variables (Tags) in the machine interface application.
- Variables shared with controller reduce the time and complexity of programming.
- Define/use NA data structures in the machine interface application



ONE Learning, ONE Project

- Program your controller and safety systems.
- Simultaneously program the NA Series as device in Sysmac Studio.
- Program your whole machine in one project.
- Work in a familiar way on all devices.

Editors in ONE

- Display both controller and HMI editors on one screen for quick design.

Safe and secure

- Configure individual users with multi access levels.

SIMPLE

- Clearly and quickly define the View.
- Quickly change properties, animations, events and actions.
- Powerful page editor to group objects.
- Rotate, and resize - all with a simple click.

BUT STILL FLEXIBLE

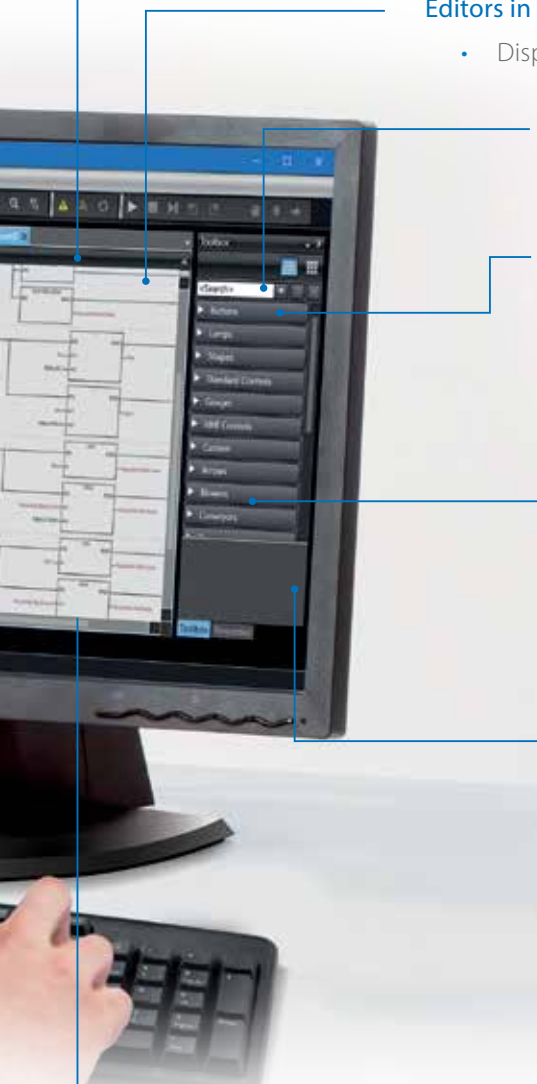
- Write your Visual Basic Script.
- Extend the possibilities with Visual Basic.

Test it in ONE

- Integrated testing through simulation of programs on controller and HMI at the same time.
- Checking your device operation at the same time makes debugging quicker and easier.
- Quickly test your device operations via the Simulator.

Features for speed

- Structured programming (through One software)
- Network device insight
- Vision setup
- Machine Controller troubleshooting



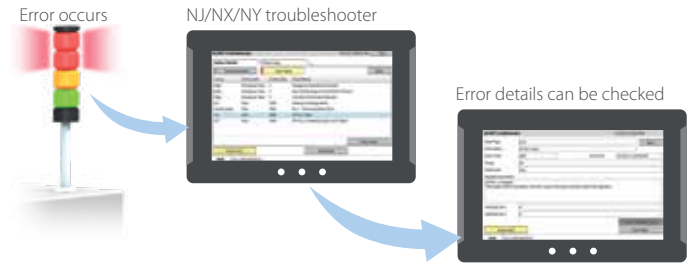
Keep your machine running

If something unexpected happens in your machine, it is crucial to identify the cause and solve the problem quickly.

As part of the Sysmac automation platform, the NA Series helps minimize machine downtime.

Troubleshooter

The Troubleshooter on the NA Series allows you to directly monitor and release the NJ/NX/NY Controller errors and events as well as the user-defined errors and events. There is no need for support software running on a PC.



Safety Monitor

N E W

The NA Series can directly access safety CPU units and safety I/O units, which was previously impossible. There is no need to create any special screen to monitor their device variables and I/O settings.

The I/O Matrix Monitor displays device variables and external exposed variables used in safety programs, allowing you to see outputs (error state) and corresponding inputs (causal condition).

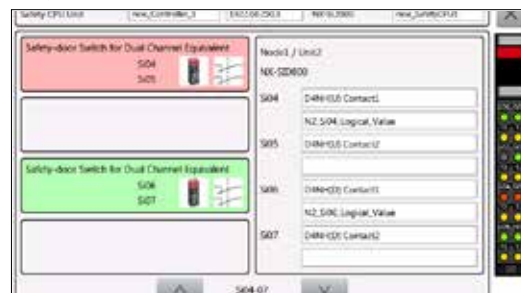


The Safety Input/Output Unit Monitor shows the ON/OFF status of safety I/O units and information on components connected to individual I/O terminals, enabling efficient monitoring of the entire system including safety components.

Safety CPU unit



Safety I/O unit

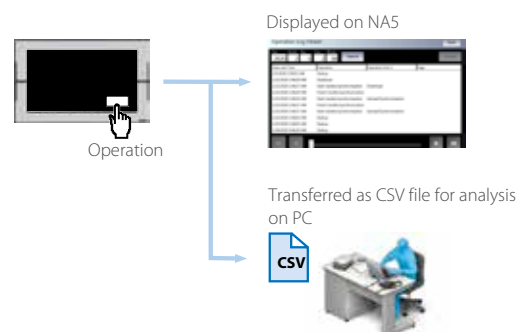


Automatic log transfer to server

NEW

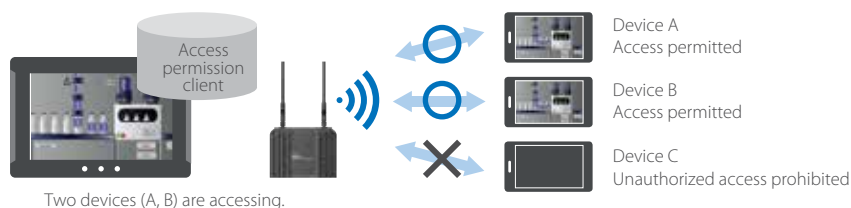
The errors that the system detects and the operations that operators perform can be logged. The logs can be automatically transferred to the server as well as displayed on the NA Series and displayed as CSV files on your PC.

You can see who and when did what in a chronological order, helping you analyze errors.



Remote access

- You can view and operate the HMI installed at production sites from your tablet using Ethernet or WiFi.
- The access of remote devices can be managed and limited. This helps prevent accidental operation and information leakage, while securing accessibility.



Increased security

The NA Series can be configured to specific staff, with multi access levels with password protection. This ensures only authorised people will interact with the machine.



Protecting your assets

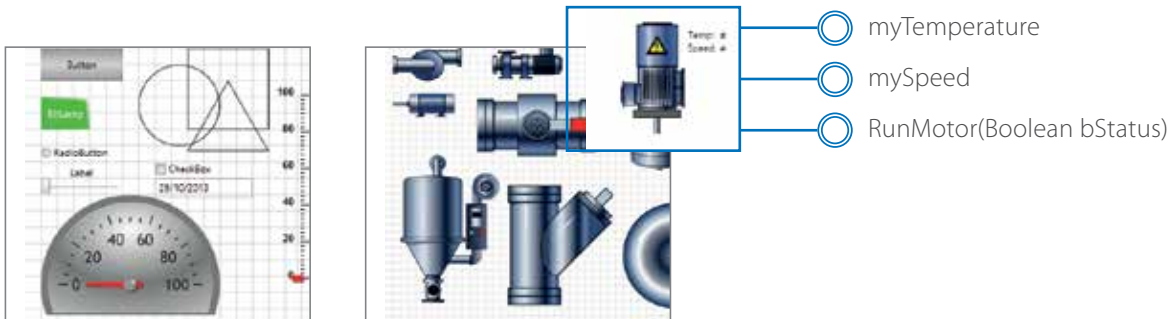
- Your project can be password-protected along with other applications (Control and Safety).
- Transferring data can be protected (disable overwrite or theft).

A simple yet flexible design

The NA Series gives the user the ability to design using IAGs (Intelligent Application Gadgets). IAGs simplify and accelerate the development process through structuring the project and enhancing reuse. From simple graphics to complex objects, you can make your own collections and share them between projects, like a Function Block.

Step 1: Machine Parts, the Visual

Using standard controls, or graphics from the machine parts collection, design your own IAG. Add interface properties and methods to bring the object to life when reused.



IAG Code behind - Add local subroutines for the IAG.

```
Public Function RunMotor(bStatus As Boolean) As Double
    'start motor at default speed
    mySpeed = 50
    'return current speed
    RunMotor = 50
End Function
```

End Function

```
Public Function IncreaseSpeed(nIncrement As Integer) As Double
    'Increases speed by increment if < 1000
    If mySpeed + nIncrement < 1000 Then
        mySpeed = mySpeed + nIncrement
    Else
        'Otherwise set to top speed
        mySpeed = 1000
    End If
    'Return new speed
    IncreaseSpeed = mySpeed
End Function
```

End Function

Step 2: Extensible with Visual Basic

As well as many graphic IAGs, it is also possible to embed code within an IAG. The code can extend the possibilities of the gadget such as providing special device communication. Thanks to Visual Basic, the standard functionality of the NA can be extended as required.

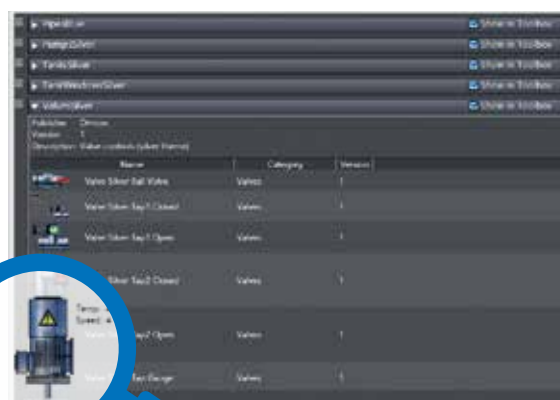


Step 3: Publish and Share

When the IAG is built and tested (using simulation), it can be published and the collection file distributed to be used again and again. Omron will release further IAG collections to extend the functionality of the NA Series.



3



A range of options that covers every need

NA5

Simultaneously stylish and functional

All wide screen models: 7, 9, 12, 15 inch

Black and Silver

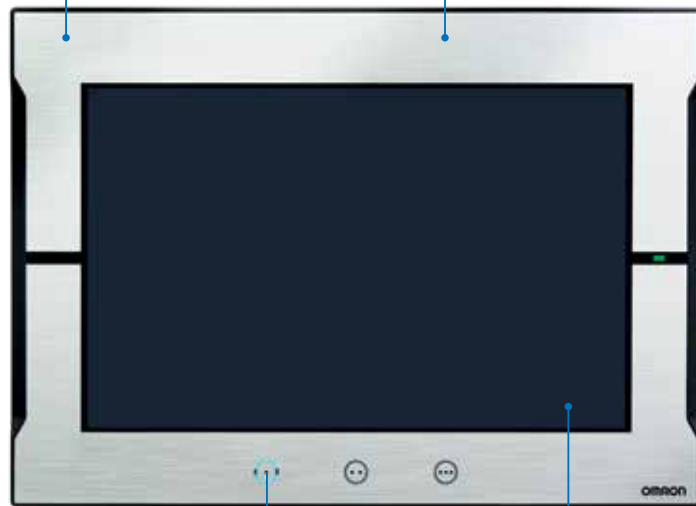
Sysmac
cutout
design

Edge-to-edge
design

RUN
indicator

Function keys
programmable to execute
specific actions

Resistive touch screen, single touch ideal for
environments where operators wear gloves and
waterproof technology is needed



Widescreens displaying 16,770,000 colors



- 16,770,000 display colors (24 bit full colors)
- High-resolution display
1,280 x 800 resolution for 12-inch and 15-inch models
800 x 480 resolution for 7-inch and 9-inch models

Soft-NA**N E W****NA functions work on Windows**

Soft-NA is application software that provides NA functions.

The use of this software with hardware that suits your requirements offers a more flexible way of using the NA Series. You can monitor and collect machine or line data on a PC in the office, and can link an on-site industrial PC with NA functionality to other application software.

**Reusable NA assets**

The previously created NA screen data can be used eliminating the need to create screen data from scratch. When using both an industrial PC and NA Series in your machine, you can integrate the NA functions into the industrial PC. This allows only one display to be used for the machine, reducing complexity and costs of the machine.



Industrial PC
(NYB/NYP Windows 10)



NA5

SHOW your machine

- Greater visualization into your machine

More than 16 million display colors (24-bit full color)

High-resolution bitmap graphics*1 and 67 different types of fonts can be used to create intuitive and good-looking screens. In addition, DXF files are supported to display CAD data. Even if the drawing is enlarged or reduced in size, it never loses quality.



*1.Contact your Omron representative to obtain Cool Objects.

Indirect reference of text strings

A text string that is displayed on a label object (1 line) or a text box object (1 or more lines) can be switched by indirect reference. The machine operating status and alarm details can be easily displayed.



Register a new resource group.



Set a variable for the ID to switch the group in the properties.



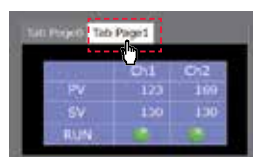
When the ID is specified by the variable, the text string is displayed according to the ID.

Tab control

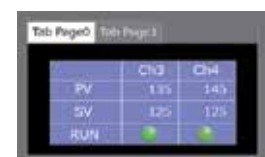
A part of the screen can be used like a notepad.

Up to 64 tab pages for a Tab Control object can be created, and up to 10 Tab Control objects can be placed on a screen.

Change a tab page instead of a screen to monitor/change various data.



Touch



Tab Page1 is displayed

Setting, sorting, and filtering alarms

Alarms can be set easily, reducing time and effort required for creating alarm screens.

• Improved User Alarms Viewer

Select an item from the drop-down menu.

The column width and title can be changed.

You can quickly create the desired alarm screens.

You can “sort” alarms by the preset item and “filter” by any keyword. The error location can be quickly identified from a large number of alarms.

• Sorting

Select either ascending or descending order.

Touch the header to switch between ascending and descending order.

The preset item is used for sorting.

• Filtering

Select the fault level to display.

The filtered alarms are displayed.

Scaling

Scaling can be set for Data Display/Data Edit objects and global variables.

Values of variables can be converted by specifying conversion expressions, which makes it easy to show data in the controller.

Value of NJ/NX/NY variable: 10,000,000

Result 10,000,000ns
Not scaled

Result 0.1 seconds
Scaled by specifying 1/100,000,000

Broken-line graphs

Data of variables and multidimensional arrays in the controller can be displayed as broken-line graphs. Broken-line graphs can also be created from the data in the CSV files saved in the SD card inserted in the NJ/NX/NY Controller by using subroutines (Visual Basic). You can specify the display range of large array data, such as operation log, by setting the offset value.

Multidimensional array

The offset can be specified from the start of the display range.

Graph display range

Increases the compatibility with the controller.

Comfortable use for machine operation

Supporting Asian languages

An Asian language - Japanese, simplified Chinese, traditional Chinese, or Korean - can be selected to use in the keypad of the NA Series.

The keypad language changes automatically when the language is changed in the language settings.

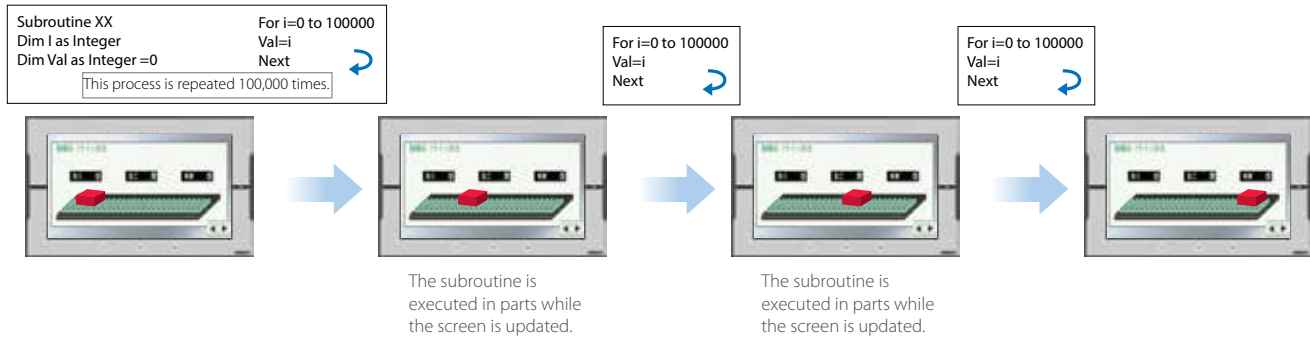
Local languages can be used to input the names of products when new recipes of the food packaging machine are added.



Executing a subroutine with multiple threads

Some subroutines require time due to repeated processing or waiting time.

Even such a subroutine can be executed during screen update, without affecting operability and visibility.



Page jump from user alarm

The page to switch can be specified in each alarm setting.

When an alarm occurs, you can check the troubleshooter screen by selecting the displayed alarm.

| Group0 X | | | | | | | | | |
|--------------------|-----------|------------|-------------|--------------------|---------|--------------------------|--------------------------|-------|--|
| Group Display Name | | | | | | | | | |
| Name | Alarm ID | Alarm Code | Expression | Priority | Message | Popup | Acknowledge | Page | |
| A1 | Group0_A1 | | Alarm1=True | User Fault Level 1 | Alarm1 | <input type="checkbox"/> | <input type="checkbox"/> | Page1 | |
| A2 | Group0_A2 | | Alarm2=True | User Fault Level 1 | Alarm2 | <input type="checkbox"/> | <input type="checkbox"/> | Page5 | |
| A3 | Group0_A3 | | Alarm3=True | User Fault Level 1 | Alarm3 | <input type="checkbox"/> | <input type="checkbox"/> | Page4 | |
| A4 | Group0_A4 | | Alarm4=True | User Fault Level 1 | Alarm4 | <input type="checkbox"/> | <input type="checkbox"/> | Page3 | |
| A5 | Group0_A5 | | Alarm5=True | User Fault Level 1 | Alarm5 | <input type="checkbox"/> | <input type="checkbox"/> | Page2 | |

The page to switch can be specified in each alarm setting.

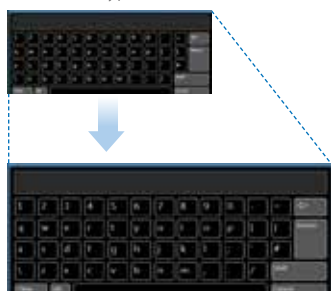


Customizing keypads and resizing objects

You can change the keypad size, choose only the keys you need, and customize the keys to execute specified actions. Create your own keypad suitable for your applications.

The size of the Check Box, Slider, and Radio Button objects can also be changed. You can greatly improve the usability of your machine by enlarging these objects in size.

• Custom keypads



Changing the keypad size

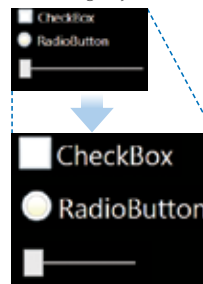
The size can be changed to suit the user's needs.



Creating user's own keypad

Only the keys the user needs can be chosen, and the keys to execute specified actions can be customized.

• Resizing object



Resizing objects

The properties of the object size are added. You can resize the objects suitable for your application.

Dynamically changing upper/lower limit value

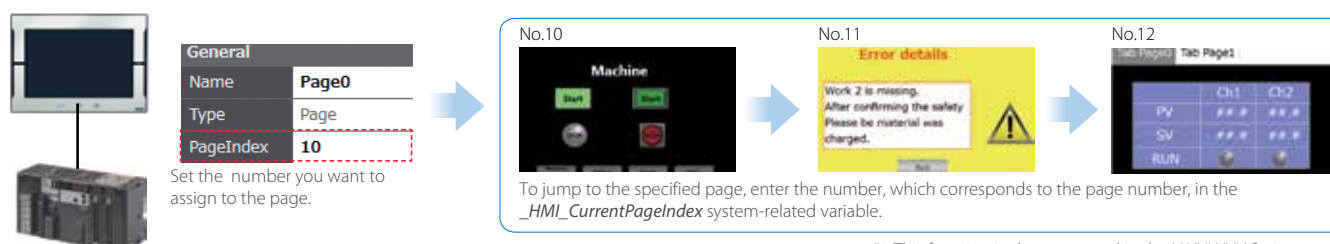
The upper and lower limit values can be dynamically changed by setting variables as maximum and minimum values of a Data Edit object. It is possible to restrict input according to the status of the machine.



Specifying a page number

By assigning any number to the page, you can easily switch pages from the PLC.

The previously required subroutine is no longer needed for this operation. This feature is particularly helpful when you use the CJ PLC in which pages are frequently specified by number.*1



*1 This function is also supported in the NJ/NX/NY Series.

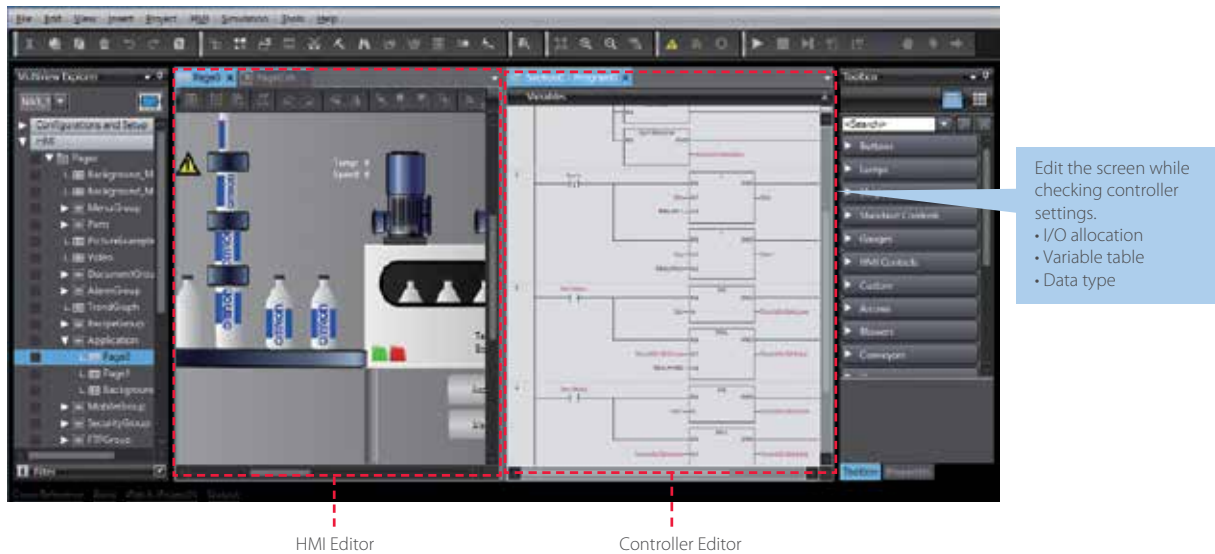
Simple screen design for better usability

Integrated development environment

Sharing data between the NA Series and the NJ/NX/NY Series in real time on the Sysmac Studio increases design productivity.

Displaying editors on one screen

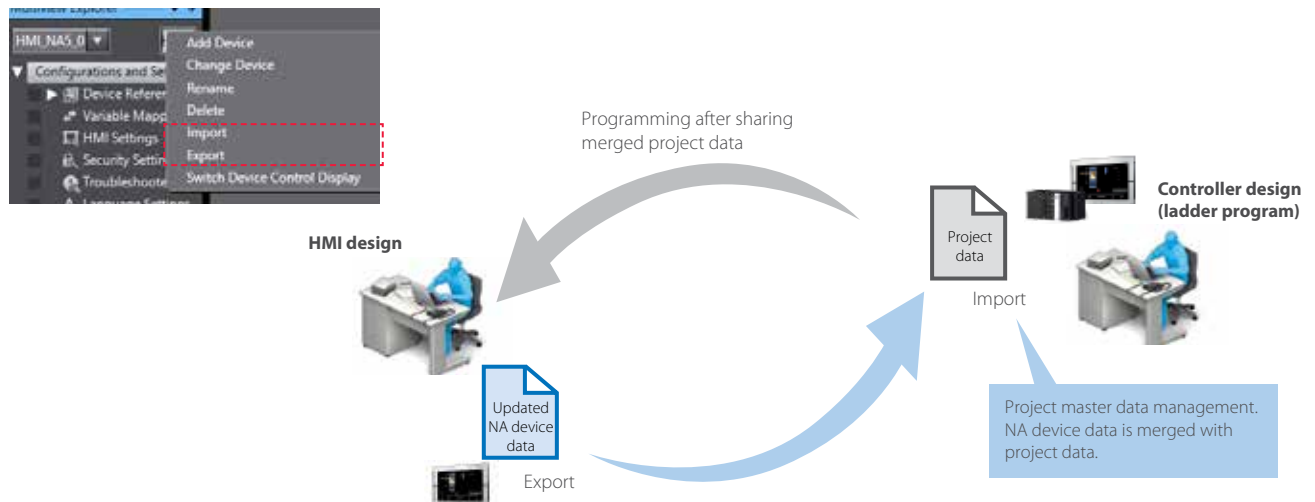
The NA HMI Editor and NJ/NX/NY Controller Editor can be displayed on one screen. This eliminates the need to switch between screens, making the design easier and faster.



Concurrent development of ladder and HMI

Device data of the NA Series can be imported from and exported to the project file.

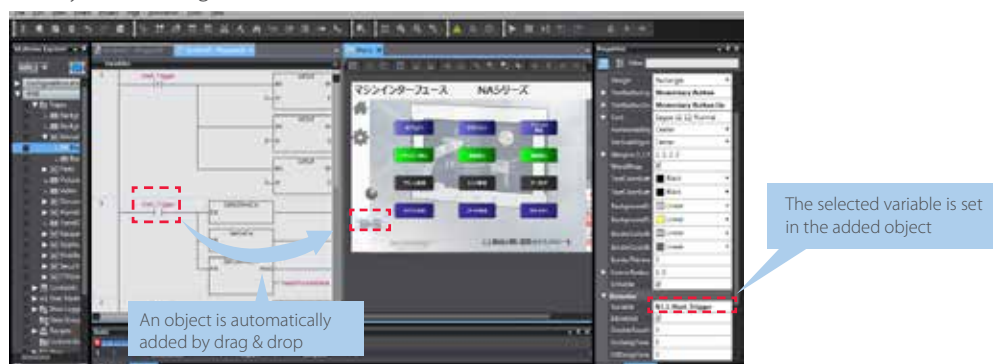
When the controller designer and HMI designer develop a machine concurrently, the screen data can be merged with the controller project.



Adding an object by drag & drop

Just drag a variable from the Ladder Editor in the NA Page Editor to add an object. The variable is automatically set in the property of the added object.*

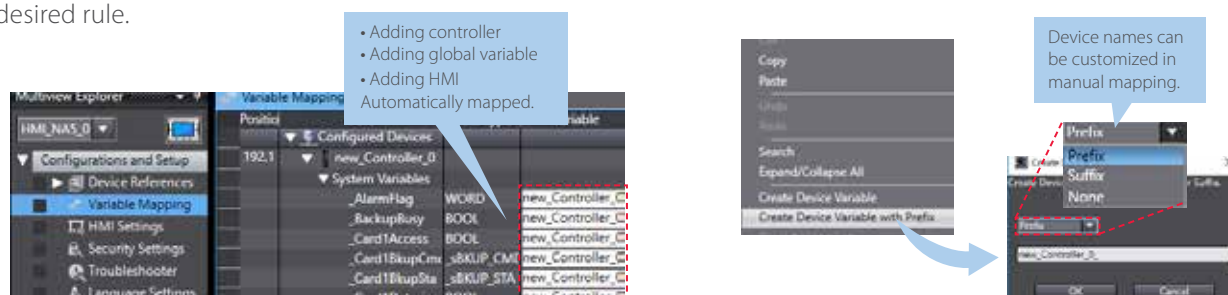
This facilitates design work by eliminating the need to create and allocate HMI variables.



* When an input is selected, a Button object is added automatically.
When an output is selected, a Lamp object is added automatically.

Improved mapping of controller variables to NA Series

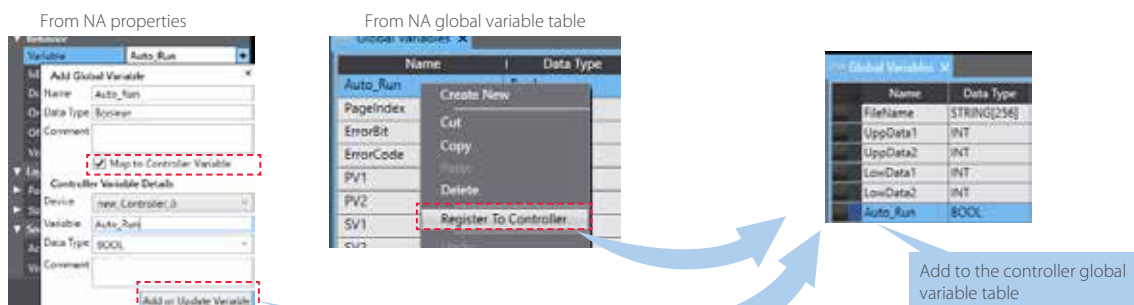
- NJ/NX/NY Controller variables can be automatically mapped to the NA HMI. This improves design efficiency and ensures that all added variables are mapped.
- The device name generation rule can be customized in manual mapping. Variables can be mapped according to your desired rule.



Easy to add NA variables to controller

Variables added to the NA HMI can be registered and mapped to the controller variable table from the properties for objects or the NA global variable table.

Going back to the controller global variable table to add variables is no longer required, saving your design time.



Resource management

Helps install your machines globally and modularize design.

Language Settings

- Different fonts, sizes, and styles can be set for different languages. You can use your specified fonts or fonts suitable for local languages. Also the font of a specified object can be changed according to language.
- The default language can be changed. Properties and alarm groups, as well as screens, are displayed in local language, which makes design faster and easier.

Default language

Language List

| Project Languages | System Languages | Software Keypads | Transfer to Device | FontFamily | FontSize | FontStyle |
|---------------------------|-------------------------|------------------|--------------------------|------------|----------|------------|
| Japanese (Japan) | Japanese (Japan) | Standard | <input type="checkbox"/> | Meiryo UI | 12 | Normal |
| English (United States) | English (United States) | Standard | <input type="checkbox"/> | Segoe UI | 10 | Bold |
| Chinese (Simplified, PRC) | Chinese (Simplified) | Standard | <input type="checkbox"/> | AnaI | 9 | BoldItalic |
| Korean (Korea) | Korean (Korea) | Standard | <input type="checkbox"/> | MS Gothic | 13 | Italic |

Select the default language by clicking the ↑ or ↓ Button.

The font of the specified object can be changed.

Different fonts can be set for different languages.

Improved user alarm editing

- User alarms can be exported to and imported from Excel with the same layout as the user alarm table. The table can be sorted or filtered in Excel.
- Both the message and its details are exported to and imported from Excel. They are sorted according to the alarm ID, allowing you to edit text strings while you view all information.

The table with the same layout as the alarm table can be edited efficiently.

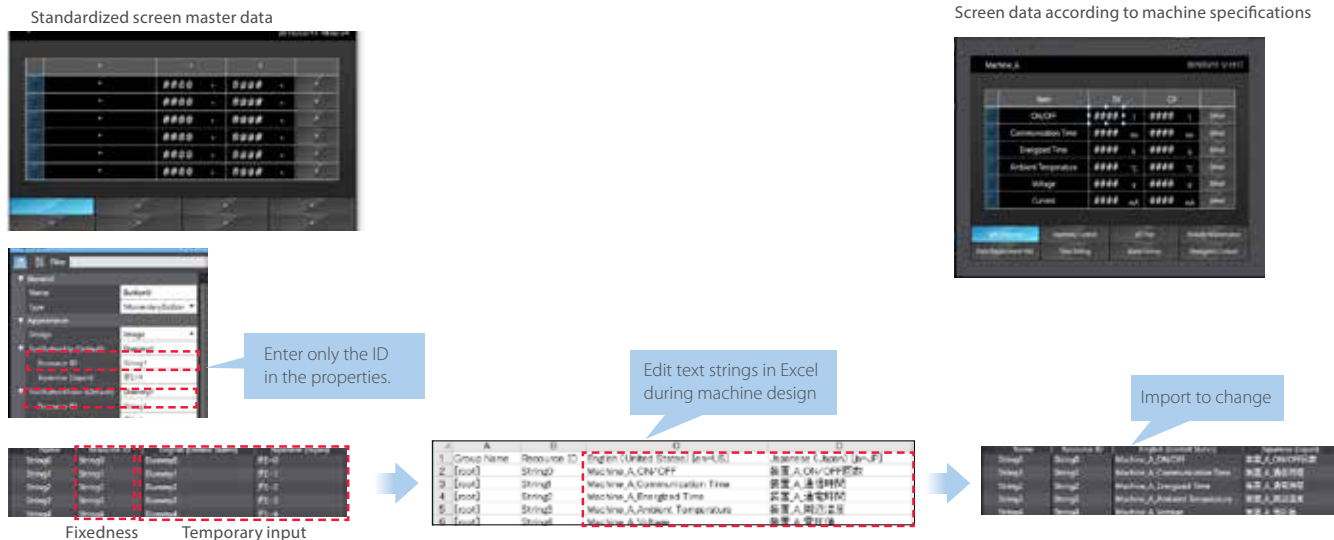
The list of all alarm information can be edited.

You can edit both the messages and details in all languages on the same sheet.

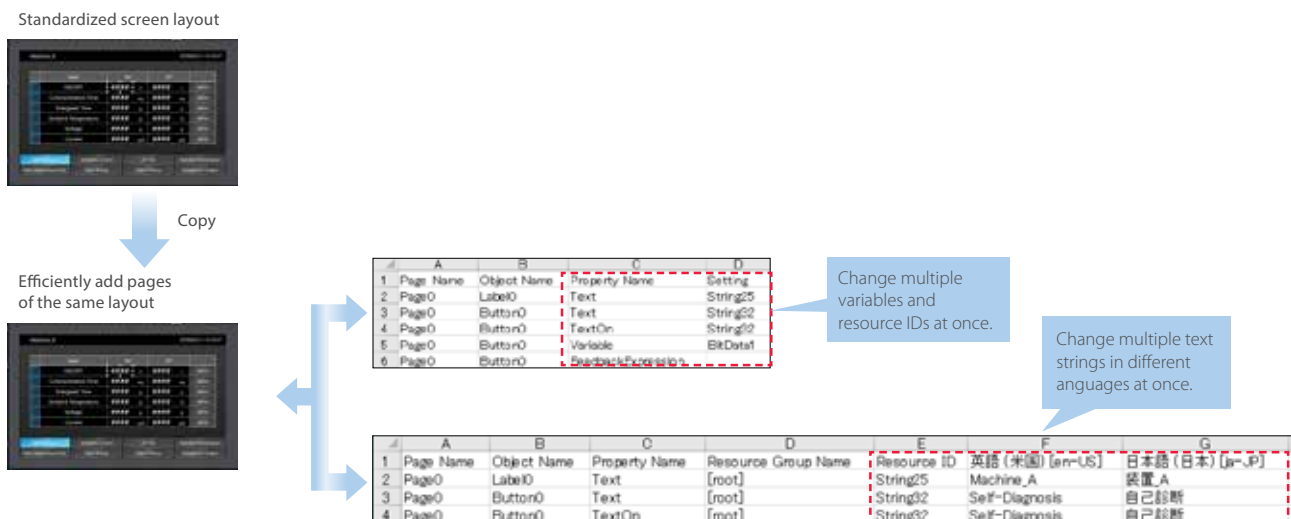
- Even if alarms are grouped, such as by machine module, all alarms can be imported and exported at once.

Improved resource editing

- In addition to entering a text string directly in properties, you can assign an ID first and enter a text string later. This resource ID-based management enables you to standardize screens first and then enter all text strings edited in Excel to suit machine specifications.



- Even if resources are grouped, such as by machine module, all resources can be imported and exported at once.
- Object properties (e.g., variables and expressions of buttons and lamps, resource IDs, text strings) in all languages on the same page can be imported and exported.
- Multiple properties can be edited at once in Excel, making resource editing easier, faster, and more precise.



Page Editor

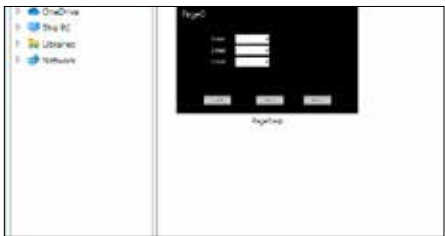
Provides a simple GUI and a full suite of functionality to assist and streamline the design process.

Importing and exporting pages

NEW

Pages can be saved as library files and reused individually in other projects.

Save and manage as library file

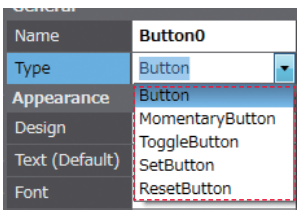


Import to reuse



Changing type of button

The type of the Buttons including Set and Momentary can be changed easily in the properties whenever you want, even during or after designing the Button.



No need to recreate the button to change its type. The settings will be maintained even the type has been changed, reducing the amount of work required for screen creation.

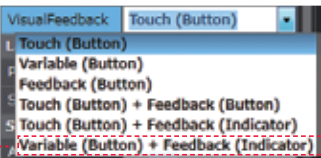
Buttons with the lamp function

You can easily create Buttons with the lamp function.

- Types of Buttons with the lamp function

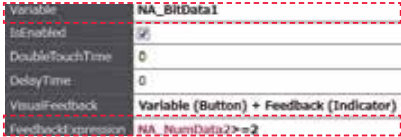
| Setting | Condition for lightning lamps |
|--|---|
| Touch(Button) | Pressing Button |
| Variable(Button) | Variable |
| Feedback(Button) | Feedback Expression |
| Touch(Button) + Feedback(Button) | Pressing Button + Feedback Expression |
| Touch(Button) + Feedback(Indicator) | Button: Pressing Button Indicator: Feedback Expression |
| Variable(Button) + Feedback(Indicator) | Button: Variable Indicator: Feedback Expression |

- Example



A lamp (indicator) can be set on a button.

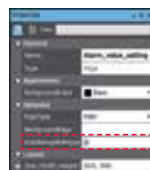
- Conceptual figure for setting objects



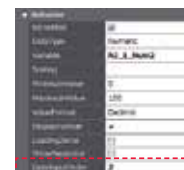
One object that has both button and lamp functions can be created. This eliminates the need for creating multiple objects, helping create screens faster.

Data input order

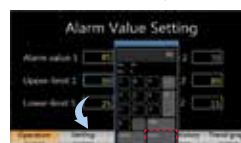
The data input order can be set. When numeric values are entered consecutively, the focus automatically moves to the next Data Edit object by touching the Enter key. Input errors and input time can be minimized.



Enable AutoNavigateKeypads in the properties of the page to enter data consecutively.



The data input order can be set in the property of the Data Edit object.



The focus automatically moves to the next object by touching the Enter key.

Creating duplicate objects

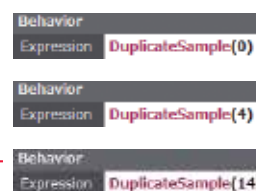
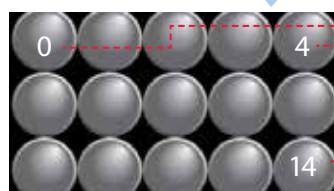
Based on one object, you can create multiple copies with the same appearance and settings by specifying an off set value for an array variable. This makes screen creation faster and easier.



Right-click



Set the number of horizontal and vertical objects, and their spacing. When an array variable is specified, you can duplicate the object by adding the specified offset value to the element number.

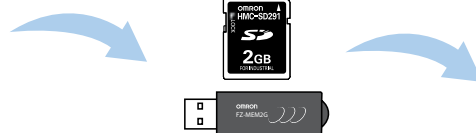


NA screen capture

The screens displayed on the NA Series can be captured and saved in the SD card inserted in the NA Series or the USB memory connected to the NA Series.

- When a screen of the NA Series is required to create a machine operation manual
- When the current screen is required to save as proof of a trouble
- Supported format: PNG

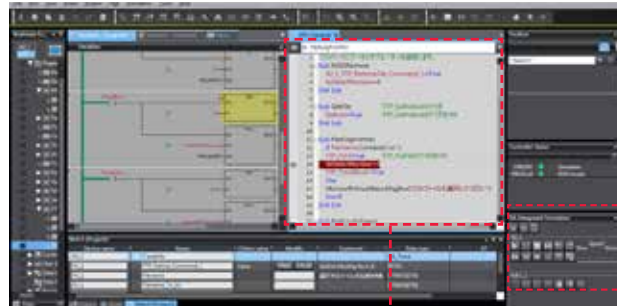
The combination of VNC and FTP allows you to capture the NA screens from the connected PC.



IDE makes debugging quick and easy

Integrated Simulator

The NJ/NX/NY Controller Simulator and NA HMI Simulator can be displayed on one screen. You can quickly debug the controller program and the HMI application at the same time.

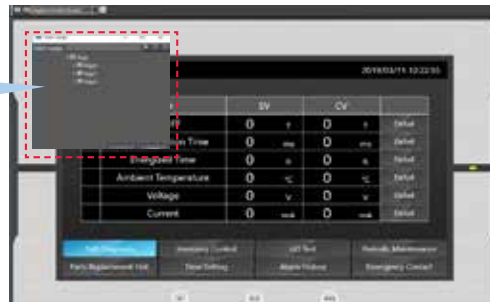


Operations, such as stop and step execution, can be performed for both HMI and controller simulations.

Switchable to the screen for designing.

- You can display the selected page and change properties without stopping the Simulator. Immediate debugging during simulation before building will prevent you from forgetting to correct errors and reduce the frequency of building.

Pages and languages can be changed anytime.



Errors found during simulation can be corrected immediately.



Watch Tab Page

The same GUI as the NJ/NX/NY Controller is used. Register the variable to monitor/change and then change its value on the Watch Tab Page to easily debug screens with the NA Simulator without the physical HMI.

| Name | Online value | Modify | Comment | Data type | AT | Display format |
|------------|--------------|------------|---------|-----------|------------|----------------|
| NJ_1_ALM1 | True | TRUE FALSE | | Boolean | NJ_1_ALM1 | Boolean |
| NJ_1_ALM2 | False | TRUE FALSE | | Boolean | NJ_1_ALM2 | Boolean |
| NJ_1_Lamp | True | TRUE FALSE | | Boolean | NJ_1_Lamp | Boolean |
| NJ_1_Start | False | TRUE FALSE | | Boolean | NJ_1_Start | Boolean |
| NJ_1_Num1 | 12.5 | 12.5 | | Short | NJ_1_Num1 | Decimal |

Change to TRUE

Check the alarm with the Simulator

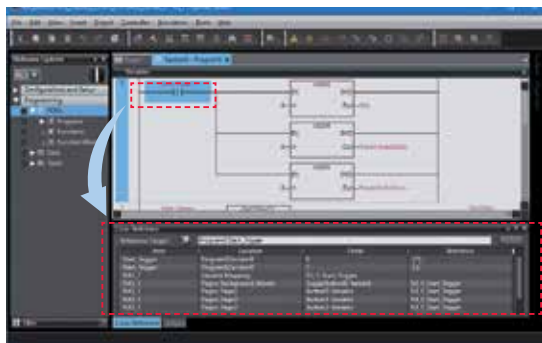


Cross references

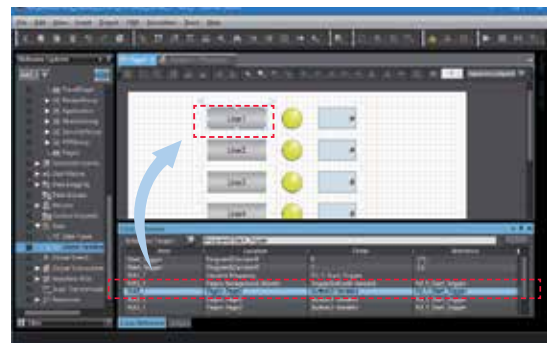
The same GUI for the cross reference function as the NJ/NX/NY Controller can be used.

When a variable is clicked in the global variable table, a list of the locations where the variable is used is displayed in the Cross Reference Tab Page.

By clicking the location, you can access the object, subroutine, or ladder program where the variable is used across the entire project. This makes screen design and debugging quicker and easier.



Click the variable in the global variable table to show a list of the locations where the variable is used in the Cross Reference Tab Page.

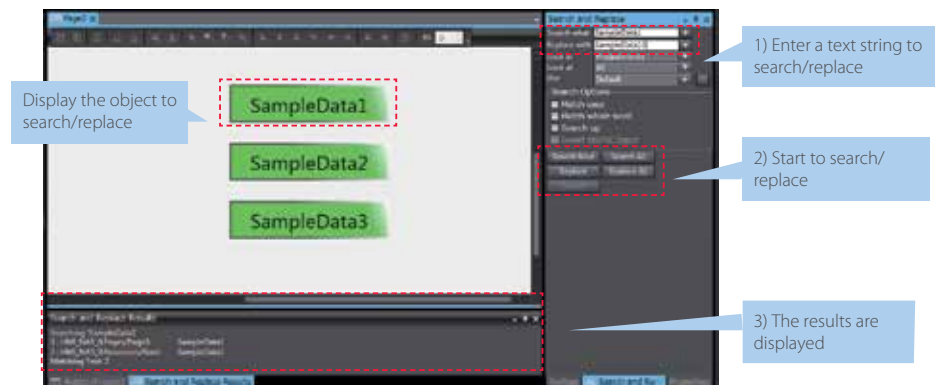


Click the location to access the object where the variables is used.

Search and Replace

You can search and replace text strings in all subroutines (Visual Basic), objects, and variables within a project.

It is quick and easy to edit and debug variable names and switch labels.



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