

Feature-Rich, Vivid Color, High Quality

NB-Series Operator Interface Terminals



- » High functionality
- » The Best Match for Omron PLCs
- » Long lasting

NB-Series

A complete HMI family...

The Omron NB-Series family provides a feature-rich, dependable, and economical HMI lineup for machine builders. It is the best choice interface to use with Omron CP1 family micro-PLC applications, with many models to suit, no matter the industry. Save time, money, and hassle with the NB-Series featuring...

- Graphics & Animation
- Communications & Networking
- Remote Web Access
- Protection & Security
- Simulation & Troubleshooting
- FREE Downloadable Software

Available with screen sizes from 3.5 to 10.1 inches, the NB-Series is a complete family of touchscreen displays, built by Omron for small to mid-sized machine applications.

The combination of high quality and rich features create outstanding value for an HMI in the economy class. The NB-Designer screen design software is free of charge and can be downloaded from our website.



with comprehensive features



Best-in-class display

The robust TFT color touchscreen gives excellent visibility and features long-life (50,000 hours) LED backlighting. Screen sizes range from 3.5 to 10.1 inches.

- Color TFT LCD, LED Backlight
- Wide viewing angle
- 65,000 display colors
- Extensive graphics library and animation capabilities



Smart design

The NB-Series was designed to give machine builders maximum flexibility. An example of this is the portrait or landscape display mode, satisfying tight mounting areas.

- Portrait or landscape display
- Omron and non-Omron device drivers, e.g. Modbus RTU, Modbus TCP, Ethernet/IP, and DF1
- Serial, USB, and Ethernet connectivity
- PictBridge printer connection



Time savings

The NB-Series has many useful features that make it easy to create and maintain machine applications, from development to commissioning, operation and service.

- USB memory stick support
- Recipes, alarms, data logging and trending
- Multi-language support
- On/off-line simulation

Turn your idea into an application...

The NB-Series gives developers the features and functionality to create high-efficiency operator interfaces. From the built-in *Fast Select* screen (similar to the Microsoft Windows Start menu), to the overlapping common, transparent, and window screens, the operator interface can be as simple or sophisticated as the developer wishes. After development, off-line simulation is only one click away.



Flexible window handling

Three standard windows maximize your creative freedom:

1. Basic for general or pop-up screens,
2. Common for fixed or template screens
3. *Fast Selection* for menu screens.

Besides the standard window, you can also show 'window-in-window' using the indirect window component. Manage pop-up windows using the direct window component.

Furthermore, the NB-Series also supports bottom windows and transparency for pop-up windows.

Extensive language support

Currently supporting 32 languages, you will find it easy to manage text with the NB-Series. Thanks to the Text Library function, you can store commonly used text within the project for easy access.

Similarly, you can also store the text for a component supporting multiple states (ON/OFF), using a text for each state. And you can do this together with the font setting for each language.

Alarm
RECIPE
TREND
Graph
USER
Lamp
NOTE PAD
animation
METER
macro
SCALE
BITMAP
vector
Timer
Input
Event
X/Y plot
BUTTON
TIMER
SCALE
BITMAP

exactly how you want it!



Easy remote access

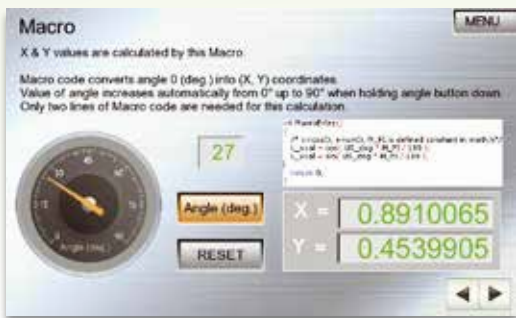
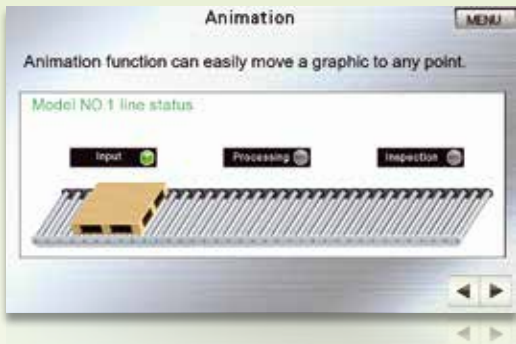
Ethernet versions of the NB-Series include built-in remote monitoring and access. Use your PC or Tablet to see and operate the HMI display. No extra software is needed, simply use a web browser and specify the NB device you want to see.

Supported OS	Supported web browser
Windows 7/8	Internet Explorer 8/9/10
IOS.6x	Safari 6

Easy animation

The NB-Series gives you many possibilities to create animations easily and quickly.

Moving components can be created in many ways. For example, you may want to show a different status with text and graphics, or showing free or trajectory movement while changing the displayed graphic. All of this can be done by simply configuring the status, X/Y coordinates and corresponding address.



Powerful macros

Take advantage of built-in macro functions to perform calculations, comparisons or iterations along with mathematical equations.

Draw graphics and patterns on the NB-Series screen, as well as writing/reading a value from or to the local memory and the memory of a connected device.

The logical choice for your machine

The feature-rich NB-Series has everything you will need for creating applications for a wide range machines and in many industries, for example, packaging, food, plastics and textiles. From a simple lid placing or loading/unloading machine right up to an in-line filling or sealing /labeling packaging machine. And last but not least, Omron's latest NB-Designer software can be downloaded free of charge at any time from our website.



Always be informed

Event monitoring (alarming) is both flexible and easy to use. Not only do you have the possibility to enter bit and word alarms for on/off or on-condition triggering, there is also the possibility to use different fonts and color to indicate varying degrees of status and priorities. Specific alarms are indicated with an audible buzzer sound, as well as by an accompanying text display, and you can even create pop-up alarms for situations where immediate action has to be taken.



Real-time and Historical Graphs

Graphical representation of real-time and historical data is easy. With the NB-Series you have the option to save and display sampling data internally or to USB memory and plot it using x/y coordinates. Sampling can also be achieved with historical data. Furthermore, data can be presented in a variety of ways, such as sampling points using x and y components.



Flexible security options

Protecting your developed project with a password is both simple and secure. Among the comprehensive security options is the possibility to define up to 16 minimum security levels on screens, buttons and inputs, and you can set up to 32 specific permission controls for each operator. There is also a register condition (bit/word) control for a check of actual condition against a predefined value, and a standard operator confirmation check to confirm that critical actions have been performed by the operator.



Direct connection with safety

The NB-Series can be directly connected to Omron's G9SP Safety Controller via RS-232C serial communications.

Direct connection allows you to easily monitor details of errors that occur in the G9SP series and operation status, which contributes to reduce machine downtime.





The perfect partner for CP1

With its large range of screen sizes, ample specifications, rich functionality and proven quality, the NB-Series has everything you need in a compact HMI to accompany Omron's popular CP1 Series Micro PLCs. This product family offers a wide variety of models and specifications to perfectly match your automation requirements. Connection to the NB-Series is possible via Serial or Ethernet, and dedicated pre-made CP1 template screens assist in fast machine troubleshooting.



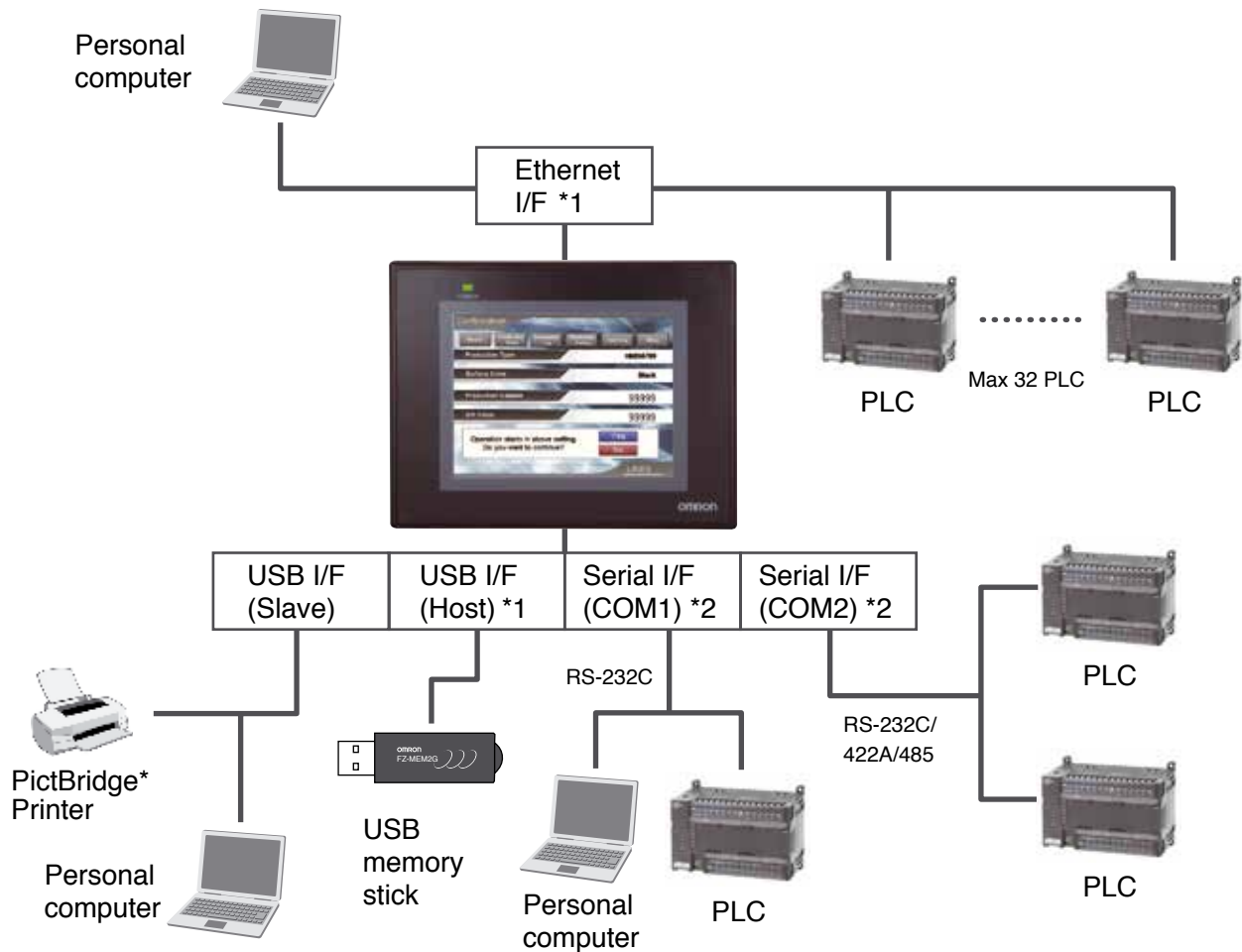
NB-Series

The feature-rich, economic, operator interface terminal

- 65,000 color TFT touchscreen display for all models
- Available in sizes ranging from 3.5 to 10.1 inches
- Long-life LED backlight
- Serial, USB, and Ethernet communication
- USB memory stick support



System Configuration



*1. Ethernet communication and USB Host are supported only by NB□□-TW01 models.

*2. The NB3Q has only one serial port (RS-232C/422A/485) COM1.

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The product photographs and figures that are used in this catalog may vary somewhat from the actual products.

Ordering Information

Programmable Terminals

Product name	Specifications	Model
NB3Q	3.5 inch, TFT LCD, Color, 320 × 240 pixels	NB3Q-TW00B
	3.5 inch, TFT LCD, Color, 320 × 240 pixels, USB Host, Ethernet	NB3Q-TW01B
NB5Q	5.6 inch, TFT LCD, Color, 320 × 234 pixels	NB5Q-TW00B
	5.6 inch, TFT LCD, Color, 320 × 234 pixels, USB Host, Ethernet	NB5Q-TW01B
NB7W	7 inch, TFT LCD, Color, 800 × 480 pixels	NB7W-TW00B
	7 inch, TFT LCD, Color, 800 × 480 pixels, USB Host, Ethernet	NB7W-TW01B
NB10W	10.1 inch, TFT LCD, Color, 800 × 480 pixels, USB Host, Ethernet	NB10W-TW01B

Options

Product name	Specifications	Model
NB-to-PLC Connecting cable	For NB to PLC via RS-232C (CP/CJ/CS), 6.6 ft (2 m)	XW2Z-200T*1
	For NB to PLC via RS-232C (CP/CJ/CS), 16.4 ft (5 m)	XW2Z-500T*1
	For NB to PLC via RS-422A/485, 2m	NB-RSEXT-2M
Software	Supported Operating Systems: Windows 7, Windows Vista®, Windows XP (SP1 or higher). Note: Except for Windows XP 64-bit version	NB-Designer * FREE Download from Omron website.
Display protective sheets	For the NB3Q contains 5 sheets	NB3Q-KBA04
	For the NB5Q contains 5 sheets	NB5Q-KBA04
	For the NB7W contains 5 sheets	NB7W-KBA04
	For the NB10W contains 5 sheets	NB10W-KBA04
Attachment	Mounting bracket for NT31/NT31C series to NB5Q series	NB5Q-ATT01
Spare Parts	Spare Mounting Clips (10pc)	NB-ATT01
	Spare Power Connector (3pc)	NB-CN001

* The NB5Q-TW01B and NB7W-TW01B are supported by NB-Designer version 1.10 or higher.

* The NB3Q-TW0□B and NB10W-TW01B are supported by NB-Designer version 1.20 or higher.

*1 Connecting Cable models may differ depending on sales region and availability.

Recommended USB Memory

Product name	Specifications	Model
USB memory stick	Capacity: 2 GB	FZ-MEM2G
	Capacity: 8 GB	FZ-MEM8G

NB-Series

Specifications

HMI

Specifications	NB3Q		NB5Q		NB7W		NB10W
	TW00B	TW01B	TW00B	TW01B	TW00B	TW01B	TW01B
Display type	3.5" TFT LCD		5.6" TFT LCD		7" TFT LCD		10.1" TFT LCD
Display resolution (H x V)	320 x 240		320 x 234		800 x 480		800 x 480
Number of colors	65,536						
Backlight	LED						
Backlight lifetime	50,000 hours of operating time at the normal temperature (25 °C)*						
Viewing angle	45/65/65/65 (T/B/R/L)				70/60/70/70 (T/B/R/L)		
Touch panel	Analog resistance membrane, resolution 1024 x 1024, life: 1 million touch operations						
Dimensions in mm (H x W x D)	4.1 x 5.1 x 2.1 (103.8 x 129.8 x 52.8)		5.6 x 7.2 x 1.8 (142 x 184 x 46)		5.8 x 7.9 x 1.8 (148 x 202 x 46)		8.3 x 10.6 x 2.12 (210.8 x 268.8 x 54.0)
Weight oz (g)	10.9 (310)	11.1 (315)	22.0 (620)	22.0 (625)	25.4 (710)	25.2 (715)	54.4 (1545)

* This is the estimated time when the luminous intensity is decreased by 50% per LED at room temperature and humidity. It is a typical value.

Functionality

Specifications	NB3Q		NB5Q		NB7W		NB10W
	TW00B	TW01B	TW00B	TW01B	TW00B	TW01B	TW01B
Internal memory	128MB (including system area)						
Memory interface	---	USB Memory	---	USB Memory	---	USB Memory	USB Memory
Serial (COM1)	RS-232C/422A/485 (not isolated), Transmission distance: 15m Max. (RS-232C), 500m Max. (RS-422A/485), Connector: D-Sub 9-pin		RS-232C, Transmission distance: 15 m Max., Connector: D-Sub 9-pin				
Serial (COM2)	---		RS-232C/422A/485 (not isolated), Transmission distance: 15m Max. (RS-232C), 500m Max. (RS-422A/485), Connector: D-Sub 9-pin				
USB Host	Equivalent to USB 2.0 full speed, type A, Output power 5V, 150mA						
USB Slave	Equivalent to USB 2.0 full speed, type B, Transmission distance: 5m						
Printer connection	PictBridge support						
Ethernet	---	10/100 base-T	---	10/100 base-T	---	10/100 base-T	10/100 base-T

General

Specifications	NB3Q		NB5Q		NB7W		NB10W
	TW00B	TW01B	TW00B	TW01B	TW00B	TW01B	TW01B
Line voltage	20.4 to 27.6 VDC (24 VDC -15 to 15%)						
Power consumption	5 W	9 W	6 W	10 W	7 W	11 W	14 W
Battery lifetime	5 years (at 25 °C)						
Enclosure rating (front side)	Front operation part: IP65 (Dust proof and drip proof only from the front of the panel)						
Obtained standards	EC Directives, KC, cUL508						
Operating environment	No corrosive gases.						
Noise immunity	Compliant with IEC61000-4-4, 2KV (Power cable)						
Ambient operating temperature	0 to 50 °C						
Ambient operating humidity	10% to 90% RH (without condensation)						

Applicable Controllers

Brand	Series
OMRON	Omron C Series Host Link
	Omron CJ/CS Series Host Link
	Omron CP Series
Mitsubishi	Mitsubishi Q_QnA (Link Port)
	Mitsubishi FX-485ADP/485BD/422BD (Multi-station)
	Mitsubishi FX0N/1N/2N/3G
	Mitsubishi FX1S
	Mitsubishi FX2N-10GM/20GM
	Mitsubishi FX3U Serial + Ethernet
	Mitsubishi Q series (CPU Port)
	Mitsubishi Q00J (CPU Port)
Panasonic	FP series
Siemens	Siemens S7-200
	Siemens S7-300/400 (PC Adapter Direct)
Allen-Bradley* (Rockwell)	AB DF1
	AB CompactLogix/ControlLogix, Ethernet/IP from MicroLogix

Brand	Series
Schneider	Schneider Modicon Uni-TelWay
	Schneider Twido Modbus RTU
Delta	Delta DVP
LG (LS)	LS Master-K Cnet
	LS Master-K CPU Direct
	LS Master-K Modbus RTU
	LS XGT CPU Direct
GE Fanuc Automation*	LS XGT Cnet
	GE Fanuc Series SNP
Modbus	GE SNP-X
	Modbus ASCII
	Modbus RTU
	Modbus RTU Slave
	Modbus RTU Extend
	Modbus TCP

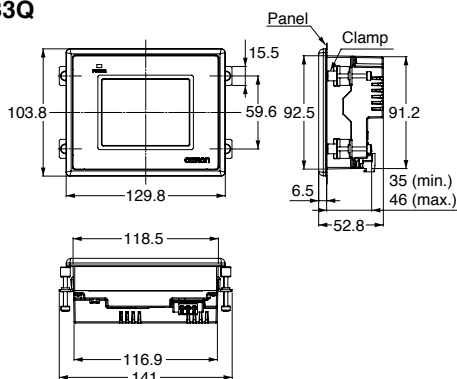
Note: For details, refer to NB Series Host Connection Manual (Cat.No V108).

* AB and GE will be supported by NB-Designer version 1.20 or higher.

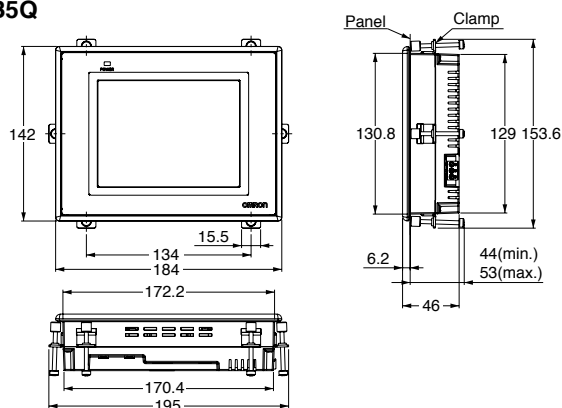
Dimensions

(Units: mm)

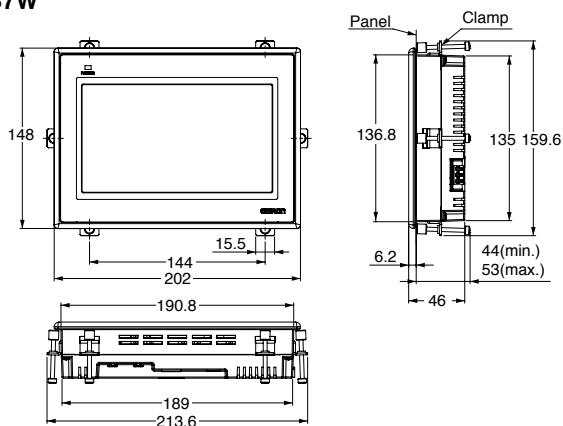
NB3Q



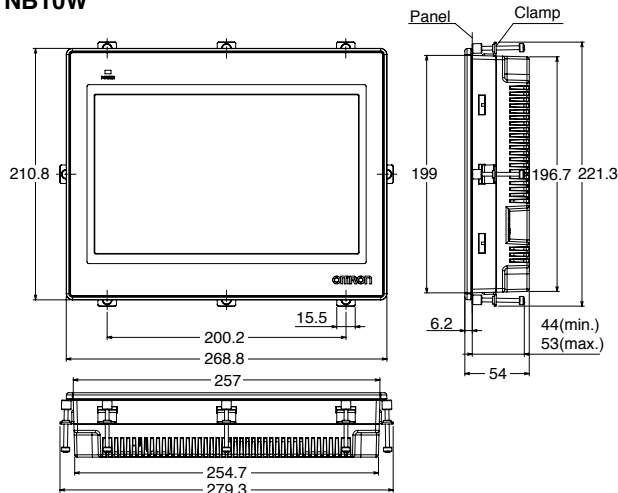
NB5Q



NB7W



NB10W



Model	Panel cutout (H × V mm)
NB3Q	119.0 (+0.5/-0) × 93.0 (+0.5/-0)
NB5Q	172.4 (+0.5/-0) × 131.0 (+0.5/-0)
NB7W	191.0 (+0.5/-0) × 137.0 (+0.5/-0)
NB10W	258.0 (+0.5/-0) × 200.0 (+0.5/-0)

Note: To convert mm to inches, multiply by .03937.

Applicable panel thickness: 1.6 to 4.8 mm

Related Manuals

Cat. No	Model	Name
V106	NB-Designer	NB Series NB-Designer Operation Manual
V107	NB3Q, NB5Q, NB7W, NB10W	NB Series Setup Manual
V108	NB3Q, NB5Q, NB7W, NB10W	NB Series Host Connection Manual
V109	NB3Q, NB5Q, NB7W, NB10W	NB Series Startup Guide

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