OMRON

Programmable Terminals

NS Series

NS, the HMI brand you can rely on

Operation Screen
Confirmation LINE5
Prod.Type NS8-TV01B-V2
Surface Color Black
Prod. Volume 99999
Set Value 99999
Operation starts with above setting.
Do you want to continue?
Yes

» Proven Reliability

» Best Match

» Machine Management

realizing

NS, the HMI brand you can rely on

Machine Control at Your Fingertips. On-screen Machine Management.

Expanding markets in emerging countries, short product cycles, and diversifying customer needs are just some of the factors that create drastic changes for the production industry.

To win in severe global market competition, you have to continue to grasp industry changes quickly, understand user needs accurately, and provide diverse forms of added value.

OMRON will help you handle ever-changing customer needs with the three keywords of the NS Series.

Let Your Machines Evolve

Best Match

OMRON has provided even greater compatibility with OMRON PLCs and components to provide an advanced design process that lets you achieve appealing machines.

Machine Management

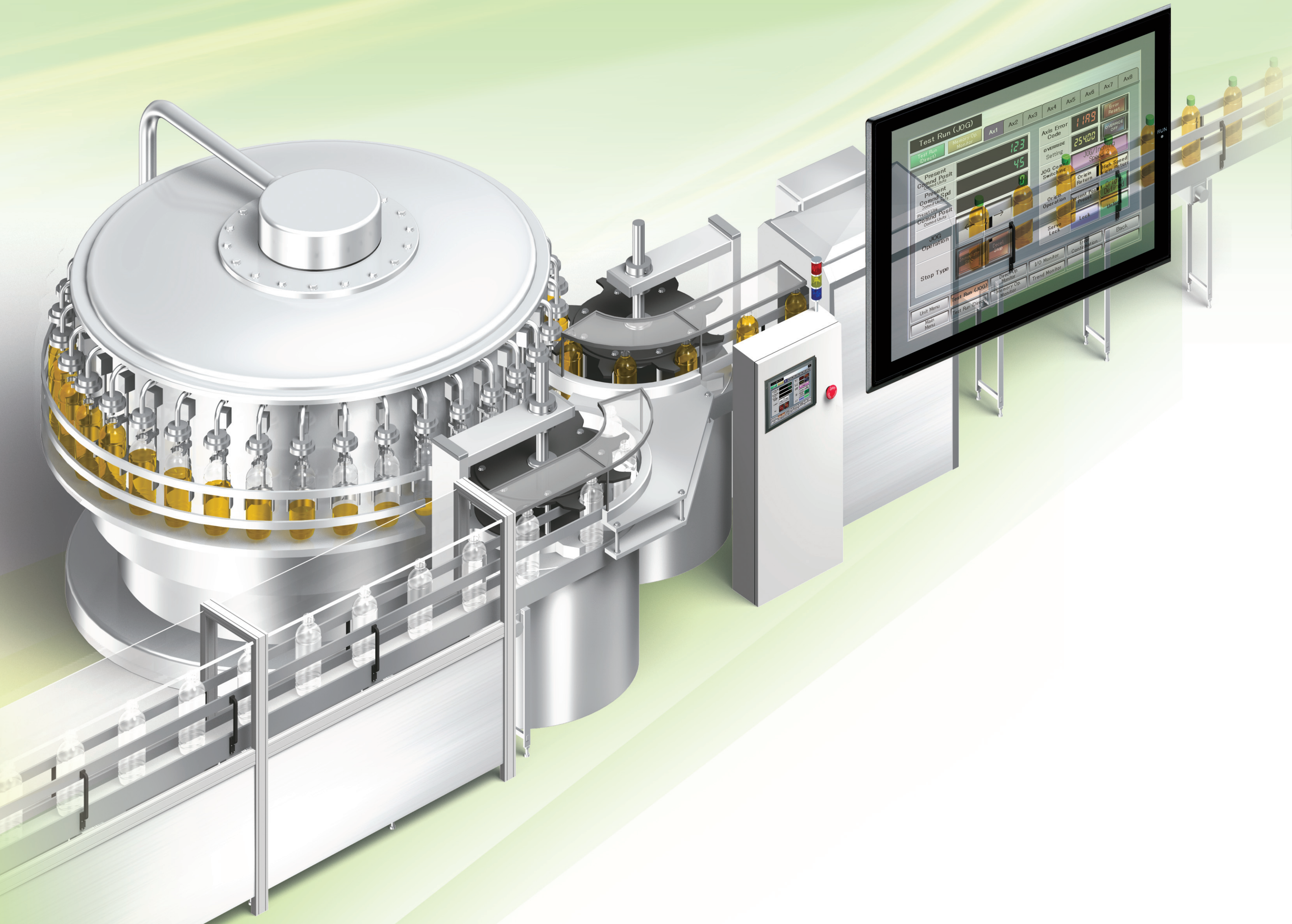
The NS Series transforms machine HMIs from simple operation panels and turns them into machine management tools.

Proven Reliability

The NS-series PTs have a proven track record that will take your machines to a higher level of reliability.

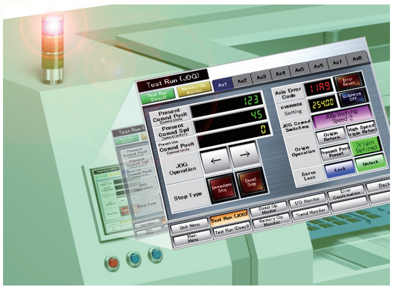
NS Series

Monitor
Prod. Status
Prod. Log
Prod. Setting
Error Log
Menu
Confirmation
LINE5
Prod. Type NS8-TV01B-V2
Surface Color Black
Prod. Volume 99999
Set Value 99999
Operation starts with above setting.
Do you want to continue?
Yes
No



The Best Match Possible

The amount of work and cost of connecting to OMRON PLCs and components have been greatly reduced. The results is an incredible range of features that is possible only when unifying to one manufacturer.



Machine Management Tool

The machine designer can easily implement PLC troubleshooting, machine troubleshooting, settings for servo drives, temperature controllers, and other control components, status monitoring of connected devices, and uploading/downloading of parameters.

Proven Reliability

In the ten years since initial marketing, OMRON has globally supplied numerous HMI solutions with the highly reliable NS Series at over 200 sales and service centers around the world.

NS Series Lineup

This powerful lineup showcases OMRON's unique value.

Choose from 3 types to match your application and requirements.

NS Series
Standard Models

Plentiful screen variations and diverse functions allow use in a wide variety of applications.

15 inches Color TFT

NS15-TX

- 32,768 colors
- XGA 1024 x 768 pixels
- Screen memory size: 60 MB

USB Slave | Controller Link
Ethernet | Video (RGB input only)
USB Master | RGB output
RS-232C x 2 | Ladder Monitor
RS-422A/485 | Memory Card

12.1 inches Color TFT

NS12-TS

- 32,768 colors
- SVGA 800 x 600 pixels
- Screen memory size: 60 MB

USB Slave | Controller Link
Ethernet | Video
USB Master | Ladder Monitor
RS-232C x 2 | Memory Card

10.4 inches Color TFT

NS10-TV

- 32,768 colors
- VGA 640 x 480 pixels
- Screen memory size: 60 MB

USB Slave | Controller Link
Ethernet | Video
USB Master | Ladder Monitor
RS-232C x 2 | Memory Card

8.4 inches Color TFT

NS8-TV

- 32,768 colors
- VGA 640 x 480 pixels
- Screen memory size: 60 MB

USB Slave | Video
Ethernet | Ladder Monitor
USB Master | Memory Card
RS-232C x 2

5.7 inches Color High-luminance TFT

NS5-TQ

- 32,768 colors
- QVGA 320 x 240 pixels
- Screen memory size: 60 MB

USB Slave
Ethernet
RS-232C x 2
Memory Card

5.7 inches Color TFT

NS5-SQ

- 32,768 colors
- QVGA 320 x 240 pixels
- Screen memory size: 60 MB

USB Slave
Ethernet
RS-232C x 2
Memory Card

NSH Series
Hand-held Models

A hand-held version of the NS5 is now available to perform operations at the production site.

5.7 inches Color TFT

NSH5-SQR

- 32,768 colors
- QVGA 320 x 240 pixels

USB Slave
RS-232C/422A
Memory Card

- Equipped with a red switch for an emergency stop input.
- Emergency stop (3 inputs)

5.7 inches Color TFT

NSH5-SQG

- 32,768 colors
- QVGA 320 x 240 pixels

USB Slave
RS-232C/422A
Memory Card

- Equipped with a gray switch for a stop input.
- Emergency stop (3 inputs)

Hand-held PT Cable

RS-232C | RS-422A

NSJ Series

Integrated Controller Models

PT is unified with the Controller into one package to greatly help standardize equipment and reduce size.

12.1 inches Color TFT

NSJ12-TS□□-G5D

- 32,768 colors
- SVGA 800 x 600 pixels
- Screen memory size: 60 MB

USB Slave | Controller Link
Ethernet | Ladder Monitor
USB Master | Memory Card
RS-232C x 3 | DeviceNet

(Controller Section)
- I/O points: 1,280
- Program capacity: 60K steps
- Data Memory: 128K words

10.4 inches Color TFT

NSJ10-TV□□-G5D

- 32,768 colors
- VGA 640 x 480 pixels
- Screen memory size: 60 MB

USB Slave | Controller Link
Ethernet | Ladder Monitor
USB Master | Memory Card
RS-232C x 3 | DeviceNet

(Controller Section)
- I/O points: 1,280
- Program capacity: 60K steps
- Data Memory: 128K words

8.4 inches Color TFT

NSJ8-TV□□-M3D

- 32,768 colors
- VGA 640 x 480 pixels
- Screen memory size: 60 MB

USB Slave | Controller Link
Ethernet | Ladder Monitor
USB Master | Memory Card
RS-232C x 3 | DeviceNet

(Controller Section)
- I/O points: 640
- Program capacity: 20K steps
- Data Memory: 32K words

8.4 inches Color TFT

NSJ8-TV□□-G5D

- 32,768 colors
- VGA 640 x 480 pixels
- Screen memory size: 60 MB

USB Slave | Controller Link
Ethernet | Ladder Monitor
USB Master | Memory Card
RS-232C x 3 | DeviceNet

(Controller Section)
- I/O points: 1,280
- Program capacity: 60K steps
- Data Memory: 128K words

5.7 inches Color TFT

NSJ5-SQ□□-M3D/-G5D

- 32,768 colors
- QVGA 320 x 240 pixels
- Screen memory size: 60 MB

USB Slave | Controller Link
Ethernet | Memory Card
RS-232C x 3 | DeviceNet

(Controller Section)

M3D
- I/O points: 640
- Program capacity: 20K steps
- Data Memory: 32K words

G5D
- I/O points: 1280
- Program capacity: 60K steps
- Data Memory: 128K words

5.7 inches Color High-luminance TFT

NSJ5-TQ□□-M3D/-G5D

- 32,768 colors
- QVGA 320 x 240 pixels
- Screen memory size: 60 MB

USB Slave | Controller Link
Ethernet | Memory Card
RS-232C x 3 | DeviceNet

(Controller Section)

M3D
- I/O points: 640
- Program capacity: 20K steps
- Data Memory: 32K words

G5D
- I/O points: 1280
- Program capacity: 60K steps
- Data Memory: 128K words

Software

CX-Designer

CX-Designer

Without screen creation and ladder programming, the CX-Designer Screen Design Software is so easy-to-use that anyone can master it.

NS-Runtime

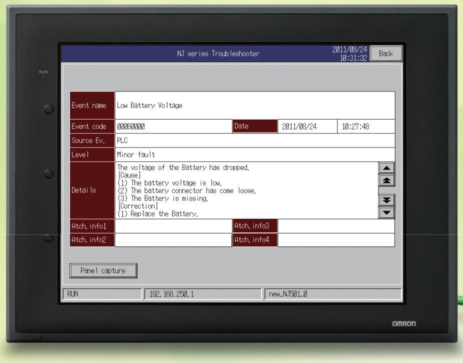
This software enables PLC communications from a personal computer by manipulating PT screens created using the CX-Designer.

A Revolutionary Best Ma

The NS-series PTs provide revolutionary compatibility with the road-proven CS/CJ-series
the new NJ/NX-series Controllers to achieve even greater added value in user machines.

The NJ/NX-series Machine Automation Controllers Revolutionize Productivity

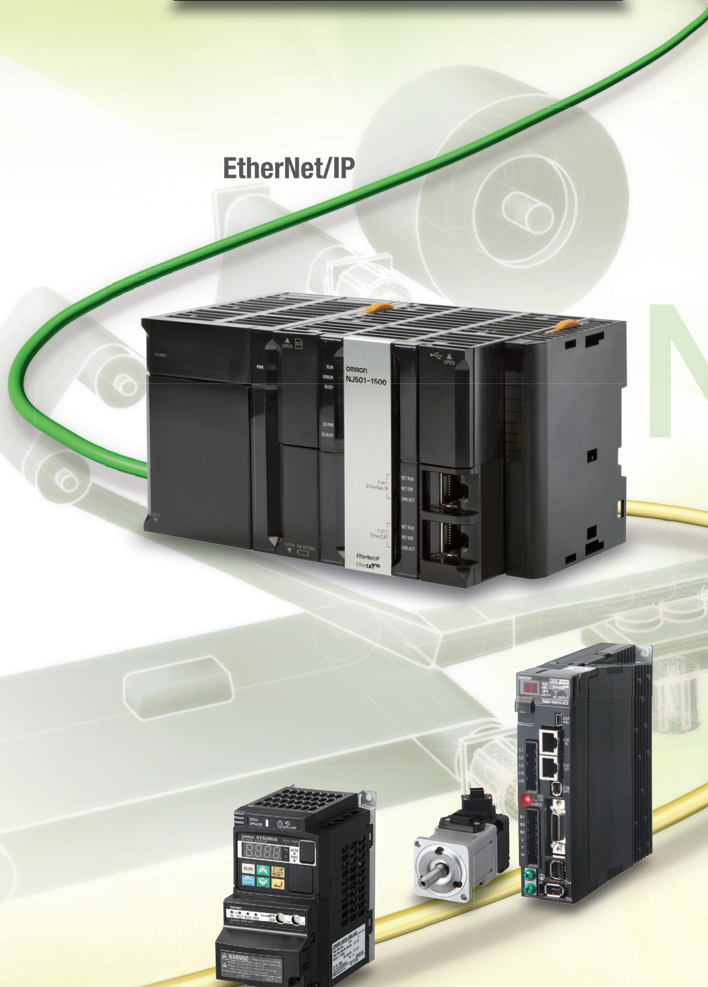
You can create a flexible, high-speed, high-precision system based on the NJ-series Machine Automation Controllers.
Use tags to access any memory areas, or troubleshoot machines and systems by using the NS-series PTs to make the most of the strengths of the NJ/NX-series Controllers and to manage machines.


NJ series Troubleshooter 2011/08/24 10:31:32

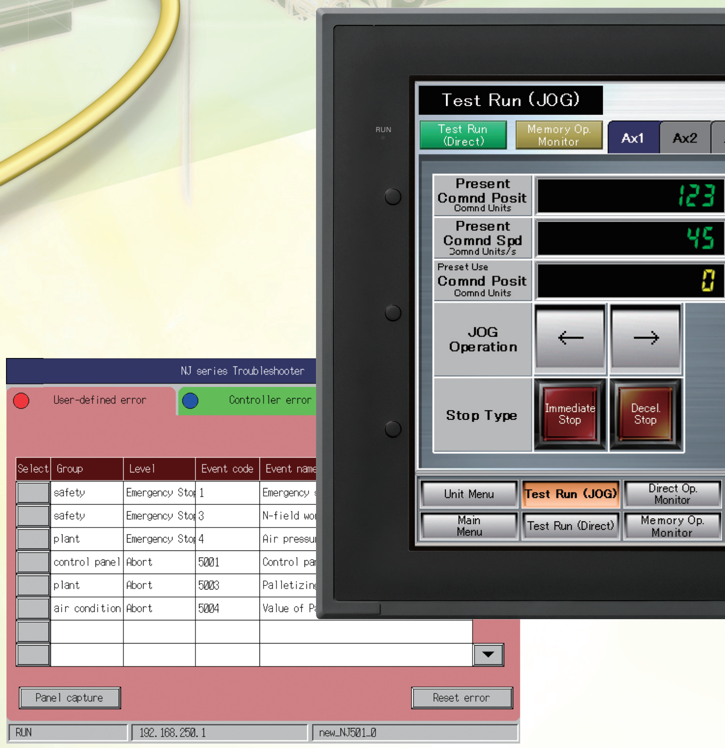
Event name	Low Battery Voltage		
Event code	000B0000	Date	2011/08/24 10:27:48
Source Ev.	PLC		
Level	Minor fault		
Details	The voltage of the Battery has dropped. [Cause] (1) The battery voltage is low. (2) The battery connector has come loose. (3) The Battery is missing. [Correction] (1) Replace the Battery.		
Atch. info1		Atch. info3	
Atch. info2		Atch. info4	

RUN | 192.168.250.1 | new_NJ501_0

RUN
Back
Panel capture
omron



EtherNet/IP
NJ
EtherCAT
omron
NJ501-1500


NJ series Troubleshooter

Select	Group	Level	Event code	Event name
☐	safety	Emergency Sto	1	Emergency
☐	safety	Emergency Sto	3	N-field wo
☐	plant	Emergency Sto	4	Air pressu
☐	control panel	Abort	5001	Control pa
☐	plant	Abort	5003	Palletizin
☐	air condition	Abort	5004	Value of P
☐				
☐				

RUN | 192.168.250.1 | new_NJ501_0

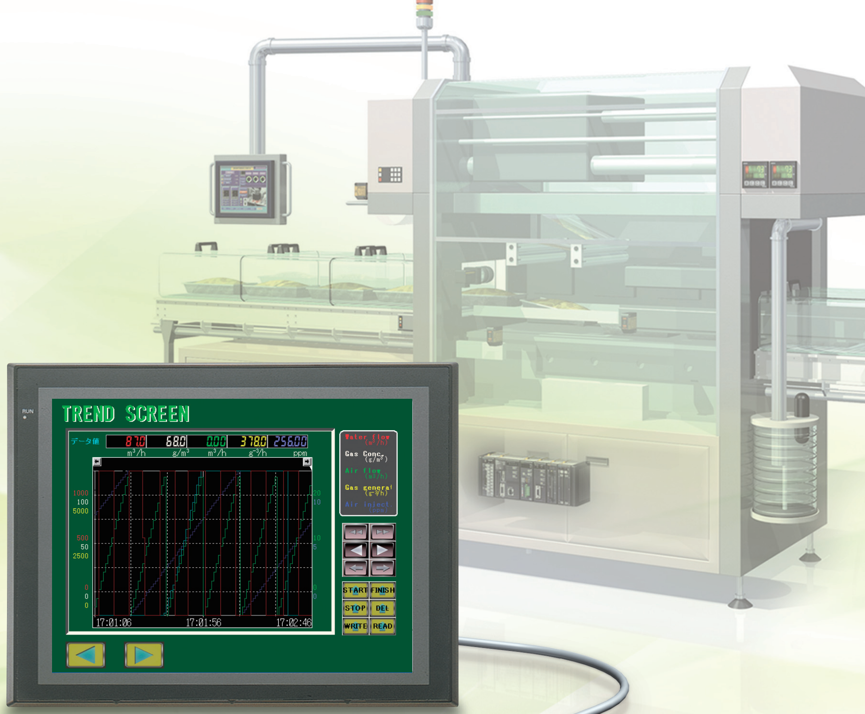
Test Run (JOG)

Present Comnd Posit Comnd Units	123
Present Comnd Spd Comnd Units/s	45
Preset Use Comnd Posit Comnd Units	0

User-defined error
Controller error
Panel capture
Reset error
Test Run (Direct)
Memory Op. Monitor
Ax1
Ax2
JOG Operation
←
→
Stop Type
Immediate Stop
Decel Stop
Unit Menu
Test Run (JOG)
Direct Op. Monitor
Main Menu
Test Run (Direct)
Memory Op. Monitor
RUN

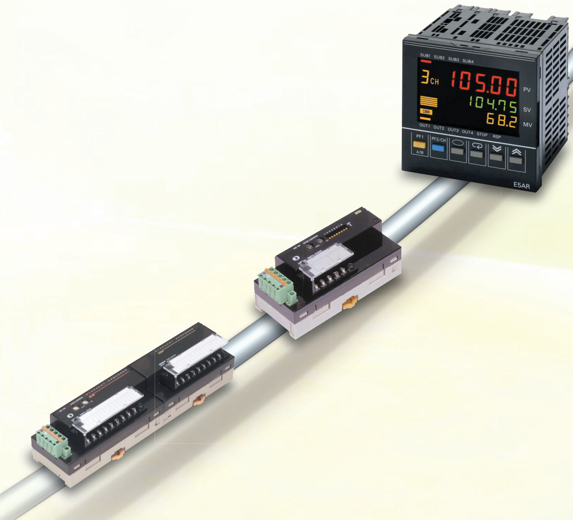
tch

PLCs and


TREND SCREEN
START
FINISH
STOP
DEL
WRITE
READ

The CS/CJ-series PLCs for the Reliability of a Proven Track Record

Features are provided to easily connect to CS/CJ-series PLCs to take advantage of their proven track record.
Many features that do not require screen creation or programming support everything from design through maintenance to take advantage of the compatibility of OMRON PLCs and PT and to serve as the face of your machines.



Ax3
Ax4
Ax5
Ax6
Axis Error Code
OVERRIDE Setting
JOG Comnd Switching
Origin Operation
Origin Return
High Speed Origin Return
Present Posi Preset
Origin Defined
Servo Lock
Lock
Unlock
I/O Monitor
Error Confirmation
Back
Trend Monitor
omron

Operation Screen
08/07/07 16:50:00
A Tank
B Tank
C Tank
D Tank
E Tank
Today
Limit
Drain
Supply
Clean

Power Support for All User

From conceptual designs through commissioning, operation, and maintenance, the NS

Design

Reduced work

CIO004
Designer

For Machine Automation Controllers NJ/NX-series p10

- NJ Troubleshooter
- Integrated NS-series PT simulation

Troubleshooter p11

- CS/CJ-series PLC Troubleshooter
- Machine Troubleshooter

Best Match with OMRON Products p12-p16

- Smart Active Prarts (SAP)
- EtherNet/IP
- Direct Connection to Temperature Controllers
- Face Plate Auto-Builder for NS

Multi-language Support p17

Multifunction Objects p18

Plentiful Graphing Functions p19

Screen Data Security Functions p20

Device Data Transfer p20

NS Screen Templates p21

CX-Designer Screen Design Software p22-p25

Needs

Series supports every user need.

Startup/Operation

Attractive, convenient features for easier operation

Operation Screen
08/07/07 16:50:00
A Tank
B Tank
C Tank
D Tank
E Tank
Store
Drain
Clean

Level:01
Level:02
Level:03
Level:04
Level:05
analog RGB
×4 CAMERA

260,000-color Video Display	P26
Analog RGB Output	P26
FTP Function	P27
User Security Functions	P27
LED backlight	P27

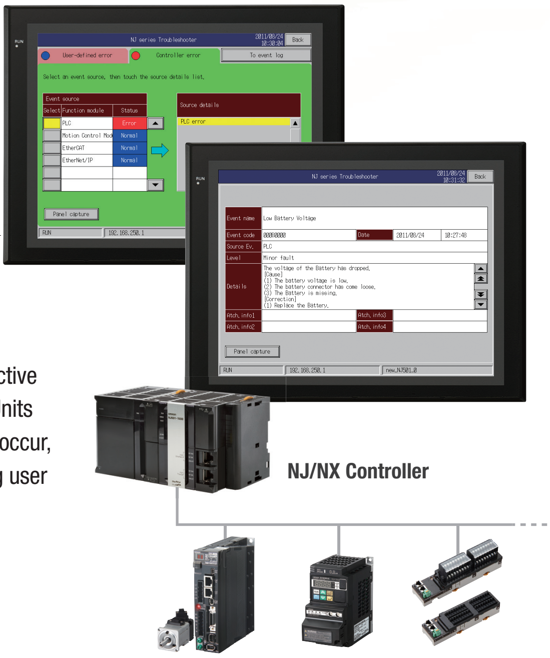
Maintenance

Features for reliability and complete maintenance

Comparison	P28
Single Port Multi Access	P28
PLC Data Trace	P29
Operating log	P29
Ladder Monitor	P30-P31

For Machine Automation Controllers NJ/NX-series

Use Integrated NS-series PT simulation or NJ troubleshoot by using the NS-series PTs to make the most of the strengths of the NJ/NX-series Controllers and to manage machines.


NJ series Troubleshooter
2011/08/24 10:30:04
Back
User-defined error
Controller error
To event log
Select an event source, then touch the source details list.
Event source
Source details
PLC error
Panel capture
RUN
192.168.250.1

Select	Function module	Status
	PLC	Error
	Motion Control Mod	Normal
	EtherCAT	Normal
	EtherNet/IP	Normal

NJ series Troubleshooter
2011/08/24 10:31:32
Back

Event name	Low Battery Voltage		
Event code	000B0000	Date	2011/08/24 10:27:48
Source Ev.	PLC		
Level	Minor fault		
Details	The voltage of the Battery has dropped. [Cause] (1) The battery voltage is low. (2) The battery connector has come loose. (3) The Battery is missing. [Correction] (1) Replace the Battery.		
Atch. info1		Atch. info3	
Atch. info2		Atch. info4	

Panel capture
RUN
192.168.250.1
new_NJ501_0
NJ/NX Controller

NJ Troubleshooter

Controller Errors

Standard Feature for NJ/NX-series Controllers

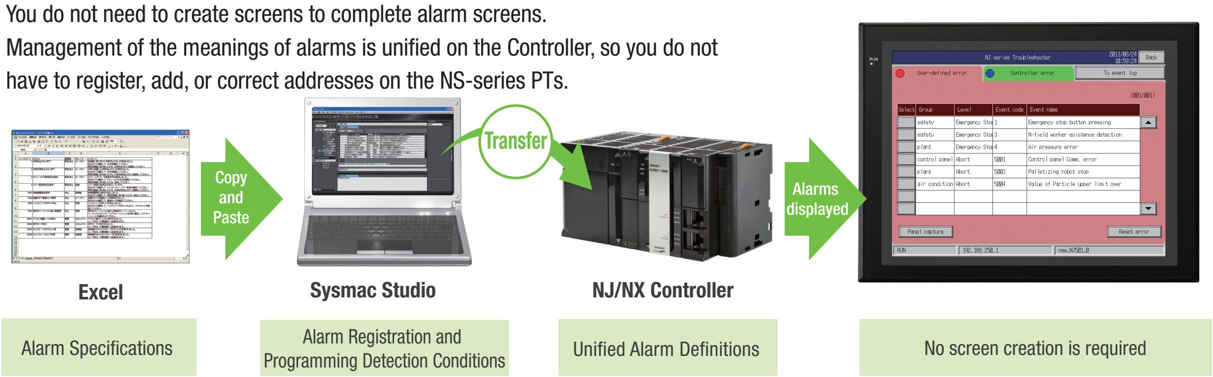
Errors are automatically detected and displayed on-screen along with corrective actions for the CPU Unit function modules, EtherCAT slaves, and CJ-series Units that are connected in the NJ/NX-series Controller. Whenever an error might occur, you can recover normal operation quickly to reduce downtime without using user manuals or Support Software on a computer.

User-defined Errors

No Work Is Required to Create Alarm Screens.

Frames for alarm screens are provided as standard features in the NS-series PTs. You do not need to create screens to complete alarm screens.

Management of the meanings of alarms is unified on the Controller, so you do not have to register, add, or correct addresses on the NS-series PTs.


Copy and Paste
Transfer
Alarms displayed
Excel
Sysmac Studio
NJ/NX Controller
NJ series Troubleshooter
2011/08/24 10:59:24
Back
User-defined error
Controller error
To event log
(001/001)

Select	Group	Level	Event code	Event name
	safety	Emergency Sto	1	Emergency stop button pressing
	safety	Emergency Sto	3	N-field worker existence detection
	plant	Emergency Sto	4	Air pressure error
	control panel	Abort	5001	Control panel Comm. error
	plant	Abort	5003	Palletizing robot stop
	air condition	Abort	5004	Value of Particle upper limit over

Panel capture
Reset error
RUN
192.168.250.1
new_NJ501_0

Alarm Specifications

Alarm Registration and Programming Detection Conditions

Unified Alarm Definitions

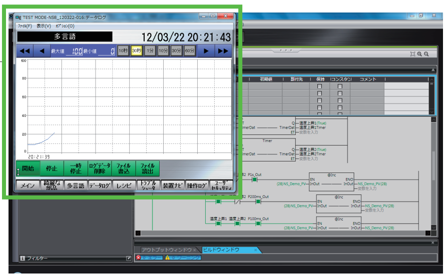
No screen creation is required

Integrated NS-series PT simulation

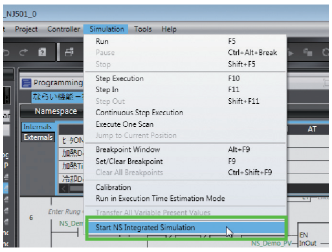
Improved debugging efficiency

"Integrated simulation" of Sysmac Studio enables offline debugging of the screen data for the NS-series PTs and sequence program for the NJ/NX-series on the computer.

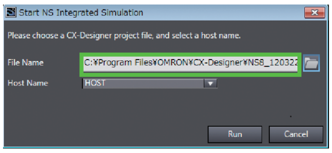
* Sysmac Studio version 1.02 or higher (CX-Designer version 3.41 or higher) is required.


12/03/22 20:21:43

Test screen of CX-Designer appears after synchronization of Sysmac Studio, and integrated simulation starts.


_NJ501_0
Project
Controller
Simulation
Tools
Help
Run F5
Pause Ctrl+Alt+Break
Stop Shift+F5
Step Execution F10
Step In F11
Step Out Shift+F11
Continuous Step Execution
Execute One Scan
Jump to Current Position
Breakpoint Window Alt+F9
Set/Clear Breakpoint F9
Clear All Breakpoints Ctrl+Shift+F9
Calibration
Run in Execution Time Estimation Mode
Transfer All Variable Present Values
Start NS Integrated Simulation

Select Integrated Simulation.


Start NS Integrated Simulation
Run
Cancel

Please choose a CX-Designer project file, and select a host name.

File Name: C:¥Program Files¥OMRON¥CX-Designer¥NS8_120322

Host Name: HOST

Select image data and host to simulate.

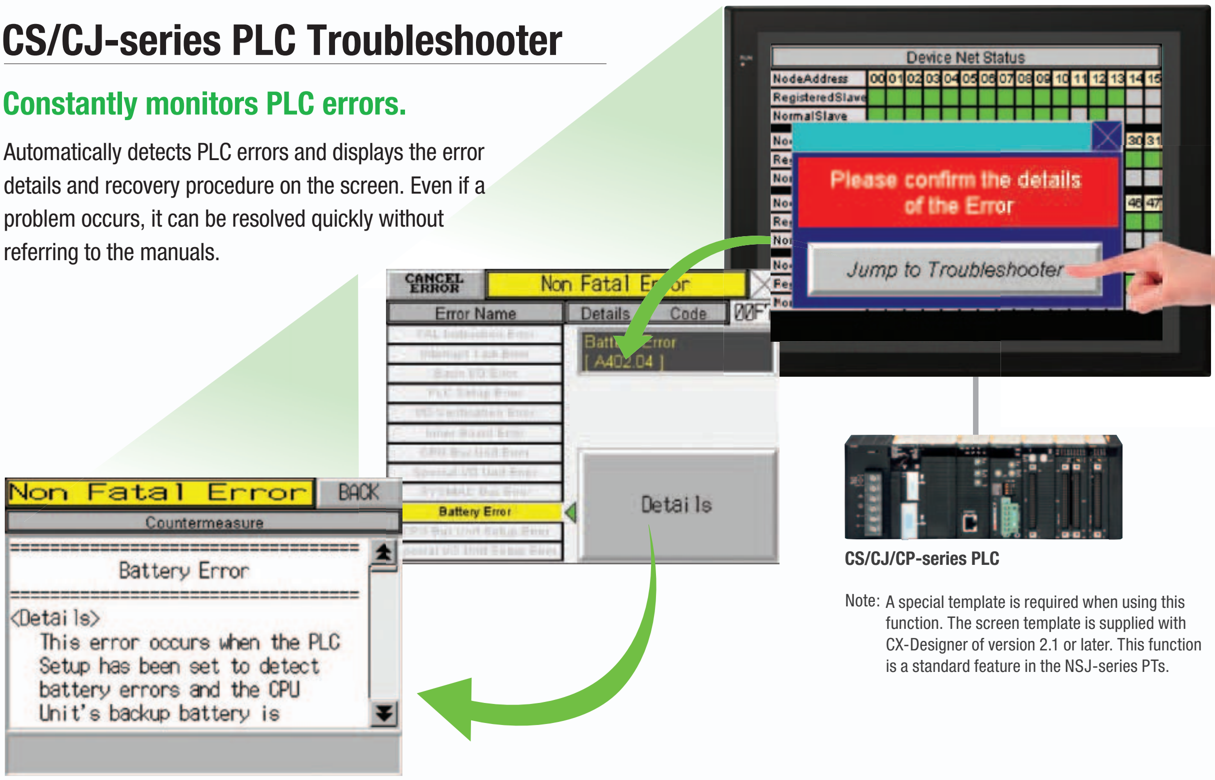
Troubleshooter

A Troubleshooter is provided for the connected OMRON Controller or PLC. This greatly reduces work requirements.

CS/CJ-series PLC Troubleshooter

Constantly monitors PLC errors.

Automatically detects PLC errors and displays the error details and recovery procedure on the screen. Even if a problem occurs, it can be resolved quickly without referring to the manuals.


Device Net Status
NodeAddress
RegisteredSlave
NormalSlave
Please confirm the details of the Error
Jump to Troubleshooter
CANCEL ERROR
Non Fatal Error
Error Name
Details
Code
00F
Battery Error
[A402.04]
Battery Error
Details
Non Fatal Error
BACK
Countermeasure

Battery Error

<Details>
This error occurs when the PLC Setup has been set to detect battery errors and the CPU Unit's backup battery is

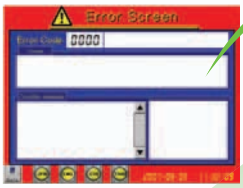
CS/CJ/CP-series PLC

Note: A special template is required when using this function. The screen template is supplied with CX-Designer of version 2.1 or later. This function is a standard feature in the NSJ-series PTs.

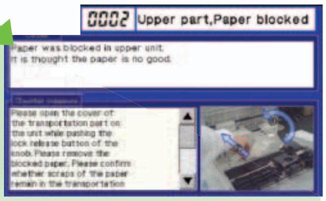
Machine Troubleshooter

Easier Design of Machine Error Screens

Individual error screens that were previously made for each error can now be integrated into one. It is possible to switch only the error details (text and screen) without ladder programming in conjunction with the alarm bit.


Error Screen
Error Code
0000

With this system, this frame is shared, and the error details in the pink frames are switched with an alarm or other item as the trigger.


0002
Upper part,Paper blocked

Paper was blocked in upper unit.
It is thought the paper is no good.

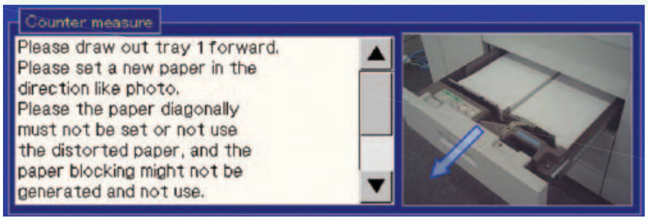
Please open the cover of the transportation part on the unit while pushing the lock release button of the knob. Please remove the blocked paper. Please confirm whether scraps of the paper remain in the transportation

Specific Example

in conjunction with an alarm bit (See note.)

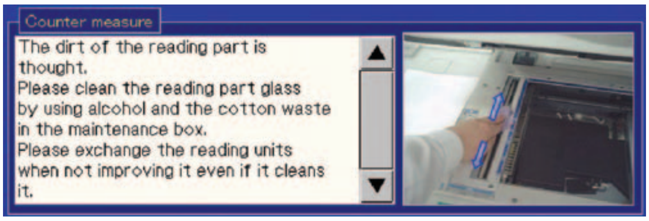
Text selection **Image selection**

Alarm bit 10.01 ON
(no paper)


Counter measure

Please draw out tray 1 forward.
Please set a new paper in the direction like photo.
Please the paper diagonally must not be set or not use the distorted paper, and the paper blocking might not be generated and not use.

Alarm bit 10.02 ON
(printing error)


Counter measure

The dirt of the reading part is thought.
Please clean the reading part glass by using alcohol and the cotton waste in the maintenance box.
Please exchange the reading units when not improving it even if it cleans it.

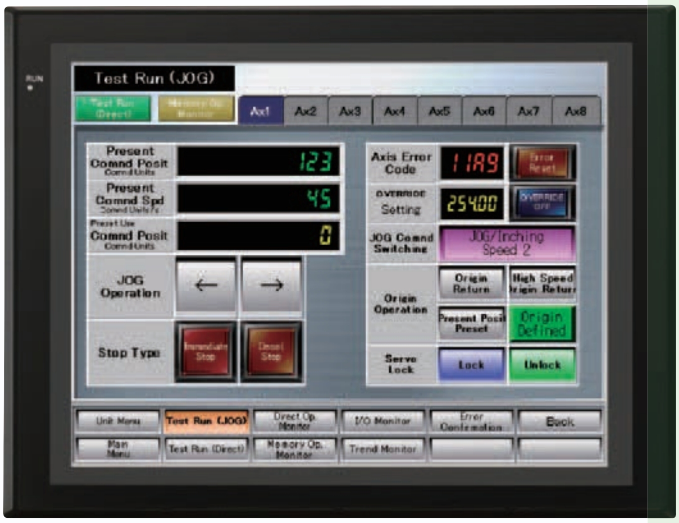
Note: Alarms, PLC/PT memory, and other items can be selected for the switching trigger.

Design

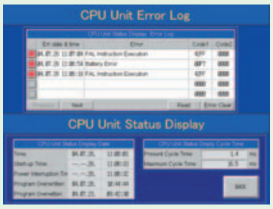
Best Match with OMRON Products

NS Series is the most suitable HMI for the system that comprises OMRON components. The advantage is the "compatibility (reducing programming and screen data creation work)" which will reduce the amount of designing work.

NS

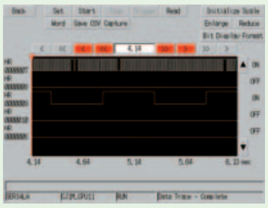

RUN
Test Run (JOG)
Test Run (Direct)
Memory Op. Monitor
Ax1
Ax2
Ax3
Ax4
Ax5
Ax6
Ax7
Ax8
Present Comnd Posit
123
Present Comnd Spd
45
Preset Use Comnd Posit
0
JOG Operation
Stop Type
Immediate Stop
Decel Stop
Axis Error Code
11A9
Error Reset
OVERRIDE Setting
25400
OVERRIDE OFF
JOG Comnd Switching
JOG/Inching Speed 2
Origin Operation
Origin Return
High Speed Origin Return
Present Posit Preset
Origin Defined
Servo Lock
Lock
Unlock
Unit Menu
Test Run (JOG)
Direct Op. Monitor
I/O Monitor
Error Confirmation
Back
Main Menu
Test Run (Direct)
Memory Op. Monitor
Trend Monitor

No Screen Designing / No Programming


CPU Unit Error Log
CPU Unit Status Display

PLC CPU Unit monitoring screen

Device monitor



PLC Data Trace

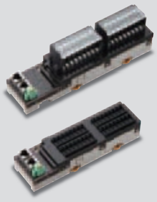
Temperature Controllers

PLC

CPU Bus Units and Special I/O Units

- SAP Library
- Troubleshooting

Remote I/O Terminal



Inverter

Vision Sensor

- 260,000-color video input

Temperature Controllers

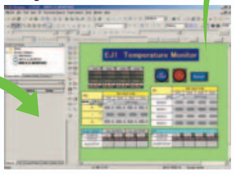
Servomotor Servo Driver

Smart Active Parts (SAP Library)

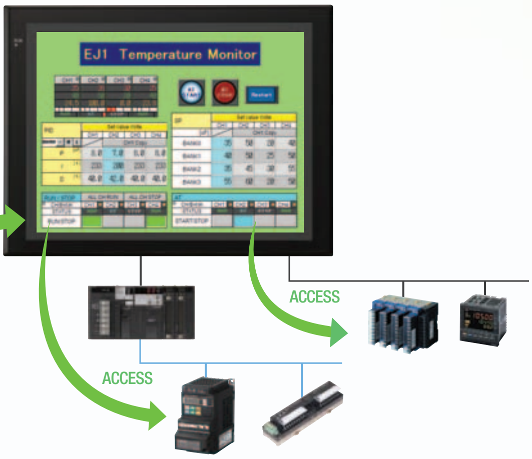
Dramatically reduces the effort required to create ladder programming and screens.

More than 3,000 Library parts (Smart Active Parts) are available, which can directly access OMRON PLCs and components. The objects can just be pasted from the Smart Active Parts (SAP Library) Library to the screen; it is completely unnecessary to create screens and ladder programming.

SAP Library, Temperature Controller Parts


CX-Designer Screen Design Software

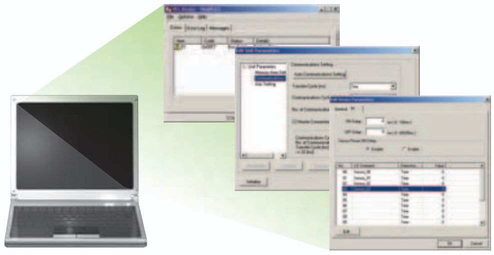
The Temperature Controller's setting and monitor screens are completed in no time.



Support tool objects can be incorporated to check for errors and make settings, even without a computer.

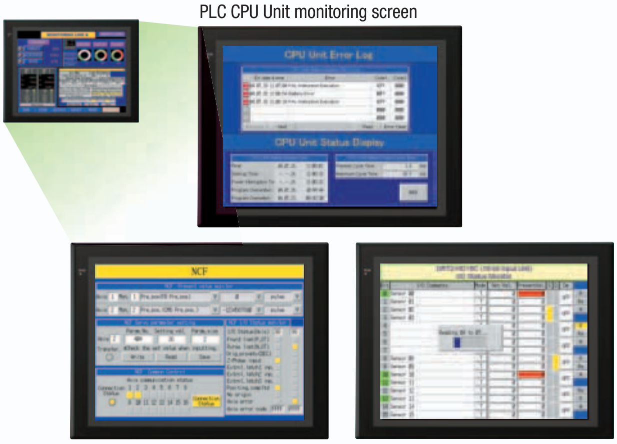
Plenty of support tool objects (the Tool Function SAP Library) are available, which can be easily incorporate support tool functions in the NS-series PT. Just paste the support tool objects in the screen to check for errors and make settings, even without a computer.

Computer support tools



From

Example screens using support tool objects (Tool Function SAP Library)



PLC CPU Unit monitoring screen

NCF Unit setting screen

DeviceNet monitoring screen

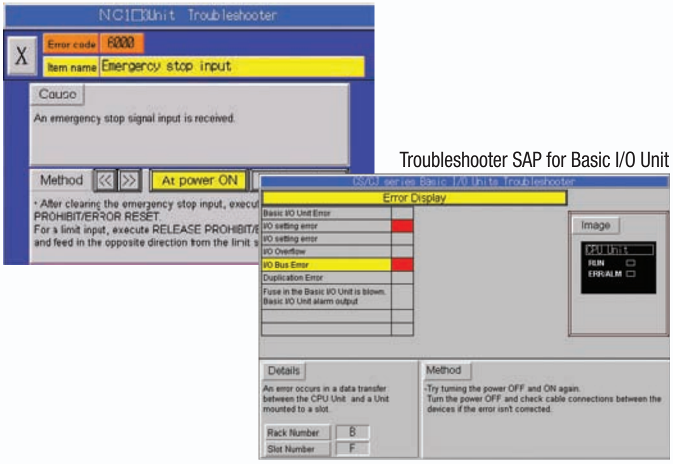
To

CPU Bus Unit and Special I/O Unit Troubleshooting Can Be Also Performed with the SAP Library.

A Troubleshooter SAP Library is available to troubleshoot each Unit in the PLC. When an error occurs in a Unit, the Troubleshooter SAP Library provides an easy-to-understand explanation of the cause of the error as well as the countermeasures.

Note: The Troubleshooter SAP Library is included as a standard feature for the CX-One and CX-Designer. For details, refer to page 56. Successive development for Ethernet Units and MC Units is planned for the future.

Troubleshooter SAP for a Position Control Unit



Error code 6000

Item name Emergency stop input

An emergency stop signal input is received.

· After clearing the emergency stop input, execu PROHIBIT/ERROR RESET.
For a limit input, execute RELEASE PROHIBIT/E and feed in the opposite direction from the limit s

Troubleshooter SAP for Basic I/O Unit

Basic I/O Unit Error	
I/O setting error	🟥
I/O setting error	
I/O Overflow	
I/O Bus Error	🟥
Duplication Error	
Fuse in the Basic I/O Unit is blown. Basic I/O Unit alarm output	

An error occurs in a data transfer between the CPU Unit and a Unit mounted to a slot.

Rack Number B

Slot Number F

·Try turning the power OFF and ON again.
Turn the power OFF and check cable connections between the devices if the error isn't corrected.

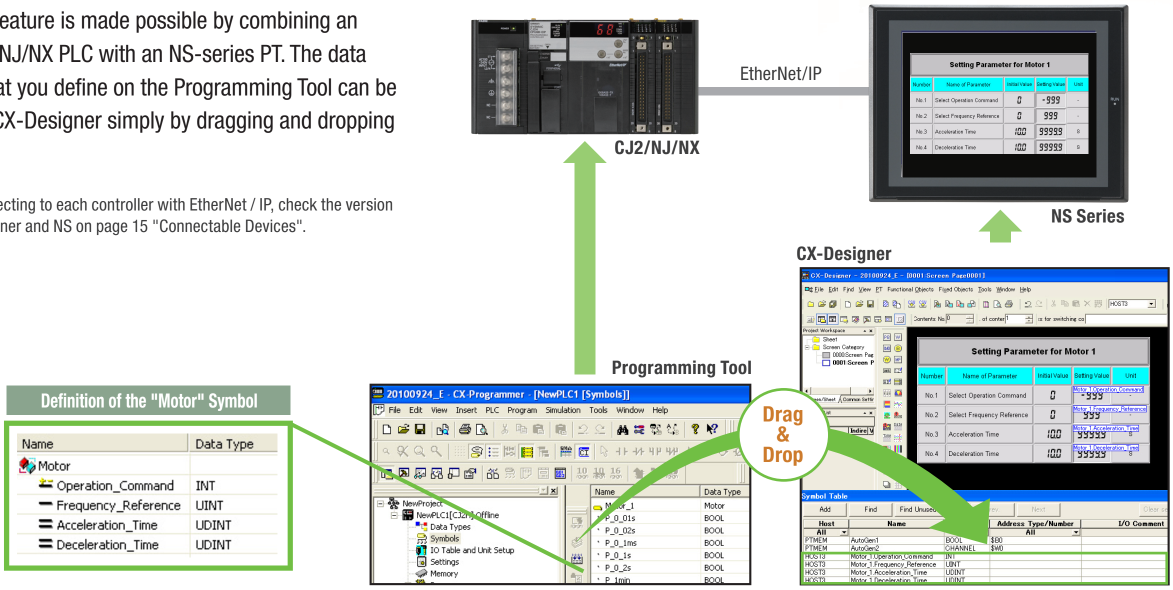
Design

EtherNet/IP

Support for data structures

This special feature is made possible by combining an OMRON CJ2/NJ/NX PLC with an NS-series PT. The data structures that you define on the Programming Tool can be used on the CX-Designer simply by dragging and dropping them.

Note: When connecting to each controller with EtherNet / IP, check the version of CX-Designer and NS on page 15 "Connectable Devices".

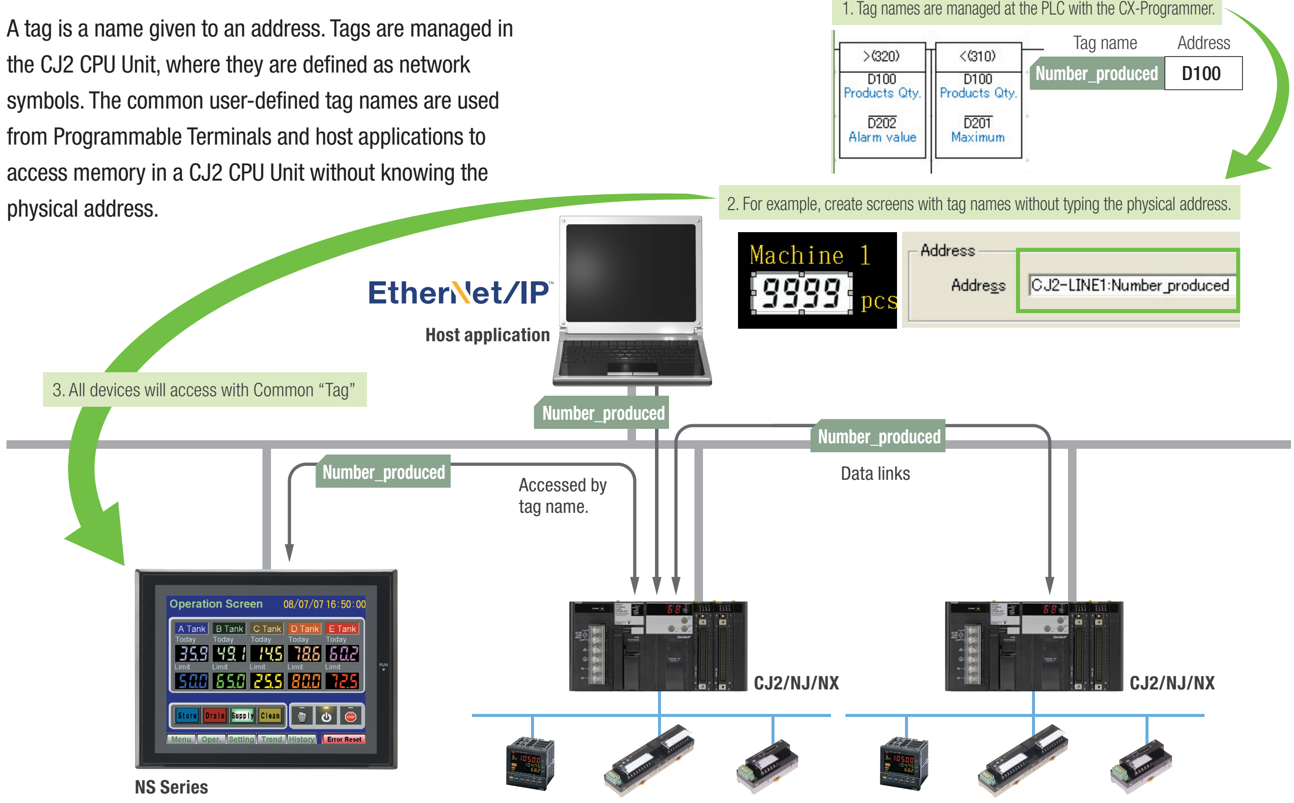

CJ2/NJ/NX
EtherNet/IP
NS Series
Setting Parameter for Motor 1
CX-Designer
Programming Tool
Drag & Drop
Symbol Table

Definition of the "Motor" Symbol

Name	Data Type
Motor	
Operation_Command	INT
Frequency_Reference	UINT
Acceleration_Time	UDINT
Deceleration_Time	UDINT

Tag access

A tag is a name given to an address. Tags are managed in the CJ2 CPU Unit, where they are defined as network symbols. The common user-defined tag names are used from Programmable Terminals and host applications to access memory in a CJ2 CPU Unit without knowing the physical address.


1. Tag names are managed at the PLC with the CX-Programmer.

Tag name	Address
Number_produced	D100

2. For example, create screens with tag names without typing the physical address.

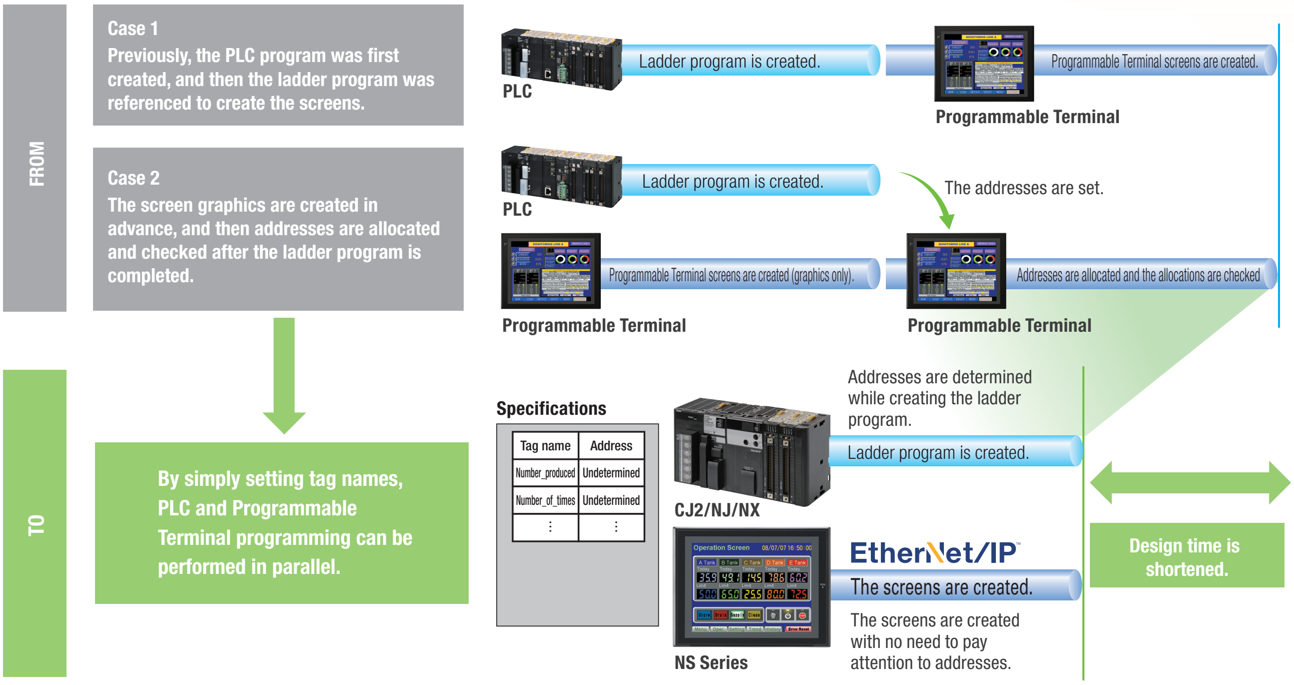
Address: CJ2-LINE1:Number_produced

3. All devices will access with Common “Tag”

>(320)
D100
Products Qty.
D202
Alarm value
<(310)
D100
Products Qty.
D201
Maximum
Machine 1
9999 pcs
EtherNet/IP
Host application
Number_produced
Number_produced
Number_produced
Accessed by tag name.
Data links
Operation Screen
CJ2/NJ/NX
CJ2/NJ/NX
NS Series

Simultaneous and parallel engineering

The host applications can be designed using the tag names of the PLC and PT. Parallel development will shorten the design time.


FROM
PLC
Programmable Terminal
PLC
Programmable Terminal
Programmable Terminal
TO
CJ2/NJ/NX
NS Series
EtherNet/IP
Operation Screen

Case 1
Previously, the PLC program was first created, and then the ladder program was referenced to create the screens.

Ladder program is created.

Programmable Terminal screens are created.

Case 2
The screen graphics are created in advance, and then addresses are allocated and checked after the ladder program is completed.

Ladder program is created.

The addresses are set.

Programmable Terminal screens are created (graphics only).

Addresses are allocated and the allocations are checked

By simply setting tag names, PLC and Programmable Terminal programming can be performed in parallel.

Specifications

Tag name	Address
Number_produced	Undetermined
Number_of_times	Undetermined
⋮	⋮

Addresses are determined while creating the ladder program.

Ladder program is created.

The screens are created.

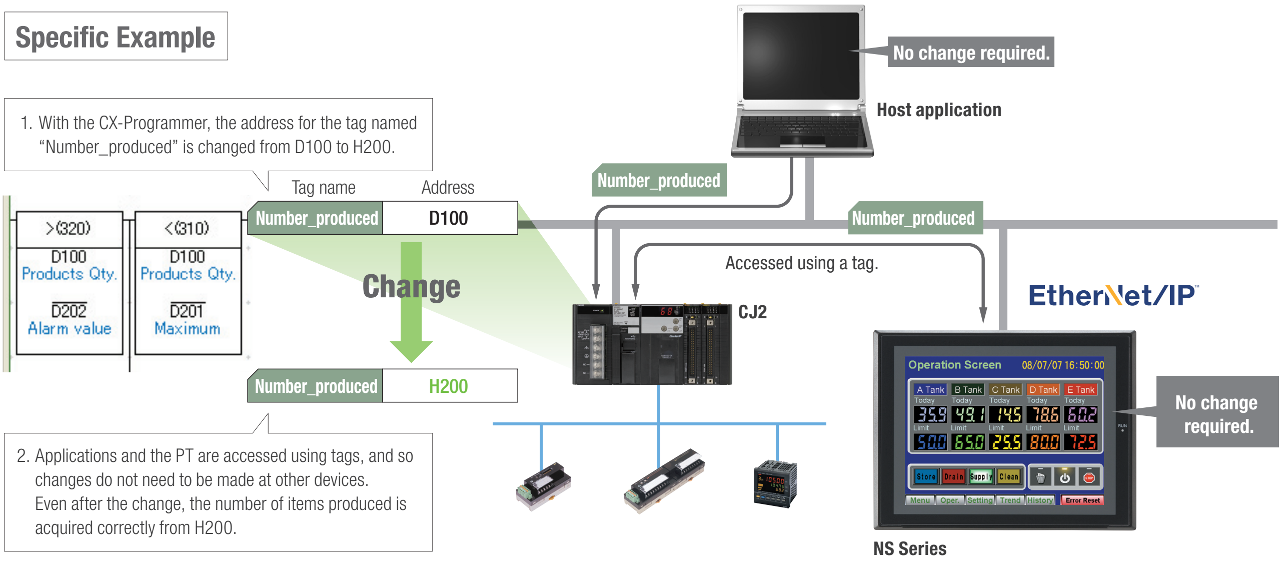
The screens are created with no need to pay attention to addresses.

Design time is shortened.

Minimize side effect of address changes

It is possible to access memory with tags, so the PT and host application are not affected even if the address of data in the PLC is changed.

Specific Example


>(320)
D100
Products Qty.
D202
Alarm value
<(310)
D100
Products Qty.
D201
Maximum
Tag name
Address
Number_produced
D100
Change
Number_produced
H200
Number_produced
Number_produced
Host application
CJ2
EtherNet/IP
NS Series
Operation Screen

1. With the CX-Programmer, the address for the tag named "Number_produced" is changed from D100 to H200.

2. Applications and the PT are accessed using tags, and so changes do not need to be made at other devices. Even after the change, the number of items produced is acquired correctly from H200.

No change required.

Accessed using a tag.

No change required.

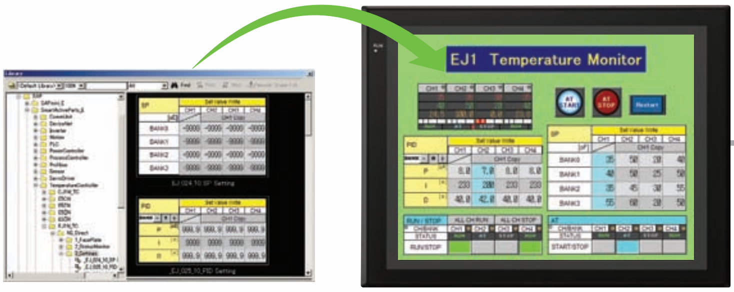
Design

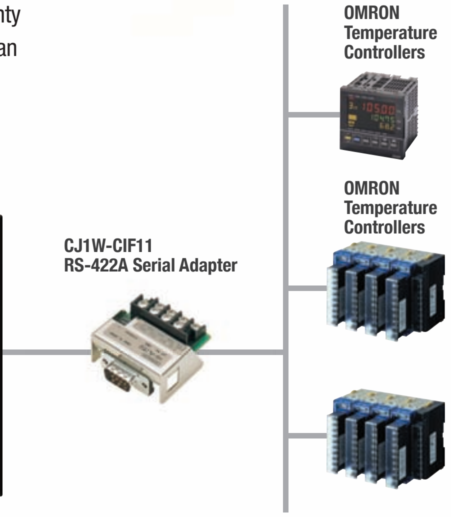
Direct Connection to Temperature Controllers

Connect OMRON Temperature Controllers directly to the NS-series PT.

OMRON Temperature Controllers can be connected directly to the NS-series PT's RS-232C port. Data does not pass through the PLC, so ladder programming is not required. Also, there are plenty of objects in the SAP Library for Temperature Controllers, and Temperature Controller screens can be created easily just by pasting objects from the SAP Library to the screens.

Note: An RS-422A Serial Adapter is needed to connect directly to a Temperature Controller. Refer to page 53 for a list of the Temperature Controllers that can be connected. A Conversion Unit is not required to connect to the RS-422A/485 serial interface of the NS15.





Face Plate Auto-Builder for NS

Screens for Loop Controllers can be easily and automatically created.

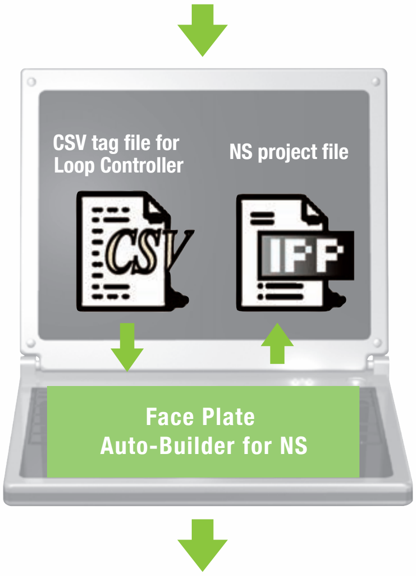
Significantly reduces the effort required to combine a Loop Controller with an NS-series PT.

Easy automatic generation of faceplates, such as faceplates for PV monitoring and SV setting, as well as tuning screens, such as screens to set and autotune PID constants.

A total of 17 function blocks are supported, with eleven function blocks, such as Ratio Setting and Motor Manipulators newly supported (version 3 of higher).

Comments are automatically entered for automatically assigned unit and scale settings when a project is generated (version 3 and higher).

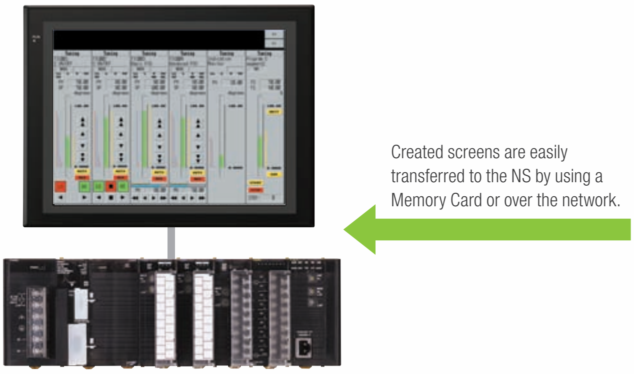
CX-Process Tool
(Loop Controller Programming Software)
- Loop Controller program creation (function block method)
- CSV tag file output



CX-Designer
(NS screen creation software)
- Editing created data
- Creation of other required screens

Created screens are easily transferred to the NS by using a Memory Card or over the network.

NS Series



SYSMAC CS/CJ-series Loop Controller

Note: Refer to the PLC-based Process Control Catalog (Cat. No. P051) and the Loop-control CPU Unit Catalog (Cat. No. R128) for details on Loop Controllers.

Multi-language Support

Support 42 languages and switch the language of the labels among up to 16 languages.

Unicode is supported and 42 Asian and European languages can be combined in screens. Also, it is possible to switch between up to 16 labels using the label switching function, so it is possible to support up to 16 languages in a single screen just by specifying the language to be displayed in each label.

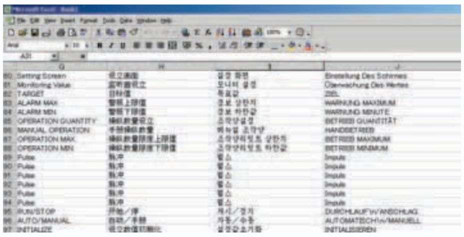
NS Series

Support for
42 International
Languages

Thai Displays Also Supported

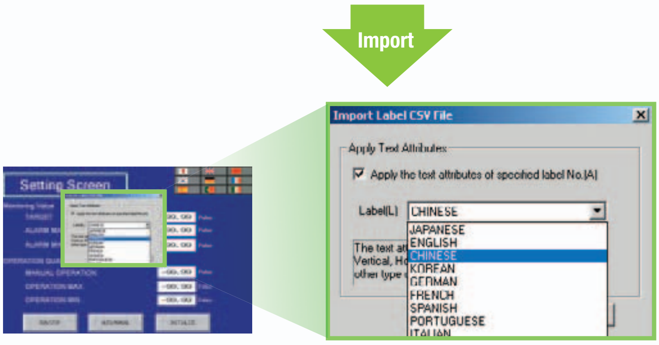
ราชอาณาจักรไทย

Multi-language CSV data



The labels' text attributes can also be reflected when importing.

When screen data is imported, text attributes can be applied to the specified labels and attributes such as the font and text color can be reflected to other languages labels.


Import
Setting Screen
Import Label CSV File
JAPANESE
ENGLISH
CHINESE
KOREAN
GERMAN
FRENCH
SPANISH
PORTUGUESE
ITALIAN

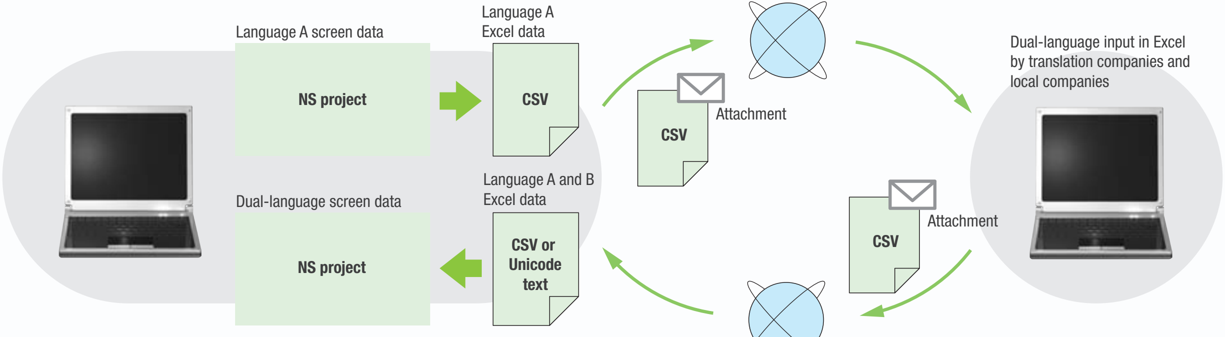
Apply Text Attributes

☑ Apply the text attributes of specified label No.[A]

Label(L) CHINESE

Multi-language conversion has become much easier.

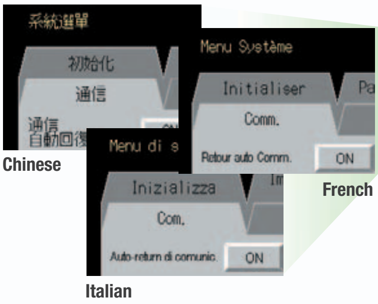
The screen data in the source language is exported to a CSV file and sent to a translation agency by e-mail for translation. Later, the translated CSV file is just imported to easily provide multi-language support.


Language A screen data
NS project
Language A
Excel data
CSV
CSV
Attachment
Dual-language input in Excel
by translation companies and
local companies
Language A and B
Excel data
Dual-language screen data
NS project
CSV or
Unicode
text
CSV
Attachment

Note: Windows XP (Service Pack3 or higher), Vista or 7 is required for multi-language support.

Multi-language System Messages. Eight Languages Supported as Standard Feature

The system program of NS-series PTs supports Chinese and European languages. All eight languages are a standard feature, including Chinese (traditional and simplified), Spanish, Italian, German, and French, in addition to the previous Japanese and English. Along with maintenance menus, messages for communications errors, communications settings, and screen transfers can be displayed in any of eight languages. Maintenance can be performed in the desired language. The language can be easily set using the NS-series PT or screen data.

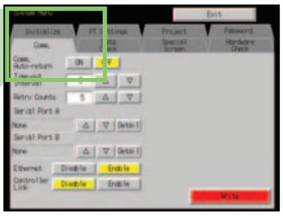

系統選單
初始化
通信
Menu Système
Initialiser
Comm.
Retour auto Comm.
ON
Menu di s
Inizializza
Com.
Auto-return di comunic.
ON

Chinese

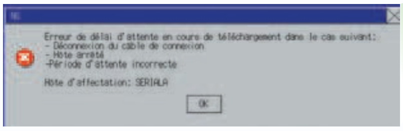
French

Italian

English system menu (maintenance menu)



Multi-language messages for communications errors



Erreur de délai d'attente en cours de téléchargement dans le cas suivant:
- Déconnexion du câble de connexion
- Hôte arrêté
-Période d'attente incorrecte

Hôte d'affectation: SERIALA

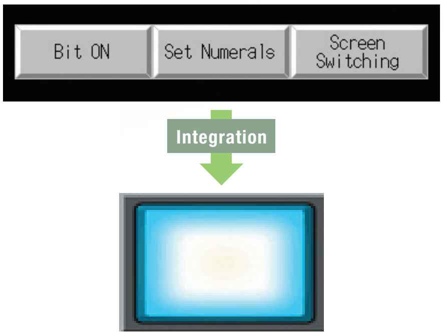
Réglage De l'Ecran

Multifunction Objects

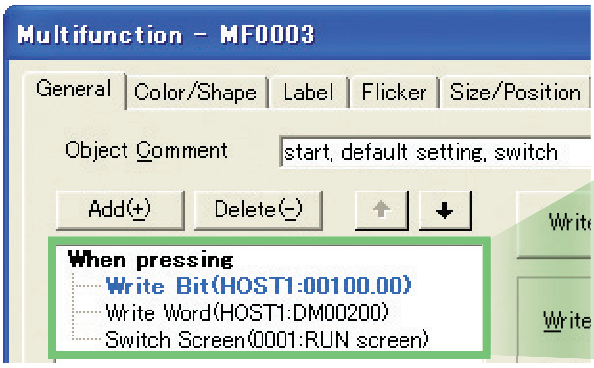
Execute up to 32 functions with one Multifunction Object Multifunction Objects support Write Bit, Write Word, object control, and etc

Multifunction Objects combine the functions of multiple objects into one object. Multiple functions can be executed by pressing one button without using troublesome macros. Setup is easy. For example, a setting can be made on-screen using the Support Software to turn ON a bit to start a machine, set a value, and then change the screen.

Multifunction execution with one object


Bit ON
Set Numerals
Screen Switching
Integration

Easy On-screen Setup with Support Software!

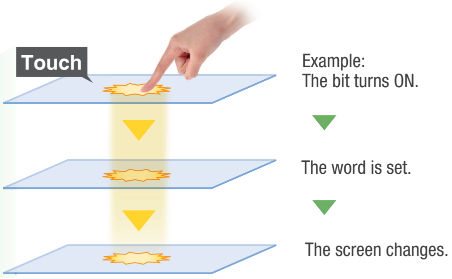

General
Color/Shape
Label
Flicker
Size/Position
Add(+)
Delete(-)
Write
Write

Multifunction – MF0003

Object Comment: start, default setting, switch

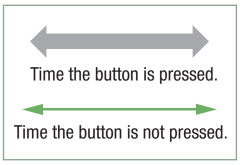
When pressing
- Write Bit(HOST1:00100.00)
- Write Word(HOST1:DM00200)
- Switch Screen(0001:RUN screen)

Execute multiple functions with one button.

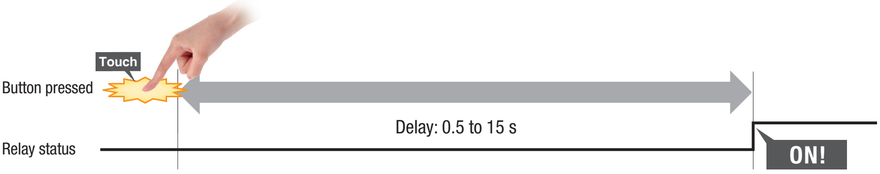

Touch
Example:
The bit turns ON.
The word is set.
The screen changes.

Multifunction Objects support four useful functions

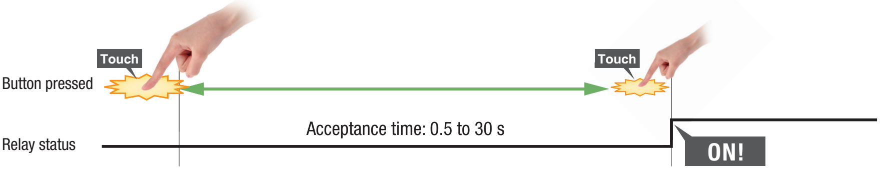
Switches that do not immediately operate when touched can be easily made without ladder programming.


Time the button is pressed.
Time the button is not pressed.

ON delay Turns ON when the button is pressed for at least a specified time.

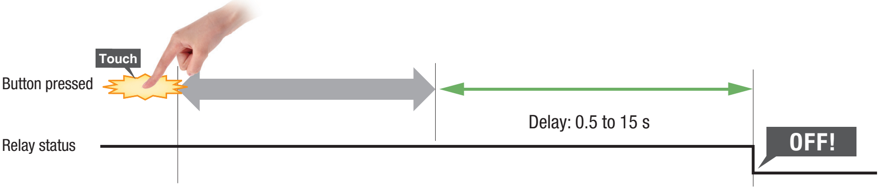

Touch
Button pressed
Delay: 0.5 to 15 s
Relay status
ON!

Double-press Turns ON when the button is pressed twice within the specified time.


Touch
Touch
Button pressed
Acceptance time: 0.5 to 30 s
Relay status
ON!

Simultaneous pressing prohibited Does not turn ON when the button is pressed at the same time as another button.

OFF delay Turns OFF after a specified time lapses after the button is released.

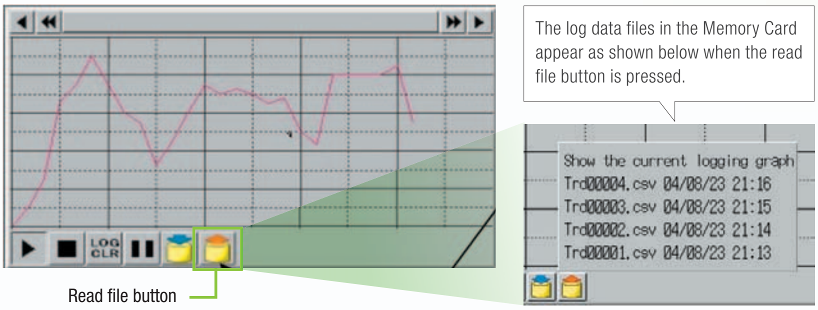

Touch
Button pressed
Delay: 0.5 to 15 s
Relay status
OFF!

Plentiful Graphing Functions

Data Log Graph (Trend Graph)

Up to 128 data can be collected in the cycle of 500ms. Logging data is stored as a CSV file in the Memory Card inserted in the NS-series PT.

Logging data is stored as a CSV file in the Memory Card mounted in the NS-series PT. The data stored in the Memory Card can be read or deleted from the screen.

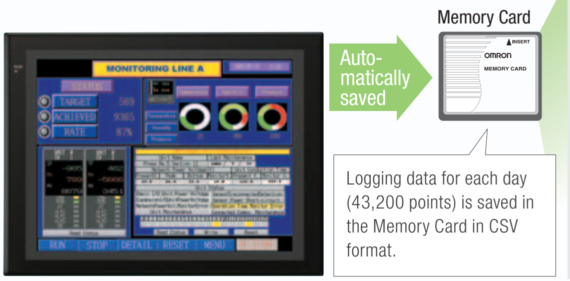


The log data files in the Memory Card appear as shown below when the read file button is pressed.

Show the current logging graph
Trd00004.csv 04/08/23 21:16
Trd00003.csv 04/08/23 21:15
Trd00002.csv 04/08/23 21:14
Trd00001.csv 04/08/23 21:13

Read file button

A log can be saved automatically, without any programming, just by selecting the Save the data periodically Option in the Data Log Setting Window.



MONITORING LINE A
Auto-matically saved
Memory Card
OMRON
MEMORY CARD

Suffixes are automatically added to file names set in the CX-Designer.

LOG001.CSV 04/06/04 10:00
LOG002.CSV 04/06/05 10:00
LOG003.CSV 04/06/06 10:00
LOG004.CSV 04/06/07 10:00
LOG005.CSV 04/06/08 10:00
LOG006.CSV 04/06/09 10:00
LOG007.CSV 04/06/10 10:00

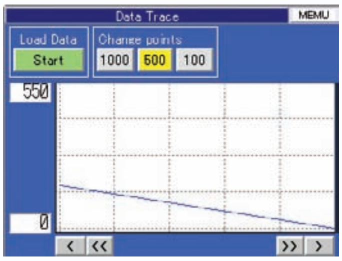
Logging data for each day (43,200 points) is saved in the Memory Card in CSV format.

It is possible to make a one-week log by automatically saving the data seven times.

Line Graph Function

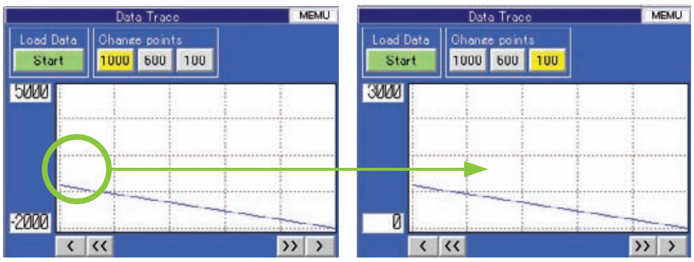
The data logged by the PLC can be displayed in overlapping graphs, so a device's operation can be compared for evaluation and analysis. In addition, up to 1,000 words of consecutive data can be displayed as a line graph, data can be displayed together, and any region can be magnified.

(1) Graphs can be superimposed.



Data Trace
MEMU
Load Data
Start
Change points
1000
500
100
550
0

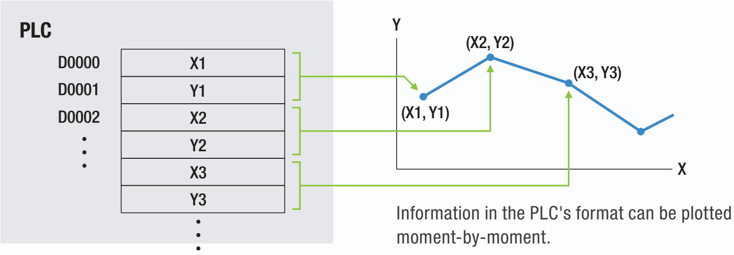
(2) The display can be magnified.



Data Trace
MEMU
Load Data
Start
Change points
1000
500
100
5000
-2000
Data Trace
MEMU
Load Data
Start
Change points
1000
500
100
3000
0

Continuous Line Function

Any position from the host (PLC) can be plotted as a graph. A graph can be plotted in any position by specifying the X and Y coordinates of the vertices. Also, the graph can be moved on the screen by specifying the movements from the PLC.



PLC
D0000
D0001
D0002
X1
Y1
X2
Y2
X3
Y3
Y
X
(X1, Y1)
(X2, Y2)
(X3, Y3)

Information in the PLC's format can be plotted moment-by-moment.

Screen Data Security Functions

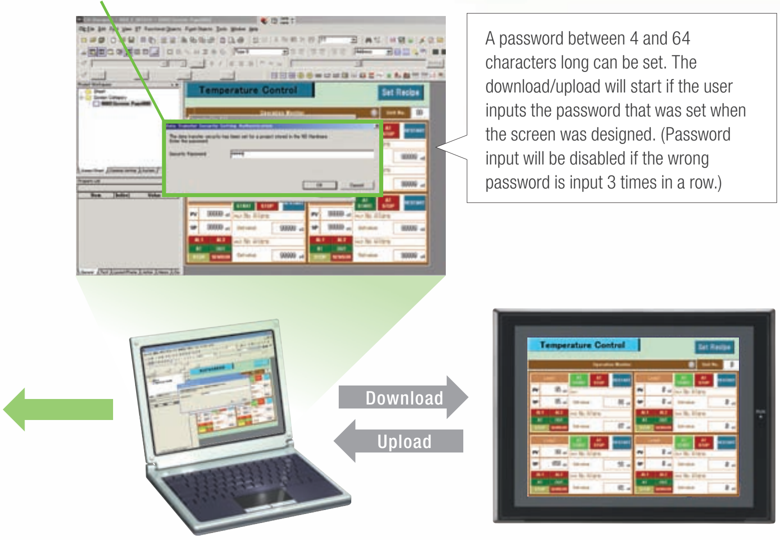
Protect important screen data with a password.

If password protection is set in the data transfer security settings when the screen data is designed, a password must be entered to download or upload the screen data, so important screen data can be protected.

Please input the password
Download
Upload

If a password has been set, the password is required to transfer screen data (download or upload) with the Memory Card.

Security password


Temperature Control
Set Recipe
Download
Upload

A password between 4 and 64 characters long can be set. The download/upload will start if the user inputs the password that was set when the screen was designed. (Password input will be disabled if the wrong password is input 3 times in a row.)

Device Data Transfer

Easy Data Exchange between the PLC and Components

For example, temperature controller alarm values can be transferred to the DM Area of the PLC's CPU Unit. No communications programming or macros are required.

Multi-vendor Support

Devices from multiple vendors are supported.
Data can be easily exchanged with PLCs from other companies and Modbus devices.

Easy Settings

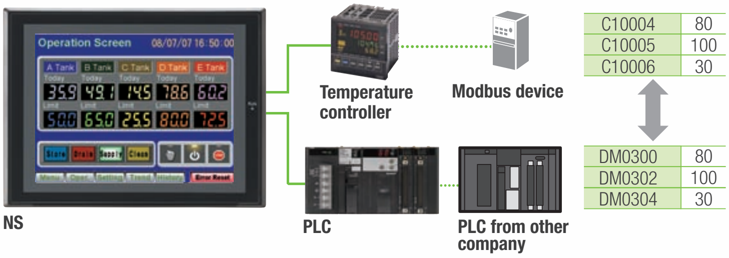
To make the settings, simply specify the device and addresses of the transfer source and transfer destination in the CX-Designer. Settings can be made using the same procedure as for setting the addresses for normal components.

Easier Operation when Combining SAP Library Objects

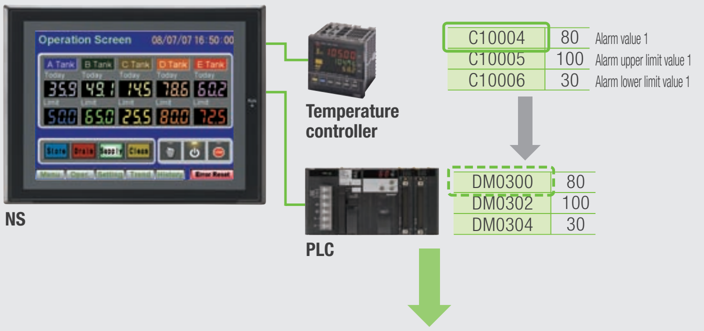
SAP data can also be exchanged. SAP data can be exchanged by checking the address of the SAP data in the dialog box of the SAP object pasted in the CX-Designer and specifying that address as the transfer source address.

Note 1: EtherNet/IP tags are not supported.
Note 2: CX-Designer version 3.1 or higher is required.
NS system version 8.2 or higher is required.

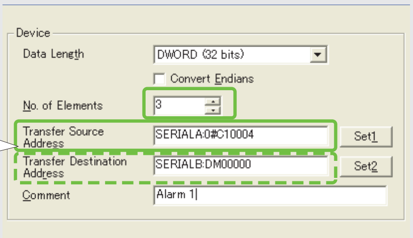
Multi-vendor Support


Operation Screen
NS
Temperature controller
Modbus device
PLC
PLC from other company
C10004 80
C10005 100
C10006 30
DM0300 80
DM0302 100
DM0304 30

Easy Settings


Operation Screen
NS
Temperature controller
PLC
C10004 80 Alarm value 1
C10005 100 Alarm upper limit value 1
C10006 30 Alarm lower limit value 1
DM0300 80
DM0302 100
DM0304 30

CX-Designer Select Device Data Transfer Setting from the PT Menu.


Device
Data Length: DWORD (32 bits)
☐ Convert Endians
No. of Elements: 3
Transfer Source Address: SERIALA:0#C10004 Set1
Transfer Destination Address: SERIALB:DM00000 Set2
Comment: Alarm 1

Make the settings simply by specifying the addresses of the transfer source and transfer destination as well as the number of data items.

NS Screen Templates

The CX-Designer of version 3.5 or higher provides the palette to display objects and templates. Refer to the next page for details of the palette.

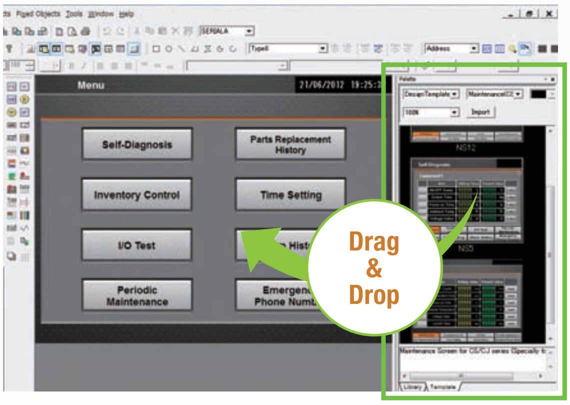
Even Simpler

Templates can be read into the screen by just dragging and dropping thumbnails displayed on the palette.

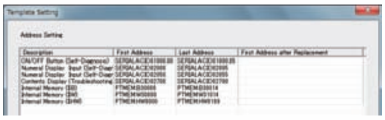
The template consisting of multiple screens allows multiple screens to be read by dragging and dropping it once.

The Address Setting Dialog Box that is displayed to read templates is useful for changing addresses all at once.

Easy Reading from Palette


Menu
Self-Diagnosis
Parts Replacement History
Inventory Control
Time Setting
I/O Test
Periodic Maintenance
Emergency Phone Number
Drag
&
Drop
Palette

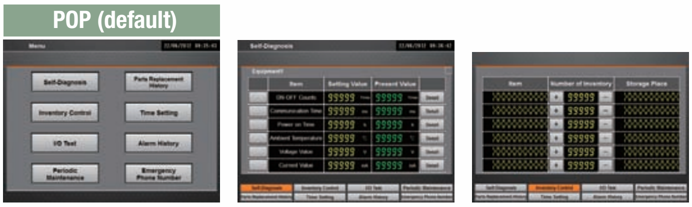
Address Setting Dialog Box

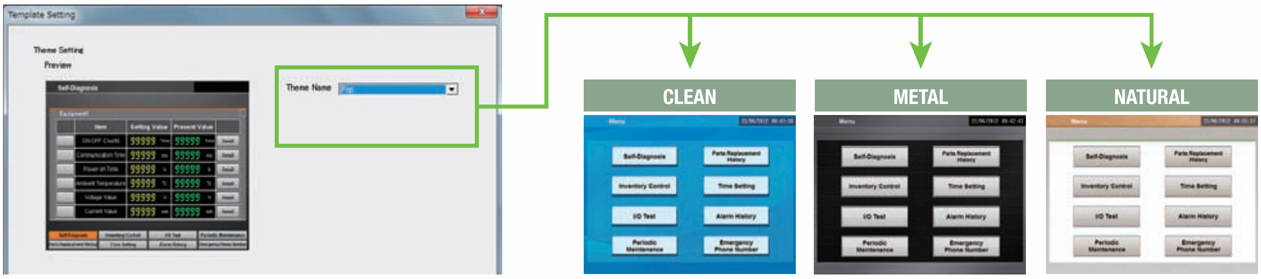

Template Setting
Address Setting
Description
First Address
Last Address
First Address after Replacement

Even More Beautiful

The refined templates enable you to use the NS Series with the screens that have a sense of unity in design.

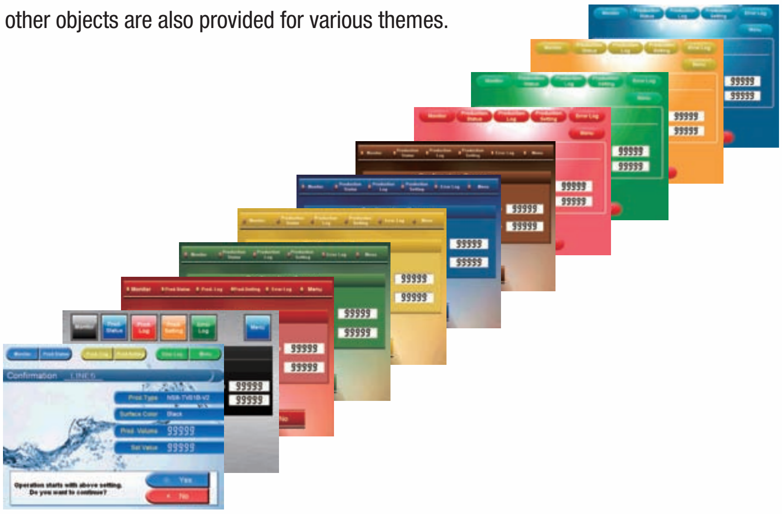
Three different types of templates besides default screens are provided. The design can be changed easily with "Theme Name" that is displayed when dragging and dropping.

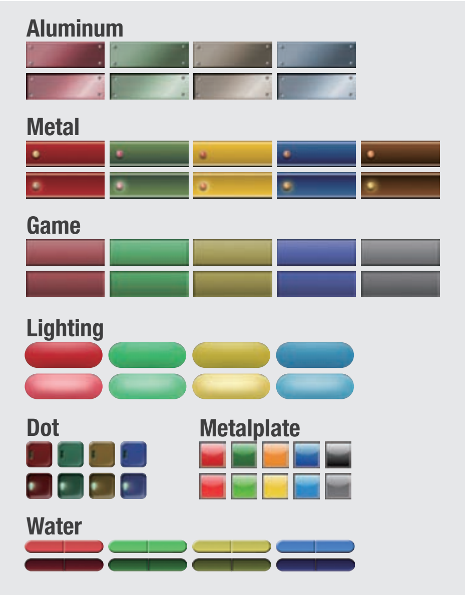

POP (default)


Template Setting
Theme Setting
Preview
Theme Name
Pop
CLEAN
METAL
NATURAL

“Cool” Objects

Backgrounds, buttons, labels, message boxes, and other objects are also provided for various themes.




Aluminum
Metal
Game
Lighting
Dot
Metalplate
Water

CX-Designer, Screen Design Software

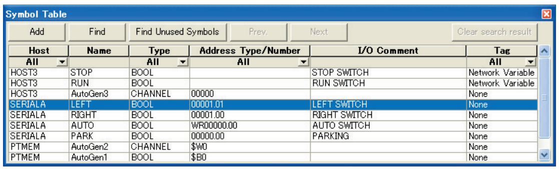
User-friendly Screen Creation

Without screen creation and ladder programming, the CX-Designer Screen Design Software is so easy-to-use that anyone can master it. Quickly create the required screen by dragging and dropping objects. OMRON' s unified development environment lets you drastically reduce the work required to create screens.

Note: The same type of Project Workspace and Output Window as in the CX-Programmer are provided for the user interface.

All addresses and comments can be managed using a single Symbol Table.

Shows a list of addresses, names, and comments used in project screen data. Addresses, names, and I/O comments for the CX-Programmer can also be imported.

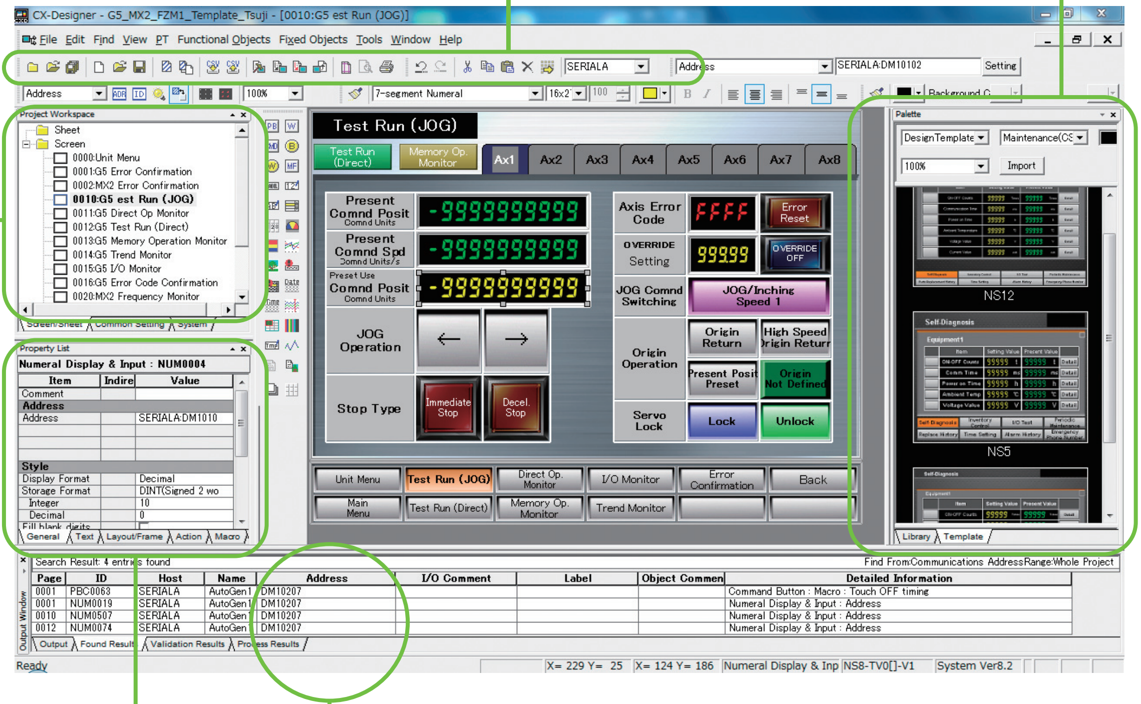

Symbol Table
Add
Find
Find Unused Symbols
Prev.
Next
Clear search result

Host	Name	Type	Address Type/Number	I/O Comment	Tag
All		All	All		All
HOST3	STOP	BOOL		STOP SWITCH	Network Variable
HOST3	RUN	BOOL		RUN SWITCH	Network Variable
HOST3	AutoGen3	CHANNEL	00000		None
SERIALA	LEFT	BOOL	00001.01	LEFT SWITCH	None
SERIALA	RIGHT	BOOL	00001.00	RIGHT SWITCH	None
SERIALA	AUTO	BOOL	WR00000.00	AUTO SWITCH	None
SERIALA	PARK	BOOL	00000.00	PARKING	None
PTMEM	AutoGen2	CHANNEL	$W0		None
PTMEM	AutoGen1	BOOL	$B0		None

Improved Icons and Help

Objects and templates can be selected easily from the palette.

Easy-to-use, well-designed, and super-beautiful objects and templates can be read into the screen by dragging and dropping. Templates can be chosen from four different designs.


CX-Designer - G5_MX2_FZM1_Template_Tsuji - [0010:G5 est Run (JOG)]
File Edit Find View PT Functional Objects Fixed Objects Tools Window Help
SERIALA
Address
SERIALA:DM10102
Setting
Address
100%
7-segment Numeral
Background C
Project Workspace
Sheet
Screen
0000:Unit Menu
0001:G5 Error Confirmation
0002:MX2 Error Confirmation
0010:G5 est Run (JOG)
0011:G5 Direct Op Monitor
0012:G5 Test Run (Direct)
0013:G5 Memory Operation Monitor
0014:G5 Trend Monitor
0015:G5 I/O Monitor
0016:G5 Error Code Confirmation
0020:MX2 Frequency Monitor
Screen/Sheet
Common Setting
System
Property List
Numeral Display & Input : NUM0004
Item
Indire
Value
Comment
Address
Address
SERIALA:DM1010
Style
Display Format
Decimal
Storage Format
DINT(Signed 2 wo
Integer
10
Decimal
0
Fill blank digits
General
Text
Layout/Frame
Action
Macro
Test Run (JOG)
Test Run (Direct)
Memory Op. Monitor
Ax1
Ax2
Ax3
Ax4
Ax5
Ax6
Ax7
Ax8
Present Comnd Posit Comnd Units
Present Comnd Spd Comnd Units/s
Preset Use Comnd Posit Comnd Units
-9999999999
-9999999999
-9999999999
Axis Error Code
FFFF
Error Reset
OVERRIDE Setting
99999
OVERRIDE OFF
JOG Comnd Switching
JOG/Inching Speed 1
JOG Operation
←
→
Origin Operation
Origin Return
High Speed Origin Return
Present Posit Preset
Origin Not Defined
Stop Type
Immediate Stop
Decel. Stop
Servo Lock
Lock
Unlock
Unit Menu
Test Run (JOG)
Direct Op. Monitor
I/O Monitor
Error Confirmation
Back
Main Menu
Test Run (Direct)
Memory Op. Monitor
Trend Monitor
Palette
DesignTemplate
Maintenance(CS
100%
Import
NS12
Self-Diagnosis
NS5
Library
Template
Output Window
Search Result: 4 entries found
Find From:Communications AddressRange:Whole Project
Output
Found Result
Validation Results
Process Results
Ready
X= 229 Y= 25
X= 124 Y= 186
Numeral Display & Inp
NS8-TV0[]-V1
System Ver8.2

Page	ID	Host	Name	Address	I/O Comment	Label	Object Commen	Detailed Information
0001	PBC0063	SERIALA	AutoGen1	DM10207				Command Button : Macro : Touch OFF timing
0001	NUM0019	SERIALA	AutoGen1	DM10207				Numeral Display & Input : Address
0010	NUM0507	SERIALA	AutoGen1	DM10207				Numeral Display & Input : Address
0012	NUM0074	SERIALA	AutoGen1	DM10207				Numeral Display & Input : Address

The project Workspace enables the user to look through the entire project.

- Screens you want to edit can be opened right away.
- Perform screen management, such as copying or deleting screens, by simply right-clicking.
- Reusing screens from other projects is easy with the CX-Designer.
- Settings for alarms, data logs, communications, and other functions can be easily accessed.

Drastically reduce the number of clicks in the project.

Just click on the object once to display or change properties. Multiple objects can be selected to display and change shared properties all at once.

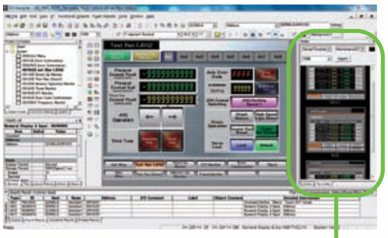
The Output Window shows search results.

In addition to addresses and I/O comments used in screen data, labels can also be used as search strings and the results can be displayed.

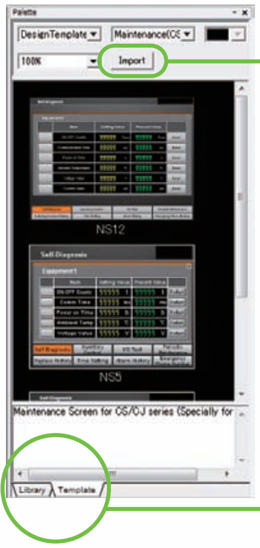
Palette

Switches, lamps, and templates are registered in the palette.
Just drag and drop them on the new or existing screen to add.

Note. CX-Designer version 3.5 or higher is required.



Palette
The palette appears on the right side of the screen when starting the CX-Designer.


DesignTemplate
Maintenance(CS
100%
Import
NS12
NS5
Maintenance Screen for CS/CJ series (Specially for
Library
Template

Import
The Import button allows new objects and templates to be added to the palette.

Library
Template

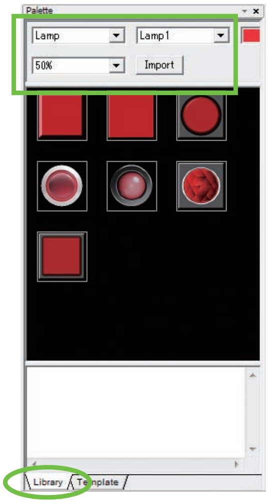
Library and Template tabs at the bottom left of the palette

Library
Parts list of switches and lamps is displayed.

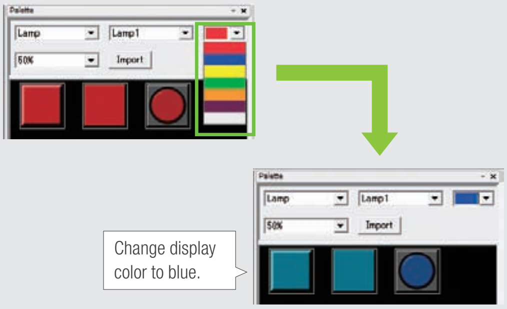
Template
Templates are displayed in thumbnailed form.

Library

Switches and lamps are registered in the library. Select a switch, lamp, or other object from the pull-down menu. You can register switches you created or other objects you often use in "User-defined".


Palette
Lamp
Lamp1
50%
Import
Library
Template

Color Setting
Display colors of objects registered in the library can be changed easily by selecting colors from pull-down menus.

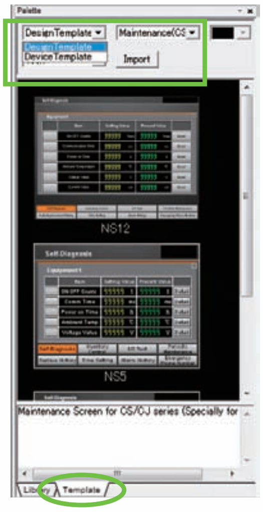

Palette
Lamp
Lamp1
50%
Import

Change display color to blue.

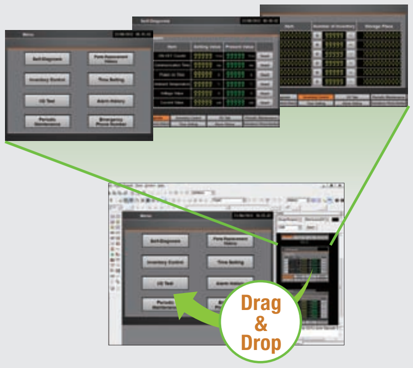
Template

Templates include design templates and device templates.

- **Design Template**
  Design templates are the screen templates designed professionally. Addresses can be changed with "Address Setting Dialog Box".
- **Device Template**
  As well as SAP (Smart Active Parts), addresses on the screen are automatically updated by changing unit number of Temperature Controller or Special I/O Unit with "Unit No Dialog Box".


Palette
DesignTemplate
Design Template
Device Template
Maintenance(CS
Import
NS12
NS5
Maintenance Screen for CS/CJ series (Specially for
Library
Template

A template consists of multiple screens. Multiple screens are pasted on the screen by dragging and dropping a thumbnail on the screen.

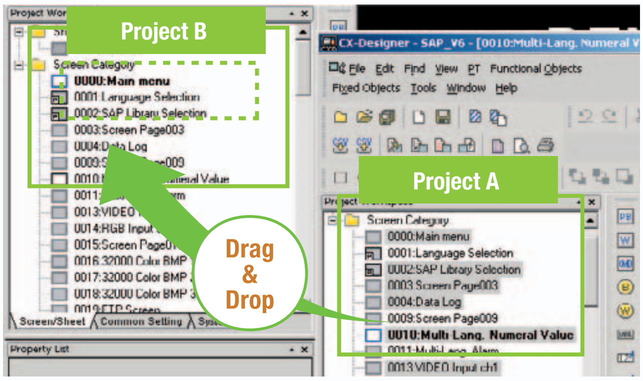


Design

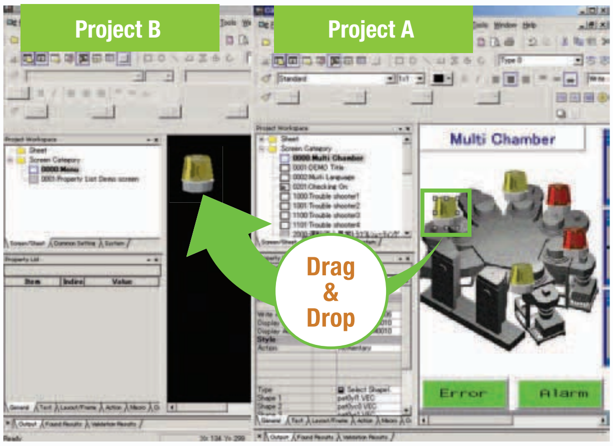
Reading Another Project's Screens and Objects

Resources from another project can be easily reused by just selecting the screen or objects that you want to read and dragging and dropping it, so screens can be created intuitively.

Example screen 1 Select the screen that you want to read, drag it to the destination, and drop it.

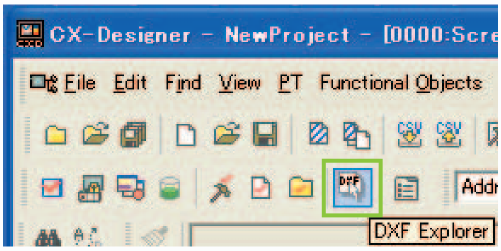

Project B
Screen Category
0000:Main menu
0001:Language Selection
0002:SAP Library Selection
0003:Screen Page003
0004:Data Log
0013:VIDEO
0014:RGB Input
0015:Screen Page0
0016:32000 Color BMP
0017:32000 Color BMP
0018:32000 Color BMP
0019:FTP Screen
Screen/Sheet
Common Setting
Property List
CX-Designer - SAP_V6 - [0010:Multi-Lang. Numeral V
File Edit Find View PT Functional Objects
Fixed Objects Tools Window Help
Project A
Screen Category
0000:Main menu
0001:Language Selection
0002:SAP Library Selection
0003:Screen Page003
0004:Data Log
0009:Screen Page009
0010:Multi Lang. Numeral Value
0011:Multi Lang. Alarm
0013:VIDEO Input ch1
Drag
&
Drop

Example screen 2 Select the part that you want to read, drag it to the destination, and drop it.


Project B
Project A
Multi Chamber
Error
Alarm
Drag
&
Drop

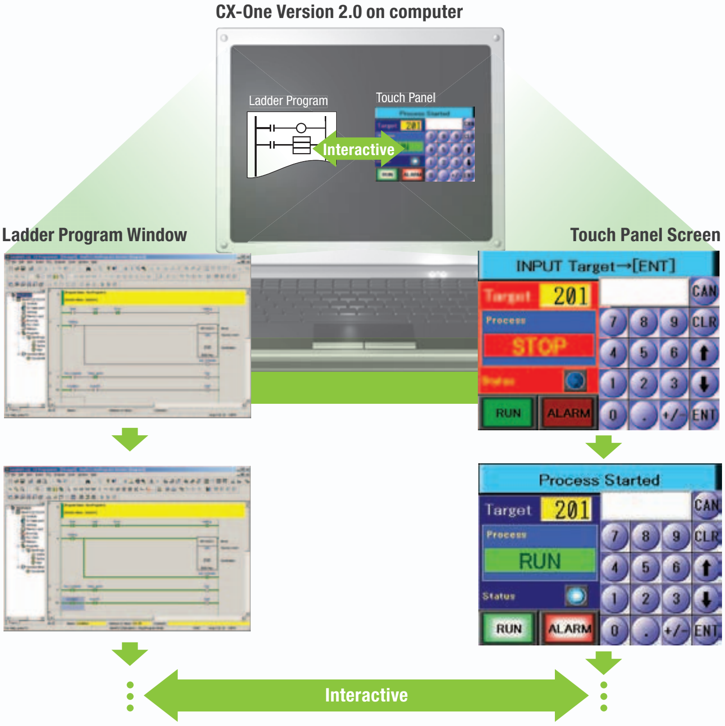
Reading CAD Files

It is possible to import DXF files by dragging and dropping them. The files are read as a diagram, and so less capacity is used than with images. It is also easy to customize the diagram by changing the shape or color.


CX-Designer - NewProject - [0000:Scre
File Edit Find View PT Functional Objects
DXF
Addr
DXF Explorer

The screen data and ladder program can be checked simultaneously in the computer.

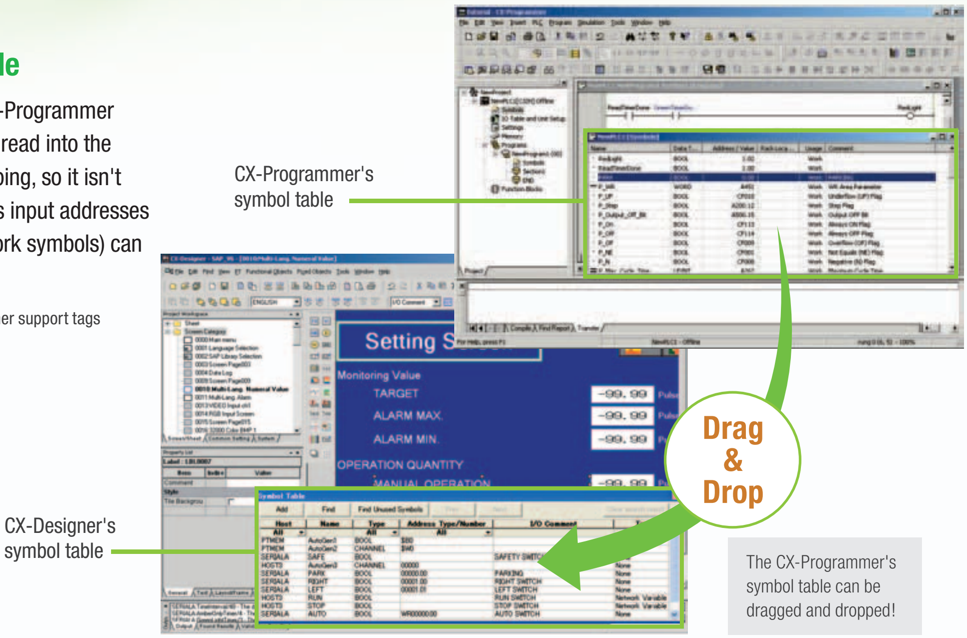
The CX-Designer and CX-Programmer interconnects the test functions in the computer through the CX-Simulator. The screens and ladder program checks are performed simultaneously, which significantly increases debugging efficiency. The CX-Programmer also has a new button for integrated simulation. And, work efficiency is further improved with the ability to keep required work screens pinned on front and to zoom in or out as desired.


CX-One Version 2.0 on computer
Ladder Program
Touch Panel
Interactive
Ladder Program Window
Touch Panel Screen
INPUT Target→[ENT]
Target 201
Process
STOP
Status
RUN
ALARM
CAN
CLR
ENT
Process Started
Target 201
Process
RUN
Status
RUN
ALARM
Interactive

Reading the Symbol Table

The symbol table created in the CX-Programmer during ladder programming can be read into the CX-Designer by dragging and dropping, so it isn't necessary to manually data such as input addresses and I/O comments. Tags (i.e., network symbols) can also be read into the CX-Designer.

Note: Version 8.0 or higher of the CX-Programmer support tags (i.e., network symbols).


CX-Programmer's symbol table
CX-Designer's symbol table
Drag & Drop
Setting S
Monitoring Value
TARGET
ALARM MAX.
ALARM MIN.
OPERATION QUANTITY
MANUAL OPERATION
-99. 99

The CX-Programmer's symbol table can be dragged and dropped!

Example of Reading the Symbol Table

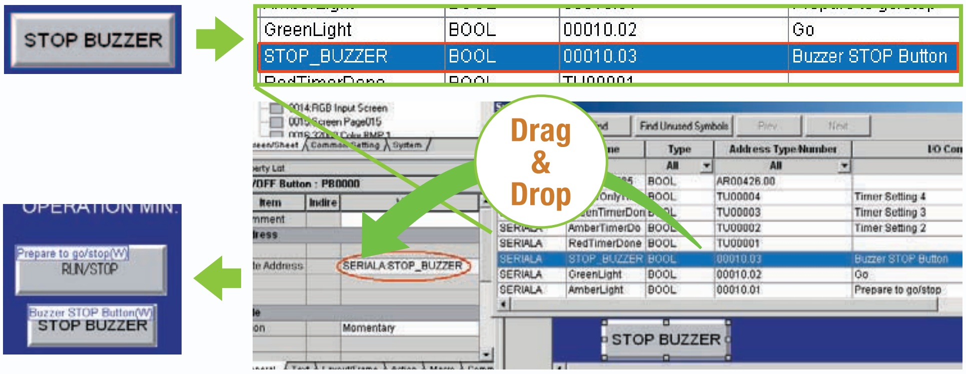
The symbol table read from the CX-Programmer can be directly dragged and dropped to the touch switch and lamp.

Example of Easy Address Allocation

(1) Create a switch on the screen.

(2) Check the comment then drag-and-drop the symbol from the symbol table to the property list.

(3) Allocations for buttons and lamps can also be checked on the screen using comments imported from the CX-Programmer.


STOP BUZZER
Drag & Drop
OPERATION MIN.
Prepare to go/stop(W)
RUN/STOP
Buzzer STOP Button(W)
STOP BUZZER
Find Unused Symbols
Prev
Next
0014:RGB Input Screen
0015:Screen Page015
Common Setting
System
OFF Button : PB0000
Item
Indire

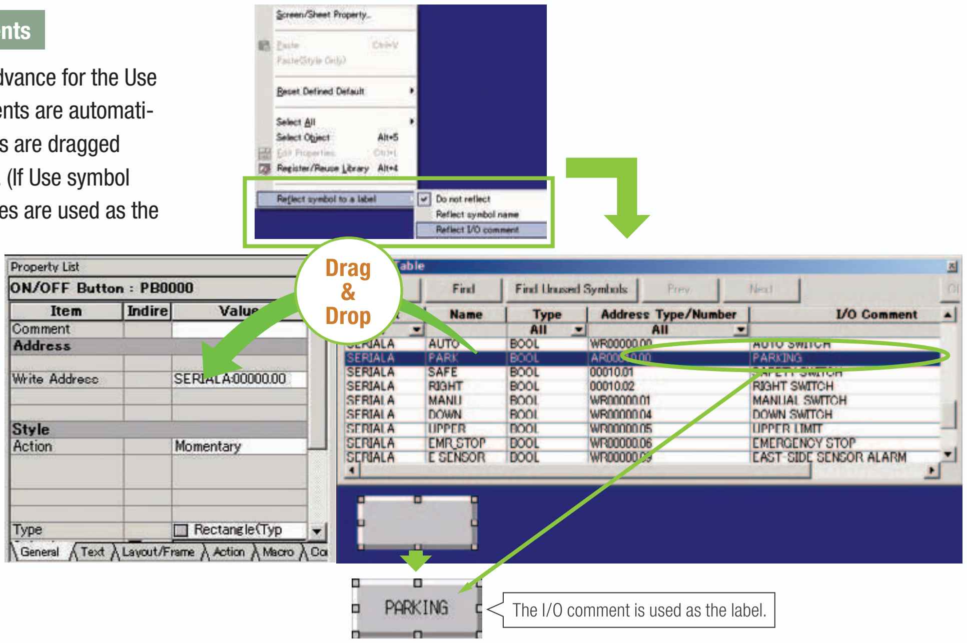
GreenLight	BOOL	00010.02	Go
STOP_BUZZER	BOOL	00010.03	Buzzer STOP Button

Address: SERIALA:STOP_BUZZER
Action: Momentary

		Type	Address Type/Number	I/O Com
SERIALA	RedTimerDone	BOOL	TU00001	
SERIALA	STOP_BUZZER	BOOL	00010.03	Buzzer STOP Button
SERIALA	GreenLight	BOOL	00010.02	Go
SERIALA	AmberLight	BOOL	00010.01	Prepare to go/stop

Example of Reading I/O Comments

If Use I/O comment is selected in advance for the Use symbol text as label, the I/O comments are automatically used as labels when addresses are dragged and dropped from the symbol table. (If Use symbol names is selected, the symbol names are used as the labels.)


Screen/Sheet Property...
Paste Ctrl+V
Paste(Style Only)
Reset Defined Default
Select All
Select Object Alt+5
Edit Properties Ctrl+L
Register/Reuse Library Alt+4
Reflect symbol to a label
Do not reflect
Reflect symbol name
Reflect I/O comment
Drag & Drop
Find
Find Unused Symbols
Prev
Next
General
Text
Layout/Frame
Action
Macro
PARKING

Property List
ON/OFF Button : PB0000

Item	Indire	Value
Comment		
Address		
Write Address		SERIALA:00000.00
Style		
Action		Momentary
Type		☐ Rectangle(Typ

	Name	Type	Address Type/Number	I/O Comment
SERIALA	AUTO	BOOL	WR00000.00	AUTO SWITCH
SERIALA	PARK	BOOL	AR00[illegible]0.00	PARKING
SERIALA	SAFE	BOOL	00010.01	SAFETY SWITCH
SERIALA	RIGHT	BOOL	00010.02	RIGHT SWITCH
SERIALA	MANU	BOOL	WR00000.01	MANUAL SWITCH
SERIALA	DOWN	BOOL	WR00000.04	DOWN SWITCH
SERIALA	UPPER	BOOL	WR00000.05	UPPER LIMIT
SERIALA	EMR_STOP	BOOL	WR00000.06	EMERGENCY STOP
SERIALA	E SENSOR	BOOL	WR00000.[illegible]	EAST SIDE SENSOR ALARM

The I/O comment is used as the label.

Startup/Operation

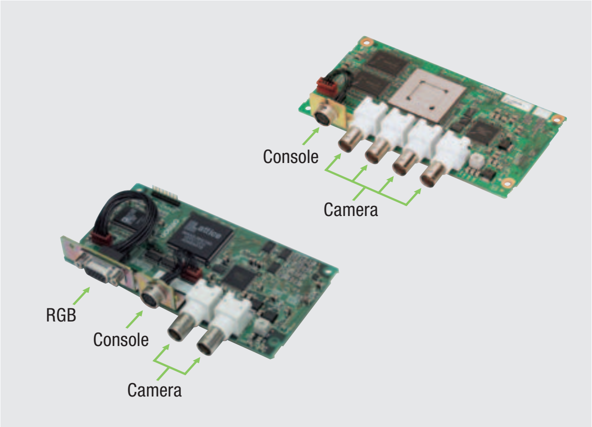
260,000-color Video Display

Equipment and workpiece movements can also be displayed in beautiful video

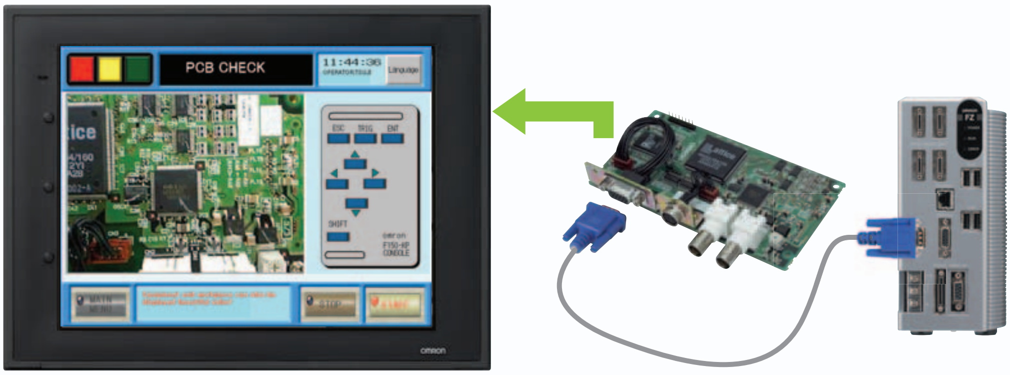
NS-CA001 Video Input Unit
Four video inputs or CCD cameras can be connected and up to four images can be displayed simultaneously if the image size is 320x240 pixels. The NS-CA001 cannot be used with the NS5 or the NS15.

NS-CA002 RGB/Video Input Unit
There is an analog RGB input terminal in addition to the two video input terminals. Either of the video signals or the analog RGB signal can be displayed on the NS-series PT. The NS-CA002 cannot be used with the NS5.

Note: Video input cannot be used with the NS15.
Only RGB input can be used.


Console
Camera
RGB
Console
Camera

Also Compatible with OMRON Vision Sensors.

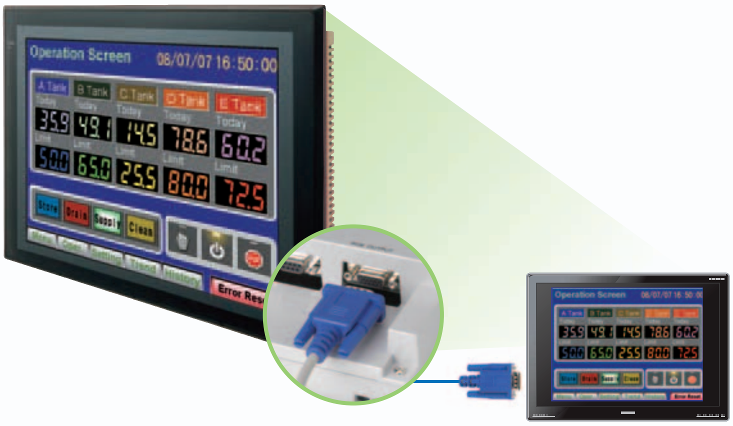

PCB CHECK
11:44:38
Language
ESC
TRIG
ENT
SHIFT
omron

Analog RGB Output

The NS screen is seen by another monitor.

The NS15 screen (XGA) can be displayed on an on-site display that has RGB inputs.

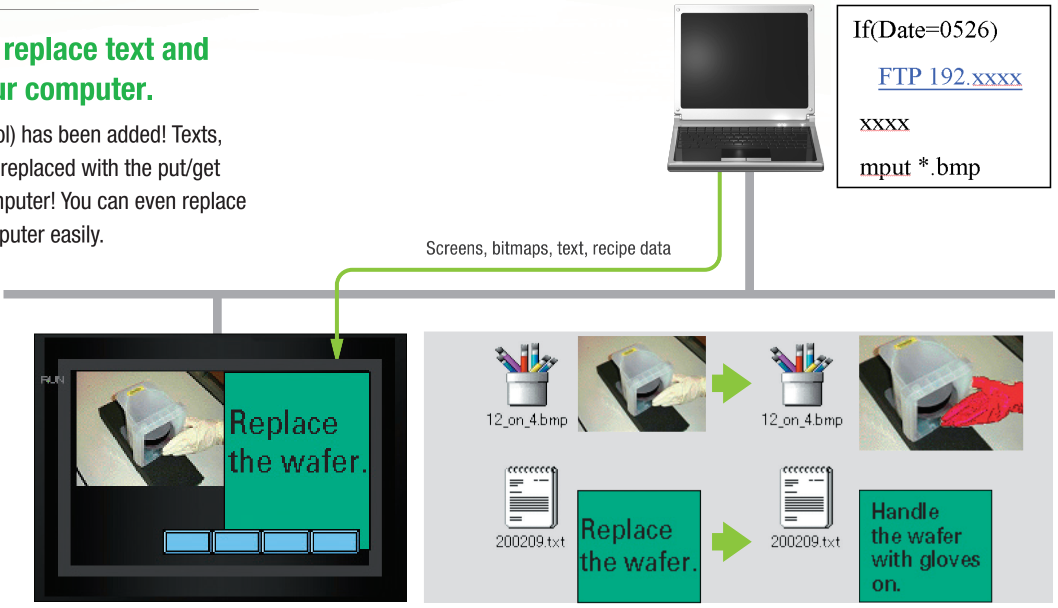
Note: Only NS15


Operation Screen
08/07/07 16:50:00
A Tank
B Tank
C Tank
D Tank
E Tank

FTP Function

You can partially replace text and pictures from your computer.

FTP (File Transfer Protocol) has been added! Texts, lists, and recipes can be replaced with the put/get command from your computer! You can even replace BMP files from your computer easily.



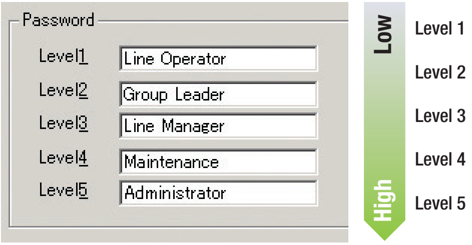
```
If(Date=0526)
  FTP 192.xxxx
 xxxx
 mput *.bmp
```

Screens, bitmaps, text, recipe data
RUN
Replace the wafer.
12_on_4.bmp
12_on_4.bmp
200209.txt
Replace the wafer.
200209.txt
Handle the wafer with gloves on.

User Security Functions

Operator access rights and the operating format can be set to one of five password levels.

Each operator can be given one of 5 password levels using the User Security (level authentication) function. A password level can be set for each object, so various objects can be made inoperable or hidden based on the operator's access level.

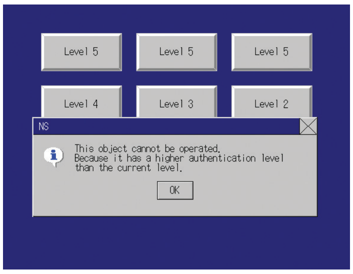


Password

Level1	Line Operator
Level2	Group Leader
Level3	Line Manager
Level4	Maintenance
Level5	Administrator

Low
High
Level 1
Level 2
Level 3
Level 4
Level 5

Operator passwords are managed in 5 levels. Passwords can be up to 16 characters long and the access rights increase as the level number increases.



NS

This object cannot be operated.
Because it has a higher authentication level
than the current level.

Level 5
Level 5
Level 5
Level 4
Level 3
Level 2
OK

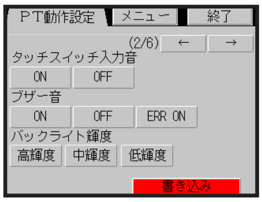
The operator cannot manipulate objects with a password level (authentication level) higher than the operator's login level.

LED backlight

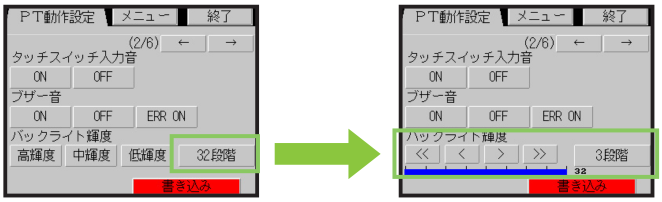
NS5 color-type models (SQ/TQ models), NS8 models, NS10 models, NS12 models, NS15 models with LED backlight are newly released.*

LED backlight allows backlight brightness adjustment of up to 32 levels. The brightness can be adjusted from the operation screens, and the RUN indicator changes its luminance according to the settings of the backlight brightness; it is favorable for ship and vessel applications.

Conventional three-level adjustment


ＰＴ動作設定
メニュー
終了
(2/6)
←
→
タッチスイッチ入力音
ON
OFF
ブザー音
ON
OFF
ERR ON
バックライト輝度
高輝度
中輝度
低輝度
書き込み

New 32-level adjustment


ＰＴ動作設定
メニュー
終了
(2/6)
←
→
タッチスイッチ入力音
ON
OFF
ブザー音
ON
OFF
ERR ON
バックライト輝度
高輝度
中輝度
低輝度
32段階
書き込み
ＰＴ動作設定
メニュー
終了
(2/6)
←
→
タッチスイッチ入力音
ON
OFF
ブザー音
ON
OFF
ERR ON
バックライト輝度
<<
<
>
>>
3段階
32
書き込み

* LotNo.15Z0 or later of NS5 color-type models, LotNo.28X1 or later of NS8 models, LotNo.11Y1 or later of NS10 models, LotNo.14Z1 or later of NS12 models, LotNo.31114K or later of NS15 models.

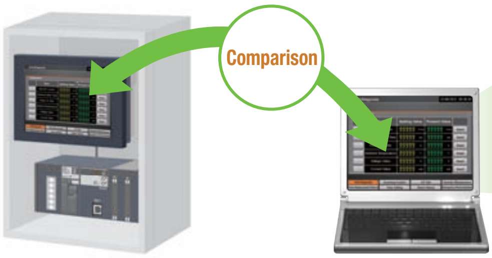
Maintenance

Comparison

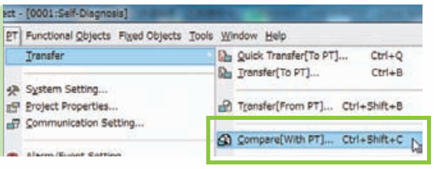
The on-site NS screen can be compared with the computer screen.

The comparison function of the CX-Designer enables the following comparison.
CX-Designer project ⇄ Project in the computer
CX-Designer project ⇄ NS project

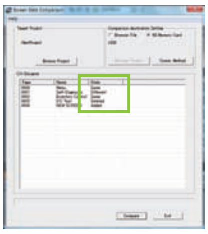
Same	▶ Same in screen
Different	▶ Different in screen
Added	▶ Screen added
Deleted	▶ Screen deleted


Comparison

PT ▶ Transfer ▶ Compare


ect - [0001:Self-Diagnosis]
PT
Functional Objects
Fixed Objects
Tools
Window
Help
Transfer
System Setting...
Project Properties...
Communication Setting...
Alarm/Event Setting
Quick Transfer[To PT]... Ctrl+Q
Transfer[To PT]... Ctrl+B
Transfer[From PT]... Ctrl+Shift+B
Compare[With PT]... Ctrl+Shift+C

Comparison result

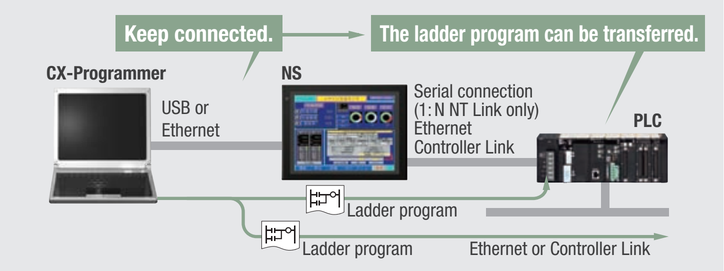


Single Port Multi Access (SPMA)

Note: Communications across network layers can be performed.

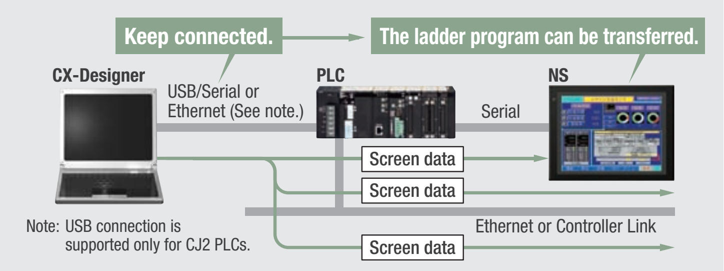
Transfer ladder program data to the PLC via the PT. Perform online editing via the PT.

[Computer (Serial/USB) → NS-series PT (Ethernet) →
PLC (Ethernet or Controller Link) → PLC]


Keep connected.
The ladder program can be transferred.
CX-Programmer
NS
USB or Ethernet
Serial connection (1:N NT Link only)
Ethernet
Controller Link
PLC
Ladder program
Ladder program
Ethernet or Controller Link

Transfer screen data via the PLC.

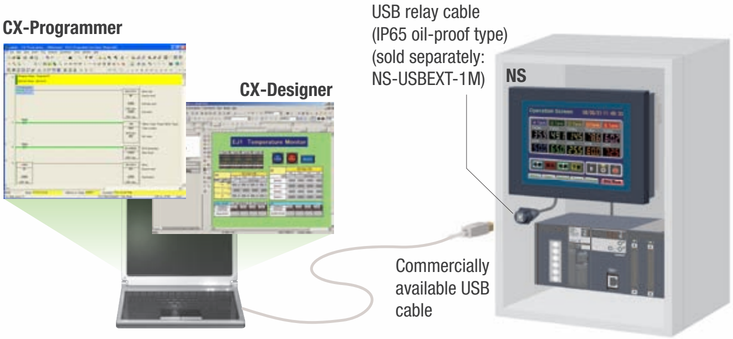
[Computer (Serial) →
PLC (Ethernet or Controller Link) → NS-series PT]


Keep connected.
The ladder program can be transferred.
CX-Designer
USB/Serial or Ethernet (See note.)
PLC
NS
Serial
Screen data
Screen data
Ethernet or Controller Link
Screen data

Note: USB connection is supported only for CJ2 PLCs.

Using a USB relay cable greatly improves debugging at equipment startup.

Use a USB relay cable to enable performing maintenance from in front of the control panel.

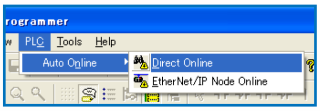

CX-Programmer
CX-Designer
NS
Commercially available USB cable

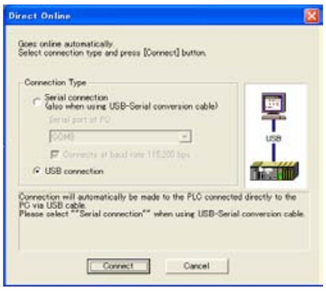
USB relay cable (IP65 oil-proof type) (sold separately: NS-USBEXT-1M)

Easy Automatic Connection

A search is automatically made for the PLCs connected to the PT and the results are displayed using the automatic online connection function in the CX-Programmer. Just select a PLC from the list to connect. This function is also supported for PLCs over network layers.

CX-Programmer


rogrammer
w
PLC
Tools
Help
Auto Online
Direct Online
EtherNet/IP Node Online

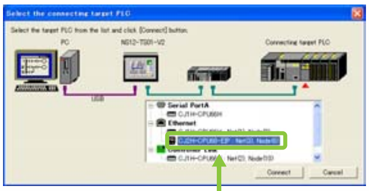

Direct Online
USB
Connect
Cancel

Goes online automatically.
Select connection type and press [Connect] button.

Connection Type
○ Serial connection (also when using USB-Serial conversion cable)
Serial port at PC
COM3
☑ Connects at baud rate 115200 bps
● USB connection

Connection will automatically be made to the PLC connected directly to the PC via USB cable.
Please select ""Serial connection"" when using USB-Serial conversion cable.

Automatic search


Select the connecting target PLC
PC
NS12-TS01-V2
Connecting target PLC
USB
Serial PortA
CJ1H-CPU66H
Ethernet
Connect
Cancel

Select the target PLC from the list and click [Connect] button.

PLCs registered to the PT are automatically searched for.
Make the connection simply by selecting from the PLC list.

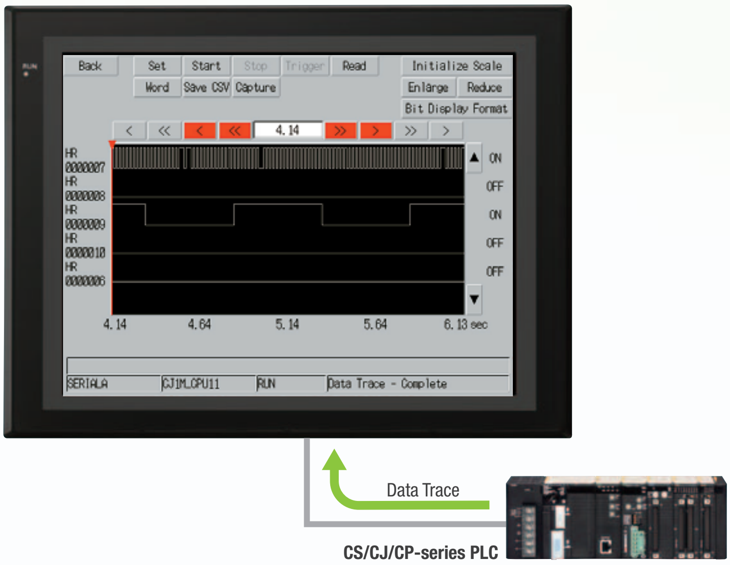
Note 1: SPMA can be used in CS/CJ-series PLCs with lot number 030201 or later.
Note 2: SPMA via a PLC is not supported when a CP-series PLC is connected. (SPMA via an NS-series PT is supported with a CP-series PLC.)
Note 3: CX-Programmer version 8.2 and higher support automatic online connection via the PT. NS system version 8.2 or higher is required.

PLC Data Trace

The PLC data trace function can be used without a computer.

The PLC Data Trace function is built into the PT in addition to the Ladder Monitor and Device Monitor. A bit's status and operation can be viewed in a time chart just by setting the desired PLC bit's address in the PT. It is also now possible to display word data, save data in CSV files, and save time chart screens in BMP files.

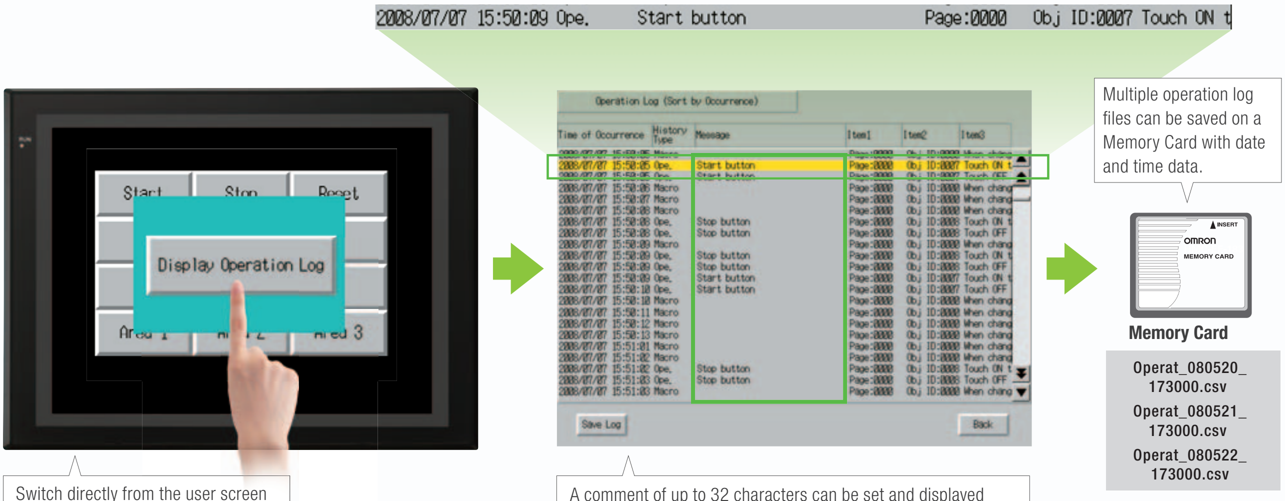
Note 1: There are differences between this Data Trace function and the CX-Programmer's Data Trace function. Refer to the NS-series Programmable Terminal Programming Manual (Cat. No. V073) for details.
Note 2: The PLC data trace function cannot be used with the 5.7-inch model.
Note 3: The PLC data trace function is not supported for connection with a CP1E/CP2E PLC.


Back
Set
Start
Stop
Trigger
Read
Initialize Scale
Word
Save CSV
Capture
Enlarge
Reduce
Bit Display Format
4.14
HR 0000007
HR 0000008
HR 0000009
HR 0000010
HR 0000006
ON
OFF
ON
OFF
OFF
4.14
4.64
5.14
5.64
6.13 sec
SERIALA
CJ1M_CPU11
RUN
Data Trace - Complete
Data Trace
CS/CJ/CP-series PLC

Operating log

What Was Touched When? can be recorded.

Functionality has been improved with the addition of a log to record operators' use of the panels. It is now possible to record and display the time, date, and operation details for buttons (i.e., hardware switches) pressed on the control panel in addition to operations on the touch panel. The operation log can be saved in a CSV file on a Memory Card mounted in the NS-series PT.


Start
Stop
Reset
Display Operation Log
Area 1
Area 2
Area 3
Operation Log (Sort by Occurrence)
Save Log
Back
OMRON
MEMORY CARD
INSERT
Memory Card

```
2008/07/07 15:50:09 Ope.     Start button          Page:0000   Obj ID:0007 Touch ON t
```

```
Time of Occurrence History  Message        Item1      Item2        Item3
                   Type
2008/07/07 15:50:05 Macro                  Page:0000  Obj ID:0000  When chang
2008/07/07 15:50:05 Ope.    Start button   Page:0000  Obj ID:0007  Touch ON t
2008/07/07 15:50:05 Ope.    Start button   Page:0000  Obj ID:0007  Touch OFF
2008/07/07 15:50:06 Macro                  Page:0000  Obj ID:0000  When chang
2008/07/07 15:50:07 Macro                  Page:0000  Obj ID:0000  When chang
2008/07/07 15:50:08 Macro                  Page:0000  Obj ID:0000  When chang
2008/07/07 15:50:08 Ope.    Stop button    Page:0000  Obj ID:0008  Touch ON t
2008/07/07 15:50:08 Ope.    Stop button    Page:0000  Obj ID:0008  Touch OFF
2008/07/07 15:50:09 Macro                  Page:0000  Obj ID:0000  When chang
2008/07/07 15:50:09 Ope.    Stop button    Page:0000  Obj ID:0008  Touch ON t
2008/07/07 15:50:09 Ope.    Stop button    Page:0000  Obj ID:0008  Touch OFF
2008/07/07 15:50:09 Ope.    Start button   Page:0000  Obj ID:0007  Touch ON t
2008/07/07 15:50:10 Ope.    Start button   Page:0000  Obj ID:0007  Touch OFF
2008/07/07 15:50:10 Macro                  Page:0000  Obj ID:0000  When chang
2008/07/07 15:50:11 Macro                  Page:0000  Obj ID:0000  When chang
2008/07/07 15:50:12 Macro                  Page:0000  Obj ID:0000  When chang
2008/07/07 15:50:13 Macro                  Page:0000  Obj ID:0000  When chang
2008/07/07 15:51:01 Macro                  Page:0000  Obj ID:0000  When chang
2008/07/07 15:51:02 Macro                  Page:0000  Obj ID:0000  When chang
2008/07/07 15:51:02 Ope.    Stop button    Page:0000  Obj ID:0008  Touch ON t
2008/07/07 15:51:03 Ope.    Stop button    Page:0000  Obj ID:0008  Touch OFF
2008/07/07 15:51:03 Macro                  Page:0000  Obj ID:0000  When chang
```

Multiple operation log files can be saved on a Memory Card with date and time data.

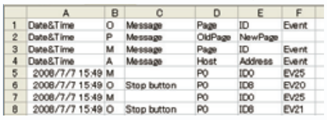
Operat_080520_173000.csv
Operat_080521_173000.csv
Operat_080522_173000.csv

Switch directly from the user screen to the log operation display screen.

A comment of up to 32 characters can be set and displayed for each operation to provide easy-to-understand information about what type of operation was performed.

For example, with a control panel comprised of the NS-series PT, hardware switches, and an emergency stop button, you can even record and display operation of the emergency stop button.

The files can be opened in Excel.



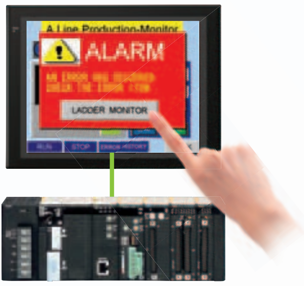
	A	B	C	D	E	F
1	Date&Time	O	Message	Page	ID	Event
2	Date&Time	P	Message	OldPage	NewPage	
3	Date&Time	M	Message	Page	ID	Event
4	Date&Time	A	Message	Host	Address	Event
5	2008/7/7 15:49	M		P0	ID0	EV25
6	2008/7/7 15:49	O	Stop button	P0	ID8	EV20
7	2008/7/7 15:49	M		P0	ID0	EV25
8	2008/7/7 15:49	O	Stop button	P0	ID8	EV21

Maintenance

Ladder Monitor

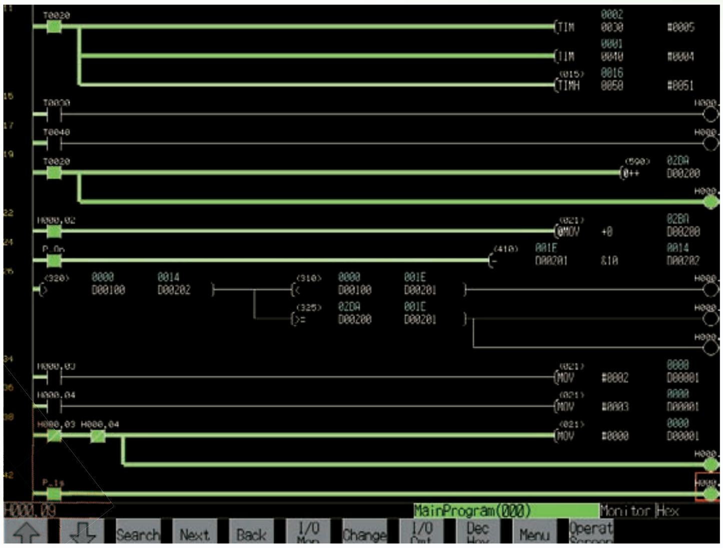
The ladder program can be monitored without a computer.

Ladder programs with I/O comments can be monitored on the PT's screen and the ladder program can also be edited with the Programming Console function.


A Line Production Monitor
ALARM
LADDER MONITOR

Operation screen

CS/CJ/CP-series PLC

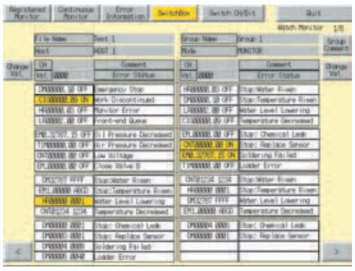

MainProgram(000)
Monitor Hex
Search
Next
Back
I/O Mon
Change
I/O Cmt
Dec Hex
Menu
Operat Screen

Also meets the requirements of users who need to display devices onsite

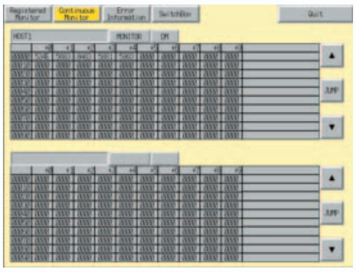
Switch Box Function
The operator can check the PLC status by displaying just the I/O comments and status.

Device Monitor Function
Displays the device's contents, allowing settings to be input and checked and making startup operations more efficient.

Switch Box Function

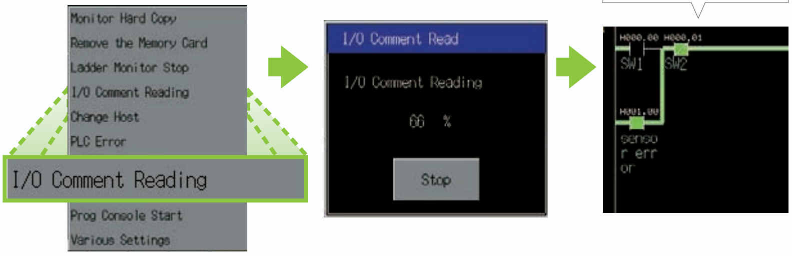


Device Monitor Function



so no extra work to show I/O comments

Read I/O comments directly from the PLC. I/O comments do not have to be stored in a Memory Card.



Select Read I/O Comment Reading from the Menu.

Monitor Hard Copy
Remove the Memory Card
Ladder Monitor Stop
I/O Comment Reading
Change Host
PLC Error
I/O Comment Reading
Prog Console Start
Various Settings

I/O Comment Read

I/O Comment Reading

66 %

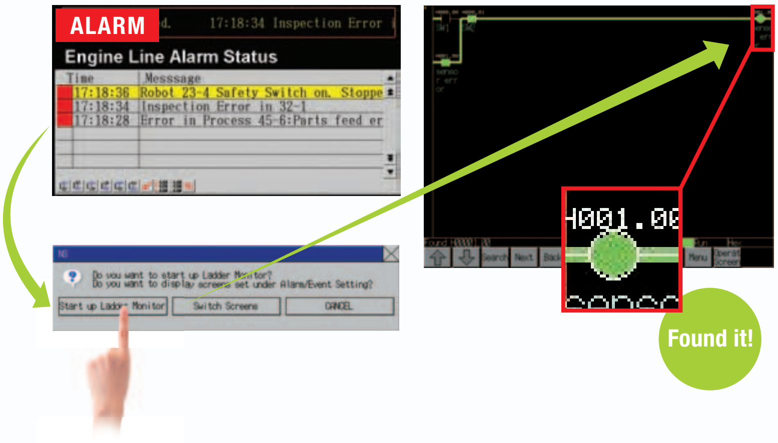
Stop

The I/O comments are displayed.

H000.00 H000.01
SW1
SW2
H001.00
sensor error

Easy checking the alarm bit and shortens searching time.

When an alarm occurs, touch the message to automatically search for the alarm bit (output bit) for the alarm. This enables you to quickly check the alarm address and investigate why the bit turned ON.



ALARM

17:18:34 Inspection Error

Engine Line Alarm Status

Time	Messsage
17:18:36	Robot 23-4 Safety Switch on. Stoppe
17:18:34	Inspection Error in 32-1
17:18:28	Error in Process 45-6:Parts feed er

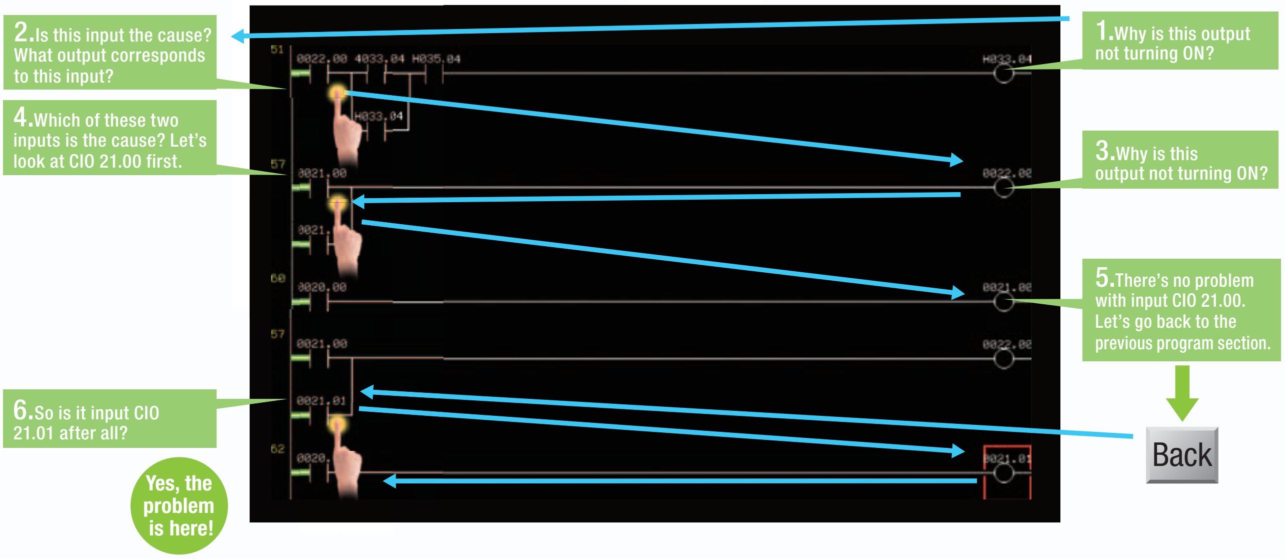
Do you want to start up Ladder Monitor?
Do you want to display screens set under Alarm/Event Setting?

Start up Ladder Monitor
Switch Screens
CANCEL
H001.00
Found it!

“Find Back”, “Find Next”, useful Function Supported by the NS-series.

Reduced Time to Investigate Which Output or Input Is Causing the Problem.

Function	Operation with NS-series PT.	CX-Programmer
Find the address at specified by the cursor.	Next	“N” Key
Find the output from the input bit or find the input bit from the output at the cursor.	Double-click	“Space” Key
Return to the previous search position.	Back	“B” Key


0022.00
4033.04
H035.04
H033.04
H033.04
0021.00
0022.00
0021.
0020.00
0021.00
0021.00
0022.00
0021.01
0020.
0021.01
Back

1. Why is this output not turning ON?

2. Is this input the cause? What output corresponds to this input?

3. Why is this output not turning ON?

4. Which of these two inputs is the cause? Let’s look at CIO 21.00 first.

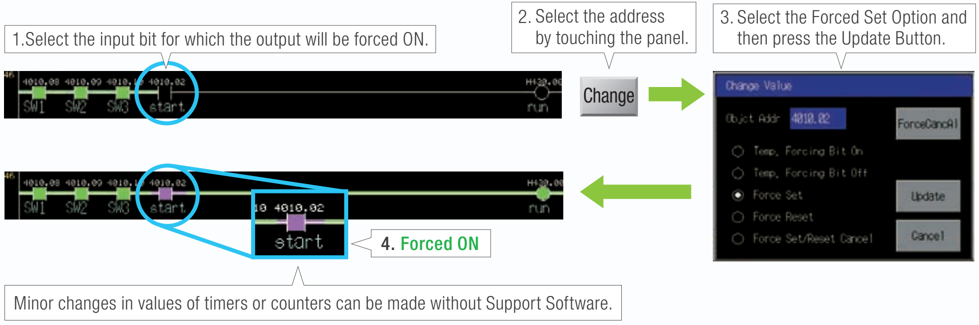
5. There’s no problem with input CIO 21.00. Let’s go back to the previous program section.

6. So is it input CIO 21.01 after all?

Yes, the problem is here!

Force-setting and force-resetting are possible

Locations that have been force-set are displayed in pink and can be checked at a glance.


4010.08
4010.09
4010.
4010.02
H130.00
SW1
SW2
SW3
start
run
Change
4010.02
start
Change Value
ForceCancAll
Update
Cancel

1. Select the input bit for which the output will be forced ON.

2. Select the address by touching the panel.

3. Select the Forced Set Option and then press the Update Button.

4. Forced ON

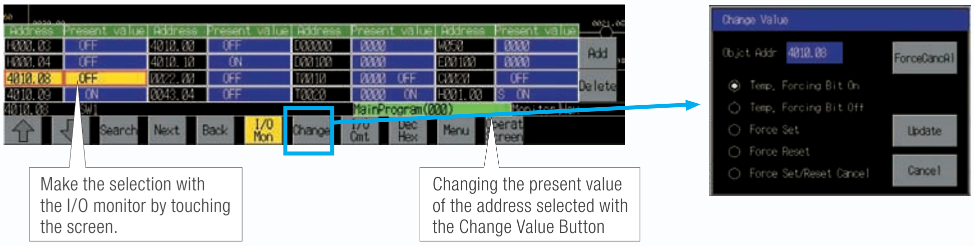
Object Addr 4010.02

○ Temp. Forcing Bit On
○ Temp. Forcing Bit Off
● Force Set
○ Force Reset
○ Force Set/Reset Cancel

Minor changes in values of timers or counters can be made without Support Software.

Check and Change I/O While You View the Ladder Diagram on the I/O Monitor

Display and change the present value by specifying the address. It is also possible to force-set/reset bits with the I/O monitor.


Address
Present value
Add
Delete
Search
Next
Back
I/O Mon
Change
I/O Cmt
Dec Hex
Menu
Operat Screen
MainProgram(000)
Change Value
ForceCancAll
Update
Cancel

Address	Present value	Address	Present value	Address	Present value	Address	Present value
H000.03	OFF	4010.00	OFF	D00000	0000	W050	0000
H000.04	OFF	4010.10	ON	D00100	0000	E0:0100	0000
4010.08	OFF	0022.00	OFF	T0010	0000 OFF	C0020	OFF
4010.09	ON	0043.04	OFF	T0020	0000 ON	H001.00	S ON

Object Addr 4010.08

● Temp. Forcing Bit On
○ Temp. Forcing Bit Off
○ Force Set
○ Force Reset
○ Force Set/Reset Cancel

Make the selection with the I/O monitor by touching the screen.

Changing the present value of the address selected with the Change Value Button

Note: The Ladder Monitor function is not supported by the 5.7-inch models.

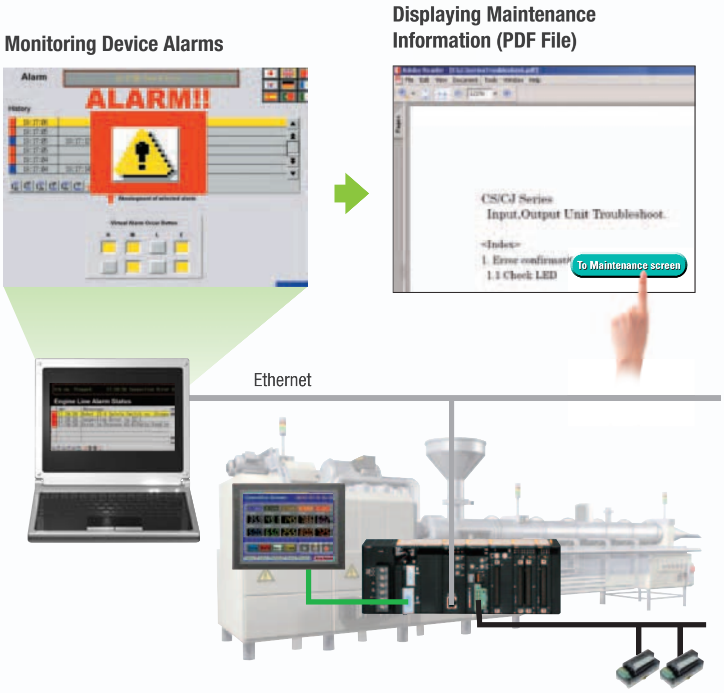
NS-Runtime

NS-NSRCL□ (NS-Runtime)

Achieve machine/line monitoring and data logging on your office computer.

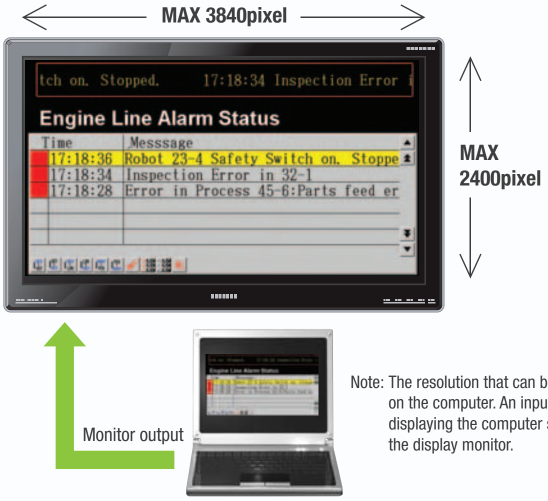
Machine Viewer

Machine monitoring in an office environment. There is no need to create complex host applications. Moreover, when an alarm occurs, a PDF file can be displayed as maintenance information. NS Series screens can be reused on the computer, and screens can be also newly created independently of touch panels at the production site.


Monitoring Device Alarms
Alarm
ALARM!!
History
Displaying Maintenance Information (PDF File)
CS/CJ Series
Input,Output Unit Troubleshoot
<Index>
1. Error confirmati
1.1 Check LED
To Maintenance screen
Ethernet

Wide Screen

Computer output can be displayed on another wide-screen monitor. XGA (1,024 x 768 dots) and up to a a maximum screen size of 3,840 x 2,400 is supported. Alarms occurring in devices or the line can be monitored.


MAX 3840pixel
MAX 2400pixel
Monitor output

tch on. Stopped.   17:18:34 Inspection Error i

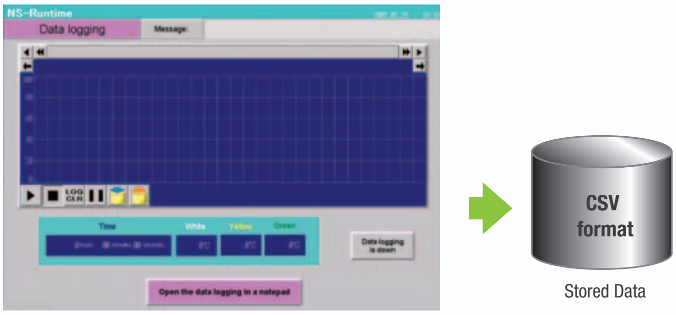
Engine Line Alarm Status

Time	Messsage
17:18:36	Robot 23-4 Safety Switch on. Stoppe
17:18:34	Inspection Error in 32-1
17:18:28	Error in Process 45-6:Parts feed er

Note: The resolution that can be displayed depends on the computer. An input function for displaying the computer screen is required at the display monitor.

Data Logger

Log large amounts of data using a personal computer. Data can be logged through background processing, with up to 160,000 points stored in one file. The logged data is stored in CSV format, and data can be displayed on data log graphs.

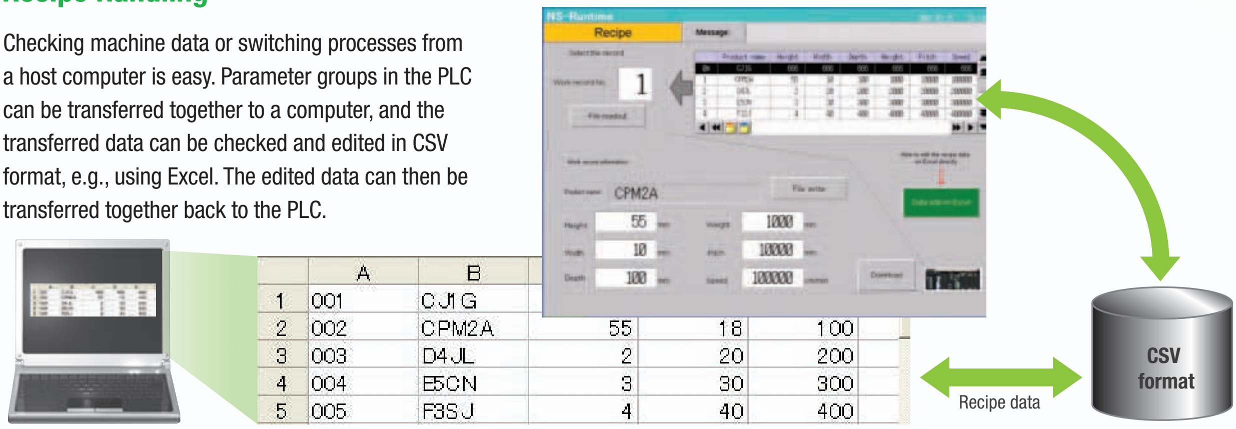

NS-Runtime
Data logging
Message:
Time
White
Yellow
Green
Data logging is down
Open the data logging in a notepad
CSV format
Stored Data

Example: 160,000 Points

Data can be logged for approximately 7.4 days, assuming data is logged every two seconds for 12 hours a day. By using automatic file saving, data logging can be continued even longer than 7.4 days.

Recipe Handling

Checking machine data or switching processes from a host computer is easy. Parameter groups in the PLC can be transferred together to a computer, and the transferred data can be checked and edited in CSV format, e.g., using Excel. The edited data can then be transferred together back to the PLC.



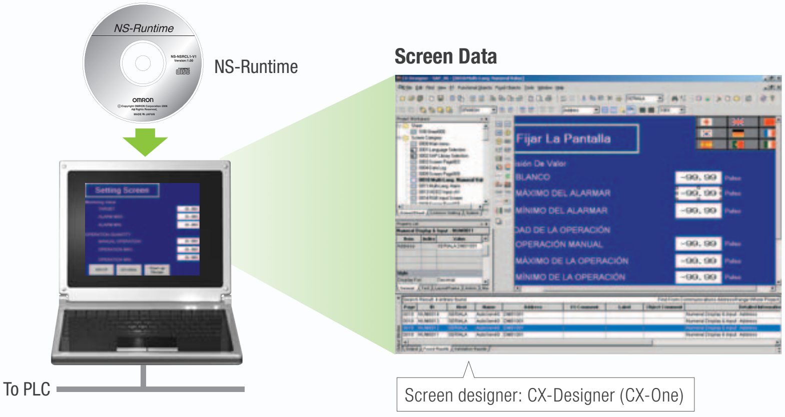
	A	B			
1	001	CJ1G			
2	002	CPM2A	55	18	100
3	003	D4JL	2	20	200
4	004	E5CN	3	30	300
5	005	F3SJ	4	40	400

NS-Runtime
Recipe
Message
CPM2A
55
10
100
1000
10000
100000
CSV format
Recipe data

Easy Installation

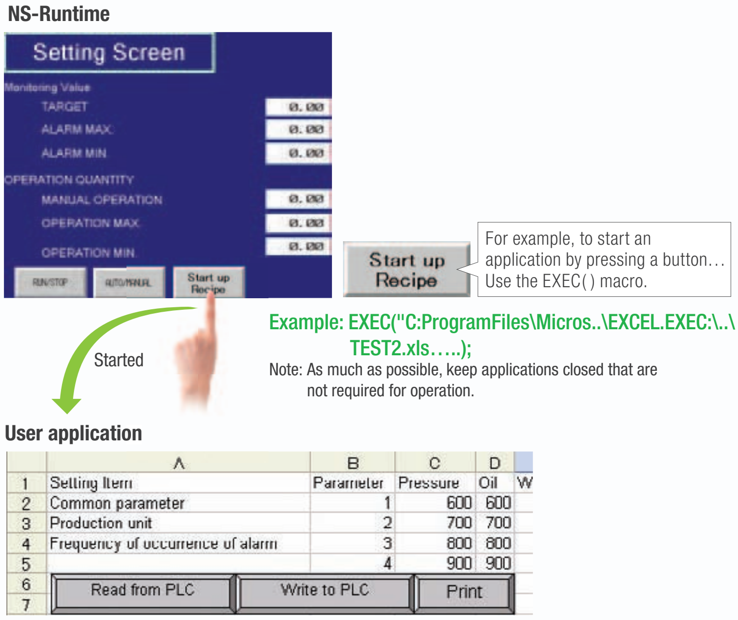
To get started, just install the NS-Runtime in the computer and place the screen data in the applicable folder. NS/NSJ-series screens and NS-Runtime screens can all be managed using one single tool.

Note: The NS-Runtime will operate in a computer environment even if the CX-Designer installed is not installed. The hardware key (USB dongle) that is supplied with the NS-Runtime is required for operation.


NS-Runtime
OMRON
NS-Runtime
Screen Data
Fijar La Pantalla
To PLC
Screen designer: CX-Designer (CX-One)

Application Startup Function

User applications can be started from NS-Runtime. Applications can be started simply by pressing buttons on the screen.


NS-Runtime
Setting Screen
Monitoring Value
TARGET
0.00
ALARM MAX
0.00
ALARM MIN
0.00
OPERATION QUANTITY
MANUAL OPERATION
0.00
OPERATION MAX
0.00
OPERATION MIN
0.00
RUN/STOP
AUTO/MANUAL
Start up Recipe
Start up Recipe
Started
User application
Read from PLC
Write to PLC
Print

For example, to start an application by pressing a button… Use the EXEC( ) macro.

Example: EXEC("C:ProgramFiles\Micros..\EXCEL.EXEC:\..\TEST2.xls…..);

Note: As much as possible, keep applications closed that are not required for operation.

	A	B	C	D	
1	Setting Item	Parameter	Pressure	Oil	W
2	Common parameter	1	600	600	
3	Production unit	2	700	700	
4	Frequency of occurrence of alarm	3	800	800	
5		4	900	900	
6					
7					

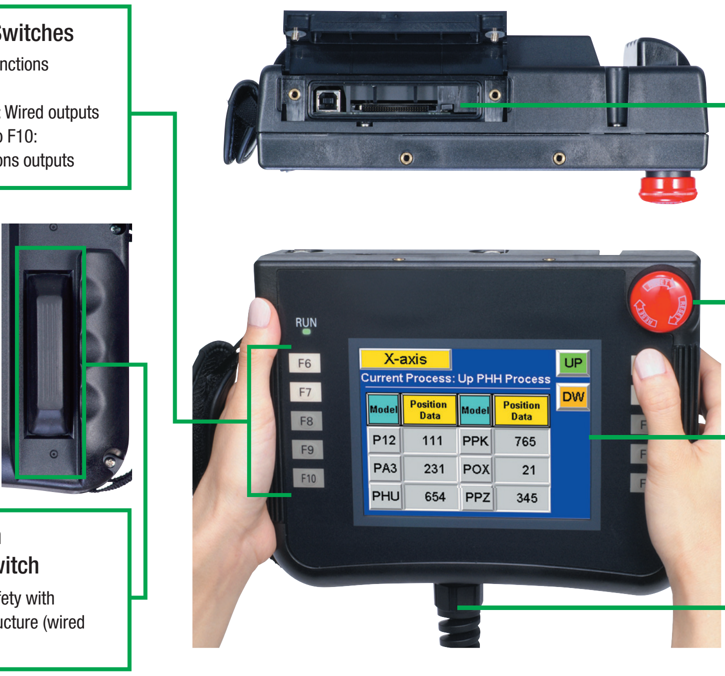
Note 1: If the screen data is converted for the NS Series, NS-Series PT system versions must be 8.1 or earlier. The screen data of system version 8.2 can not be converted for the NS-Runtime.

Note 2: Do not use this product for 24-hour operation in an FA environment. OMRON shall not be responsible if the computer or application does not operate properly due to noise or other causes. OMRON shall not be responsible for any problems that may be caused by any applications other than OMRON products.

Hand-held PT

NSH5 Series

A hand-held version of the NS5 is now available to perform operations at the production site. The NS-series PT's have a complete set of functions that can be used at the production site, such as the SAP Library, multi-language support, and Programming Console functions.



Function Switches

Use the ten functions switches.
F1, F2, F6, F7: Wired outputs
F3 to F5, F8 to F10: Communications outputs

3-Position Enable Switch

Increased safety with DPST-NO structure (wired outputs).

Memory Card Interface and USB Slave Connector.

Easily transfer screens or save logs at high speed using a USB connection.

Emergency Stop Switch.

3PST-NC Structure
DPST-NC: Increase safety (wired outputs).
SPST-NC: Input to internal NSH5 memory, output to a lamp for emergency stop switch operation, or output via communications, e.g., to a PLC.

Water Resistance to IP65

The water-resistant structure is equivalent to IP65 on all surfaces. The PT may not be suitable for use in environments with long-term water exposure.

PT and Cable Sold Separately

Select the Cable according to the application (RS-232C/RS-422A).
Connector-loose wires,
UL connector,
3 m or 10 m.

Precautions for Emergency Stop Switches

When using a hand-held NSH5 that will be installed and removed from a control panel or Removable Box, always use the specified Stop Switch (Gray/NSH5-SQG10B-V2) to conform to Safety Standards (EN 60204-1).

Options

Removable Box
A separate external circuit is not required because the Removable Box has been configured so that the emergency stop switch line will not turn OFF (i.e., so that the emergency stop circuit will operate) even when the NSH5 is removed.

Visor
Use when the NSH5 is in direct sunlight.

Mounting Bracket
Use to attach the NSH5 to a control panel.

Programmable Terminals

NS Series

Even Simpler Equipment Operation with Outstanding Synergy.

5.7 inches
Color TFT
STN monochrome

10.4 inches
Color TFT

15 inches
Color TFT

12.1 inches
Color TFT

8.4 inches
Color TFT

Features

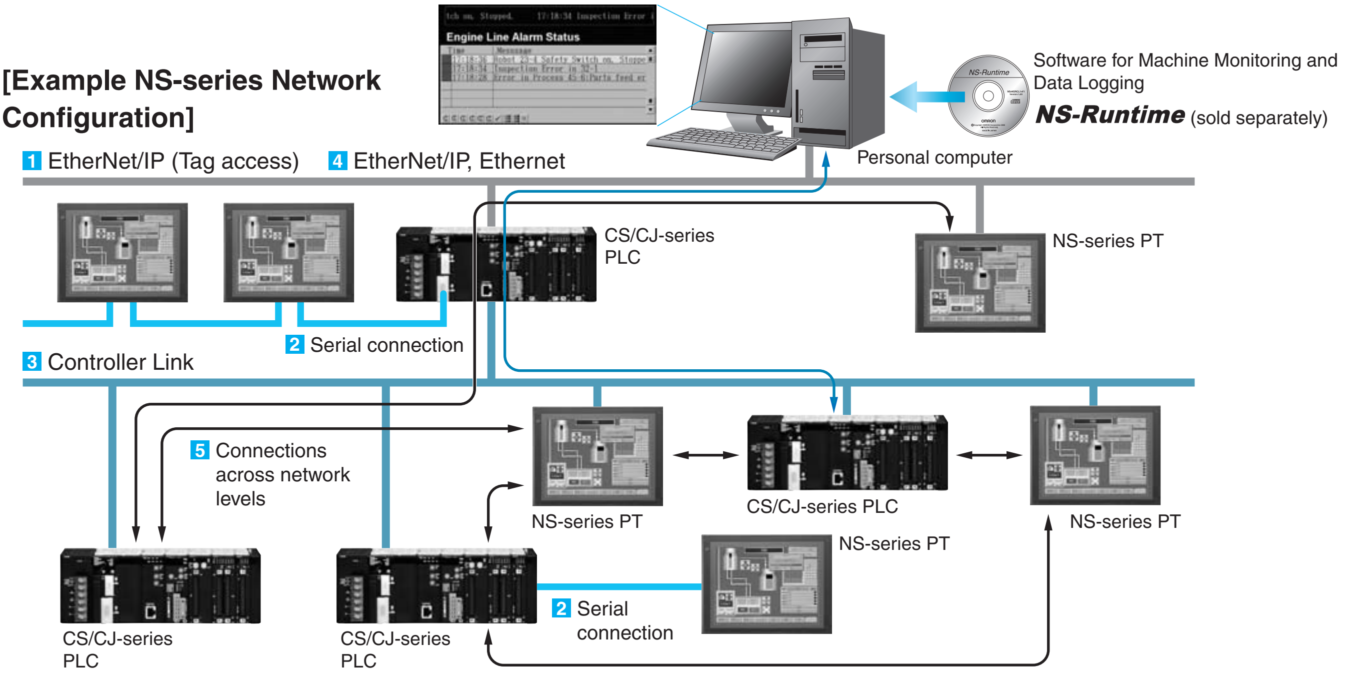
- 5.7 to 12.1 inch sizes are available.
- A hand-held version of the NS5 is now available to perform operations at the production site. The NS-series PT's have a complete set of functions that can be used at the production site.
- The Smart Active Parts(SAP Library) makes it easy to connect to OMRON PLCs and components, OMRON provides a development environment that requires with no programming and no screen designing.
- When an error occurs in a Unit in the OMRON PLCs, the Troubleshooter SAP Library provides an easy-to-understand explanation of the cause of the error as well as the countermeasures.
- Ladder Monitor come as a Standard Feature. The ladder program can be monitored onsite without a laptop! Ladder monitor lets you monitor PLC program status, search for addresses or instructions, monitor multiple I/O points, and much more.
- Provides the FA integrated tool package "CX-One" for a Screen Design Software Integrated Simulation come as a Standard Feature. The integrated simulation function simulates ladder programs and screen data simultaneously even without the actual hardware.
- Screens support 42 languages and the Support Software supports eight. System messages can be displayed in eight languages.
- Single Port Multi Access (SPMA) come as a Standard Feature. The ladder program and screen data can be transferred from a single port!
- Connectable PLCs and devices appear one after another.
  Has become connectable with the PLCs of Mitsubishi Electric Corporation and the Inverters of OMRON Corporation.

Sysmac is a trademark or registered trademark of OMRON Corporation in Japan and other countries for OMRON factory automation products.
Windows is registered trademarks of Microsoft Corporation in the USA and other countries.
EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.
Other company names and product names in this document are the trademarks or registered trademarks of their respective companies.

Network

Provides serial NT Link communications supporting both 1:1 and 1:N connections. The NT Link has more efficient communications than Host Link and its capabilities are especially apparent in applications with multiple PTs connect to the PLC. The NS-series PTs can also support communications with multiple PLCs and multiple NS-series PTs through Controller Link and Ethernet connections, so the network can be configured freely to match the requirements and scale of the application. In addition, using the NS-Runtime makes it possible to monitor machine status and log data from the host.

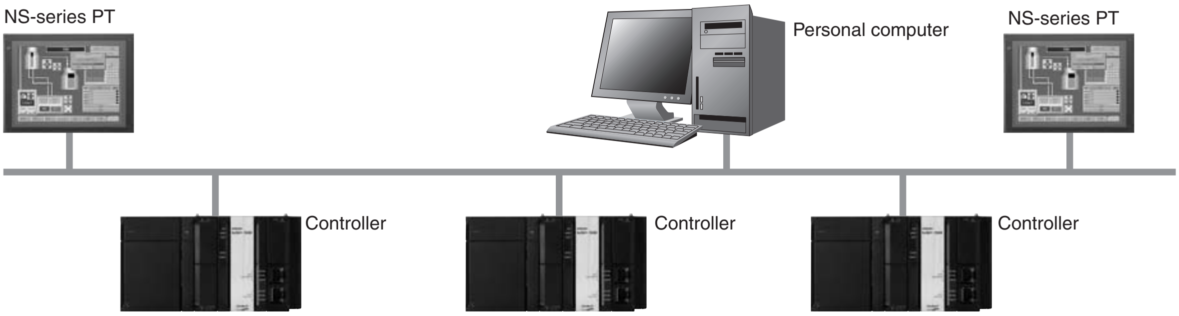
[Example NS-series Network Configuration]


Engine Line Alarm Status
Software for Machine Monitoring and Data Logging
NS-Runtime (sold separately)
Personal computer
1 EtherNet/IP (Tag access)
4 EtherNet/IP, Ethernet
CS/CJ-series PLC
NS-series PT
2 Serial connection
3 Controller Link
5 Connections across network levels
NS-series PT
CS/CJ-series PLC
NS-series PT
NS-series PT
CS/CJ-series PLC
CS/CJ-series PLC
2 Serial connection

Configuration of CJ2 series, NJ series and NX series

1 EtherNet/IP Connection (Tag accesses)

If an Ethernet-compatible NS-series PT is used, the PT can connect to a Controller with built-in EtherNet/IP and an Option Unit is not needed to connect at the PT.


NS-series PT
Personal computer
NS-series PT
Controller
Controller
Controller

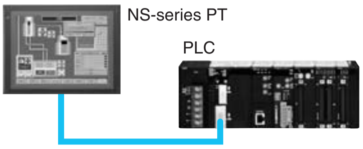
Configuration of CS series, CJ series and CP series

2 Serial connection

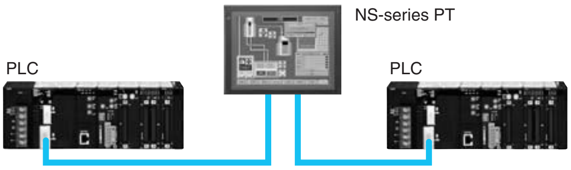
1:1 NT Link or Host Link

●NS:PLC = 1:1

Connecting with the PLC through port A or port B

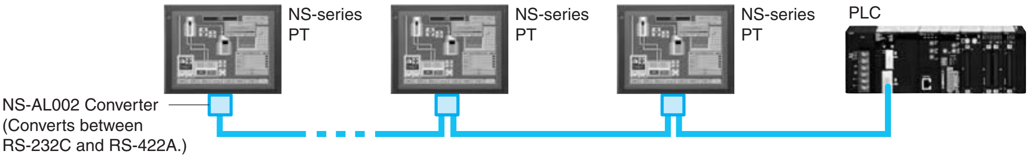

NS-series PT
PLC

●NS:PLC = 1:2


NS-series PT
PLC
PLC

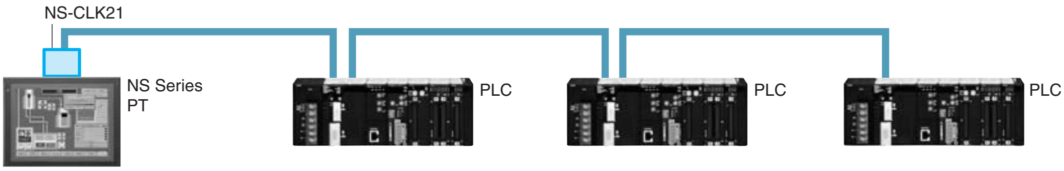
1:N NT Link

●NS:PLC ratio = 8:1 max. Up to 8 NS-series PTs can be connected to each of the PLC's RS-232C/RS-422A ports.


NS-series PT
NS-series PT
NS-series PT
PLC
NS-AL002 Converter
(Converts between
RS-232C and RS-422A.)

3 Controller Link Connection

The PT can be connected to an OMRON Controller Link network by mounting a Controller Link Interface Unit.


NS-CLK21
NS Series PT
PLC
PLC
PLC

If a Controller Link connection is used, data links can be set between PLCs and multiple PLCs can be monitored/set from the NS-series PT's screen.

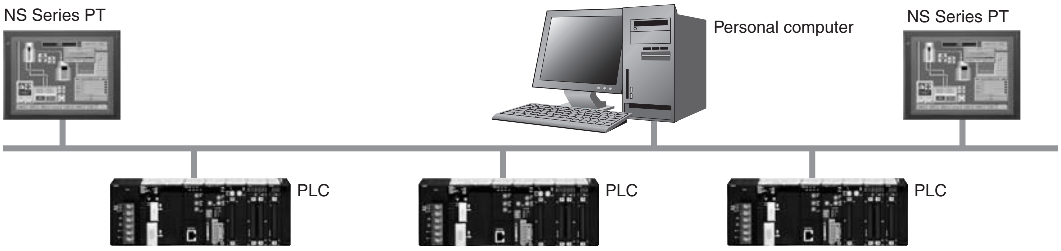
●Baud rate

2 Mbps (500 m max.)
1 Mbps (800 m max.)
500 kbps (1 km max.)

●Max. number of nodes: 32 nodes

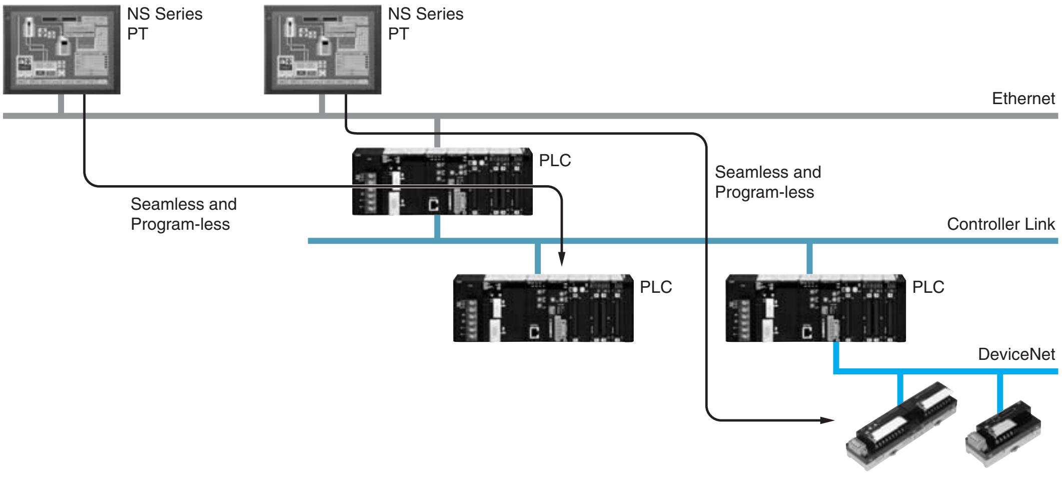
4 EtherNet/IP or Ethernet Connection

If an Ethernet-compatible NS-series PT is used, the PT can connect to a PLC with an Ethernet Unit and an Option Unit is not needed to connect at the PT.


NS Series PT
Personal computer
NS Series PT
PLC
PLC
PLC

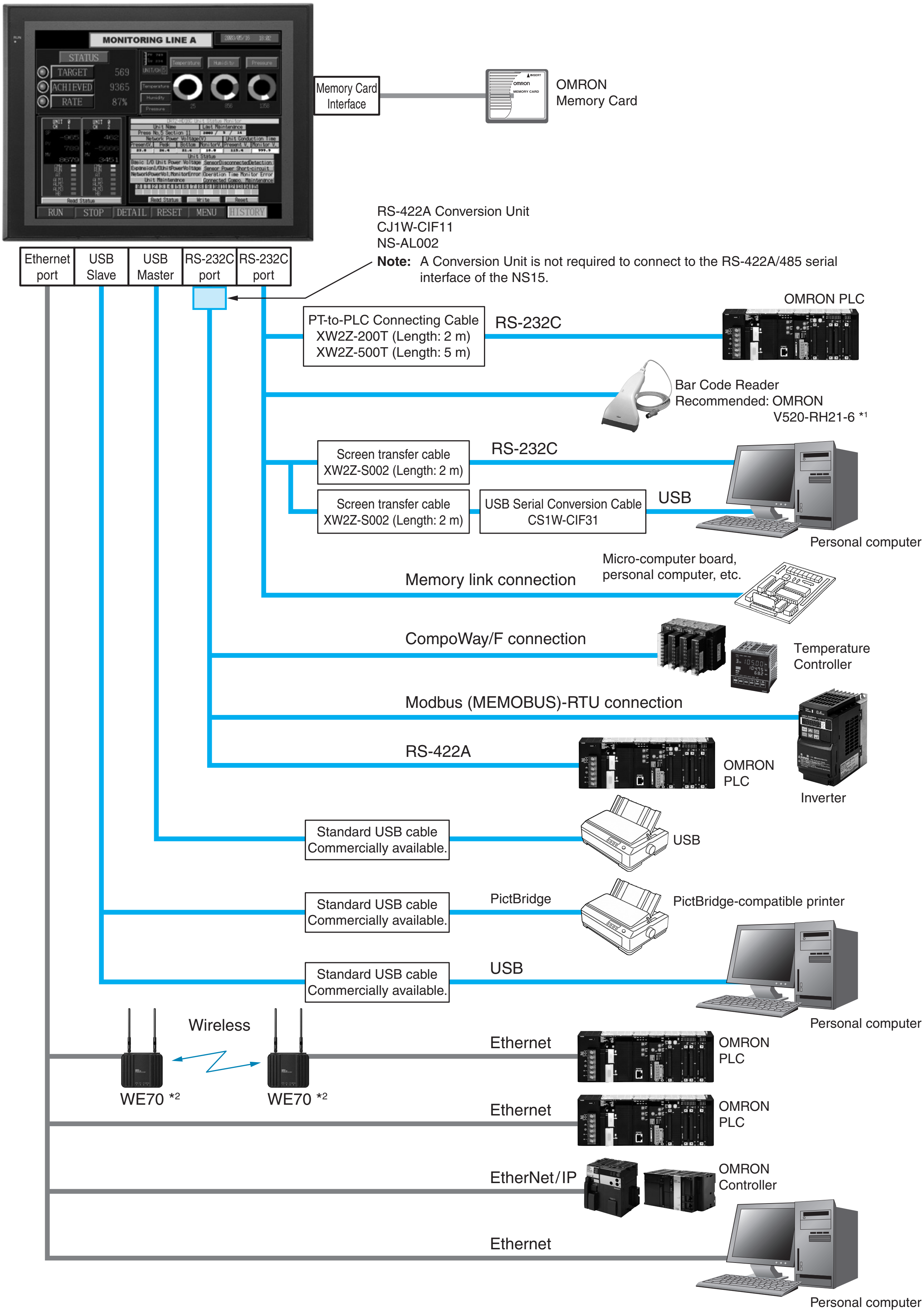
5 Connections Over Network Levels

The NS-series PTs can connect to a variety of devices in the network, through as many as 3 network levels.
For example, if SAP (Smart Active Parts) are being used, an NS-series PT connected by Ethernet can be used to monitor the information in a PLC connected through Controller Link as well as the information in the DeviceNet Slaves connected to that PLC.


NS Series PT
NS Series PT
Ethernet
PLC
Seamless and Program-less
Seamless and Program-less
Controller Link
PLC
PLC
DeviceNet

System Configuration

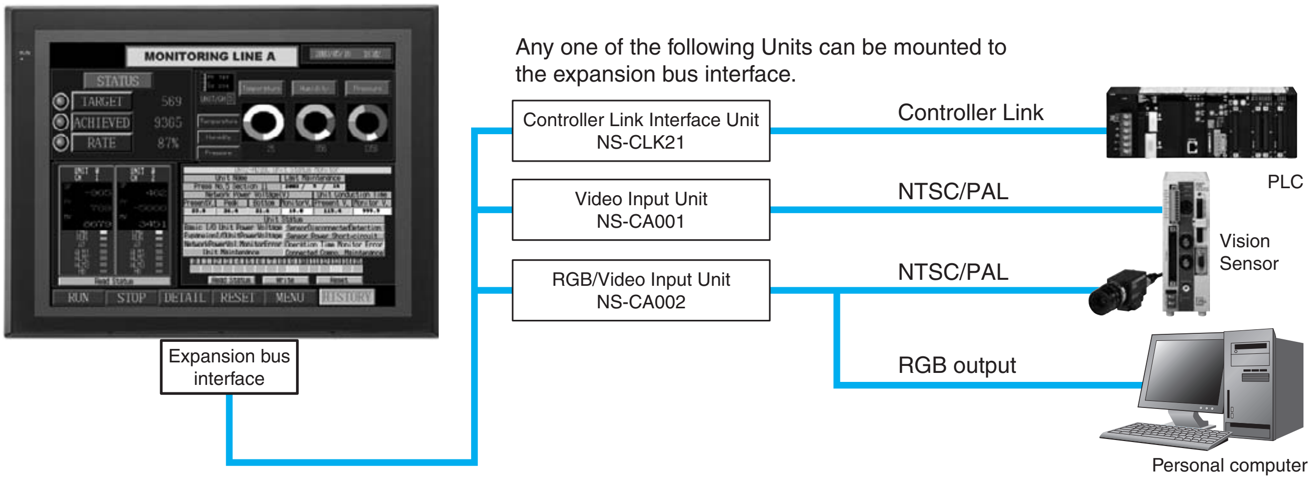
NS5/NS8/NS10/NS12/NS15


Memory Card Interface
OMRON Memory Card
Ethernet port
USB Slave
USB Master
RS-232C port
RS-232C port
RS-422A Conversion Unit
CJ1W-CIF11
NS-AL002
OMRON PLC
PT-to-PLC Connecting Cable
XW2Z-200T (Length: 2 m)
XW2Z-500T (Length: 5 m)
RS-232C
Bar Code Reader
Recommended: OMRON
V520-RH21-6 *1
Screen transfer cable
XW2Z-S002 (Length: 2 m)
RS-232C
Screen transfer cable
XW2Z-S002 (Length: 2 m)
USB Serial Conversion Cable
CS1W-CIF31
USB
Personal computer
Memory link connection
Micro-computer board, personal computer, etc.
CompoWay/F connection
Temperature Controller
Modbus (MEMOBUS)-RTU connection
RS-422A
OMRON PLC
Inverter
Standard USB cable
Commercially available.
USB
Standard USB cable
Commercially available.
PictBridge
PictBridge-compatible printer
Standard USB cable
Commercially available.
USB
Personal computer
Wireless
WE70 *2
WE70 *2
Ethernet
OMRON PLC
Ethernet
OMRON PLC
EtherNet/IP
OMRON Controller
Ethernet
Personal computer

Note: A Conversion Unit is not required to connect to the RS-422A/485 serial interface of the NS15.

✻1. Bar Code Reader (V520-RH21-6) was discontinued at the end of August 2016.
✻2. Wireless (WE70) is final order entry date at the end of June 2020.

Expansion Bus Interface

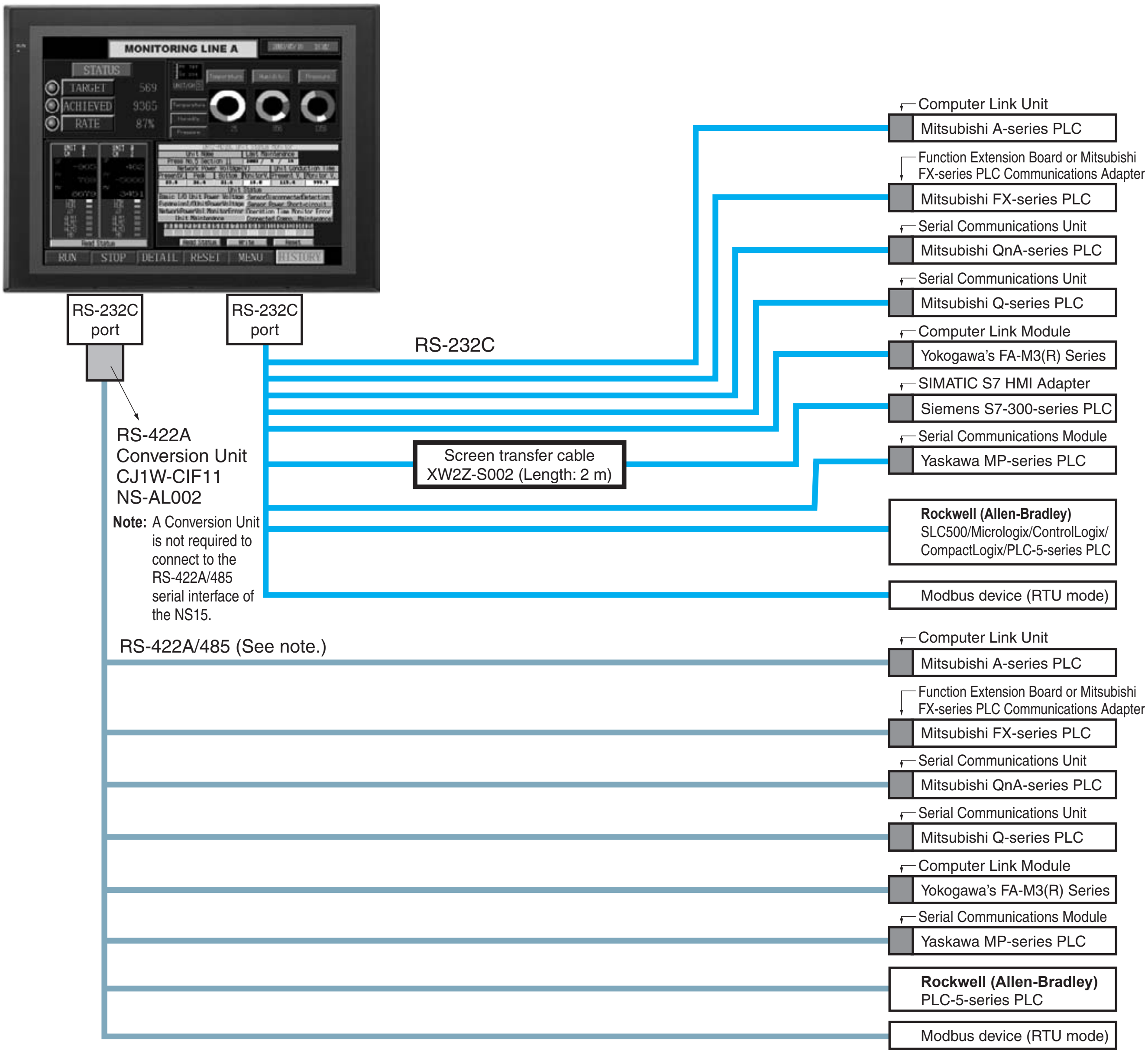


Any one of the following Units can be mounted to the expansion bus interface.

Expansion bus interface
Controller Link Interface Unit NS-CLK21
Video Input Unit NS-CA001
RGB/Video Input Unit NS-CA002
Controller Link
NTSC/PAL
NTSC/PAL
RGB output
PLC
Vision Sensor
Personal computer

Note: Video Input Units and RGB Video Input Units cannot be used with some models.

Multi-vendor

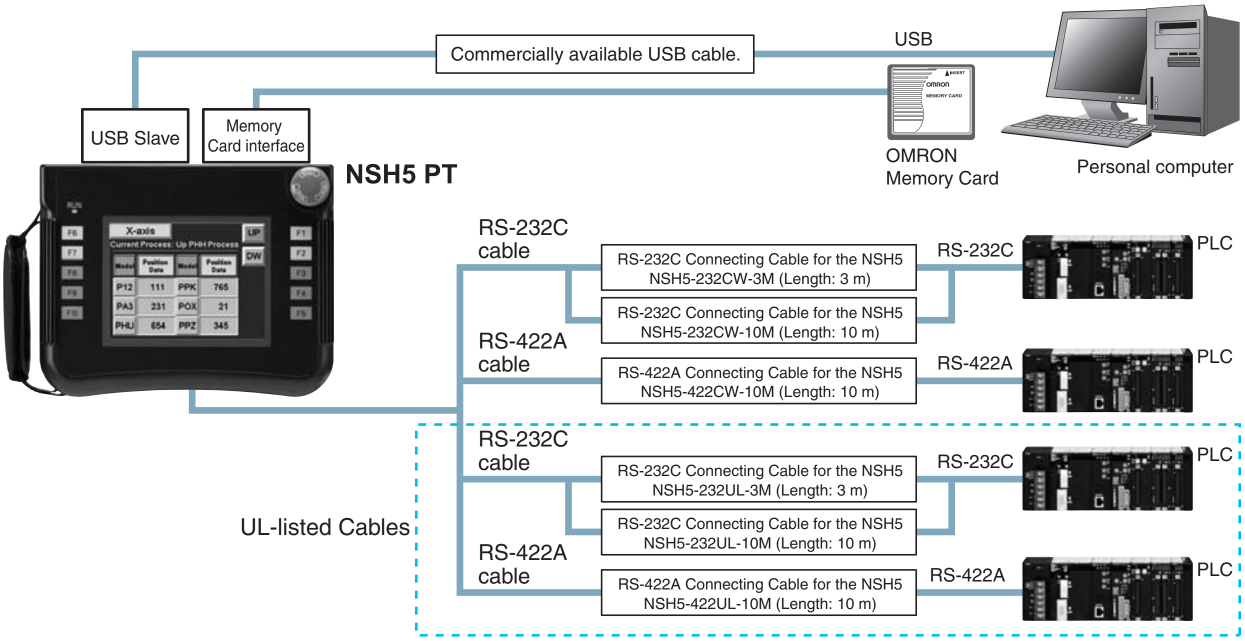


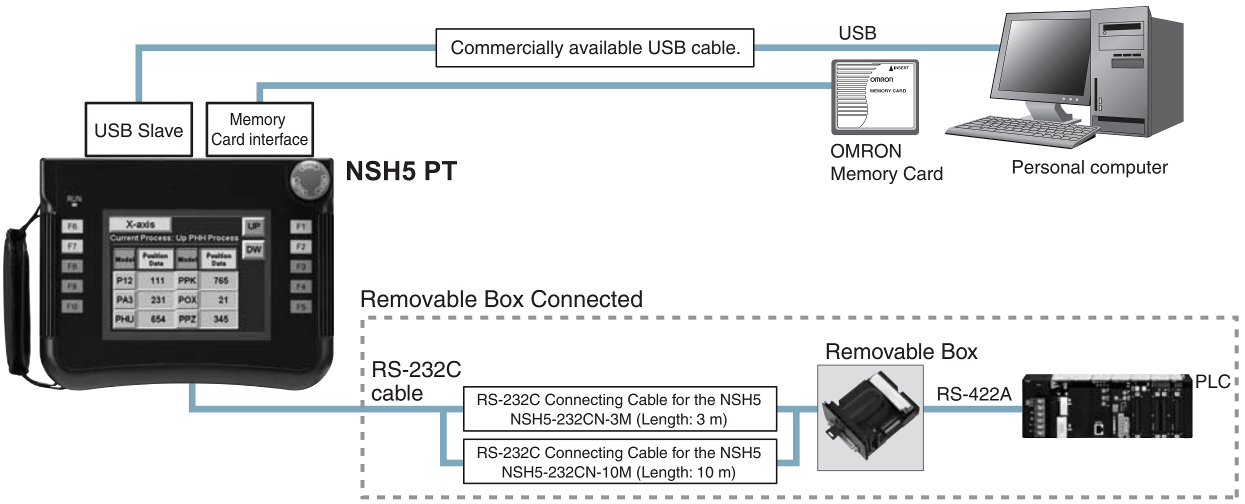
RS-232C port
RS-232C port
RS-232C
RS-422A Conversion Unit CJ1W-CIF11 NS-AL002
Screen transfer cable XW2Z-S002 (Length: 2 m)
RS-422A/485 (See note.)
Computer Link Unit
Mitsubishi A-series PLC
Function Extension Board or Mitsubishi FX-series PLC Communications Adapter
Mitsubishi FX-series PLC
Serial Communications Unit
Mitsubishi QnA-series PLC
Serial Communications Unit
Mitsubishi Q-series PLC
Computer Link Module
Yokogawa's FA-M3(R) Series
SIMATIC S7 HMI Adapter
Siemens S7-300-series PLC
Serial Communications Module
Yaskawa MP-series PLC
Rockwell (Allen-Bradley) SLC500/Micrologix/ControlLogix/CompactLogix/PLC-5-series PLC
Modbus device (RTU mode)
Computer Link Unit
Mitsubishi A-series PLC
Function Extension Board or Mitsubishi FX-series PLC Communications Adapter
Mitsubishi FX-series PLC
Serial Communications Unit
Mitsubishi QnA-series PLC
Serial Communications Unit
Mitsubishi Q-series PLC
Computer Link Module
Yokogawa's FA-M3(R) Series
Serial Communications Module
Yaskawa MP-series PLC
Rockwell (Allen-Bradley) PLC-5-series PLC
Modbus device (RTU mode)

Note: A Conversion Unit is not required to connect to the RS-422A/485 serial interface of the NS15.

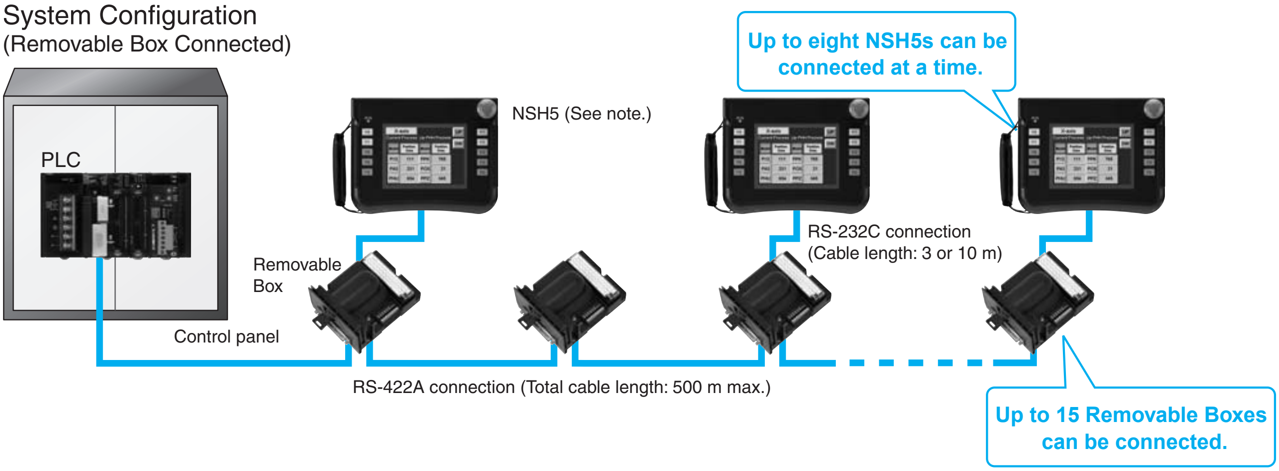
Note: Whether an RS-422A or RS-485 connection is supported depends on the device that you are connecting to.
For details, refer to the Connectable Devices page or NS-Series Programmable Terminals HOST CONNECTION MANUAL Multivendor Connection (Cat.V092).

NSH5 Hand-held PT


Commercially available USB cable.
USB
USB Slave
Memory Card interface
NSH5 PT
OMRON Memory Card
Personal computer
RS-232C cable
RS-232C Connecting Cable for the NSH5 NSH5-232CW-3M (Length: 3 m)
RS-232C Connecting Cable for the NSH5 NSH5-232CW-10M (Length: 10 m)
RS-232C
PLC
RS-422A cable
RS-422A Connecting Cable for the NSH5 NSH5-422CW-10M (Length: 10 m)
RS-422A
PLC
UL-listed Cables
RS-232C cable
RS-232C Connecting Cable for the NSH5 NSH5-232UL-3M (Length: 3 m)
RS-232C Connecting Cable for the NSH5 NSH5-232UL-10M (Length: 10 m)
RS-232C
PLC
RS-422A cable
RS-422A Connecting Cable for the NSH5 NSH5-422UL-10M (Length: 10 m)
RS-422A
PLC


Commercially available USB cable.
USB
USB Slave
Memory Card interface
NSH5 PT
OMRON Memory Card
Personal computer
Removable Box Connected
RS-232C cable
RS-232C Connecting Cable for the NSH5 NSH5-232CN-3M (Length: 3 m)
RS-232C Connecting Cable for the NSH5 NSH5-232CN-10M (Length: 10 m)
Removable Box
RS-422A
PLC

System Configuration
(Removable Box Connected)


Up to eight NSH5s can be connected at a time.
PLC
NSH5 (See note.)
RS-232C connection
(Cable length: 3 or 10 m)
Removable Box
Control panel
RS-422A connection (Total cable length: 500 m max.)
Up to 15 Removable Boxes can be connected.

Note: Before removing the NSH5 from the Removable Box,
be sure to first turn OFF the power supply key on the Removable Box.

Ordering Information

International Standards

- The standards are availabled as follows: U: UL, U1: UL (Class I Division 2 Products for Hazardous Locations), C: CSA, UC: cULus, UC1: cULus (Class I Division 2 Products for Hazardous Locations), CU: cUL, N: NK, L: Lloyd, and CE: EC Directives.
- Contact your OMRON representative for further details and applicable conditions for these standards.

Programmable Terminals

Product name	Specifications				Model	Standards
	Effective display area	Number of dots	Ethernet	Case color		
NS5-V2 *1	5.7-inch *2 TFT color LED backlight	320 × 240 dots	No	Ivory	**NS5-SQ10-V2**	UC1, CE, N, L, UL Type4
				Black	**NS5-SQ10B-V2**	
			Yes	Ivory	**NS5-SQ11-V2**	
				Black	**NS5-SQ11B-V2**	
	5.7-inch *2 High-luminance TFT color LED backlight		No	Ivory	**NS5-TQ10-V2**	
				Black	**NS5-TQ10B-V2**	
			Yes	Ivory	**NS5-TQ11-V2**	
				Black	**NS5-TQ11B-V2**	
NS8-V2	8.4-inch *2 TFT LED backlight	640 × 480 dots	No	Ivory	**NS8-TV00-V2**	UC1, CE, N, L
				Black	**NS8-TV00B-V2**	
			Yes	Ivory	**NS8-TV01-V2**	
				Black	**NS8-TV01B-V2**	
NS10-V2	10.4-inch *2 TFT LED backlight	640 × 480 dots	No	Ivory	**NS10-TV00-V2**	UC1, CE, N, L, UL Type4
				Black	**NS10-TV00B-V2**	
			Yes	Ivory	**NS10-TV01-V2**	
				Black	**NS10-TV01B-V2**	
NS12-V2	12.1-inch *2 TFT LED backlight	800 × 600 dots	No	Ivory	**NS12-TS00-V2**	
				Black	**NS12-TS00B-V2**	
			Yes	Ivory	**NS12-TS01-V2**	
				Black	**NS12-TS01B-V2**	
NS15-V2	15-inch TFT	1,024 × 768 dots	Yes	Silver	**NS15-TX01S-V2**	
				Black	**NS15-TX01B-V2**	
NSH5-V2 *1 Hand-held	5.7-inch TFT	320 × 240 dots	No	Black (Emergency stop button: Red)	**NSH5-SQR10B-V2**	UC, CE
				Black (Stop button: Gray)	**NSH5-SQG10B-V2**	

✻1. As of July 2008, the image memory has been increased to 60 MB.

✻2. Lot No. 15Z0 or later of NS5 color-type models, Lot No. 28X1 or later of NS8 models, Lot No. 11Y1 or later of NS10 models, Lot No. 14Z1 or later of NS12 models, LotNo.31114K or later of NS15 models.

NS-Runtime

Product name	Specifications		Media	Model	Standards
NS-Runtime	NS-Runtime Installer, PDF manual, hardware key (See note.)	1license	CD	**NS-NSRCL1**	—
		3 licenses		**NS-NSRCL3**	
		10 licenses		**NS-NSRCL10**	

Note: A hardware key (USB dongle) is required for NS-Runtime operation.

●System Requirements

Item	Specifications
OS *	Windows 7 (32-bit/64-bit version)/Windows 8 (32-bit/64-bit version)/Windows 10 (32-bit/64-bit version)
CPU	Celeron, 1.3 GHz or higher (Recommended)
Memory size	HDD: 50 MB min., RAM: 512 MB min. (Windows 7: 1 GB min.). 50 MB is required for the Runtime alone. (An additional 280 MB is required if CX-Server is not already installed.)

✻ Ver. 1.30 or later of NS Runtime do not support Windows XP (Service Pack 3 or higher) and Windows Vista.

Software

●How to Select Required Support Software for Your Controller

The required Support Software depends on the Controller to connect. Please check the following table when purchasing the Support Software.

Item	Omron PLC System	Omron Machine Automation Controller System
Controller	CS, CJ, CP, and other series	NJ-series and NX-series
Programmable Terminals	NS-series	NS-series with an Ethernet port
Software	FA Integrated Tool Package CX-One	Automation Software Sysmac Studio

●FA Integrated Tool Package CX-One

Product name	Specifications			Model	Standards
		Number of licenses	Media		
FA Integrated Tool Package CX-One Ver.4.□	The CX-One is a comprehensive software package that integrates Support Software for OMRON PLCs and components. CX-One runs on the following OS. Windows XP (Service Pack 3 or higher, 32-bit version) / Windows Vista (32-bit/64-bit version) / Windows 7 (32-bit/64-bit version) / Windows 8 (32-bit/64-bit version) / Windows 8.1 (32-bit/64-bit version) / Windows 10 (32-bit/64-bit version) CX-One Version 4.□ includes CX-Designer Ver.3.□. For details, refer to the CX-One catalog (Cat. No. R134)	1 license *	DVD	**CXONE-AL01D-V4**	—

✻ Multi licenses (3, 10, 30, or 50 licenses) and DVD media without licenses are also available for the CX-One.

●Automation Software Sysmac Studio

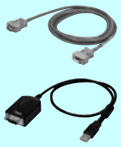
Please purchase a DVD and required number of licenses the first time you purchase the Sysmac Studio. DVDs and licenses are available individually. Each model of licenses does not include any DVD.

Product name	Specifications			Model	Standards
		Number of licenses	Media		
Sysmac Studio Standard Edition Ver.1.□	The Sysmac Studio provides an integrated development environment to set up, program, debug, and maintain NJ/NX Series CPU Units, NY-series Industrial PC, Controllers and other Machine Automation Controllers, as well as EtherCAT slaves. Sysmac Studio runs on the following OS. Windows 7 (32-bit/64-bit version) / Windows 8 (32-bit/64-bit version) / Windows 8.1 (32-bit/64-bit version) / Windows 10 (32-bit/64-bit version) *1 The Sysmac Studio Standard Edition DVD includes Support Software to set up EtherNet/IP Units, DeviceNet slaves, Serial Communications Units, and Support Software for creating screens on HMIs (CX-Designer). Refer to your OMRON website for details.	- (Media only)	Sysmac Studio (32-bit) DVD	**SYSMAC-SE200D**	—
		- (Media only)	Sysmac Studio (64-bit) DVD	**SYSMAC-SE200D-64**	—
		1 license *2	—	**SYSMAC-SE201L**	—

Note: To connect the NJ5 Controller, NS system version 8.5 or higher is required. CX-Designer version 3.3 or higher is also required.
To connect the NJ1/NJ3 Controller, NS system version 8.61 or higher is required. CX-Designer version 3.4 or higher is also required.
To connect the NX7 Controller, NS system version 8.9 or higher is required. CX-Designer version 3.64 or higher is also required.
To connect the NX1 controller, NS system version 8.96 or higher is required. CX-Designer version 3.70 or higher is also required.
To connect the NX1P controller, NS system version 8.93 or higher is required. CX-Desiner version 3.70 or higher is also required.

✻1. Model "SYSMAC-SE200D-64" runs on Windows 10 (64 bit).
✻2. Multi licenses are available for the Sysmac Studio (3, 10, 30, or 50 licenses).

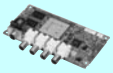
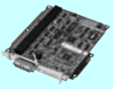
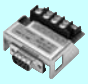
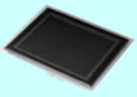
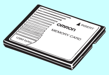
Cable

Product name	Specifications		Model	Standards
Cable *1 	Screen transfer cable for DOS/V (CX-Designer ↔ PT)	Length: 2 m	**XW2Z-S002**	–
	USB-Serial Conversion Cable	Length: 0.5 m	**CS1W-CIF31**	N
	USB relay cable	Length: 1 m	**NS-USBEXT-1M**	–
NSH5 Cables	RS-422A cable (loose wires + D-Sub 9-pin)	Length: 10 m	**NSH5-422CW-10M**	
	RS-232C cable (loose wires + D-Sub 9-pin)	Length: 3 m	**NSH5-232CW-3M**	
	RS-232C cable (loose wires + D-Sub 9-pin)	Length: 10 m	**NSH5-232CW-10M**	
UL-compliant NSH5 Cable	RS-422A cable (loose wires)	Length: 10 m	**NSH5-422UL-10M**	CU
	RS-232C cable (loose wires + relay cable)	Length: 3 m	**NSH5-232UL-3M**	
	RS-232C cable (loose wires + relay cable)	Length: 10 m	**NSH5-232UL-10M**	
PT-to-PLC Connecting Cable *2	PT connection: 9 pins PLC connection: 9 pins	Length: 2 m	**XW2Z-200T**	–
		Length: 5 m	**XW2Z-500T**	
	PT connection: 9 pins PLC peripheral port	Length: 2 m	**XW2Z-200T-2**	
		Length: 5 m	**XW2Z-500T-2**	
NSH5 Removable Box Cable	RS-232C Cable (connectors)	Length: 3 m	**NSH5-232CN-3M**	
		Length: 10 m	**NSH5-232CN-10M**	
NSH5 Removable Box	–		**NSH5-AL001**	
NSH5 Wall-mounting Bracket	–		**NSH5-ATT02**	
NSH5 Visor	–		**NSH5-ATT01**	

*1. Use a standard USB Type A male to Type B type male Cable to connect the NS series PT to a personal computer (CX-Designer). We recommend that you use a USB cable with a ferrite core attached to ensure stable communications. (Examples: FH-VUAB from OMRON and U2C-BF series (US2-BF□□BK) from ELECOM as of February 2016)
Use a standard USB cable to connect the NS series PT to a PictBridge-compatible printer. USB cable type depends on the printer.

*2. To connect the NS series PT to NJ series Controller, using a commercially available 10/100-BASE-TX twisted-pair cable.
For detail, refer to the NS series SETUP MANUAL (Cat. No.V083).

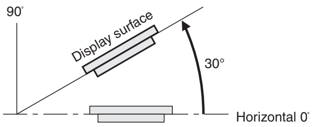
Options

Product name	Specifications		Model	Standards
Video Input Unit 	Inputs: 4 channels Signal type: NTSC/PAL		**NS-CA001**	UC1, CE
	Input channels: 2 video channels and 1 RGB channel *1 Signal type: NTSC/PAL		**NS-CA002**	
Controller Link Interface Unit 	For Controller Link Communications		**NS-CLK21**	UC1, CE
RS-422A Adapter 	Transmission distance: 500 m total length **Note:** Use this model when connecting PT models without a V☐ suffix. **Note:** PT models with the V☐ suffix can also be connected.		**NS-AL002**	–
	Transmission distance: 50 m total length **Note:** Only PT models with a suffix of V☐ are connectable. Use the NS-AL002 to connect models without a V☐ suffix.		**CJ1W-CIF11**	UC1, N, L, CE
Sheet/Cover *2 	Anti-reflection Sheets (5 surface sheets)	NS15	**NS15-KBA04**	–
		NS12/10	**NS12-KBA04**	
		NS8	**NS7-KBA04**	
		NS5	**NT30-KBA04**	
	Protective Covers (5 pack) (anti-reflection coating)	NS12/10	**NS12-KBA05**	
		NS8	**NS7-KBA05**	
		NS5	**NT31C-KBA05**	
	Protective Covers (1 cover included) (Transparent)	NS15	**NS15-KBA05N**	
	Protective Covers (5 covers included) (Transparent)	NS12/10	**NS12-KBA05N**	
		NS8	**NS7-KBA05N**	
		NS5	**NT31C-KBA05N**	
Attachment	NT625C/631/631C Series to NS12/10 Series		**NS12-ATT01**	
	NT625C/631/631C Series to NS12/NS10 Series (Black)		**NS12-ATT01B**	
	NT610C Series to NS12/10 Series		**NS12-ATT02**	
	NT620S/620C/600S Series to NS8 Series		**NS8-ATT01**	
	NT600M/600G/610G/612G Series to NS8 Series		**NS8-ATT02**	
Memory Card 	128 MB		**HMC-EF183**	
	256 MB		**HMC-EF283**	
	512 MB		**HMC-EF583**	
Memory Card Adapter	---		**HMC-AP001**	CE
Replacement Battery	Battery life: 5 years (at 25°C)		**CJ1W-BAT01**	–
Bar Code Reader *3	CCD handheld bar code reader (RS-232C interface)		**V520-RH21-6**	

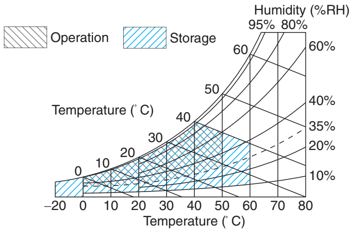
***1.** One screen cannot display two video inputs simultaneously.
***2.** A Chemical-resistant Cover (NT30-KBA01) is available only for the NS5.
***3.** Bar Code Reader (V520-RH21-6) was discontinued at the end of August 2016.

General Specifications

NS5/NS8/NS10/NS12/NS15

Series	NS5-V2	NS8-V2	NS10-V2	NS12-V2	NS15-V2
Rated power supply voltage	24 VDC				
Allowable voltage range	20.4 to 27.6 VDC (24 VDC ±15%)				
Power consumption	15 W max.	25 W max.			45 W max.
Ambient operating temperature	0 to 50 °C (See note on the next page.) **Note:** The ambient operating temperature is subject to the following restrictions according to the mounting angle. Mounting angle of 0 to 30° to the horizontal: • When no Expansion Units are mounted, the operating temperature range is 0 to 45°C. • When a Video Input Unit or a Controller Link Interface Unit is mounted, the ambient operating temperature is 0 to 35°C. Mounting angle of 30 to 90° to the horizontal: Operating temperature range of 0 to 50°C  				
Storage temperature	−20 to 60 °C *1				
Ambient operating humidity	35 to 85% (0 to 40 °C), 35 to 60% (40 to 50 °C) (with no condensation)				
Operating environment	No corrosive gases.				
Noise immunity	Conforms to IEC61000-4-4, 2 kV (power lines).				
Vibration resistance (during operation)	10 to 57 Hz, 0.075 mm amplitude, 57 to 150 Hz, 9.8 m/s^2 30 min each in X, Y, and Z directions				5 to 8.4 Hz, 3.5 mm single amplitude, 8.4 to 150 Hz, 9.8 m/s^2 10 min times each in X, Y, and Z directions
Shock resistance (during operation)	147 m/s^2 3 times each in direction of X, Y, and Z				
Weight	1.0 kg max.	2.0 kg max.	2.3 kg max.	2.5 kg max.	4.2 kg max.
Degree of protection	Front operating panel: IP65 oil-proof type and NEMA4 UL type 4. *2 **Note:** May not be applicable in locations with long-term exposure to oil.				
Ground	Ground to 100 Ω or less.				
Battery life	5 years (at 25 °C): Replace battery within 5 days after the battery runs low (indicator lights orange).				
Applicable standards	Certified for conformance to UL 508, UL 1604, EMC Directive, NK, and LR Standards.				

***1.** Operate the PT within the temperature and humidity ranges shown in the right diagram.
***2.** Support for NS5, NS10, NS12 and NS15.



NSH5 Hand-held PT

Series	NSH5-V2	
Type	**5.7-inch Color TFT (Hand-held Version)**	
Case color	Black	
Built-in Ethernet port	No	
Model	NSH5-SQR10B-V2 (Emergency stop button: Red)	NSH5-SQG10B-V2 (Stop button: Gray)
Rated power supply voltage	24 VDC	
Allowable voltage range	20.4 to 27.6 VDC (24 VDC ±15%)	
Power consumption	10 W max.	
Ambient operating temperature	0 to 40°C	
Storage temperature	−20 to 60°C	
Ambient operating humidity	35% to 85% (0 to 40°C) with no condensation	
Operating environment	No corrosive gases.	
Noise immunity	Common mode: 1,000 Vp-p (between power supply terminals and panel) Normal mode: 300 Vp-p Pulse width: 100 ns to 1 µs, Rise time: 1-ns pulse	
Vibration resistance (during operation)	10 to 57 Hz, 0.075 mm amplitude, 57 to 150 Hz, 9.8 m/s^2 30 min each in X, Y, and Z directions	
Shock resistance (during operation)	147 m/s^2 3 times each in direction of X, Y, and Z	
Weight	1 kg max.	
Degree of protection	Equivalent to IP65.	
Ground	Ground to 100 Ω or less.	
Battery life	5 years (at 25°C): Replace battery within 5 days after the battery runs low (indicator lights orange).	
Applicable standards	Certified for conformance to UL 508, EMC Directive, and EN 60204-1.	

Performance/Specifications

NS5

Series		**NS5-V2**							
Model		**NS5-SQ10-V2**	**NS5-SQ11-V2**	**NS5-SQ10B-V2**	**NS5-SQ11B-V2**	**NS5-TQ10-V2**	**NS5-TQ11-V2**	**NS5-TQ10B-V2**	**NS5-TQ11B-V2**
Built-in Ethernet port		No	Yes	No	Yes	No	Yes	No	Yes
Case color		Ivory		Black		Ivory		Black	
Display device		TFT color LCD				Color High-luminance TFT *1			
Effective display area		Width 117.2 × height 88.4 mm (5.7 inches)							
Display colors		256 colors							
Number of dots		320 dot horizontal × 240 dot vertical							
View angle		Left/right: 80°, Top: 80°, Bottom: 60° *5							
Screen data capacity		60 Mbytes							
Image data (BMP or JPG images)		32,768 colors							
Memory Card		Supported							
Ladder Monitor function		Not supported							
Video Input Unit support		Not supported							
Controller Link Interface Unit (Wired) support		Not supported							
Backlight *2	**Service life * 3**	75,000 hours min.							
	Brightness adjustment	Three-level or 32-level brightness adjustment from the touch panel screen. * 4							
	Backlight error detection *5	Error is detected automatically, and the RUN indicator flashes green as notification.							
Touch panel (matrix type)	**Method**	Matrix resistive membrane type							
	Number of switches/ resolution	300 (20 horizontal × 15 vertical) 16 × 16 dots for each switch							
	Input	Pressure-sensitive							
	Service life	1,000,000 touch operations.							
Display text	**Labels**	Can be specified in CX-Designer. Font, style, and size can be specified.							
	Numerals, alarms, and character strings	Scalable Gothic: Magnification: 6 to 255 points Rough: Magnification: 1×1, 1×2, 2×1, 2×2, 3×3, 4×4, 8×8 Standard: Magnification: 1×1, 1×2, 2×1, 2×2, 3×3, 4×4, 8×8 Fine: Magnification: 1×1, 1×2, 2×1, 2×2, 3×3, 4×4, 8×8 7-segment display: Can display only numerals, dates, and times.							
	Supported languages (42 languages)	Scalable Gothic, rough, standard, and fine can be used for 42 languages. Japanese, simplified Chinese, traditional Chinese, Korean, English, French, German, Italian, Portuguese, Spain, Swedish, Dutch, Finnish, Norwegian, Basque, Catalan, Danish, Albanian, Croatian, Czech, Hungarian, Polish, Romanian, Slovak, Slovenian, Bulgarian, Belarusian, Russian, Serbian, Macedonian, Ukrainian, Georgian, Icelandic, Afrikaans, Faroese, Indonesian, Greek, Turkish, Estonian, Latvian, Lithuanian, Thai (supported only with scalable Gothic font)							
Text attributes	**Color**	256 colors							
	Font style (only when vector font is specified)	Bold or italic							
	Vertical alignment	Top, center, or bottom							
	Horizontal alignment	Left-justified, centered, or right-justified							
Flicker	**Objects supporting flicker**	Functional objects: Select from up to 10 types of registered flicker settings. The flicker speed and flicker range can be set. Fixed objects: Select from three flicker types.							
Numeral units and scale settings		1.000 max.							
Alarm/event settings		5,000 max.							
Expansion interface		For Expansion Interface Units (Beginning with units produced in Feb. 2018, connectors are not mounted)							

✻1. NS5-TQ series (high luminance TFT) luminance is better than that of NS5-SQ series by about 110 cd/m^2.
✻2. Contact your nearest OMRON representative to replace the backlight.
✻3. This is the estimated time before brightness is reduced by half at room temperature and humidity. It is not a guaranteed value.
The service life will be dramatically shortened if PT is used at low temperatures. For example, using the PT at temperatures of 0°C will reduce the service life to approximately 10,000 hours (reference value).
✻4. Lot No. 15Z0 or later of NS5 models.
✻5. This function does not indicate that the service life has been reached. It detects when the backlight is not lit due to a disconnection or other errors.
Backlight error detection indicates that all backlights (2) are OFF.

NS8/NS10/NS12/NS15

Series		NS8-V2				NS10-V2				NS12-V2				NS15-V2	
Model		NS8-TV00-V2	NS8-TV01-V2	NS8-TV00B-V2	NS8-TV01B-V2	NS10-TV00-V2	NS10-TV01-V2	NS10-TV00B-V2	NS10-TV01B-V2	NS12-TS00-V2	NS12-TS01-V2	NS12-TS00B-V2	NS12-TS01B-V2	NS15-TX01S-V2	NS15-TX01B-V2
Built-in Ethernet port		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes
Case color		Ivory		Black		Ivory		Black		Ivory		Black		Silver	Black
Display device		High-definition TFT color LCD				High-definition TFT color LCD				High-definition TFT color LCD				High-definition TFT color LCD	
Effective display area		Width 170.9 × height 128.2 mm (8.4 inches)				Width 215.2 × height 162.4 mm (10.4 inches)				Width 246.0 × height 184.5 mm (12.1 inches)				Width 304.1 × height 228.1 mm (15 inches)	
Display colors		256 colors													
Number of dots		640 dot horizontal × 480 dot vertical								800 dot horizontal × 600 dot vertical				1,024 dot horizontal × 768 dot vertical	
View angle		Left/right: 80°, Top: 80°, Bottom: 60° *3				Left/right: 70°, Top: 65°, Bottom: 65° *3				Left/right: 80°, Top: 80°, Bottom: 80° *3				Left/right: 80°, Top: 70°, Bottom: 60°	
Screen data capacity		60 Mbytes													
Image data (BMP or JPG images)		32,768 colors													
Memory Card		Supported													
Ladder Monitor function		Supported													
Video Input Unit support		Supported (Image displayed via video input is 260,000 colors)												(Only RGB input is enabled.)	
Controller Link Interface Unit (Wired) support		Not supported				Supported									
Backlight *1	Service life * 2	50,000 hours min.													
	Brightness adjustment	Three-level or 32-level brightness adjustment from the touch panel screen. * 3													
	Backlight error detection *4	Error is detected automatically, and the RUN indicator flashes green as notification.													
Touch panel (matrix type)	Method	Matrix resistive membrane type												Analog resistive membrane type *5	
	Number of switches/ resolution	768 (32 horizontal × 24 vertical) 20 × 20 dots for each switch				1,200 (40 horizontal × 30 vertical) 16 × 16 dots for each switch				1,900 (50 horizontal × 38 vertical) 16 × 16 dots for each switch				Resolution: 1,024 (horizontal) × 1,024 (vertical)	
	Input	Pressure-sensitive													
	Service life	1,000,000 touch operations.													
Display text	Labels	Can be specified in CX-Designer. Font, style, and size can be specified.													
	Numerals, alarms, and character strings	Scalable Gothic: Magnification: 6 to 255 points Rough: Magnification: 1×1, 1×2, 2×1, 2×2, 3×3, 4×4, 8×8 Standard: Magnification: 1×1, 1×2, 2×1, 2×2, 3×3, 4×4, 8×8 Fine: Magnification: 1×1, 1×2, 2×1, 2×2, 3×3, 4×4, 8×8 7-segment display: Can display only numerals, dates, and times.													
	Supported languages (42 languages)	Scalable Gothic, rough, standard, and fine can be used for 42 languages. Japanese, simplified Chinese, traditional Chinese, Korean, English, French, German, Italian, Portuguese, Spain, Swedish, Dutch, Finnish, Norwegian, Basque, Catalan, Danish, Albanian, Croatian, Czech, Hungarian, Polish, Romanian, Slovak, Slovenian, Bulgarian, Belarusian, Russian, Serbian, Macedonian, Ukrainian, Georgian, Icelandic, Afrikaans, Faroese, Indonesian, Greek, Turkish, Estonian, Latvian, Lithuanian, Thai (supported only with scalable Gothic font)													
Text attributes	Color	256 colors													
	Font style (only when vector font is specified)	Bold or italic													
	Vertical alignment	Top, center, or bottom													
	Horizontal alignment	Left-justified, centered, or right-justified													
Flicker	Objects supporting flicker	Functional objects: Select from up to 10 types of registered flicker settings. The flicker speed and flicker range can be set. Fixed objects: Select from three flicker types.													
Numeral units and scale settings		1.000 max.													
Alarm/event settings		5,000 max.													
Expansion interface		For Expansion Interface Units													

✻1. Contact your nearest OMRON representative to replace the backlight.

✻2. This is the estimated time before brightness is reduced by half at room temperature and humidity. It is not a guaranteed value. The service life will be dramatically shortened if PT is used at low temperatures. For example, using the PT at temperatures of 0 °C will reduce the service life to approximately 10,000 hours (reference value).

✻3. Lot No. 28X1 or later of NS8 models, Lot No. 11Y1 or later of NS10 models, Lot No. 14Z1 or later of NS12 models, Lot No. 31114K or later of NS15 models.

✻4. This function does not indicate that the service life has been reached. It detects when the backlight is not lit due to a disconnection or other errors. Backlight error detection indicates that all backlights (2) are OFF.

✻5. An analog touch panel is used with the NS15. Do not press the touch panel in two or more places simultaneously. If the touch panel is pressed in two or more places simultaneously, it may activate a switch between the points that are pressed.

Communications

NS5/NS8/NS10/NS12/NS15

Memory Card		**Interface**	One ATA-Compact Flash interface slot
		Functions	Used to transfer and store screen data, store logging data, and store history data. (Alarm/Event History, Operation Log, and Error Log generated during Macro execution).
Serial Communications	**Port A**	**Connector**	Conforms to EIA RS-232C. D-Sub female 9-pin connector 5-V output (250 mA max.) through pin 6. The 5-V outputs of serial ports A and B cannot be used at the same time.
		Functions	Host (PLC) access: 1:N NT Links (connections with CS/CJ/CP-series PLCs and C200HX/HG/HE(-Z) PLCs), 1:1 NT Links, or Host Link (connections with C Series or CVM1/CV-series PLCs) Direct access to Temperature Controllers using Smart Active Parts: CompoWay / F and bar code reader connections (Read directly from display.)
	Port B	**Connector**	Conforms to EIA RS-232C. D-Sub female 9-pin connector. 5-V output (250 mA max.) through pin 6. The 5-V outputs of serial ports A and B cannot be used at the same time.
		Functions	Host (PLC) access: 1:N NT Links (connections with CS/CJ/CP-series PLCs and C200HX/HG/HE(-Z) PLCs) or 1:1 NT Links (connections with C Series or CVM1/CV-series PLCs) Direct access to Temperature Controllers using Smart Active Parts: CompoWay / F and bar code reader connections (Read directly from display.)
USB SLAVE Specifications		**USB rating**	USB1.1
		Connector	TYPE-B (Slave)
		Functions	Connection with the CX-Designer (for screen data transfers) Connecting to a PictBridge-compatible Printer Recommended printers: EPSON: PM-G4500, PX-G5300, PX-5600, EP-901F Canon: PIXUS MX7600, PIXUS iP100, PIXUS iX5000
USB HOST Specifications *1		**USB rating**	USB1.1
		Connector	TYPE-A (Host)
		Functions	Connection with a printer (for hard copies) Recommended printers: EPSON: PX-G930
Built-in Ethernet Specifications *2		**Conformance standards**	Conforms to IEEE 802.3/Ethernet (10 Base-T/100 Base-TX).
		Functions	Host (PLC) access and connection with the CX-Designer (for screen data transfers)
Controller Link (Wired-type) Specifications *3		**Baud rate**	2 M/1 M/500 K bps
		Transmission path	Shielded twisted-pair cable (special cable)
		Functions	Host (PLC) access and data links
Video Input Specifications *4		**Resolution**	NS-CA001: 320×240, 640×480, 800×600 dots NS-CA002: User-defined size
		Input signal	NS-CA001: NTSC composite video or PAL NS-CA002: NTSC composite video or PAL
		Number of video inputs	NS-CA001: Number of cameras: 4 max. NS-CA002: 2 cameras + RGB

✻1. Except NS5.
✻2. NS□-□□□1-V2 only.
✻3. Except NS5 and NS8.
✻4. Except NS5 and NS15. NS15 provides RGB input. (NS-CA002)

Connectable Devices

Supported OMRON PLCs

PLC series	PLC model name	RS-232C *1			Ethernet		Controller Link *4
		1:1 NT Link	1:N NT Link	Host Link	FINS *2	EtherNet/IP *3	
C Series	CQM1	Yes	No	Yes	No	No	No
	CQM1H	Yes	Yes	Yes	No	No	Yes
	CPM1	Yes	No	Yes	No	No	No
	CPM1A	Yes	No	No	No	No	No
	CPM2A	Yes	No	Yes	No	No	No
	CPM2C	Yes	No	Yes	No	No	No
	C200HS	Yes	No	Yes	No	No	No
	C200HE (-Z)	Yes	Yes	Yes	No	No	Yes
	C200HG (Z)	Yes	Yes	Yes	No	No	Yes
	C200HX (-Z)	Yes	Yes	Yes	No	No	Yes
CVM1/CV Series	CV500/1000/2000	Yes	No	Yes	Yes	No	Yes
	CVM1	Yes	No	Yes	Yes	No	Yes
CS Series	CS1H	No	Yes	Yes	Yes	Yes	Yes
	CS1G	No	Yes	Yes	Yes	Yes	Yes
	CS1D	No	Yes	Yes	Yes	Yes	Yes
CJ Series	CJ1H	No	Yes	Yes	Yes	Yes	Yes
	CJ1G	No	Yes	Yes	Yes	Yes	Yes
	CJ1M	No	Yes	Yes	Yes	Yes	Yes
	CJ2H	No	Yes	Yes	Yes	Yes *5	Yes
	CJ2M	No	Yes	Yes	Yes	Yes *5	Yes
CP Series	CP1H	No	Yes	Yes	Yes	Yes	No
	CP1L	No	Yes	Yes	Yes	No	No
	CP1E	No	Yes	Yes	No	No	No
	CP2E	No	Yes	Yes	Yes	No	No
NJ Series	NJ5/NJ3/NJ1	Yes *6	Yes *6	Yes *6	No	Yes *7	No
NX Series	NX7/NX1/NX1P	No	No	No	No	Yes *8	No

Note: Including models whose production were discontinued.

✻1. To connect a NS with a PLC via a RS-422A connection, OMRON's NS-AL002, or CJ1W-CIF11 RS-232C/RS-422A Converter can be used to convert the RS-232C port on the NS to RS-422A.

✻2. A NS with Ethernet port is necessary.
When connecting a PLC with the NS, an Ethernet port is necessary on the PLC, too. Use a PLC CPU Unit with a built-in Ethernet port, or add an Ethernet Unit.

✻3. A NS with Ethernet port is necessary.
When connecting a PLC with the NS, an EtherNet/IP port is necessary on the PLC, too. Use a PLC CPU Unit with a built-in EtherNet/IP port, or add an EtherNet/IP Unit.

✻4. Install a Controller Link Interface Unit on the NS. A Controller Link Unit is necessary for the PLC.

✻5. For CJ2, CX-Designer version 3.2 or later, and NS system version 8.4 or later are required.

✻6. Mount a Serial Communications Unit on the NJ-series Controller. A NS can access only to the Controller's memory used for CJ-series unit.

✻7. When using a EtherNet/IP Unit to connect the NJ-series Controller, NJ Troubleshooter is not supported.
For NJ5, CX-Designer version 3.3 or later, and NS system version 8.5 or later are required.
For NJ3, CX-Designer version 3.4 or later, and NS system version 8.61 or later are required.
Moreover, the multidimensional array is supported in the combination with NJ.

✻8. For NX7, CX-Designer version 3.64 or later, and NS system version 8.9 or later are required.
For NX1P, CX-Designer version 3.70 or later, and NS system version 8.93 or later are required.
For NX1, CX-Designer version 3.70 or later, and NS system version 8.96 or later are required.
Moreover, the multidimensional array is supported in the combination with NX.

Function Comparison

PLC series	PLC model name	Ladder Monitor	Device Monitor/ Switch Box	PLC Data Trace	SPMA	SAP	EtherNet/IP Tag access (Network symbols)	PLC Troubleshooter	NJ Troubleshooter/ Integrated NS-series PT simulation *4
C series	CQM1	No	No	No	No	No	No	No	No
	CQM1H	No	No	No	No	No	No	No	No
	CPM1	No	No	No	No	No	No	No	No
	CPM1A	No	No	No	No	No	No	No	No
	CPM2A	No	No	No	No	No	No	No	No
	CPM2C	No	No	No	No	No	No	No	No
	C200HS	No	No	No	No	No	No	No	No
	C200HE (-Z)	No	No	No	No	No	No	No	No
	C200HG (-Z)	No	No	No	No	No	No	No	No
	C200HX (-Z)	No	No	No	No	No	No	No	No
CVM1/CV series	CV500/1000/2000	No	No	No	No	No	No	No	No
	CVM1	No	No	No	No	No	No	No	No
CS series	CS1H	Yes	Yes	Yes	Yes	Yes	No	Yes	No
	CS1G	Yes	Yes	Yes	Yes	Yes	No	Yes	No
	CS1D	Yes	Yes	Yes	Yes	Yes	No	Yes	No
CJ series	CJ1H	Yes	Yes	Yes	Yes	Yes	No	Yes	No
	CJ1G	Yes	Yes	Yes	Yes	Yes	No	Yes	No
	CJ1M	Yes	Yes	Yes	Yes	Yes	No	Yes	No
	CJ2H	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
	CJ2M	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
CP series	CP1H	Yes	Yes	Yes	Yes *1	Yes	No	No	No
	CP1L	Yes	Yes	Yes	Yes *1	Yes	No	No	No
	CP1E	No	No	No	Yes *1	No	No	No	No
	CP2E	No	No	No	Yes *1	No	No	No	No
NJ series	NJ5/NJ3/NJ1	No	Yes *2	No	No	Yes *3	Yes	No	Yes
NX Series	NX7/NX1/NX1P	No	No	No	No	No	Yes	No	Yes

Note: Including models whose production were discontinued.

***1.** The SPMA relaying a PLC is not supported.
***2.** Only Device Monitor function is supported. Monitoring function that uses tags (variables) is not supported.
***3.** The SAP for CJ-series Special I/O Units and CPU Bus Units that can be used with NJ-series Controller is supported.
***4.** Sysmac Studio version 1.02 or higher (CX-Designer version 3.41 or higher) is required.

Connectable Inverters

Series	Communication Unit	Connection	
3G3MX2-V1	(Use the RS-485 terminal on the Inverter)	RS-485 (2-wire)	1:N
3G3JX	(Use the RS-485 connector on the Inverter)		
3G3RX-V1	(Use the RS-485 terminal on the Inverter)		

Connectable Temperature Controllers

The following Temperature Controllers can be connected directly to an NS-series PT*.

Unit name	Series	Model	Remarks
Modular Temperature Controller	EJ1	EJ1-EDU End Unit	SAP screens are available.
Modular Temperature Controller	E5ZN	E5ZN-SCT24S Terminal Unit	
Digital Controller	E5AR	E5AR-□□□□□□□□□-FLK	
	E5ER	E5ER-□□□□□□□□□-FLK	
Temperature Controller (Digital Controller)	E5AN/E5EN/E5CN (Basic Model)	E5CN-□□□□□T-FLK Multi-input (Thermocouple/Resistance Thermometer) Type	
		E5CN-□□□□□L-FLK Analog Input Type	
		E5EN-□□□□□T-FLK Multi-input (Thermocouple/Resistance Thermometer) Type	
		E5EN-□□□□□L-FLK Analog Input Type	
		E5AN-□□□□□T-FLK Multi-input (Thermocouple/Resistance Thermometer) Type	
		E5AN-□□□□□L-FLK Analog Input Type	
	E5AN-H/E5EN-H/ E5CN-H (Advanced Model)	E5CN-H□□□□□□□-FLK Universal-input Model	
		E5EN-H□□□□□□□□-FLK Universal-input Model	
		E5AN-H□□□□□□□□-FLK Universal-input Model	
	E5GN	E5GN-□□□TC-FLK Thermocouple Input Type	
		E5GN-□□□P-FLK Resistance Thermometer Input Type	

Note: Including models whose production were discontinued.

✻The NS-Runtime cannot be connected directly to a Temperature Controller.

Connecting to Another Company's PLC

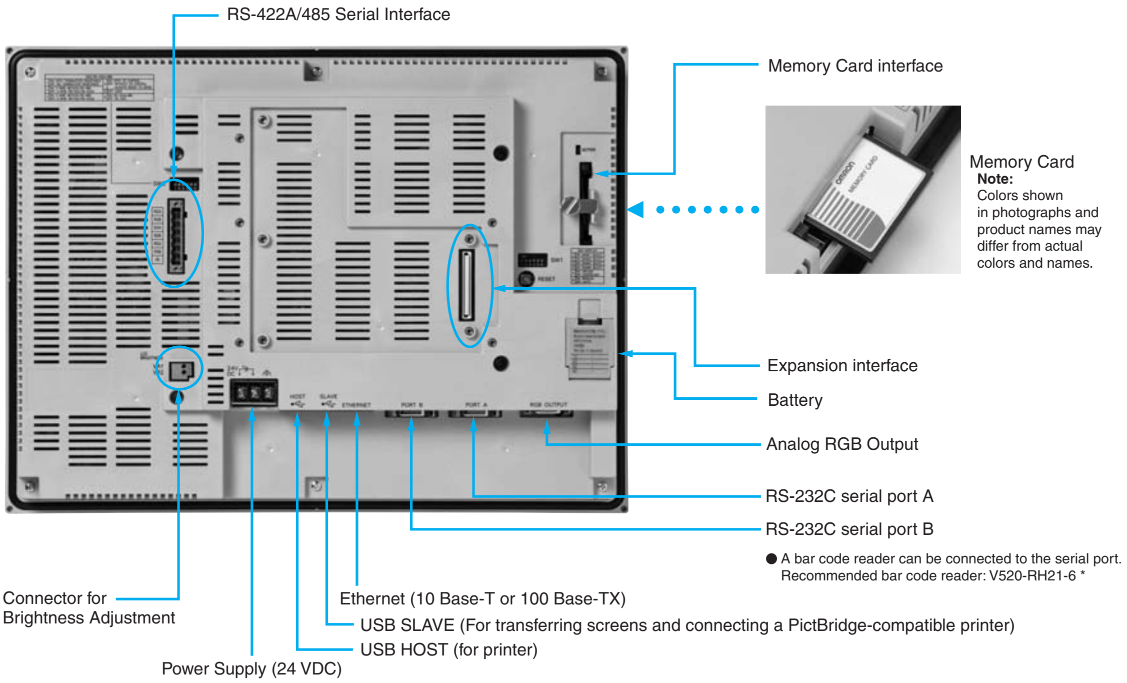
Manufacturer	Series	CPU	Communication Unit/Adapter/Board	Connection diagram	
Mitsubishi Electric	A Series	A1SHCPU A2USCPU A2USHCPU-S1	Computer Link Unit A1SJ71UC24-R□ A1SJ71UC24-PRF	RS-232C, RS422A/485 *1	1:1
		A2ACPU	Computer Link Unit AJ71UC24		
	FX Series	FX0N FX1S FX1N FX1NC FX2N FX3UC FX3G	Communication special adapter FX3U-232-ADP FX2NC-232ADP FX0N-232-ADP Communication expansion board FX□□-232-BD	RS-232C, RS422A/485 *1	1:1
	Q/QnA Series	Q00CPU Q01CPU	RS-232C port on the CPU Module	RS-232C	1:1
		Q00CPU Q01CPU Q00JCPU Q02CPU Q02HCPU Q06HCPU Q12HCPU Q25HCPU Q03UDCPU Q06UDHCPU Q13UDHCPU	Serial Communications Module QJ71C24N-R2 QJ71C24N-R4 QJ71C24N	RS-232C, RS-485 (4-wire) *2	1:N
		Q2ASCPU Q2ASCPU-S1 Q2ASHCPU Q2ASHCPU-S1	Serial Communications Module A1SJ71QC24N		
Yokogawa Electric	FA-M3(R) Series	F3SC23-1F F3SP21-0N F3SP28-3S F3SP58-6S F3SP67-6S	CPU built-in RS-232C port	RS-232C	1:1
			Personal Computer Link Module F3LC11-1F F3LC12-1F F3LC11-2F	RS-232C, RS-422A/485 *1	
Siemens	S7-300 Series	CPU313 CPU315-2DP CPU317-2PN/DP	SIMATIC S7 HMI Adapter 6ES7 972-0CA1□-0XA0	RS-232C	1:1
Rockwell (Allen-Bradley)	SLC500	SLC5/03 SLC5/04 SLC5/05	RS-232C port on the CPU Module	RS-232C	1:1
	MicroLogix	MicroLogix 1500	RS-232C port on the CPU Module	RS-232C	1:1
	ControlLogix	Logix5555	RS-232C port on the CPU Module	RS-232C	1:1
	CompactLogix	1769-L31	RS-232C port on the CPU Module	RS-232C	1:1
	PLC-5	PLC-5/20	RS-232C port or RS-485 port on the CPU Module	RS-232C/RS-485 (4-wire)	1:N

✻1. To connect using RS-422A/485, an RS-232C/422A converter (e.g. NS-AL002, CJ1W-CIF11) is required.

✻2. To connect using RS-485, an RS-232C/422A converter (e.g. NS-AL002, CJ1W-CIF11) is required.
Up to 32 sequencers can be connected when using RS-485.

Component Names and Options

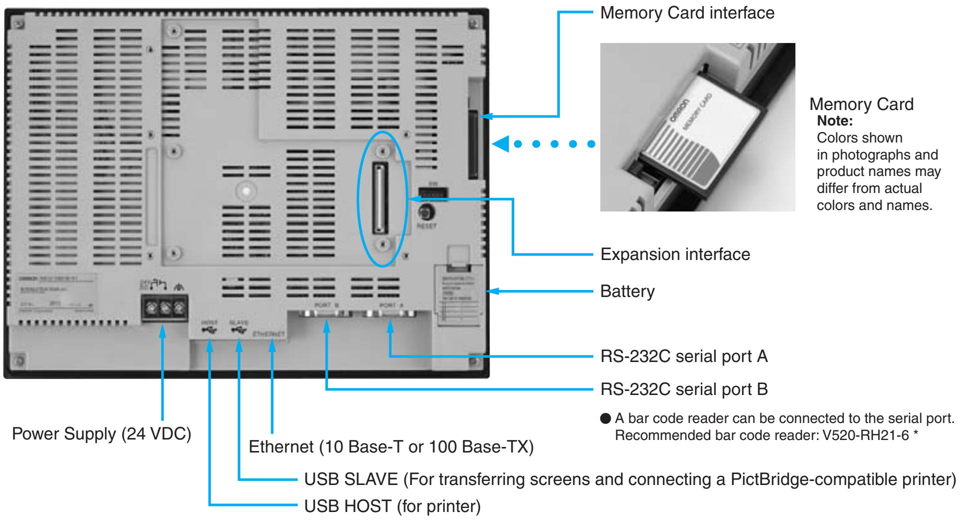
NS15


RS-422A/485 Serial Interface
Memory Card interface
Memory Card
Expansion interface
Battery
Analog RGB Output
RS-232C serial port A
RS-232C serial port B
Connector for Brightness Adjustment
Ethernet (10 Base-T or 100 Base-TX)
USB SLAVE (For transferring screens and connecting a PictBridge-compatible printer)
USB HOST (for printer)
Power Supply (24 VDC)

Note: Colors shown in photographs and product names may differ from actual colors and names.

- ● A bar code reader can be connected to the serial port. Recommended bar code reader: V520-RH21-6 *

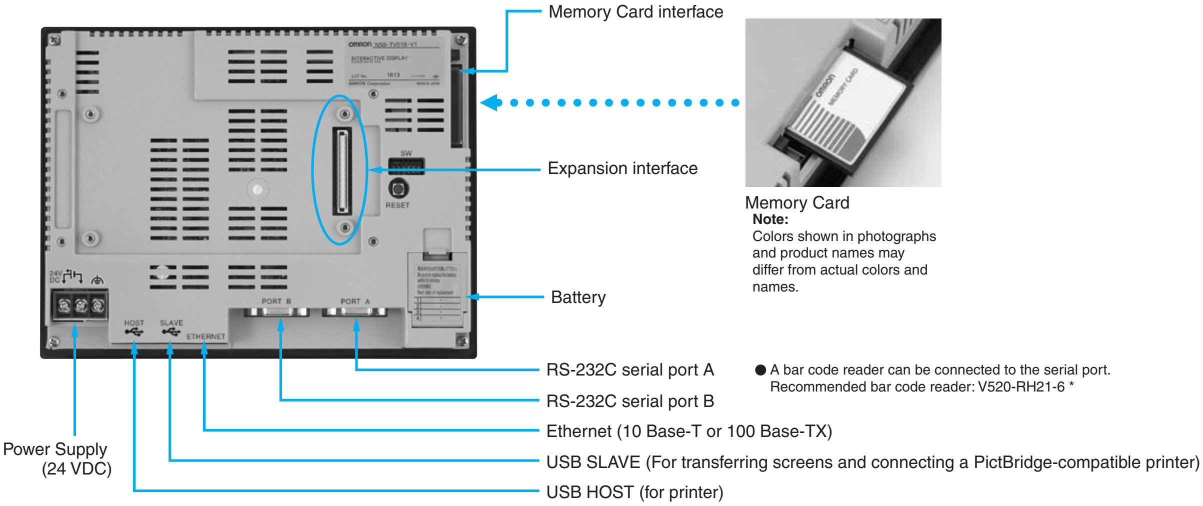
NS12/10


Memory Card interface
Memory Card
Expansion interface
Battery
RS-232C serial port A
RS-232C serial port B
Power Supply (24 VDC)
Ethernet (10 Base-T or 100 Base-TX)
USB SLAVE (For transferring screens and connecting a PictBridge-compatible printer)
USB HOST (for printer)

Note: Colors shown in photographs and product names may differ from actual colors and names.

- ● A bar code reader can be connected to the serial port. Recommended bar code reader: V520-RH21-6 *

NS8

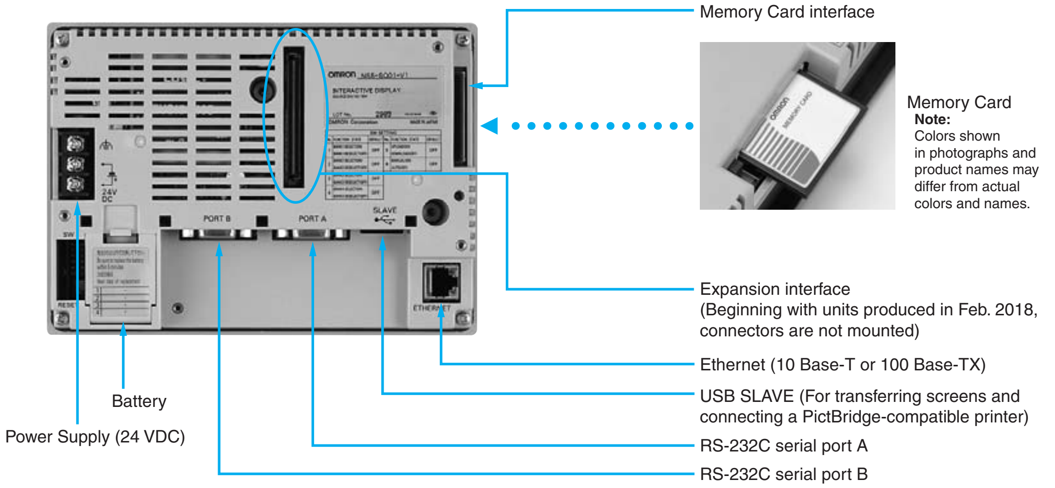

Memory Card interface
Expansion interface
Memory Card
Battery
RS-232C serial port A
RS-232C serial port B
Ethernet (10 Base-T or 100 Base-TX)
USB SLAVE (For transferring screens and connecting a PictBridge-compatible printer)
USB HOST (for printer)
Power Supply (24 VDC)

Note: Colors shown in photographs and product names may differ from actual colors and names.

- ● A bar code reader can be connected to the serial port. Recommended bar code reader: V520-RH21-6 *

✻ Bar Code Reader (V520-RH21-6) was discontinued at the end of August 2016.

NS5

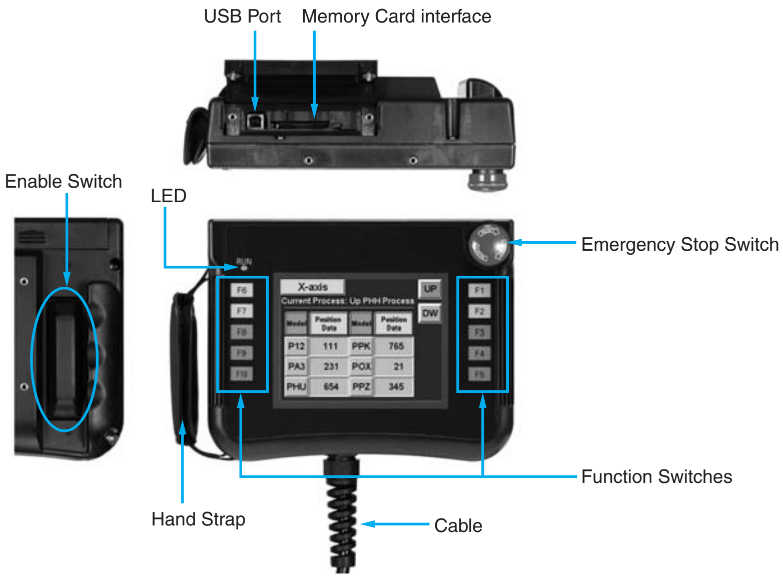

Memory Card interface
Memory Card
Expansion interface
(Beginning with units produced in Feb. 2018, connectors are not mounted)
Ethernet (10 Base-T or 100 Base-TX)
USB SLAVE (For transferring screens and connecting a PictBridge-compatible printer)
RS-232C serial port A
RS-232C serial port B
Battery
Power Supply (24 VDC)

Note:
Colors shown in photographs and product names may differ from actual colors and names.

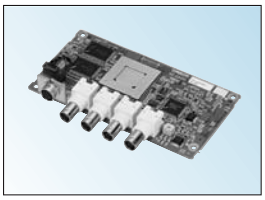
● A bar code reader can be connected to the serial port.
Recommended bar code reader: V520-RH21-6 *

✻Bar Code Reader (V520-RH21-6) was discontinued at the end of August 2016.

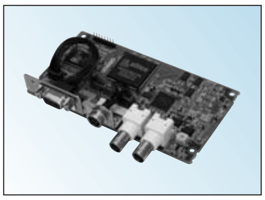
NSH5


USB Port
Memory Card interface
Enable Switch
LED
Emergency Stop Switch
Function Switches
Hand Strap
Cable

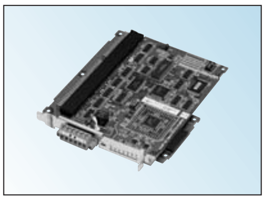
Optional Products



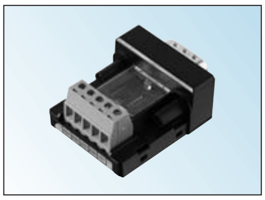
Video Input Unit
NS-CA001 (with Cover)



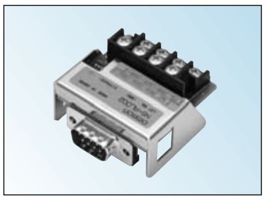
RGB/Video Input Unit
NS-CA002 (with Cover)



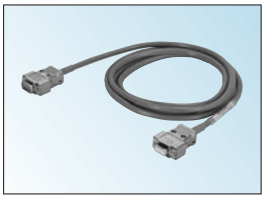
Controller Link Interface Unit
NS-CLK21 (with Cover)



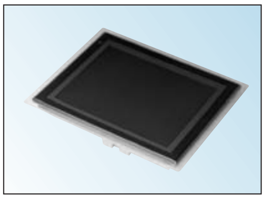
RS-422A Adapter
CJ1W-CIF11



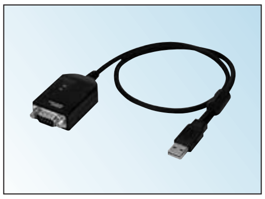
RS-232C/RS-422A
Conversion Unit
NS-AL002



Communications Cable
XW2Z-S002



Protective Cover/Anti-reflection
Sheet for NS-series PT
NS-KBA0 (N)
NT30/NT31C-KBA05 (N)



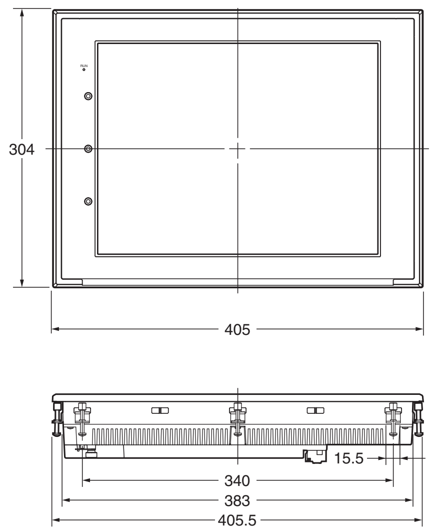
USB Serial Conversion Cable
CS1W-CIF31

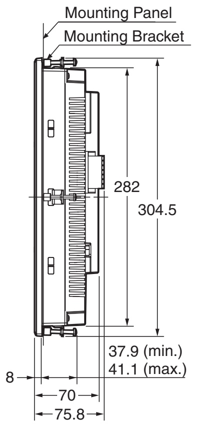
USB relay cable
(IP65 oil-proof type)
NS-USBEXT-1M

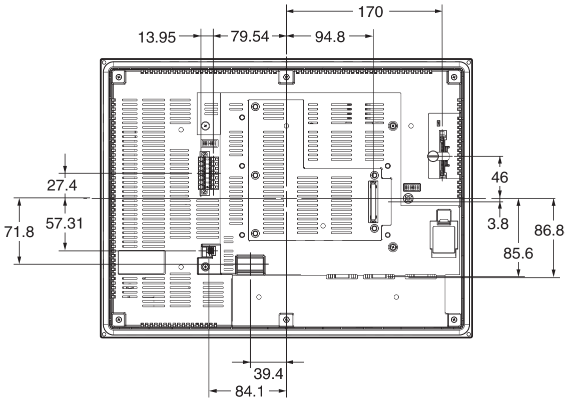
Dimensions

(Units: mm)

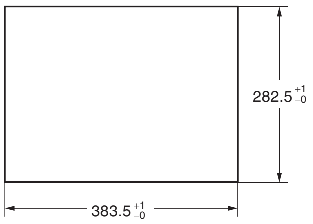
NS15


304
405
15.5
340
383
405.5

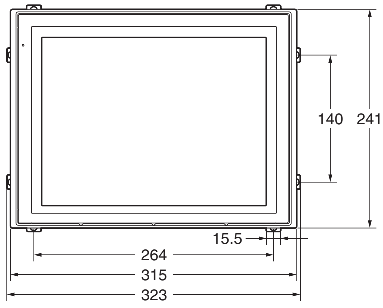

Mounting Panel
Mounting Bracket
282
304.5
37.9 (min.)
41.1 (max.)
8
70
75.8

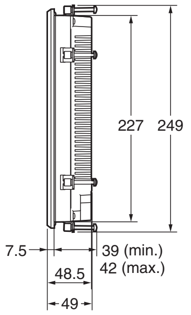

170
13.95
79.54
94.8
27.4
57.31
71.8
46
3.8
86.83
85.6
39.4
84.1

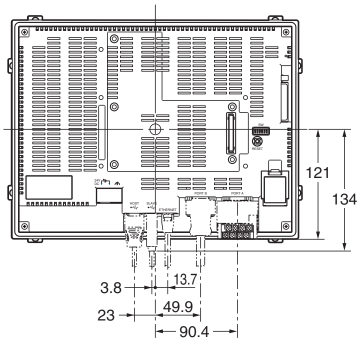
● Recommended Panel Cutout Dimensions

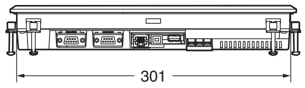

282.5 +1 −0
383.5 +1 −0

NS12/10

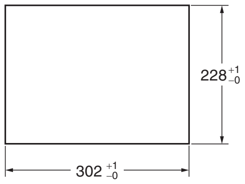

140
241
15.5
264
315
323


227
249
7.5
39 (min.)
42 (max.)
48.5
49

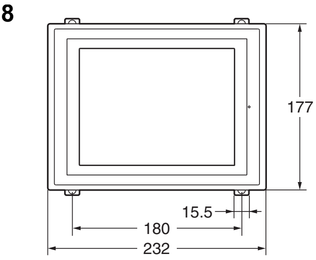

121
134
3.8
13.7
49.9
23
90.4

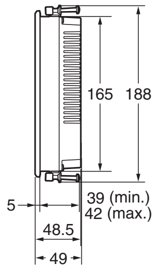


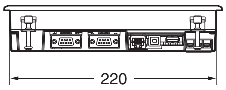
● Recommended Panel Cutout Dimensions

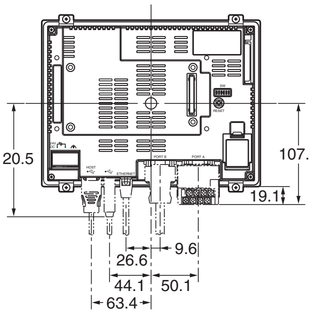

228 +1 −0
302 +1 −0

NS8

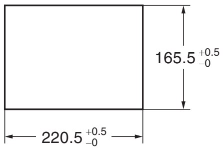

177
15.5
180
232


165
188
5
39 (min.)
42 (max.)
48.5
49

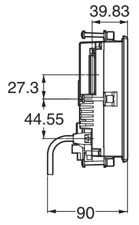


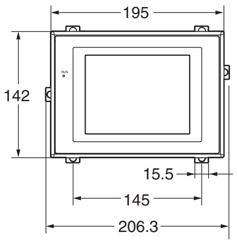

120.5
107.6
19.1
9.6
26.6
44.1
50.1
63.4

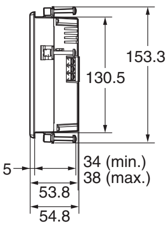
● Recommended Panel Cutout Dimensions

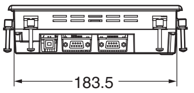

165.5 +0.5 −0
220.5 +0.5 −0

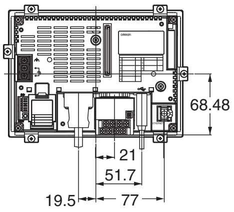
NS5


39.83
27.3
44.55
90

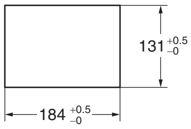

195
142
15.5
145
206.3


153.3
130.5
5
34 (min.)
38 (max.)
53.8
54.8

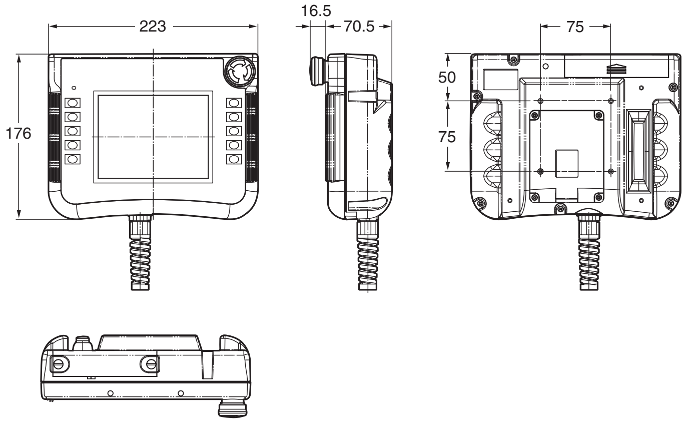



68.48
21
51.7
19.5
77

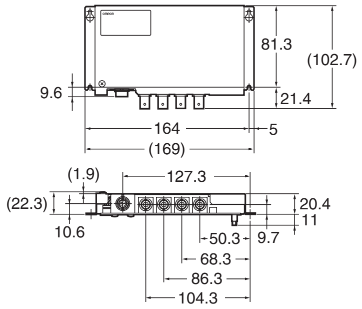
● Recommended Panel Cutout Dimensions


131 +0.5 −0
184 +0.5 −0

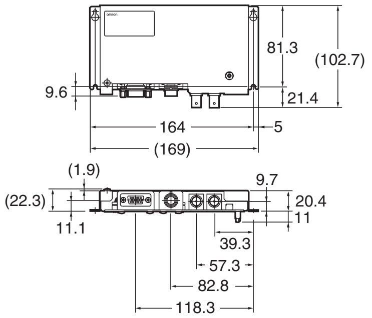
Hand-held NS5


223
176
16.5
70.5
75
50
75

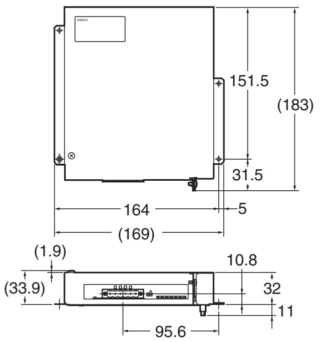
NS-CA001
Video Input Unit


81.3
(102.7)
9.6
21.4
164
5
(169)
(1.9)
127.3
(22.3)
20.4
11
10.6
50.3
9.7
68.3
86.3
104.3

NS-CA002
Video Input Unit


81.3
(102.7)
9.6
21.4
164
5
(169)
(1.9)
9.7
(22.3)
20.4
11
11.1
39.3
57.3
82.8
118.3

NS-CLK21
Controller Link Interface Unit


151.5
(183)
31.5
164
5
(169)
(1.9)
10.8
(33.9)
32
11
95.6

Related Manuals

Cat. No.	Model	Manual
V083	NS15/NS12/NS10/NS8/NS5	NS-Series Programmable Terminals SETUP MANUAL
V073	NS15/NS12/NS10/NS8/NS5	NS-Series Programmable Terminals PROGRAMMING MANUAL
V099	NS-CXDC1-V3	CX-Designer Ver.3.☐ USER'S MANUAL
V082	NS	NS-Series Ladder Monitor OPERATION MANUAL (Ladder Monitor I/O Comment Extracting Tool)
V086	NS-CA002	NS-Series RGB and Video Input Unit OPERATION MANUAL
V090	NSH5	NSH5-Series Hand-held Programmable Terminal OPERATION MANUAL
V098	NS15/NS12/NS10/NS8/NS5	NS-Series Programmable Terminals HOST CONNECTION MANUAL (Host Link) OPERATION MANUAL
V085	NS15/NS12/NS10/NS8/NS5	NS-Series Programmable Terminals HOST CONNECTION MANUAL
V092	NS15/NS12/NS10/NS8/NS5	NS-Series Programmable Terminals HOST CONNECTION MANUAL Multivendor Connection
V075	NS15/NS12/NS10/NS8/NS5	NS-Series Programmable Terminals Macro Reference
V093	NS-NSRCL☐☐	NS-NSRCL☐☐ NS-Runtime Software USERS MANUAL

Read and Understand This Catalog

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

Warranty and Limitations of Liability

WARRANTY
OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

LIMITATIONS OF LIABILITY
OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

Application Considerations

SUITABILITY FOR USE
OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products.

At the customer's request, OMRON will provide applicable third party certification documents identifying ratings and limitations of use that apply to the products. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

- Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this catalog.
- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

PROGRAMMABLE PRODUCTS
OMRON shall not be responsible for the user's programming of a programmable product, or any consequence thereof.

Disclaimers

CHANGE IN SPECIFICATIONS
Product specifications and accessories may be changed at any time based on improvements and other reasons.

It is our practice to change model numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the products may be changed without any notice. When in doubt, special model numbers may be assigned to fix or establish key specifications for your application on your request. Please consult with your OMRON representative at any time to confirm actual specifications of purchased products.

DIMENSIONS AND WEIGHTS
Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

PERFORMANCE DATA
Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON Warranty and Limitations of Liability.

ERRORS AND OMISSIONS
The information in this document has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical, or proofreading errors, or omissions.

Note: Do not use this document to operate the Unit.

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