OMRON

Sysmac Automation Platform

Machine Interface: NA Series

Bringing technology to life

SYSMAC
always in control

Sysmac - the family that matches every requirement

An HMI that is dynamic, intuitive and predictive makes industrial machines more attractive and competitive. The NA HMI enables faster, more efficient control and monitoring - and a more natural, proactive relationship between operator and machine. The design has been based on real applications and customer requirements, a future-proofed, scalable platform that will evolve with their ever-changing needs, allowing real time reaction to events. As part of the system family, the NA Series is fully aware of the total machine.

- Proactive operator/ machine relationship
- Design based on real applications and customer requirements
- Future-proof, scalable platform
- Allows quick reaction

sysmac
always in control

Integrating your world

Sysmac Studio is the centrepiece of the Sysmac Platform, bringing together all areas of automation including: logic, motion, vision, safety and now visualisation. The NA series machine interface brings you a clear view in one integrated project.

ONE Tag Database

- Share NJ Variables (Tags) in the machine interface application. "Intelli sense" makes it FAST

ONE Learning, ONE Project

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

Safe and secure

- Configure individual users with multi access levels

Simple

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

But still flexible

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

Test it in ONE

- Integrated testing through simulation of motion, logic and visualisation at the same time
- Build confidence before having a single piece of hardware
- Test your machine interface with the NJ Control program via the Simulator in Sysmac Studio

Features for speed

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

Insight & security maximised ...

The NA series has full security and authentication features that keep your valuable assets secure at all times. And if something unexpected does happen in your machine, you will be able to solve the problem quickly and prevent a reoccurrence.

- Multiple-access level security and authentication
- Troubleshooting tools and history log
- Tune and adjust parameters without stopping the machine
- Quick loading of new data sets into the NJ Controller
- Data sets can be saved to/from the SD card

Increased security

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

Protecting your assets

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

... downtime minimised

Multimedia on your machine

You can present a machine view that is understandable at a glance. The NA Series brings everything together through rich media including PDF, video, and data to provide an intuitive and proactive machine management tool.

Show your manual in a movie

Imagine actually showing how to perform certain procedures. With the NA Series you have a trained engineer at the operator's side, 24x7.

Show PDFs

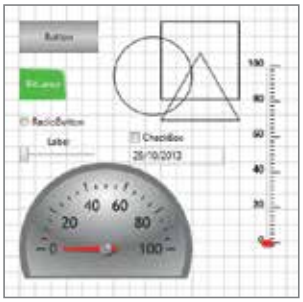
You can use whatever visual assets you already have to illustrate how to do things.

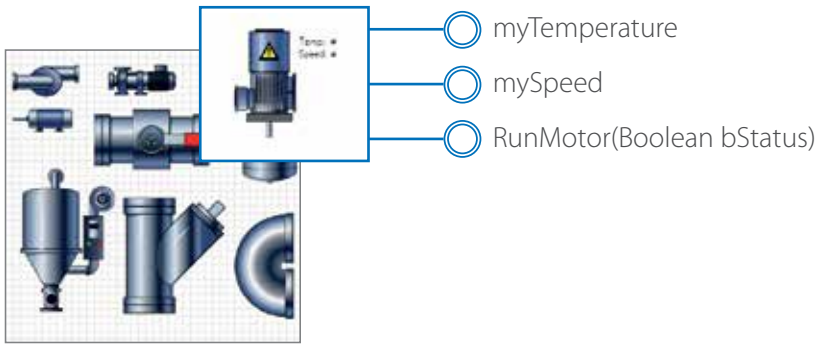
Simple, but Flexible!

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

Step 1: Machine Parts - The Visual

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



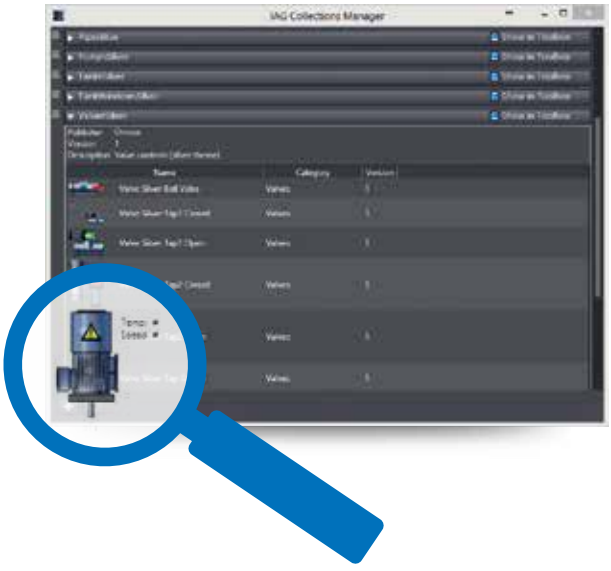



```
'IAG Code behind - Add local subroutines for the IAG.

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

End Function

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

Step 2: Extensible with VB.net

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

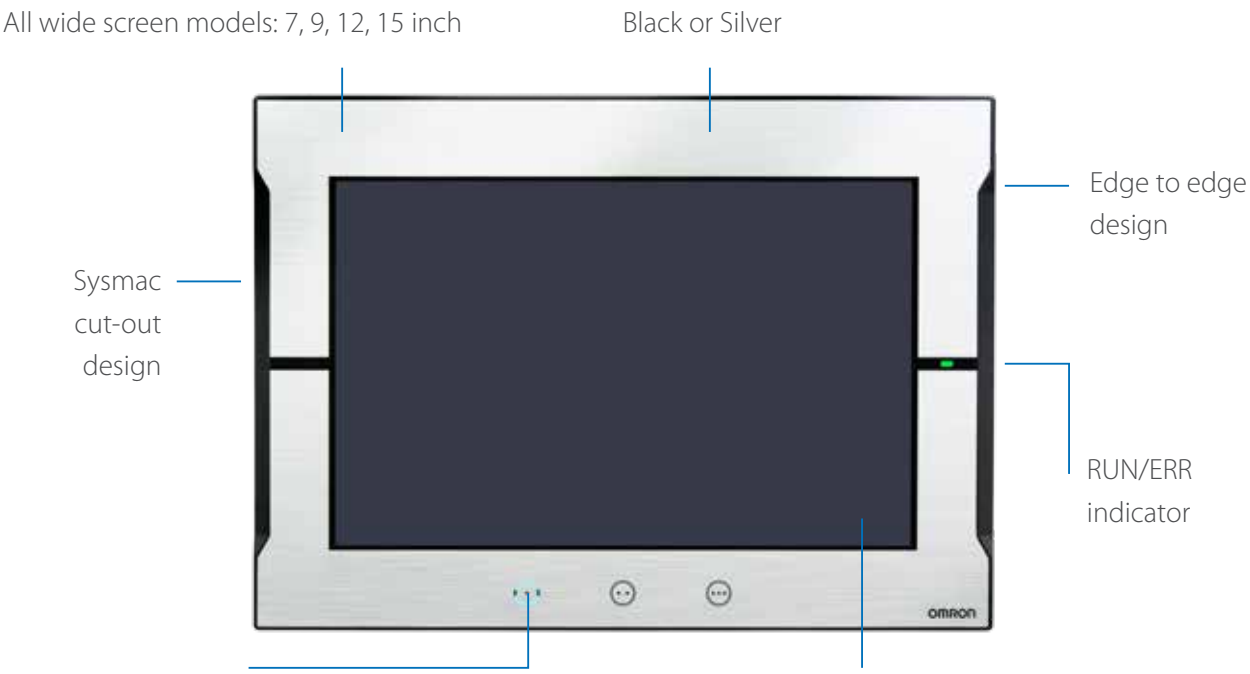
3

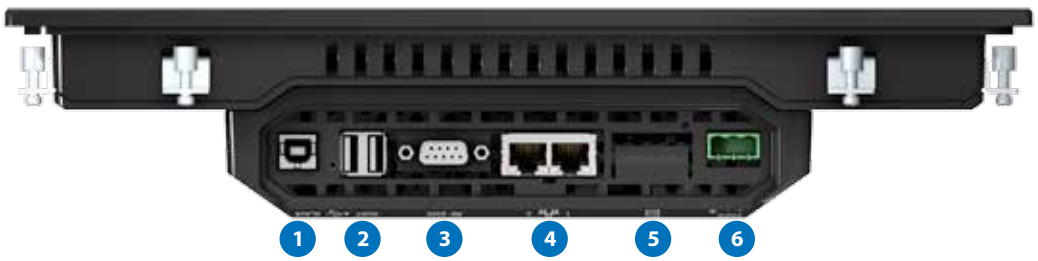


Step 3: Publish and Share

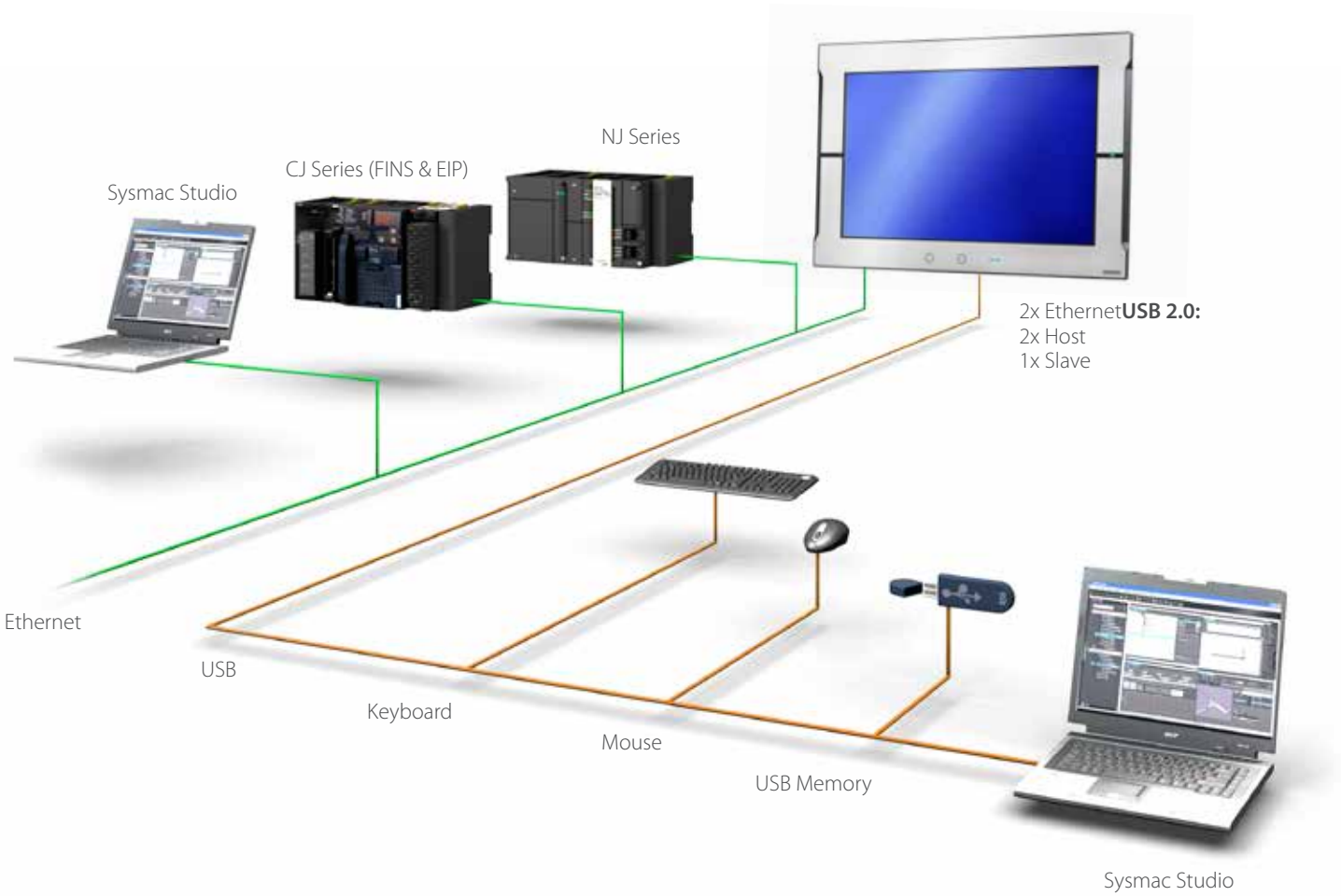
When the IAG is built and tested (using simulation) it can be published and the collection file distributed to be used again. Further IAG collections will be released to extend the functionality of the NA Series.

A range of options that covers every need





1. USB slave (Tool port)
2. 2 x USB
3. 1 x Serial
4. 2 Ethernet ports, one for factory, one for office network
5. SD Card slot
6. 24V DC



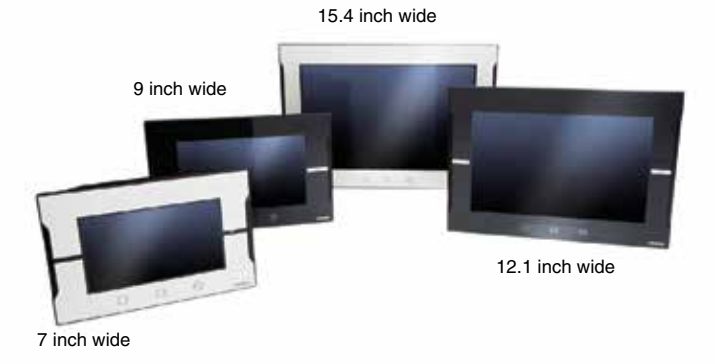
- High speed communications network
- Broad choice of connection possibilities
- USB cable detachable without changing the hardware
- Water and dust proof design

Programmable Terminal
NA series

Bringing technology to life

The NA-series Programmable Terminal transforms machine data into information, shows information and controls devices based on requirements at FA manufacturing sites.

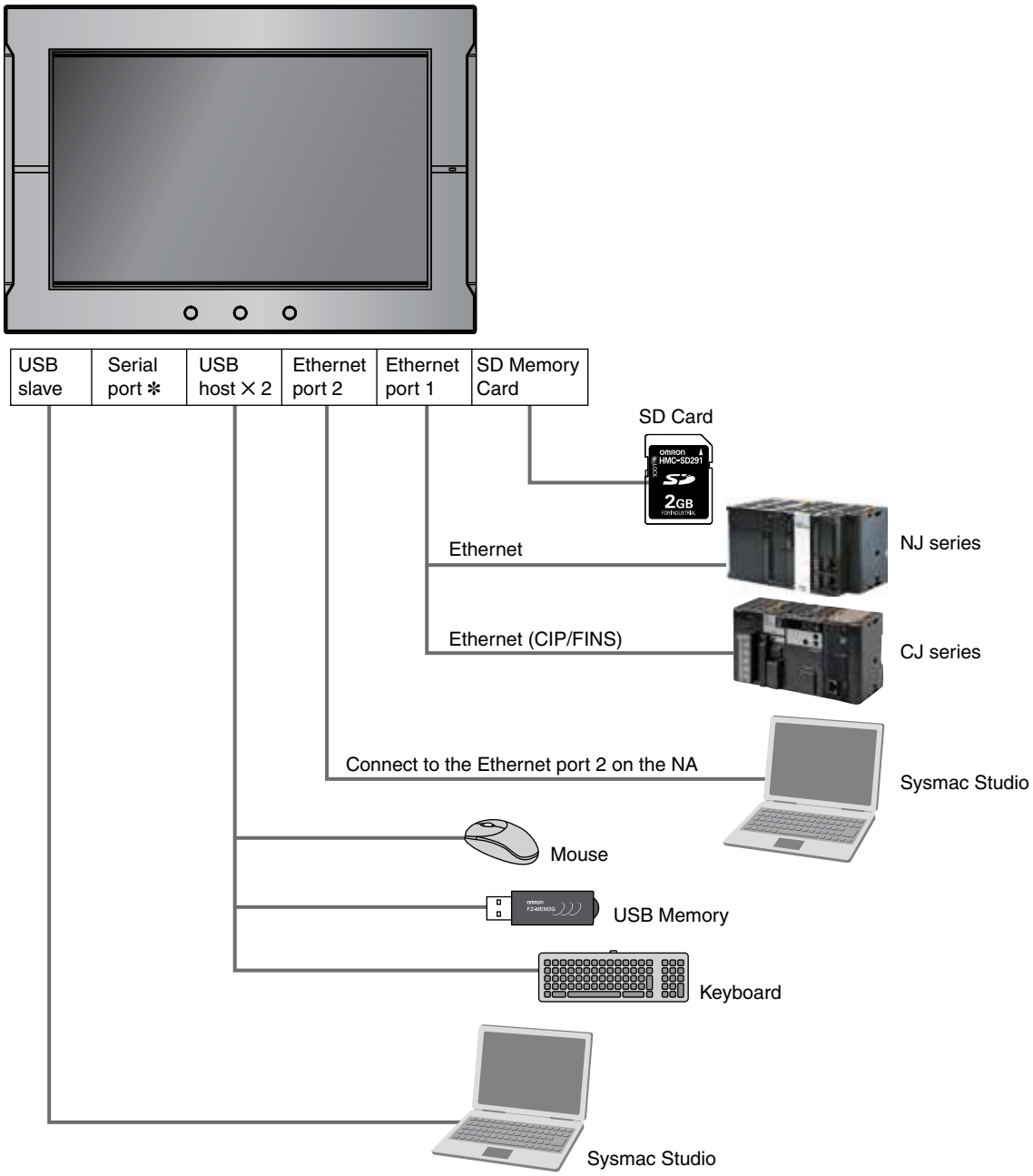
The NA Series, together with the NJ-series Machine Automation Controller and the Automation Software Sysmac Studio, allows you to simply and flexibly create sophisticated user interfaces to suit your machines.



Features

- Widescreen in all models: 7, 9, 12, and 15 inches
- More than 16 million color display for all models and 1280 x 800 high resolution display for the 12 and 15-inch models
- Multimedia including video and PDF
- 2 Ethernet ports capable of simultaneous access from both the control device and maintenance segments by separating the segments
- Sysmac Studio providing an Integrated Development Environment
  NJ variables sharing in the NA project and NA application testing with the NJ program via the Simulator to reduce development time
- Many security features including operation authority settings and execution restrictions with IDs
- Microsoft Visual Basic for versatile, flexible and advanced programming

System configuration



Ordering Information

NA

Product name	Specifications	Model
NA5-15W	15.4 inch wide screen, TFT LCD, 16,770,000 colors (24 bit full colour), 1280 × 800 pixels, Frame colour : Silver	NA5-15W101S
	15.4 inch wide screen, TFT LCD, 16,770,000 colors (24 bit full colour), 1280 × 800 pixels, Frame colour : Black	NA5-15W101B
NA5-12W	12.1 inch wide screen, TFT LCD, 16,770,000 colors (24 bit full colour), 1280 × 800 pixels, Frame colour : Silver	NA5-12W101S
	12.1 inch wide screen, TFT LCD, 16,770,000 colors (24 bit full colour), 1280 × 800 pixels, Frame colour : Black	NA5-12W101B
NA5-9W	9 inch wide screen, TFT LCD, 16,770,000 colors (24 bit full colour), 800 × 480 pixels, Frame colour : Silver	NA5-9W001S
	9 inch wide screen, TFT LCD, 16,770,000 colors (24 bit full colour), 800 × 480 pixels, Frame colour : Black	NA5-9W001B
NA5-7W	7 inch wide screen, TFT LCD, 16,770,000 colors (24 bit full colour), 800 × 480 pixels, Frame colour : Silver	NA5-7W001S
	7 inch wide screen, TFT LCD, 16,770,000 colors (24 bit full colour), 800 × 480 pixels, Frame colour : Black	NA5-7W001B

Options

Product name	Specifications	Model
SD memory card	2 GB	HMC-SD291
	4 GB	HMC-SD491
USB Memory	2 GB	FZ-MEM2G
	8 GB	FZ-MEM8G
Replacement Battery	Battery life: 5 years (at 25°C). This Battery is provided as an accessory.	CJ1W-BAT01
Anti-reflection Sheets	For the NA5-15W. Attach a Sheet to the screen to protect against diffused reflections and dirt. The entire Sheet is colorless and transparent. Five Sheets are provided in one set.	NA-15KBA04
	For the NA5-12W. Attach a Sheet to the screen to protect against diffused reflections and dirt. The entire Sheet is colorless and transparent. Five Sheets are provided in one set.	NA-12KBA04
	For the NA5-9W. Attach a Sheet to the screen to protect against diffused reflections and dirt. The entire Sheet is colorless and transparent. Five Sheets are provided in one set.	NA-9KBA04
	For the NA5-7W. Attach a Sheet to the screen to protect against diffused reflections and dirt. The entire Sheet is colorless and transparent. Five Sheets are provided in one set.	NA-7KBA04

Automation Software

Product name	Specifications	Number of licenses	Media	Model
Sysmac Studio Standard Edition Ver.1.□□	The Sysmac Studio provides an integrated development environment to set up, program, debug, and maintain NJ-series Controllers and other Machine Automation Controllers, as well as EtherCAT slaves. Sysmac Studio runs on the following OS. Windows XP (Service Pack 3 or higher, 32-bit version) / Vista (32-bit version) / 7 (32-bit/64-bit version) / 8(32-bit/64-bit version)	– (Media only)	DVD	SYSMAC-SE200D
		1 license	–	SYSMAC-SE201L
		3 licenses		SYSMAC-SE203L
		10 licenses		SYSMAC-SE210L
		30 licenses		SYSMAC-SE230L
		50 licenses		SYSMAC-SE250L

Note: Site licenses are available for users who will run Sysmac Studio on multiple computers. Ask your OMRON sales representative for details.

USB Cable

Product name	Specifications
USB Cable	Use commercially available USB cable. Specifications: USB 2.0 cable (A connector - B connector), 5.0 m max.

Recommended Network Devices

Industrial Switching Hubs

Product name	Specifications					Model
	Functions	No. of ports	Failure detection	Accessories	Current consumption (A)	
Industrial Switching Hubs	Quality of Service (QoS): EtherNet/IP control data priority Failure detection: Broadcast storm and LSI error detection 10/100BASE-TX, Auto-Negotiation	3	No	Power supply connector	0.08	W4S1-03B
		5	No	• Power supply connector • Connector for informing error	0.12	W4S1-05B
		5	Yes		0.12	W4S1-05C

Performance Specifications

Display

Item		Specification			
		NA5-15W□□□□	NA5-12W□□□□	NA5-9W□□□□	NA5-7W□□□□
Display panel *1	Display device	TFT LCD			
	Screen size	15.4 inches	12.1 inches	9.0 inches	7.0 inches
	Resolution	1,280 × 800 pixels (horizontal × vertical)		800 × 480 pixels (horizontal × vertical)	
	Colors	16,770,000 colors (24 bit full colors)			
	Effective display area	331 × 207 mm (horizontal × vertical)	261 × 163 mm (horizontal × vertical)	197 × 118 mm (horizontal × vertical)	152 × 91 mm (horizontal × vertical)
	View angles	Left: 60°, Right: 60°, Top: 60°, Bottom: 60°			
Backlight *2	Life	50,000 hours min. *3			
	Brightness adjustment	200 levels			
Front panel indicators *4	RUN	Lit green: Normal operation Lit red: Error			

***1.** There may be some defective pixels in the display. This is not a fault as long as the numbers of defective light and dark pixels fall within the following standard ranges.

Model	Standard range
NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	Number of light and dark pixels: 10 or less. (There must not be 3 consecutive light/dark pixels.)

***2.** The backlight can be replaced at an OMRON maintenance base.

***3.** This is the estimated time before brightness is reduced by half at room temperature and humidity. The life expectancy is drastically shortened if Programmable Terminal is used at high temperatures.

***4.** The brightness of the front panel indicators is also adjustable when you adjust the brightness of the backlight.

Operation

Item	Specification			
	NA5-15W□□□□	NA5-12W□□□□	NA5-9W□□□□	NA5-7W□□□□
Touch panel	Method: Analog resistance membrane (pressure sensitive)			
	Resolution: 16,384 × 16,384			
	Life: 1,000,000 operations			
Function keys *	3 inputs (capacitance inputs)			

* Each function key has blue indicator. The brightness of the function key indicators is also adjustable when you adjust the brightness of the backlight.

Data Capacity

Item	Specification			
	NA5-15W□□□□	NA5-12W□□□□	NA5-9W□□□□	NA5-7W□□□□
User data capacity	256 MB			

External Interfaces

Item		Specifications (Same for all models.)
Ethernet ports	Applications	Port 1: Connecting to anything other than the Sysmac Studio, e.g., device connections and VNC clients Port 2: Connecting to the Sysmac Studio in addition to the applications of port 1.
	Number of ports	2 ports
	Compliant standards	IEEE 802.3i (10BASE-T), IEEE 802.3u (100BASE-TX), and IEEE 802.3ab (1000Base-T)
	Transmission media	Shielded twisted-pair (STP) cable: Category 5, 5e, or higher
	Transmission distance	100 m
	Connector	RJ-45 8P8C modular connector
USB host ports	Applications	USB Memory Device, keyboard, or mouse
	Number of ports	2 ports
	Compliant standards	USB 2.0
	Transmission distance	5 m max.
	Connector	Type-A connector
USB slave port	Applications	Sysmac Studio connection
	Number of ports	1 port
	Compliant standards	USB 2.0
	Transmission distance	5 m max.
	Connector	Type-B connector
Serial port	Applications	Device Connection
	Number of ports	1 port
	Compliant standards	RS-232C
	Transmission distance	15 m max.
	Connector	D-DUB 9-pin female connector
SD Memory Card slot	Applications	To transfer or store the project or to store log data.
	Number of slots	1 slot
	Compliant standards	SD/SDHC
Expansion Unit connector *	Applications	Expansion Unit
	Quantity	1

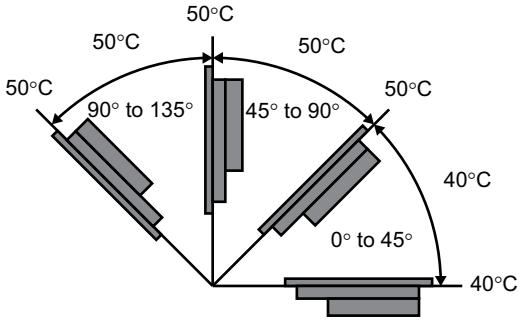
* The Expansion Unit connector is for future expansion.

General Specifications

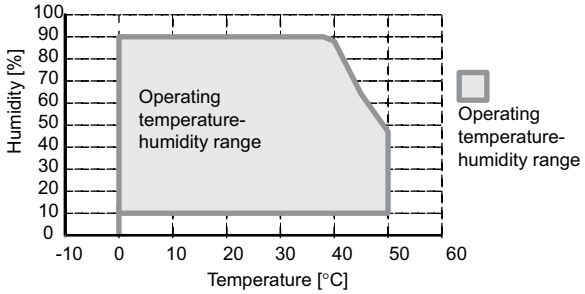
Item	Specification			
	NA5-15W□□□□	NA5-12W□□□□	NA5-9W□□□□	NA5-7W□□□□
Rated supply voltage	24 VDC			
Allowable power supply voltage range	19.2 to 28.8 VDC (24 VDC ±20%)			
Allowable momentary power interruption time	Operation for momentary power interruption is not specified.			
Power consumption	47 W max.	45 W max.	40 W max.	35 W max.
Ambient operating temperature	0 to 50°C *1 *2			
Ambient storage temperature	–20 to +60°C *3			
Ambient operating humidity	10 to 90% *2 Must be no condensation.			
Atmosphere	Must be free from corrosive gases.			
Pollution degree	2 or less: JIS B 3502, IEC 61131-2			
Noise immunity	2 kV on power supply line (Conforms to IEC 61000-4-4.)			
Vibration resistance (during operation)	Conforms to IEC 60068-2-6. 5 to 8.4 Hz with 3.5 mm half amplitude and 8.4 to 150 Hz with 9.8 m/s^2 for 100 minutes each in X,Y, and Z directions (Time coefficient of 10 minutes × coefficient factor of 10 = total time of 100 min.)			
Shock resistance (during operation)	Conforms to IEC 60028-2-27. 147 m/s^2 3 times each in X, Y, and Z directions			
Dimensions	420 × 291 × 69 mm (W × H × D)	340 × 244 × 69 mm (W × H × D)	290 × 190 × 69 mm (W × H × D)	236 × 165 × 69 mm (W × H × D)
Panel cutout dimensions	392^{+1}_{0} × 268^{+1}_{0} mm (horizontal × vertical) Panel thickness: 1.6 to 6.0 mm	310^{+1}_{0} × 221^{+1}_{0} mm (horizontal × vertical) Panel thickness: 1.6 to 6.0 mm	261^{+1}_{0} × 166^{+1}_{0} mm (horizontal × vertical) Panel thickness: 1.6 to 6.0 mm	$197^{+0.5}_{0}$ × $141^{+0.5}_{0}$ mm (horizontal × vertical) Panel thickness: 1.6 to 6.0 mm
Weight	3.2 kg max.	2.3 kg max.	1.7 kg max.	1.3 kg max.
Degree of protection	Front-panel controls: IP65 oil-proof type, UL type 4X			
Battery life	Battery life: 5 years at 25°C The RTC will be backed up for 5 days after the battery runs low. The RTC will be backed up by a super capacitor for 5 minutes after removing the old battery. (This assumes that the power is first turned ON for at least 5 minutes and then turned OFF.)			
International standards	UL 508/CSA standard C22.2 No.142 *4 EMC Directive (2004/108/EC) EN 61131-2:2007 Shipbuilding standards LR, DNV, and NK IP65 oil-proof, UL type 4X (front panel only) ANSI 12.12.01 Class 1 Division 2/CSA standard C22.2 RoHS Directive (2002/95/EC) KC Standards KN 61000-6-2:2012-06 for EMS and KN 61000-6-4:2012-06 for EMI RCM			

***1.** The ambient operating temperature is subject to the following restrictions, depending on the mounting angle.

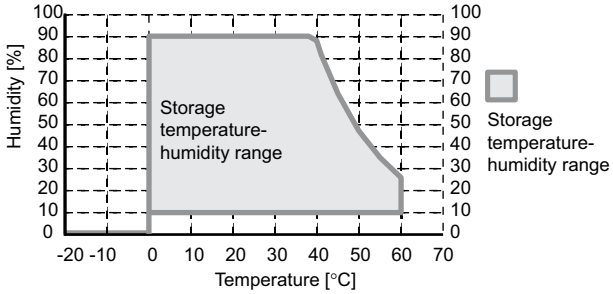
- The ambient operating temperature is 0° to 40°C when the mounting angle is 0° or more and less than 45° to the horizontal.
- The ambient operating temperature is 0° to 50°C when the mounting angle is 45° or more and 90° or less to the horizontal.
- The ambient operating temperature is 0° to 50°C when the mounting angle is 90° or more and 135° or less to the horizontal.



***2.** Use the Programmable Terminal within the following temperature and humidity ranges.



***3.** Store the Programmable Terminal within the following temperature and humidity ranges.



***4.** Use power supply Class 2 to conform to UL Standards.

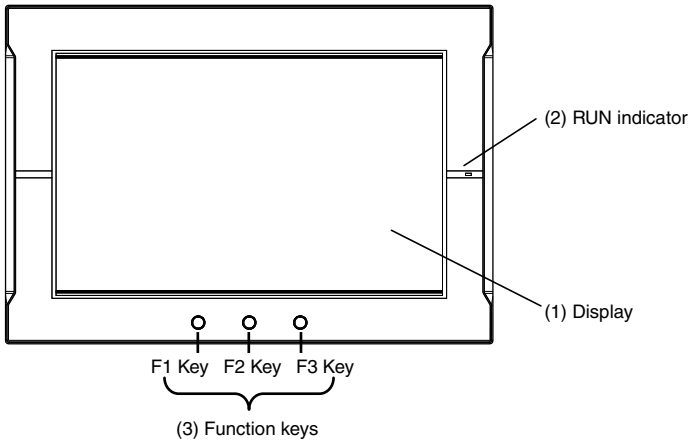
Version Information

NA series and Programming Devices

NA series		Corresponding unit versions/version	
Model	NA system version	NJ-series CPU Units NJ501-□□□□ NJ301-□□□□	Sysmac studio
NA5-15W□□□□	1.00 or later	NJ501 : 1.01 or later NJ501 Database Connection : 1.05 or later NJ301 : 1.01 or later	1.10 or later
NA5-12W□□□□			
NA5-9W□□□□			
NA5-7W□□□□			

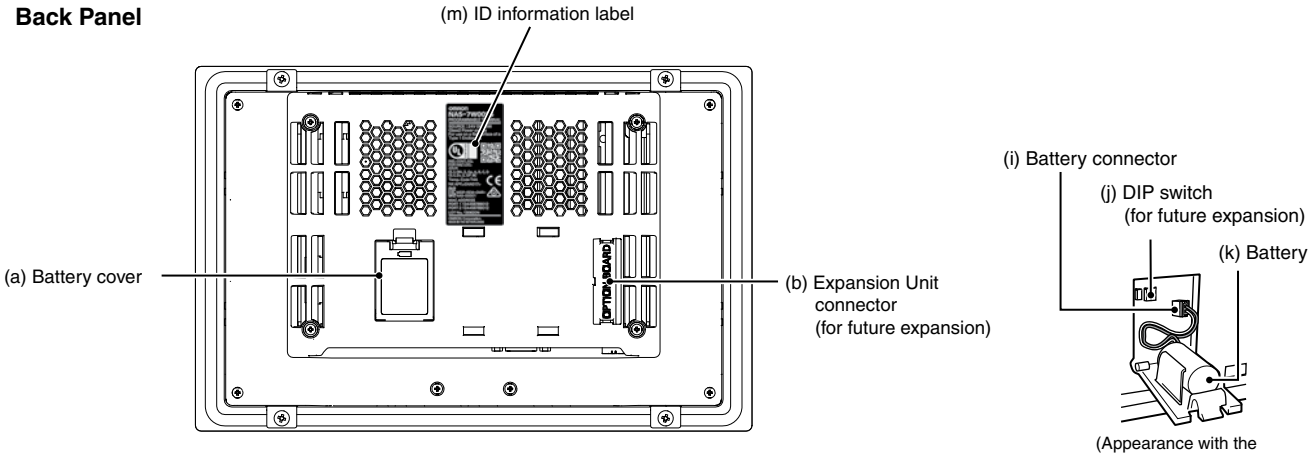
Components and Functions

Front Panel

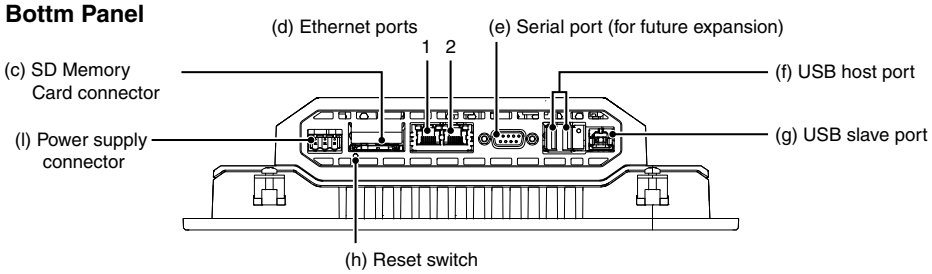


No.	Name	Description
(1)	Display	The entire display is a touch panel that also functions as an input device.
(2)	RUN indicator	The status of the indicator changes according to the status of the NA.
(3)	Function keys	There are three function keys: F1, F2, and F3.  : F1 Key,  : F2 Key,  : F3 Key You can use the function keys as execution conditions for the actions for global or page events. You can also use the function keys for interlocks.

Back Panel



Bottm Panel



No.	Name	Description
(a)	Battery cover	Open this cover to replace the Battery.
(b)	Expansion Unit connector *	For future expansion.
(c)	SD Memory Card connector	Insert an SD Memory Card here.
(d)	Ethernet port 1	Connect a device other than the Sysmac Studio.
	Ethernet port 2	Connect mainly the Sysmac Studio.
(e)	Serial port	For use with VB.NET.
(f)	USB host port	Connect this port to a USB Memory Device, mouse, etc.
(g)	USB slave port	Connect the Sysmac Studio or other devices.
(h)	Reset switch	Use this switch to reset the NA.
(i)	Battery connector	Connect the connector on the backup Battery here.
(j)	DIP switch *	For future expansion. (The DIP switch is on a PCB that is accessed by opening the Battery cover.) Do not change any of the factory settings of the pins on the DIP switch. (Default setting: OFF)
(k)	Battery	This is the battery to backup the clock information in the NA.
(l)	DC input terminals	These are the power supply terminals. Connect the accessory power supply connector and supply power.
(m)	ID information label	You can check the ID information of the NA.

* The DIP switch and Expansion Unit connector are for future expansion.

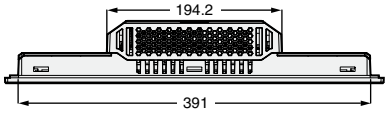
Supported Devices

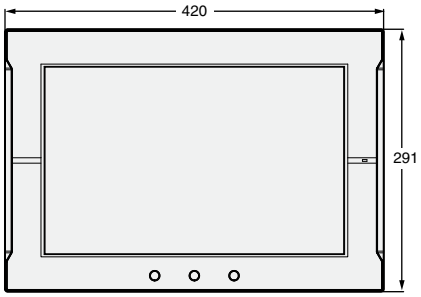
Manufacturer	Models	Connection method	Communications driver
OMRON	NJ501-□□□□ NJ301-□□□□	Built-in EtherNet/IP port	Ethernet
	CJ2H-CPU64/65/66/67/68-EIP CJ2M-CPU31/32/33/34/35	Built-in EtherNet/IP port	CIP Ethernet
	CJ2H-CPU64/65/66/67/68-EIP CJ2M-CPU31/32/33/34/35	CJ1W-EIP21	
	CJ2H-CPU64/65/66/67/68-EIP CJ2M-CPU31/32/33/34/35	Built-in EtherNet/IP port	FINS Ethernet
	CJ1H-CPU65H/66H/67H CJ1H-CPU65H/66H/67H-R CJ1G-CPU42H/43H/44H/45H CJ1M-CPU11/12/13/21/22/23 CJ2H-CPU64/65/66/67/68(-EIP) CJ2M-CPU11/12/13/14/15 CJ2M-CPU31/32/33/34/35	CJ1W-ETN21 CJ1W-EIP21	

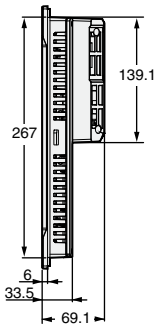
Dimensions

(Unit: mm)

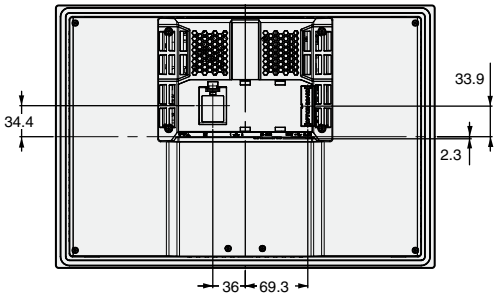
NA5-15W101S/-15W101B

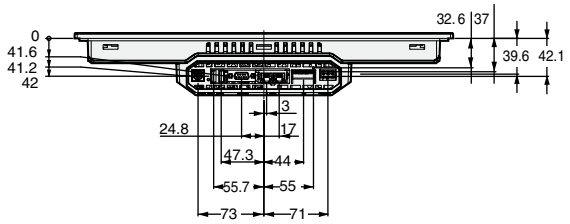






Cable Connection Dimensions





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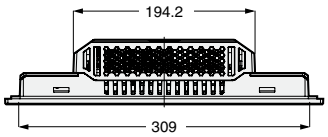

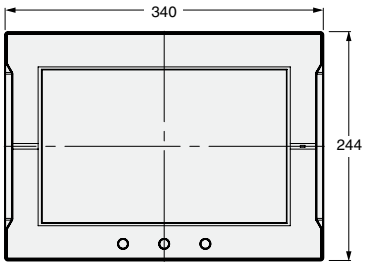

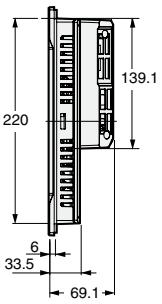

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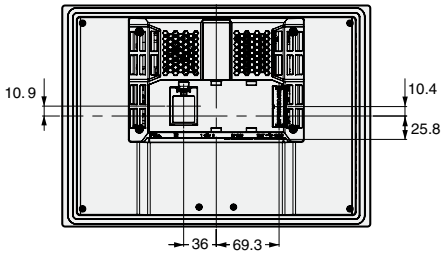

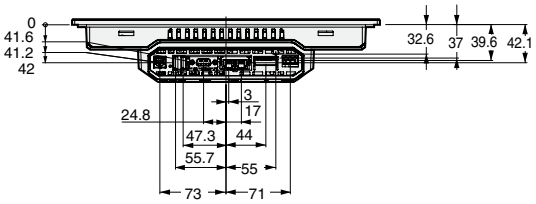

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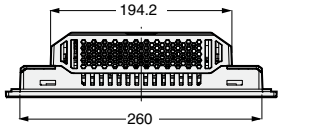

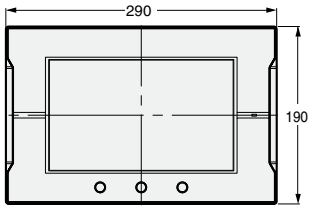

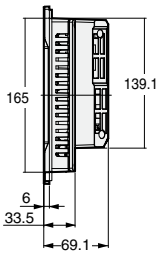

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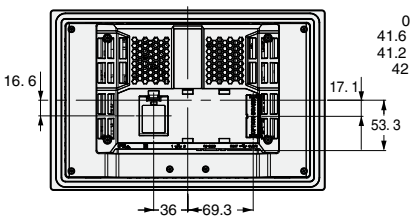

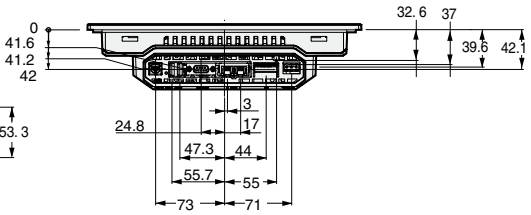

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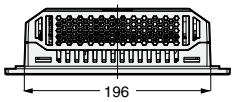

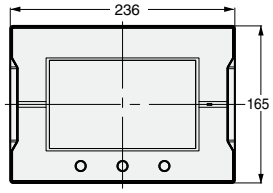

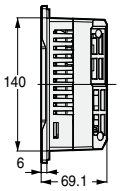

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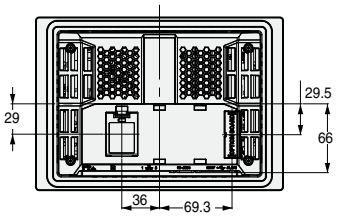

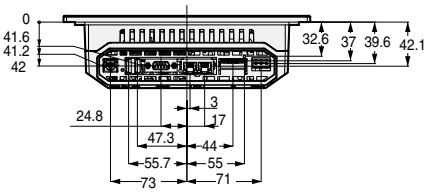

Related Manuals

Cat. No.	Model number	Manual
V117	NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	NA-series Programmable Terminal Hardware User's Manual
V118	NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	NA-series Programmable Terminal Software User's Manual
V119	NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	NA-series Programmable Terminal Device Connection User's Manual
V120	NA5-15W□□□□ NA5-12W□□□□ NA5-9W□□□□ NA5-7W□□□□	NA-series Programmable Terminal Startup Guide

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