OMRON

NS5, NS8, NS10, NS12

NS series Advanced Touch Screens

Design Software

The CX-Designer is used to create screen data for NS-series Programmable Terminals. The CX-Designer can also be used to test the operation of the created screen data on the computer.

Screen Creation

Develop Screens More Efficiently with Easy-to-use Support Software. The CX-Designer has about 1,000 standard functional objects with associated graphics and advanced functions, so even first-time users can create screens easily just by arranging functional objects in a screen.

The CX-Designer is also equipped with a variety of functions that make it easy to create screens for common applications. Screen development is very efficient with the CX-Designer.

Screen templates

Make one common screen (sheet) that overlaps other screens (to save having to recreate the same part, such as a menu, in every screen).

A feature that is common to several screens can be registered in a sheet. The common feature can be added to any screen just by applying the corresponding sheet to the screen. (Up to 10 sheets can be created for one project.)

Sheet   Screen

Resulting screen with sheet applied

The feature in the sheet is added.

Multiple language support

Switching error messages between English and Japanese

A Dual-language (English/Japanese) system program

With an NS-series PT, the display language for the system menu and error messages can be switched between English and Japanese with the System Menu's Select Language function. Like the Label Switching function, the Dual-language setting is useful for exported products because the language can be set to English for normal operation and switched to Japanese when Japanese staff need to operate the equipment or perform maintenance.

Language selection tab page

Creating Italian, German, or Other Language Screens in any language version of Windows

Multi-language Input (When Windows 2000 or XP is Used)

When Windows 2000 or XP is being used, French, German, Spanish, Italian, and other language text can be input in NS-Designer. Select the desired language with regional options to input a different language.


Making multiple language versions with a single screen data file

Label switching function

Up to 16 groups of labels (labels 0 to 15) can be registered for functional objects such as buttons, lamps, labels, and alarm settings. (Each label can correspond to a different language, for example, label 0 = Japanese, label 1 = Simplified Chinese, label 2 = Korean, label 3 = English, etc.)

Once all of the labels have been input in each language with the multilingual input function, all of the labels can be switched to a different language at once just by specifying the corresponding label number from the PLC.
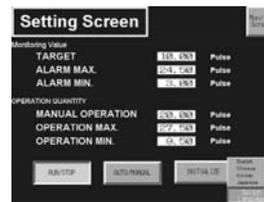
Example: The label switch function can be used to switch between English and Simplified Chinese.

Having a text label converted into multiple languages by a translation company

CSV File Input/Output

The labels for each functional object can be exported in CSV format. The changed labels can be imported again after it has been edited with a program such as Excel.

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Transferring Screen Data

Data Transfer by Passing Through a PLC or PT!

SPMA (Single Port Multi Access) Function
When transferring screen data from the CX-Designer to the NS-series PT, the data can be transferred through a PLC as long as the PT is connected to the PLC by a serial connection or network connection.

Also, when monitoring/transferring a PLC ladder program from the CX-Programmer, the PLC ladder program can be monitored/transferred through an NS-series PT as long as the PT is connected to the PLC by a serial connection or network connection.
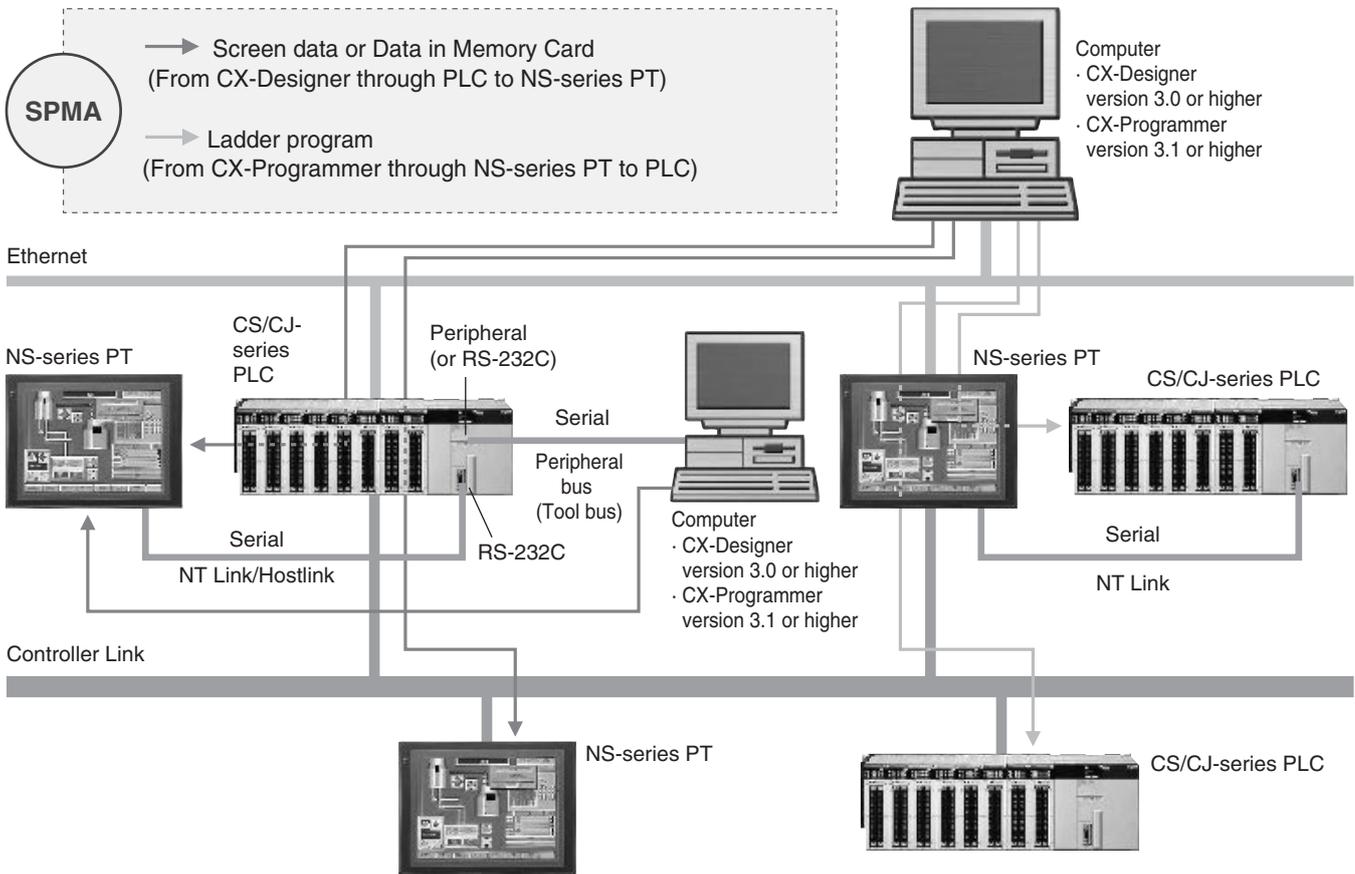
*   To use the SPMA function through the PLC, the following software and hardware versions are required.
    *   NS-series PT: System version 3.0 or higher
    *   CX-Designer: Version 3.0 or higher
    *   CX-Programmer: Version 3.1 or higher
    *   PLC: Lot No. 030201 and later

Easy screen data transfer at high speed

Screen transfer through modems is now possible.

- Even a single screen change in a shipped machine involves a risk, because a screen sent by e-mail needs to be transferred to a person familiar with operation. Training workers to understand operation is a hard job. Or service personnel need to visit the site to change screens.

Solution The screens can be transferred from a computer in an office through modems. The maintenance of the screens is possible without touching the device. Therefore, no training or engineer visits are required.

RS-232C
Modem
Modem

Screen transfers using Memory Cards are possible from the maintenance menu.

- It is very convenient to make backups without using a computer. It is, however, troublesome to operate a DIP switch on the back of the PT each time backups are required.
- You may want to make backups periodically, but worry because the DIP switch pins may break.

Solution Screen transfers using Memory Cards are possible from the maintenance menu. No physical switch operations are required on the rear panel. Furthermore, easy operation is ensured with no wear and tear of hardware, including the switch.

Select from the system menu.

Start downloading/uploading.

Memory Card

High-speed screen transfer through USB.

- Most computers now have an USB port, and no serial RS-232C ports are provided.
- You may want to transfer screens more easily at higher speeds.

Solution Data can be transferred over USB through a single cable between the computer and PT. No devices for serial RS-232C and USB conversion are required. Moreover, USB allows high-speed screen transfer by just connecting the cable.

Screen transfers equivalent to Ethernet.

Note: The screen transfer function through the USB will be supported in the near future.

Human Machine Interfaces

OMRON

Creating Windows-style screens

Making buttons pop-up with a single property setting

Easily creating pop-up menus

You can easily create your own pop-up menu using the standard command button. When the button is pressed, the pop-up menu will be displayed and the corresponding operation (such as switching screens or setting a value in a specified communications address) can be performed by choosing the item name from the pop-up menu.

Inputting character strings by selecting from a list

List selection object

The character strings in the specified PLC addresses or text file are displayed so that the user can select from the list. When a line is selected, the corresponding line number or character string can be written to the PLC. It is possible to display up to 1,024 lines with up to 256 characters in each line.

Switching just part of the screen, Like the Pages of a Notebook

Frame function

It is possible to specify an area in the screen (Frame) that will be switched as a page. Up to 10 frames can be set for one screen. Up to 256 pages can be switched for one frame.

This function can be used for operations such as switching tabs.

Varying the font size, just as you can in a word processor

Windows fonts function

Windows fonts such as Arial or Century can be used for text objects and the font size can be changed.

Using an image, e.g. a picture taken with a digital camera, for the background

Bitmap displays

It is possible to display BMP and JPG files. The files can be specified directly or indirectly.

Background files

It is also possible to arrange BMP and JPG files for the background of the screen.

Using general software

Editing text and bitmap file with your favorite text editor

Editor specifying function

The user can select the editor when editing text or bitmap files.

Creating system-related documents

Outputting project information in RTF

Data such as screen information and object information can be output in an RTF file. The RTF file can be read into Word Processor to produce a system manual.

Example of an RTF File Read into Word Processor

● Pasted Screen Data as RTF Data

● Object Properties as RTF Data

Using Excel to analyze data, such as the Alarm/Event History, Operation Log, and Error Log, and to create Daily Reports

Memory Card: data logging function

Log Data in a Memory Card can be read on the screen with the read file button. A list fo files with time stamps will appear on the screen. By selecting the desired file, the past log in the Memory Card ban be read.

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

Read file button

Using Excel to analyze time-series data and to create daily reports

Memory Card: History Storage Function

The following data can be saved to the Memory Card in CSV format.
- Alarm/Event History (Alarm/ Event history data)
- Operation Log (Screen operation history data)
- Error Log (Error log data recorded during macro program execution)

Easily utilizing advanced functions

Setting and displaying recipe data from the PT for fast production changeovers

Data block (Recipe) function

Data blocks (recipe function) allow several numeric values and/or character strings to be transferred to/from memory areas, such as PLC data areas. Data blocks can be used to change the system's production setup even faster.

Easily creating screens in table format containing multiple functional objects

Tables

The same kind of functional objects (such as Buttons, Text, or Numeral Display & Input objects) can be created together in a table just by specifying the kind of functional object, number of rows, and number of columns in the table. In addition, the properties for functional objects can all be set together and PLC addresses can be allocated automatically. It is also possible to add headings for each row and column.

Converting the scale for industrial units at the PT

Units setting and scaling function

The display units and scale can be changed Numeral Display & Input objects. Any unit display can be set.

Hide or disable objects on a screen with a single bit to prohibit operation

Control flag (Interlock) function

A bit in the PLC can be used as a control bit to control the display of an object (such as a button or numeral input) or disable/enable an operation.

This can be useful when you want to change data from a PLC without the user noticing this. It can also guide the user to perform actions step by step.

Protecting the system with passwords

Passwords

It is possible to register 5 kinds (levels) of passwords (16 characters max.) for the whole project. Also can set one of 5 passwords for each functional object (which you operate).

Changing the color of an area of the Meter to indicate an error level

Switch display color function

Level Meter and Analogue Meter can be divided into three ranges with a different fill color in each range. It is also possible to indirectly specify each range's color and border values so that the ranges can be changed during operation.

Human Machine Interfaces

Create customized functionality using script

(Moving functional objects based on the status of PLC bits, performing conditional processing at a given present value, writing to the PLC according to set value arithmetic operations, etc.)

Macro function

Original, user-defined programs (macros) can be added and executed to control projects, screens, and functional objects.

Sharing Screen Data

Using Image library

Select Shape Function

About 1,000 shapes can be used for ON/OFF buttons, Bit lamps, and Word lamps, including shapes such as 7-Segment digits, rotary switches, limit switches, and motors.

Registering Complex Objects such as Graphics to a Library and Reusing Them

Library Register Function

Organize functional objects or fixed objects that you have created and register them in the library so that they can be reused.

Terminal Software

Monitoring and setting PLC data

Monitoring PLC I/O data for the purpose of device debugging and maintenance

Device Monitor Function

The Device Monitor Function is a standard feature in the NS-series Programmable Terminals. Data in the PLC's I/O memory can be accessed directly (read and written.) The Device Monitor provides functions that can significantly reduce the time needed to set up the system, such as displaying a block of consecutive PLC data area addresses and inputting/verifying parameters in CPU Bus Units and Special I/O Units.
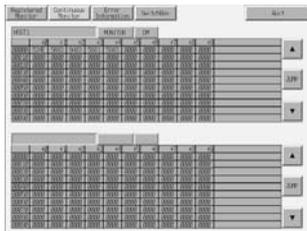
Easily Displaying the Status of Particular Bits in Ladder Programs when Errors Occur

Switch Box Function

The Switch Box Function has been added to the NS-series Programmable Terminals. The Switch Box Function can be used to monitor the status of each bit in a word or a combination of user-selected bits organized like a ladder program section. The Switch Box Function makes it possible to perform basic troubleshooting on the factory floor or debugging of the application even without a computer.

Monitoring Execution of the PLC's Ladder Program

Ladder Monitor Function

Save the NS-EXT01 Ladder Monitor system program on a Memory Card (the NS-EXT01 is sold separately) and install the Memory Card to enable monitoring of a ladder program (I/O bit status monitor, address/instruction search, multiple I/O bit monitor, etc.) being executed in a CS/CJ-series PLC connected by a serial connection. It is also possible to display I/O comments created with the CX-Programmer.

Memory Card: Upload/Download Function

It is possible to download the screen data and system program to Memory Card and upload the same data from the Memory Card. It is also possible to automatically upload the data from the Memory Card to CX-Designer or automatically download the data from Memory Card to PT when the power of PT is turned ON.

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 online from your computer easily.

If(Date=0526)
FTP 192 xxxx
xxxx
mput *.bmp
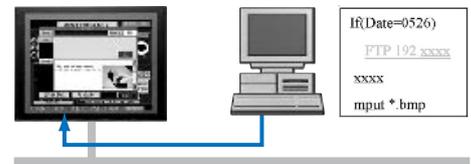
The NS can be connected to a Board PC. The NS can also be directly connected to an OMRON Temperature Controller.

Memory Link has been added to the communications method. It allows the NS to communicate with a Board PC.

Ver.5

Memory link

OMRON Temperature Control Unit

The NS can communicate directly with the OMRON Temperature Controllers listed on the right using a RS-485 adapter.
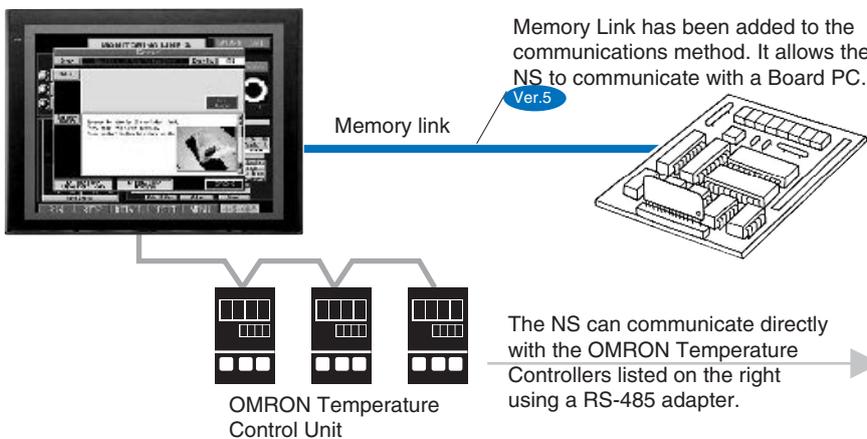
The following models, which have an RS-485 communications port and support CompoWay/F communications, can be connected to the NS.

Unit	Series	Model
Modular Temperature Controllers	E5ZN	E5ZN-SCT24S-500 (terminal unit)
Digital Temperature Controllers	E5AN	E5AN-□□M□-500 + E53-AK03
	E5EN	E5EN-□□M□-500 + E53-AK03
	E5CN	E5CN-□□M□-500 + E53-CNH03 or E53-CN03
	E5GN	E5GN-□□□03□-FLK
Digital Controllers	E5AR	E5AR-QC43DB-FLK
		E5AR-QQ43DW-FLK
		E5AR-CC43DWW-FLK
	E5ER	E5ER-QC43B-FLK
		E5ER-PRQ43F-FLK
		E5ER-QT3DW-FLK
		E5ER-CT3DW-FLK

Human Machine Interfaces

OMRON

Printer Support

USB port compatibility with commercially available printers

Hard copies of screens can be printed out in color by USB-compatible printers or to the flash card.

USB port included as standard equipment

General printer compatible with USB port

USB cable

EPSON and Canon printers supported.
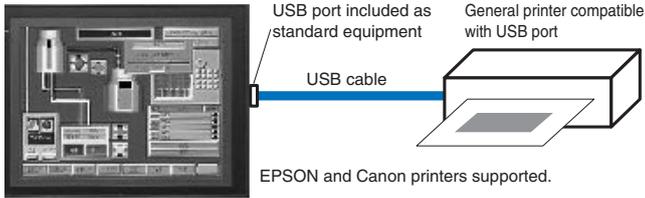
NS5	NS8	NS10	NS12
-	Supported	Supported	Supported

Supported Printers

Manufacturer	Model	NS system version
EPSON	Stylus Photo 830U	v5
	Stylus Photo 870U	v5
	Stylus Photo 900	v5
	Stylus Photo 925	v5
	Stylus Photo 720	v5
	Stylus C62	v5
CANON	PIXMA iP90	v6.20
	PIXMA iP2000	v6.20
	PIXMA iP3000	v6.20
	PIXMA iP4000	v6.20
	PIXMA iP4000R	v6.20
	BJ i80	v5
	BJ i70	v5
	BJC-85	v5

Exchanging data with a PLC over a network (Multihost)

Communicating with a PLC via NT Link, using Ethernet without special PLC Programming

Ethernet communications without programming

NS-series PTs can communicate with a CS/CJ-series PLC (equipped with an Ethernet Unit) through "program-free" communications just like NT Link communications. Data is transferred through Ethernet through a simple PLC address and initial communications setup.

Using data links between the PT and the PLC

Controller Link interface unit

The Controller Link is an FA network that can send and receive large data packets flexibly and easily among OMRON PLCs and IBM PC/AT or compatible computers. The NS12 and NS10 PTs can be connected to the Controller Link network easily via a Controller Link Interface Unit. When a Controller Link network is used, data can be transferred between multiple PLCs and NS12/NS10 PTs without writing ladder programming to manage the communications.

System Configurations

Various connections, such as 1:1, 1:2, 1:N, and M:N, are supported with Ethernet or serial connections

PT:PLC = 1:1
PT:PLC = 1:2
PT:PLC = 1:N
PT:PLC = M:N

Host Registration Function

It is possible to register two or more PLCs as hosts and communicate with the PLCs by specifying the host ID and address.

Hardware

Using Video Inputs

Capturing Moving Images from a Video Camera and Image Outputs from a Vision Sensor

Video Input Interface

Four video input interfaces are provided, so four video or CCD cameras can be connected. Up to four images can be displayed simultaneously if the image size is 320x240 pixels.

Console

Display PC Screens with the NS-CA002

NS-CA002 RGB/Video Input Unit
(Supported by the NS12-V1/NS10-V1/NS8-V1)

An analog RGB input terminal is provided in addition to two video input interface terminals. A single video or analog RGB display is possible in user-defined positions and sizes. Touch switches and parts, such as lamps, can be overlapped on the video display. The display of parts will not disappear.

RGB

Console

Camera
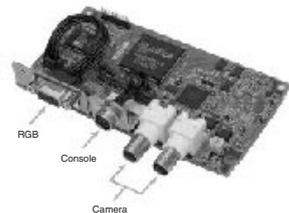
Saving Displayed Video Images to a Memory Card in BMP Format

Image Capture Function

When necessary, the displayed image can be captured and saved in a Memory Card in BMP format. The saved image can then be uploaded from a personal computer via Ethernet or Serial connection. It is also possible to display the saved image on the NS screen again, so that you can compare two or more captured images immediately.

The number of images that can be saved depends on the capacity of Memory Card. As an example, about 50 images from a 640x480 display (about 600 Kbytes each) can be saved in a 30-Mbyte Memory Card.
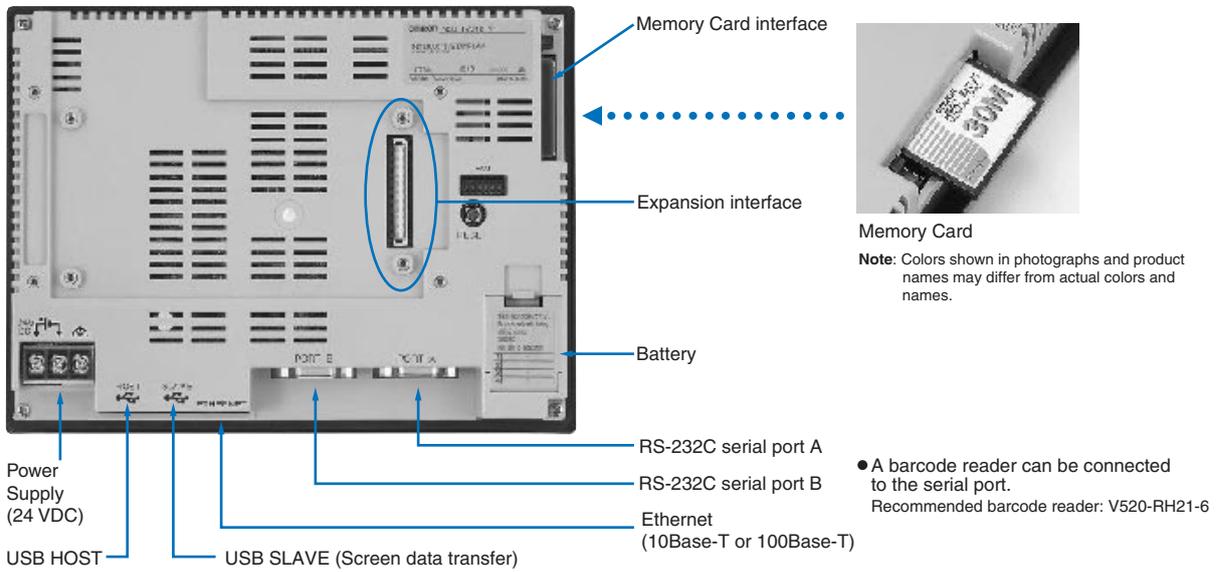
Image capture data read function

BMP data captured and saved in a Memory Card can be read on the PT. BMP data displayed in thumbnails can be selected and displayed on the captured data display screen that will appear for the command button. If any error occurs, the image when the error accurred can be displayed on the NS screen. This is useful for on-site error analysis.

Using for Process Control

Automatically Generating PT Image Data from Tag Information Created with CX-Process

Face Plate Auto-Builder for NS (Sold separately)

Significantly reduces the engineering time required, by combining LCB/LCU and the NS Series.

- Automatic generation of control screens and tuning screens.
  Automatic generation of NS screen data by the software from tag information created with the CX-Process Tool.
- NS communications address allocation, ladder programs, etc., are completely unnecessary.
- Data that has been generated can be freely edited and processed by CX-Designer (NS screen creation software).

NS Series

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

SYSMAC CS1+LCU

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

CSV tag file for LCU/LCB

NS project file

CX-Process Tool
(LCU/LCB programming software)
• LCU/LCB program creation (function block method)
• CSV tag file output

Face Plate Auto-Builder for NS

High-reliability and advanced functions in the industry's slimmest PT
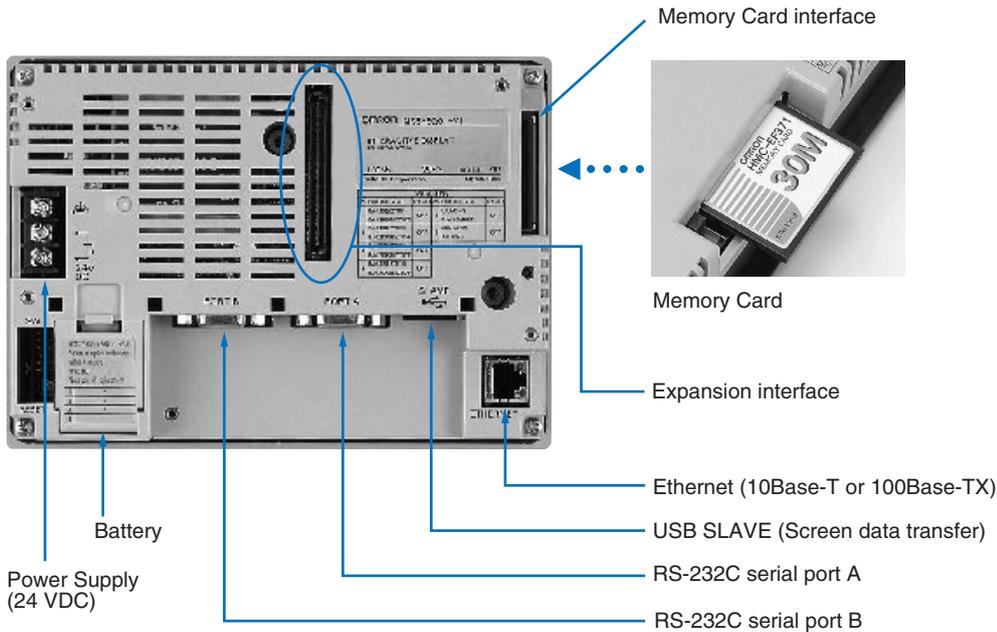
Super-thin 48.5-mm Body for a Slimmer Control Panel

NS12, NS10

Memory Card interface

Memory Card

Expansion interface

Battery

RS-232C serial port A

RS-232C serial port B
● A barcode reader can be connected to the serial port.
  Recommended barcode reader: V520-RH21-6

Power Supply (24 VDC)
USB HOST
Ethernet (10Base-T or 100Base-T)
USB SLAVE (Screen data transfer)

NS8

Memory Card interface

Expansion interface

Memory Card

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

Battery

RS-232C serial port A

RS-232C serial port B

Ethernet (10Base-T or 100Base-T)

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

Power Supply (24 VDC)
USB HOST
USB SLAVE (Screen data transfer)

Human Machine Interfaces

OMRON

Memory Card interface

Memory Card

Expansion interface

Ethernet (10Base-T or 100Base-TX)

USB SLAVE (Screen data transfer)

RS-232C serial port A

RS-232C serial port B

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

Battery

Power Supply
(24 VDC)

Built-in Expansion Interface
The NS-series PTs have a built-in Expansion Interface for future expandability.

USB Ports
A printer can be connected to the USB HOST port. Be sure to use USB cables made by OMRON (NS-US52/NS-US22).

NS-series PTs have backlights with the longest life expectancy in the industry.
At room temperature, the average life expectancy is 50,000 hours min. for the NS12, NS10, NS5 and 40,000 hours min. for the NS8.

Optional Products

Ladder Monitor program

Video Input Unit (with Cover)
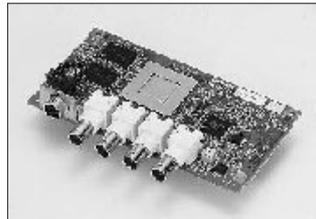
RGB/Video Input Unit
(with Cover)
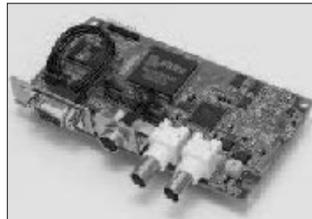
Controller Link Interface Unit
(with Cover)
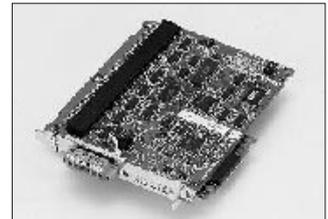
Memory Card

Memory Card Adapter

RS-422A Adapter

CJ1W-CIF11
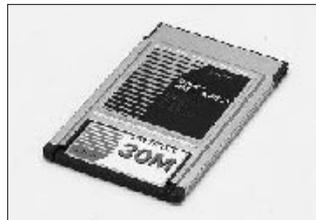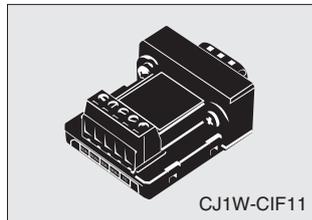
RS-232/RS-422A Conversion
Unit

NS-AL002

Communications Cable

Protective Cover/Anti-reflection
Sheet for NS-series PT
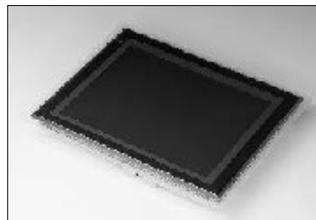
USB Serial Conversion Cable

CS1W-CIF31

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

Dimensions

NS12/10 Units: mm

140 241
227 249
15.5
7.5
39 (min.)
42 (max.)
48.5
49
264
315
323
301
121 134
3.8 13.7
23 49.9
90.4

● Recommended Panel Cutout Dimensions

228 +1 −0
302 +1 −0

NS8 Units: mm

177
165 188
15.5
5
39 (min.)
42 (max.)
180
232
48.5
49
220
120.5 107.6
19.1
26.6 9.6
44.1 50.1
63.4

● Recommended Panel Cutout Dimensions

165.5 +1 −0
220.5 +1 −0

NS5 Units: mm

39.83
153.3 130.5 44.55 27.3
PORT B PORT A
ETHERNET
68.48
19.5 21 51.7 76.5
R,S A
R,W A
5
53.8
54.8
90
24.6 142
145 15.5
195
183.5
206.3

Human Machine Interfaces

NS series Advanced Touch Screens 603

OMRON
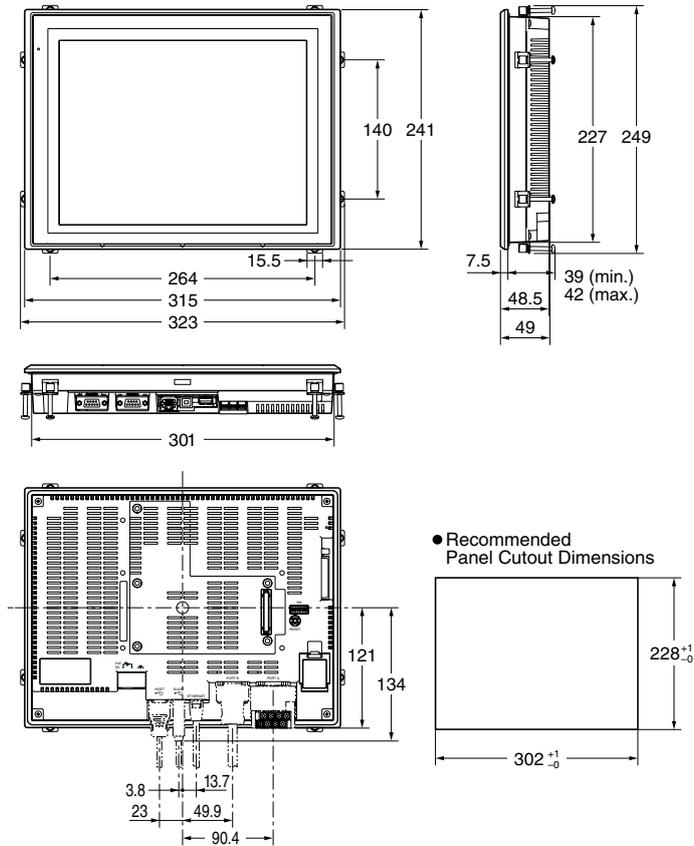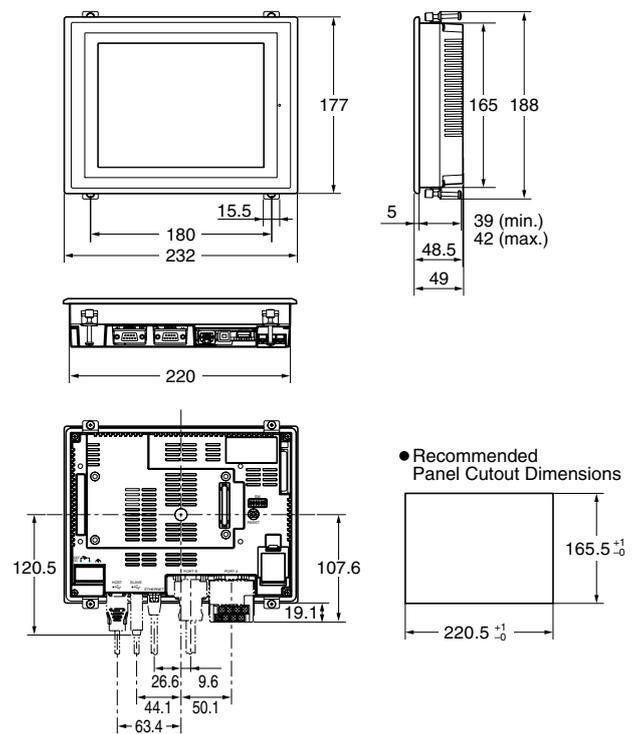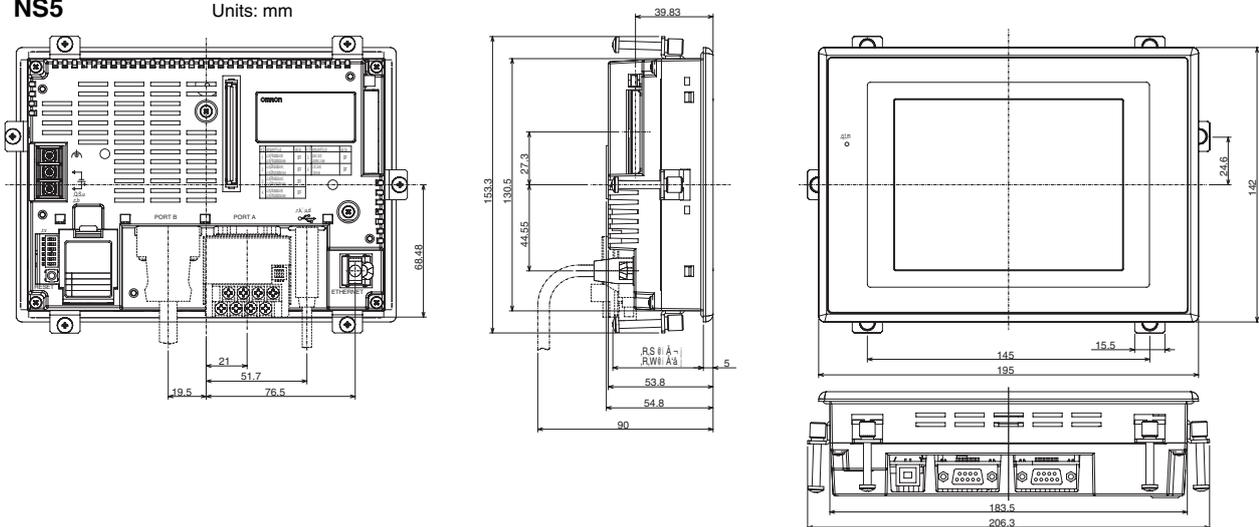
NS5 (STN color Handheld)
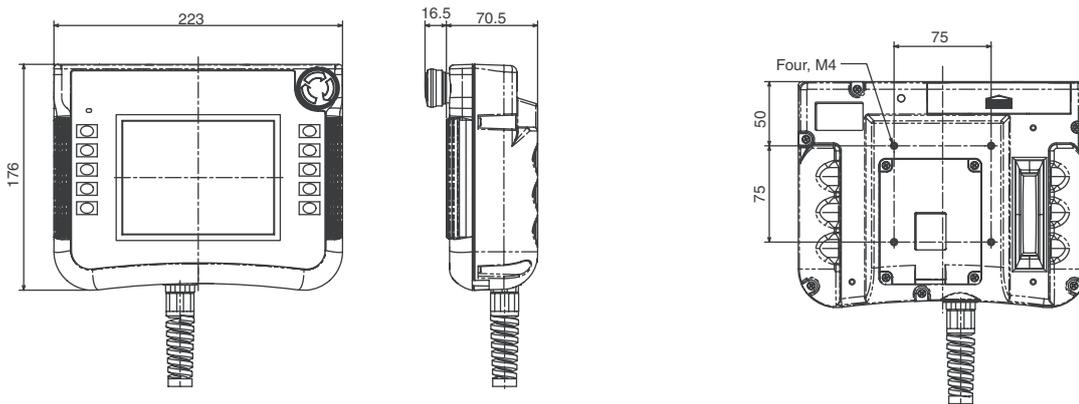
NS-CA001 Video Input Unit
Units: mm
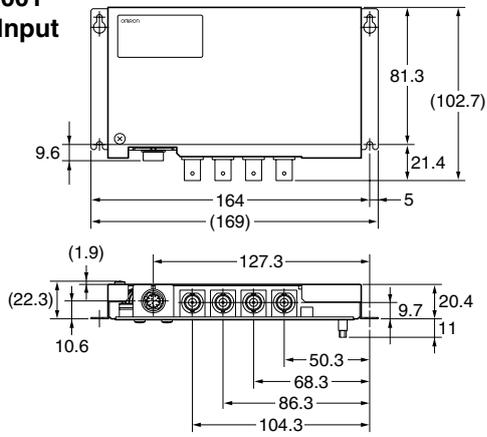
NS-CA002 Video Input Unit
Units: mm
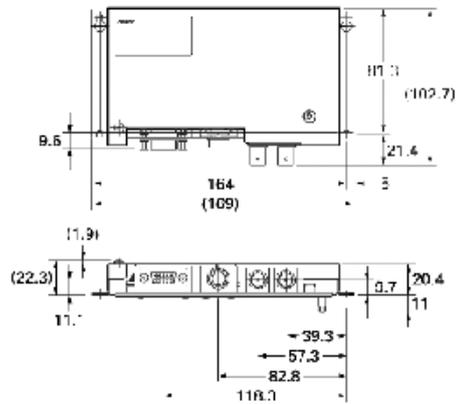
NS-CLK21 Controller Link Interface Unit
Units: mm
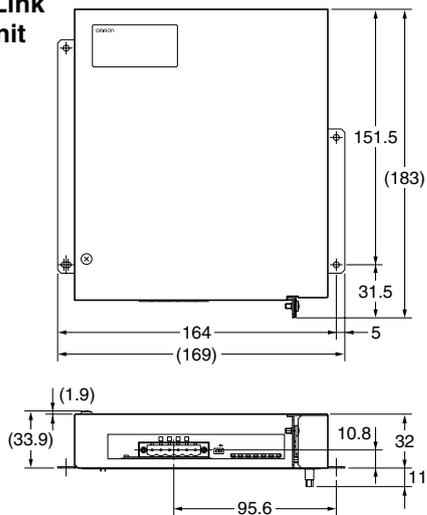
Performance/Specifications

General specifications

Item	Specifications
Rated power supply voltage	24 V DC
Allowable voltage range	20.4 to 27.6 V DC (24 V DC ±15 %)
Power consumption	25 W max.
Ambient operating temperature	0 to 50°C, 55°C for NS5 (See notes 1 and 2.)
Storage temperature	-20 to 60°C (See note 2.)
Ambient operating humidity	35% to 85% (0 to 40 °C) with no condensation 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)	Conforms to IEC 60068-2-6, JIS C0040. 10 to 57 Hz, 0.075 mm amplitude, 57 to 150 Hz, 9.8 m/s² 30 min each in X, Y, and Z directions
Shock resistance (during operation)	Conforms to IEC 60068-2-27, JIS C0041. 147 m/s² 3 times each in direction of X, Y, and Z.
Weight	NS12: 2.5 kg max.; NS10: 2.3 kg max.; NS8: 1.8 kg max.; NS5: 1.0 kg max.
Enclosure rating	Front operating panel: IP65F and NEMA4 compliant (See note 3.)
Battery life	5 years (at 25 °C). Replace battery within 5 days after the battery runs low (indicator lights orange).
Applicable standards	cULus and EC directives

Note: 1. The operating temperature is subject to the following restrictions according to the mounting angle.
Mounting angle of 0 to 30× to the horizontal:
Operating temperature range of 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: See note 4.

2. Operate the PT within the temperature and humidity ranges shown in the following diagram.
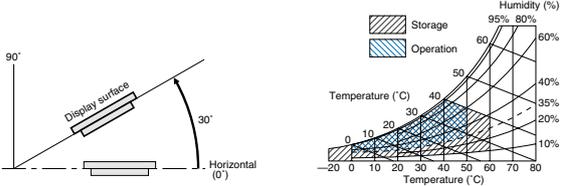
3. May not be applicable in locations with long-term exposure to oil.

4. • Without any Expansion Unit Installed
- NS12-V1/NS10-V1/NS8-V1
Mounting angle of 0° to less than 30° to the horizontal:
Operating temperature range of 0 to 45°C
Mounting angle of 30° to 90° or less to the horizontal:
Operating temperature range of 0 to 50°C
- NS5 -V2
Mounting angle of 0° to 90° or less to the horizontal:
Operating temperature range of 0 to 55°C

• With an Expansion Unit (Video Input Unit or Controller Link Unit) Installed
- NS12-V1/NS10-V1
Mounting angle of 0° less than 30° to the horizontal:
Operating temperature range of 0 to 35°C
Mounting angle of 30° to 90° or less to the horizontal:
Operating temperature range of 0 to 50°C
- NS8-V1
Mounting angle of 0° to less than 30° to the horizontal:
Operating temperature range of 0 to 35°C
Mounting angle of 30° to less than 90° to the horizontal:
Operating temperature range of 0 to 45°C
Mounting angle of 90° to the horizontal:
Operating temperature range of 0 to 50°C

Characteristics

Display specifications

Item		NS12-V2	NS10-V2	NS8-V2	NS5T*-V2	NS5S*-V2	NS5-M*-V2
Display panel	Display device	High-definition TFT color LCD				STN	
	Number of dots	800 dot horizontal x 600 dot vertical	640 dot horizontal x 480 dot vertical		320 dot horizontal x 240 dot vertical		
	Display color	256 colors					Sixteen shades of gray
	Effective display area	Width 246.0 mm x height 184.5 mm (12.1 inches)	Width 215.2 mm x height 162.4 mm (10.4 inches)	Width 162.2 mm x height 121.7 mm (8 inches)	Width 117.2 mm x height 88.4 mm (5.7 inches)		
	Field of view	Left/right ±60°, Top 45°, bottom 55°	Left/right ±60°, Top 35°, bottom 65°	Left/right ±60°, Top 50°, bottom 60°	Left/right ±70°, Top 70°, bottom 50°	Left/right ±60°, Top 30°, bottom 60°	
Backlight (See note 4.)	Service life	50,000 hours min. (See note 1.)		40,000 hours min. (See note 1.)	75,000 hours min. (see note1.)		50,000 hours min. (See note 1.)
	Brightness adjustment	There are 3 levels that can be set with the touch panel. (See note 2.)					
	Backlight error detection	Error is detected automatically, and the RUN indicator flashes green as notification. (See note 3.)		---			

Note: 1. 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 drastically 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).

2. The brightness cannot be adjusted much.

3. 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.

4. Contact your nearest OMRON representative to replace the backlight.

Operating specifications

Item		NS12-V2	NS10-V2	NS8-V2	NS5-T*-V2	NS5-S*-V2	NS5-M*-V2
Touch panel (Matrix type)	Method	Resistive membrane					
	Number of switches	1,900 (50 horizontal x 38 vertical) 16 x 16 dots for each switch	1,200 (40 horizontal x 30 vertical) 16 x 16 dots for each switch	768 (32 horizontal x 24 vertical) 20 x 20 dots for each switch	300 (20 horizontal × 15 vertical) 16 × 16 dots for each switch		
	Input	Pressure sensitive					
	Service life	1,000,000 touch operations					
Standard screen data capacity		60 MB			20 MB		

External Interface specifications

Item	Specification
Memory card interface	One ATA-Compact Flash interface slot. Used to transfer and store screen data and to store history data.
Expansion interface	For Expansion Interface Units Used to install various Interface Units that are currently in development.

Communication specifications

Serial Communication

Item	Specification
Port A	Conforms to EIA RS-232C. D-Sub female 9-pin connector 5-V output (250 mA max.) through pin 6 (See note.)
Port B	Conforms to EIA RS-232C. D-Sub female 9-pin connector 5-V output (250 mA max.) through pin 6 (See note.)

Note: The 5-V outputs of serial ports A and B cannot be used at the same time.

Controller Link (Wired-type) specifications

Item	Specification
Baud rate	2M/1M/500K
Transmission path	Shielded twisted-pair cable (special cable)

Ethernet specifications (NS12-TS01(B) and NS10/8-TV01(B) only)

Item	Specification
Conformance standards	Conforms to IEEE 802.3/Ethernet (10Base-T/100Base-T).

Video input specifications

Item	NS-CA001	NS-CA002
Resolution	320 x 240, 640 x 480, or 800 x 600 dots	Composite, user definable RGB, only full screen
Input signal	composite video NTSC or PAL	2 x composite video NTSC or PAL, 1 x RGB
Number of Camera's	4 max.	3 max.

USB specification

Item	Specification
USB rating	USB1.1
Connector	Type A (Host), Type B (Slave)

Display element specifications

Item			Specification		
Display text	Raster font		Displayable characters	Base size	
	Font name	Rough	Alphanumeric characters or Japanese katakana	8 x 8	1 x 1, 1 x 2, 2 x 1, 2 x 2, 3 x 3, 4 x 4, 8 x 8
		Standard	Alphanumeric characters or Japanese, Chinese (Simplified, Traditional) or Korean	8 x 16 16 x 16	1 x 1, 1 x 2, 2 x 1, 2 x 2, 3 x 3, 4 x 4, 8 x 8
		Fine	Alphanumeric characters or Japanese katakana Japanese kanji	16 x 32 32 x 32	1 x 1, 1 x 2, 2 x 1, 2 x 2, 3 x 3, 4 x 4, 8 x 8
	Vector font (text objects only)		Can be specified in CX-Designer. Font, style, and size can be specified		
Text attributes	Color		256 colors (NS5 Monochrome 16 shades of gray)		
	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 that can flicker	Functional objects	Up to 10 types can be registered. The flicker speed and flicker range can be set.		
		Fixed objects	Select from 3 types. The flicker speed and flicker range are fixed.		
Numeral units and scale settings			1,000 max.		
Alarm/event settings			5000 max. (with system version 6)		
Display colors			256 colors max. (NS12/10/8 shows BMP in 32,768 colors, NS5 in 4,096 colors, NS5 Monochrome in 16 shades of gray)		

CPU Units (1:1 NT Link Connection)

Model number	Specifications	PLC Model name
CQM1-CPU41-V1/CPU42-V1/CPU43-V1/CPU44-V1	With RS-232C connector (9-pin type)	C-series CQM1
CQM1H-CPU21/CPU51/CPU61		C-series CQM1H
CPM1-10/20CDR-□+CPM1-CIF01	Connect to peripheral port.	C-series CPM1
CPM1A-10/20/30/40CD□-□+CPM1-CIF01		C-series CPM1A
CPM2A-30/40/60CD□□-□+CPM1-CIF01	Connect to RS-232C or peripheral port.	C-series CPM2A
CPM2C-10/20□□□□□□-□(See note 1)	With RS-232C connector (9-pin type)	C-series CPM2C
C200HS-CPU21/CPU23/CPU31/CPU33		C-series C200HS
C200HE-CPU32(-Z) (See note 2) /CPU42(-Z)		C-series C200HE (-Z)
C200HG-CPU33(-Z) (See note 2) /CPU43(-Z) /CPU53(-Z) (See note 2) /CPU63(-Z)		C-series C200HG (-Z)
C200HX-CPU34(-Z) (See note 2) /CPU44(-Z) /CPU54(-Z) (See note 2) /CPU64(-Z) /CPU65-Z/CPU85-Z		C-series C200HX (-Z)
CV500/1000/2000-CPU01-V1 CVM1-CPU01-V2/CPU11-V2/CPU21-V2	With RS-232C connector (switching/9-pin type)	CVM1/CV-series CVM1 or CV500/CV1000/CV2000

Note: 1. Use an Adapter Cable (CPM2C-CN111 or CS1W-CN114/118), CPM1-CIF01 RS-232C Adapter, or CPM1-CIF11 RS-422A Adapter to connect.
2. A C200HW-COM02(-V1), C200HW-COM04(-V1), C200HW-COM05(-V1), or C200HW-COM06(-V1) Communications Board is required.

CPU Units (1:N NT Link Connection)

Model number	Specifications	PLC Model name
CS1G-CPU42H/CPU43H/CPU44H/CPU45H	With RS-232C connector (9-pin type)	CS-series CS1G
CS1H-CPU63H/CPU64H/CPU65H/CPU66H/CPU67H		CS-series CS1H
CJ1G-CPU42H/CPU43H/CPU44H/CPU45H (See note 1)		CJ-series CJ1G
CJ1H-CPU65H/CPU66H (See note 1)		CJ-series CJ1H
CJ1M-CPU11/CPU12/CPU13/CPU21/CPU22/CPU23 (See note 1)		CJ-series CJ1M
CQM1H-CPU61/51 with a CQM1H-SCB41 Serial Communications Board		C-series CQM1H
C200HE-CPU32(-Z) /CPU42(-Z)		C-series C200HE(-Z)
C200HG-CPU33(-Z) (See note 2) /CPU43(-Z) /CPU53(-Z) (See note 2) /CPU63(-Z)		C-series C200HG(-Z)
C200HX-CPU34(-Z) (See note 2) /CPU44(-Z) /CPU54(-Z) (See note 2) /CPU64(-Z) /CPU65-Z/CPU85-Z		C-series C200HX(-Z)

Note: 1. The CJ1W-SCU41 Serial Communications Unit can also be connected.
2. A C200HW-COM02/COM04/COM05/COM06(-V1) Communications Board is required

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Standard Models

Name	Specifications			Model
NS12	TFT, 12", 800 x 600 pixels	Without ethernet	Frame color: Beige	NS12-TS00-V2
			Frame color: Black	NS12-TS00B-V2
		With ethernet	Frame color: Beige	NS12-TS01-V2
			Frame color: Black	NS12-TS01B-V2
NS10	TFT, 10", 640 x 480 pixels	Without ethernet	Frame color: Beige	NS10-TV00-V2
			Frame color: Black	NS10-TV00B-V2
		With ethernet	Frame color: Beige	NS10-TV01-V2
			Frame color: Black	NS10-TV01B-V2
NS8	TFT, 8.4", 640 x 480 pixels	Without ethernet	Frame color: Beige	NS8-TV00-V2
			Frame color: Black	NS8-TV00B-V2
		With ethernet	Frame color: Beige	NS8-TV01-V2
			Frame color: Black	NS8-TV01B-V2
NS5-T	TFT, 5.7", 320 x 240 pixels	Without ethernet	Frame color: Beige	NS5-TQ00-V2
			Frame color: Black	NS5-TQ00B-V2
		With ethernet	Frame color: Beige	NS5-TQ01-V2
			Frame color: Black	NS5-TQ01B-V2
NS5-S	STN color, 5.7", 320 x 240 pixels	Without ethernet	Frame color: Beige	NS5-SQ00-V2
			Frame color: Black	NS5-SQ00B-V2
		With ethernet	Frame color: Beige	NS5-SQ01-V2
			Frame color: Black	NS5-SQ01B-V2
NS5-M	STN monochrome, 5.7", 320 x 240 pixels	Without ethernet	Frame color: Beige	NS5-MQ00-V2
			Frame color: Black	NS5-MQ00B-V2
		With ethernet	Frame color: Beige	NS5-MQ01-V2
			Frame color: Black	NS5-MQ01B-V2
NSH5	STN color, 5.7", 320 x 240 pixels	Without Ethernet	Frame color: Black	NSH5-SQR00B-V2

Software

Name	Specifications	Model
NS-series screen design software for windows	For NS-series Windows 95, 98, Me, 2000, XP, NT 4.0 or XP	CX-Designer, included in CX-ONE

Note: For further information please contact your OMRON representative.

NS series accessories

	Specifications		Model
Cable [1]	Screen transfer cable for DOS/V		XW2Z-S002
	USB Host Cable, cable length: 5 m		NS-US52 (5 m)
	USB Host Cable, cable length: 2 m		NS-US22 (2 m)
PT-to-PLC Connecting Cable	PT connection: 9 pins PLC connection:9 pins	Length: 2 m	XW2Z-200T
		Length: 5 m	XW2Z-500T
Accessories	Video input	Inputs: 4 channels NTSC / PAL	NS-CA001
		Inputs: 2 channels NTSC b/ PAL, 1 channel RGB	NS-CA002
	Special cable for the console		F150-VKP (2 m)
			F150-VKP (5 m)
	Controller link interface unit		NS-CLK21
	RS-422A adapter (50 m)		CJ1W-CIF11
	RS-422A adapter (500 m)		NS-AL002
	Anti-reflection sheets (5 surface sheets)	NS12/10	NS12-KBA04
		NS8	NS7-KBA04
		NS5	NT30-KBA04
	Protective anti-reflection covers (5 pack)	NS12/10	NS12-KBA05
		NS8	NS7-KBA05
		NS5	NT31C-KBA05
	Transparent protective covers (5 pack)	NS12/10	NS12-KBA05N
		NS8	NS7-KBA05N
		NS5	NT31C-KBA05N
	Chemical-resistant cover (1 cover)	NS5	NT30-KBA01
	Memory card	15 MB	HMC-EF172
		30 MB	HMC-EF372
		64 MB	HMC-EF672
	Attachment adapter	(NT625C/631/631C series to NS12 series)	NS12-ATT01
		(NT625C/631/631C series to NS12 series)	NS12-ATT01B
		(NT620S/620C/600S series to NS8 series)	NS8-ATT01
		(NT600M/600G/610G/612G series to NS8 series)	NS8-ATT02
	Memory card adapter for pc		HMC-AP001
	Battery		CJ1W-BAT01
	Barcode reader (refer to the catalog for details)		V520-RH21-6

1. Be sure to use cables made by OMRON when connecting NS hardware to a printer. No guarantee of proper operation if other cables are used.