

NB SERIES

The feature-rich, economical HMI



» Quality colour display with LED backlighting

» Complete HMI family

» Comprehensive features

A complete HMI family...

Omron's new NB HMI series is simply as smart and as dependable as it looks. A feature-rich HMI with Omron's high quality extending throughout the complete series, this new HMI generation offers you the utmost in reliability. The logical choice for use with Omron's popular CP1 family of compact machine controllers, the NB series has just the right model to suit your application, no matter for what branch of industry.

Available with screen sizes from 3.5 to 10 inches, the NB series is not only complete, but also has many outstanding design features that will make it easy to create attractive HMI applications.

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



Interrupt No.	Task No.	SV	PV
Input interrupt 0	140	502	449
Input interrupt 1	141	334	330
Input interrupt 2	142	45	43
Input interrupt 3	143	68	68
Input interrupt 4	144	335	331
Input interrupt 5	145	76	75

with comprehensive features



Best-in-class display

The robust TFT, colour touch LCD gives excellent visibility and features long-life (50,000 hours = approx 6 years) LED backlighting. Screen sizes range from 3.5 to 10 inches.

- LED backlit TFT LCD
- Wide viewing angle
- More than 65,000 display colours
- Stores up to 120 MBs of screen data



Smart design

When developing the NB series, we considered every aspect of the design to give you maximum flexibility. A typical example is the portrait or landscape display mode.

- Portrait or landscape display mode
- Connection to Omron and non-Omron devices, e.g. PLCs/ inverters
- Serial, USB or Ethernet connectivity
- PictBridge printer connection



Saves you time

The NB series has many useful features that will make it easy to create and maintain your projects, such as the USB memory stick support.

- USB memory stick support
- Animations and easy-to-use functions
- Multi-language support and tool
- On/off-line simulation

Turn your idea into an application...

The NB series gives you all the features and functionality to easily create intuitive operator screens really quickly. Features such as window handling give you many screen-creation possibilities, while texts can be defined in up to 32 languages. Furthermore, off-line simulation enables you to quickly test your project.



Flexible window handling

Your scope to create screens for your project using the familiar window concept was never greater than with the NB series. Three standard windows maximize your creative freedom: 1) Basic for general or pop-up screens, 2) Common for fixed or template screens and 3) Fast Selection for menu screens. Besides the standard window, you can also show 'window-in-window' using the indirect window component. And you can 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 texts with the NB series. Thanks to the Text Library function, you can store the texts used many times in a project. 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
Event
RECIPE
TREND
Graph
BUTTON
Input
METER
animation
NOT
Timer
macro
SCALE
BITMAP
vector

exactly how you want it!



Easy animation

The NB series gives you many possibilities to create animations easily and quickly. Moving components can be created easily and 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

Thanks to its powerful macros, the NB series allows you to do even more, such as perform calculations and comparisons or iterations, and mathematical functions. It also enables you to draw graphics and patterns on the NB screen, as well as writing / reading a value from or to the local memory and the memory of a connected device.

USER

amp
AD

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 and at any time from our website.



Always informed about alarms

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 colour to indicate varying degrees of status and priorities. Specific alarms are indicated with an audible buzzer sound, as well as by an accompanying text message, and you can even create pop-up alarms for situations where immediate action has to be taken.



Easy data presentation

Graphical representation of real-time and historical data is easy with the NB series. As well as display of time sampling and trending data, you have the option to save sampling data (max. 16 consecutive words) of basic real-time trending data. And you can plot using x/y coordinates, in which case sampling can be done via single or multiple points and with historical data. Furthermore, data can be presented in a variety of ways, such as sampling points using x and y components.



Multiple security options

Protecting your developed project with a password using the NB series is both a simple and secure matter. 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.





The perfect partner for CP1

With its large range of screen sizes, ample specifications, rich functionality and proven Omron high quality, the new NB series has everything you need in a compact HMI to accompany Omron's popular CP1 Compact Machine Controller range. The CP1 offers increasing degrees of sophistication to perfectly match your specific automation requirement and connection to the NB series is possible via Serial or Ethernet. Similarly, data transfer of recipes between HMI and PLC (with data back-up to external memory if required) is easy and the recipe screen format is freely selectable, or can be a standard table if preferred.

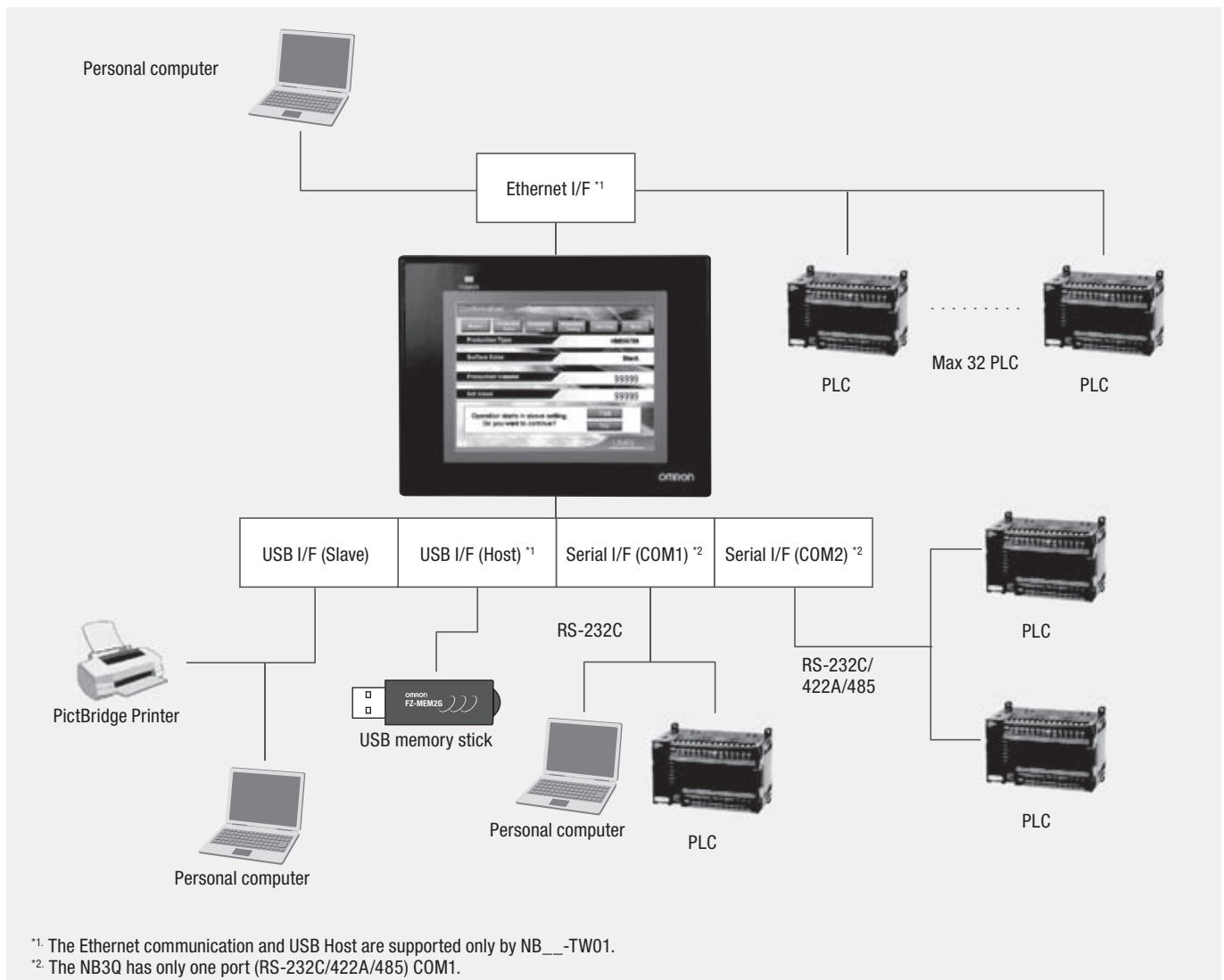


The feature-rich, economic HMI



- More than 65,000 display colours TFT touch screen
- Available in sizes ranging from 3.5 to 10 inches
- Long-life LED backlight
- Serial, USB or Ethernet communication
- USB memory stick support
- 128 MB internal memory
- Vector and bitmap graphics

System Configuration



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 × V)	320 × 240		320 × 234		800 × 480		800 × 480
Number of colours	65,536						
Backlight	LED						
Backlight lifetime	50,000 hours of operating time at the normal temperature (25°C) ^{*1}						
Touch panel	Analogue resistive membrane, resolution 1024 × 1024, life: 1 million touch operations						
Dimensions in mm (H × W × D)	103.8 × 129.8 × 52.8		142 × 184 × 46		148 × 202 × 46		210.8 × 268.8 × 54.0
Weight	310 g max.	315 g max.	620 g max.	625 g max.	710 g max.	715 g max.	1,545 g max.

*1 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	Brand	Series
OMRON	Omron C Series Host Link	Schneider	Schneider Modicon Uni-TelWay
	Omron CJ/CS Series Host Link		Schneider Twido Modbus RTU
	Omron CP Series	Delta	Delta DVP
Mitsubishi	Mitsubishi Q_QnA (Link Port)	LG (LS)	LS Master-K Cnet
	Mitsubishi FX-485ADP/485BD/422BD (Multi-station)		LS Master-K CPU Direct
	Mitsubishi FXON/1N/2N/3G		LS Master-K Modbus RTU
	Mitsubishi FX1S		LS XGT CPU Direct
	Mitsubishi FX2N-10GM/20GM		LS XGT Cnet
	Mitsubishi FX3U	GE Fanuc Automation ^{*1}	GE Fanuc Series SNP
	Mitsubishi Q series (CPU Port)		GE SNP-X
	Mitsubishi Q00J (CPU Port)		Modbus
Mitsubishi Q06H	Modbus RTU		
Panasonic	FP series	Modbus RTU Slave	
	Siemens	Siemens S7-200	
Allen-Bradley ^{*1} (Rockwell)	Siemens S7-300/400 (PC Adapter Direct)	AB DF1	Modbus TCP
	AB CompactLogix/ControlLogix	AB CompactLogix/ControlLogix	

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

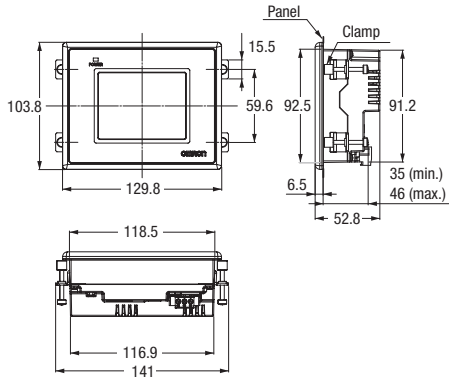
Note: For details, refer to NB Series Host Connection Manual (Cat.No V108).

NB series

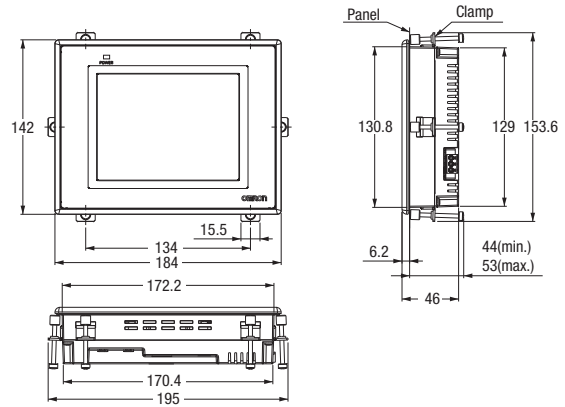
Dimensions

(Units: mm)

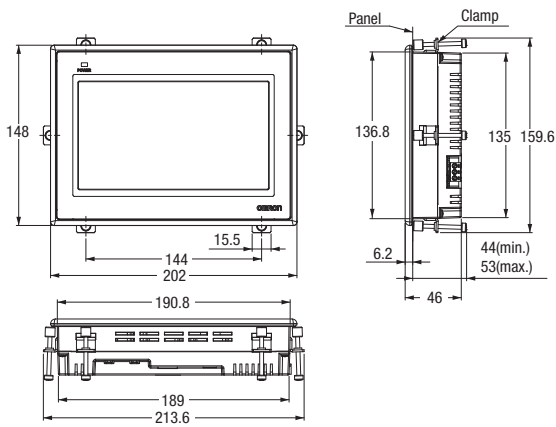
NB3Q



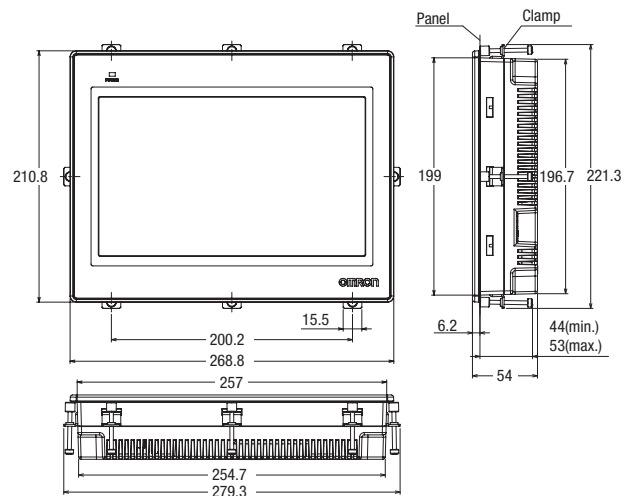
NB5Q



NB7W



NB10W



Applicable panel thickness: 1.6 to 4.8 mm

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)

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

NB series

Ordering information

Programmable Terminals

Product name	Specifications	Order code
NB3Q	3.5 inch, TFT LCD, Colour, 320 × 240 dots	NB3Q-TW00B
	3.5 inch, TFT LCD, Colour, 320 × 240 dots, USB Host, Ethernet	NB3Q-TW01B
NB5Q	5.6 inch, TFT LCD, Colour, 320 × 234 dots	NB5Q-TW00B
	5.6 inch, TFT LCD, Colour, 320 × 234 dots, USB Host, Ethernet	NB5Q-TW01B
NB7W	7 inch, TFT LCD, Colour, 800 × 480 dots	NB7W-TW00B
	7 inch, TFT LCD, Colour, 800 × 480 dots, USB Host, Ethernet	NB7W-TW01B
NB10W	10.1 inch, TFT LCD, Colour, 800 × 480 dots, USB Host, Ethernet	NB10W-TW01B

Options

Product name	Specifications	Order code
NB-to-PLC Connecting cable	For NB to PLC via RS-232C (CP/CJ/CS), 2m	XW2Z-200T
	For NB to PLC via RS-232C (CP/CJ/CS), 5m	XW2Z-500T
	For NB to PLC via RS-422A/485, 2m	NB-RSEXT-2M
Software	Supported Operating Systems: Windows 7, Windows Vista®, Windows XP* ¹ (SP1 or higher). Download from Omron's regional websites.	NB-Designer* ²
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

*¹ Except for Windows XP 64-bit version

*² 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.

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Automation Systems

- Programmable logic controllers (PLC) • Human machine interfaces (HMI) • Remote I/O
- Industrial PC's • Software

Motion & Drives

- Motion controllers • Servo systems • Inverters • Robots

Control Components

- Temperature controllers • Power supplies • Timers • Counters • Programmable relays
- Digital panel indicators • Electromechanical relays • Monitoring products • Solid-state relays
- Limit switches • Pushbutton switches • Low voltage switch gear

Sensing & Safety

- Photoelectric sensors • Inductive sensors • Capacitive & pressure sensors
- Cable connectors • Displacement & width-measuring sensors • Vision systems
- Safety networks • Safety sensors • Safety units/relay units • Safety door/guard lock switches

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