

# Programmable Terminal

**NB** Series



# The future-proof, compact HMI

Give more value to your machines with Omron's NB Series: compact range application HMI.

Enjoy his the aesthetic sense and excellent visibility.

Our expertise in Factory automation give you warranty of quality and a total freedom to build up optimal applications.

Newly added remote control features help to reduce the time and work involved in maintenance.

# Enjoyable to use

# Global support from local site

- · Flexible remote access function
- Powerful remote operation
- On/off-line simulation
- USB memory stick support



# **Easily create intuitive operator screens**

- Flexible window handling
- Easy animation
- Extensive language support
- Powerful macros









# Appealing to see in a wide product range

OMROD

- Screen size from 3.5 to 10.1 inch
- LED backlighted TFT LCD
- Wide viewing angle
- More than 65,000 display colors
- High brilliance



# Enjoyable to use

The newly added remote control features significantly save you time, and the flexible design features make screen creation easier. All these features greatly contribute to your global scale business.

# Global support from local site

# Flexible remote access function

Besides conventional web browsers, now NB Series supports faster and secure Virtual network computing (VNC), providing flexible remote access.



# **Web browser**

Support OS Support web browser

Windows Internet Explorer 8/9, Google Chrome 32.0., Firefox 27.0

iOS 6 Safari

Monitoring and operating screens via various PC web browsers.

# VNC Server - BYOD (Bring Your Own Device)

The VNC client application "HMI Remote Viewer", which is already used for NA Series, can also be used for NB Series.





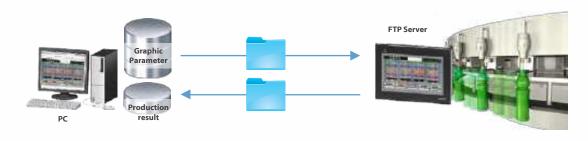
Search by "HMI Remote Viewer" for free download.

# Powerful remote operation

With the newly added features such as FTP Server and CSV data-copying features,

you can change machine parameters from remote locations or host PC, and collect production data.

Now graphics can be updated even during the operation, and visual can be changed without stopping the HMI following changes in machines and recipes.



# **Easily create intuitive operator screens**

# Flexible window handling

NB Series easily creates screens for your project.
Besides the standard window, you can also create 'window-in window'. Furthermore, it also supports bottom windows and transparency for pop-up windows.

# Easy animation

Animations can be created easily. For example, you can show a different status with text and graphics, or move the components while changing them. This easy animation feature makes the operation easier to understand and eliminates the need for expertise.

# **Extensive language support**

Thanks to the supported 32 languages and Text Library function, you will find it easy to manage texts in multi-language.

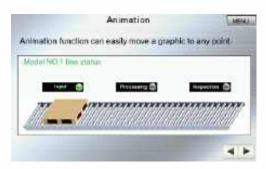
This allows users to operate the HMI in the language they choose.

# **Powerful macros**

Thanks to its powerful macros, you can perform calculations and comparisons or iterations, and mathematical functions.

It also enables you to do even more.









# Pleasant to program

# Ready to use functions 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. Download free of charge NB-Designer software from Omron web site.



# 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 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 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 Omron devices

Omron Compact controllers perfectly match your specific automation requirement and connection to the NB series is possible via Serial or Ethernet.

Ethernet protocols, FTP or VNC make easy remote access for maintenance or data gathering and allows digitalisation of your machine.



# **Programmable Terminals**

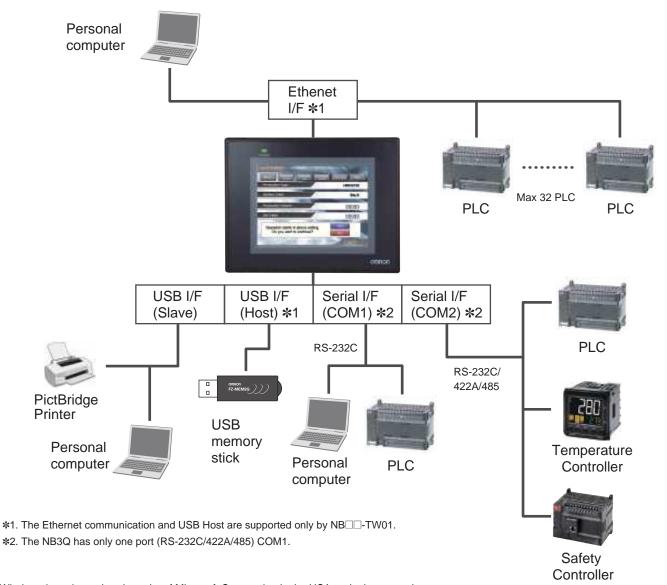
# **NB** series

# The feature-rich, economic programmable terminal

- More than 65,000 display colors TFT, color touch-screen for all models
- · Available in sizes ranging from 3 to 10 inches
- Long-life LED backlight
- Serial, USB or Ethernet communication
- USB memory stick support



# **System Configuration**



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# **Ordering Information**

# **Programmable Terminals**

Product name	Specifications	Model
ND2O	3.5 inch, TFT LCD, Color, 320 × 240 dots	NB3Q-TW00B
NB3Q	3.5 inch, TFT LCD, Color, 320 × 240 dots, USB Host, Ethernet	NB3Q-TW01B
NB5Q	5.6 inch, TFT LCD, Color, 320 × 234 dots	NB5Q-TW00B
	5.6 inch, TFT LCD, Color, 320 × 234 dots, USB Host, Ethernet	NB5Q-TW01B
NB7W	7 inch, TFT LCD, Color, 800 × 480 dots	NB7W-TW00B
ND/ VV	7 inch, TFT LCD, Color, 800 × 480 dots , USB Host, Ethernet	NB7W-TW01B
NB10W	10.1 inch, TFT LCD, Color, 800 × 480 dots , USB Host, Ethernet	NB10W-TW01B

# **Options**

Product name	Specifications	Model
Software	Supported Operating Systems: Windows 10, Windows 8.1, Windows 8, Windows 7, Windows Vista <sup>®</sup> , Windows XP (SP3 or higher).  Note: Except for Windows XP 64-bit version Download from Omron's regional websites.	NB-Designer *
NB-to-PLC Connecting cable	For NB to PLC via RS-232C (CP/CJ/CS), 2 m	XW2Z-200T
	For NB to PLC via RS-232C (CP/CJ/CS), 5 m	XW2Z-500T
	For NB to PLC via RS-422A/485, 2 m	NB-RSEXT-2M
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	NB5Q-ATT01	

Note: Use a standard USB cable (Type A male to Type B male) or standard Ethernet cable (10 BASE-T/100 BASE-TX twisted-pair cable) to connect the NB series to software (personal computer).

Use a standard Ethernet cable (10 BASE-T/100 BASE-TX twisted-pair cable) to connect the NB series to a PLC. For detail, refer to the NB

Series Setup Manual (Cat. No. V107).

# **System Configuration**

Items	Minimum Configurations		
Operating System (OS)	Microsoft Windows XP (SP3 or higher) Microsoft Windows Vista (32-bit or 64-bit edition) Microsoft Windows 7 (32-bit or 64-bit edition) Microsoft Windows 8 (32-bit or 64-bit edition) Microsoft Windows 8.1 (32-bit or 64-bit edition) Microsoft Windows 10 (32-bit or 64-bit edition)		
CPU	Windows computers with CPU recommended for OS		
Memory	512 MB or more		
Hard Disk	2.5 GB or more, with the disk space more than 800 MB at least		
Display Supports the display with resolution of $800 \times 600$ and 16-bit high (1024 $\times$ 768 and 32-bit true color are recommended.).			
Communication ports	RS-232C Port, USB Port, Ethernet Port		

# **Recommended USB Memory**

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

**<sup>\*</sup>** 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.

# **NB Series**

# **Specifications**

### **HMI**

Specifications	NB	3Q	NB5Q		NB7W		NB10W
Specifications	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 colors	65,536						
Backlight	LED						
Backlight lifetime	50,000 hours of operating time at the normal temperature (25°C)*						
Touch panel	Analog resistive membrane type, resolution 1024 × 1024, life: 1 million touch operations						perations
Dimensions in mm (H $\times$ W $\times$ D)	103.8 × 12	29.8 × 52.8	3 142 × 184 × 46 148 × 202 × 46 210.				210.8 × 268.8 × 54.0
Weight	300 g max.	305 g max.	620 g max.	627 g max.	710 g max.	715 g max.	1525 g max.

<sup>\*</sup>This is the estimated time when the luminous intensity is decreased by 40% per LED at room temperature and humidity. It is a typical value. Omron accepts NB Programmable Terminals, including the HMI, for repair and analysis within five years of the manufacture date. Repair products (excluding battery replacement) will be replaced with a new substitute product. Analysis will be performed to identify the cause of failure for each module. (Fees apply for out-of-warranty work.)

# **Functionality**

Specifications	NE	33Q	NB5Q		NB7W		NB10W
Specifications	TW00B	TW01B	TW00B	TW01B	TW00B	TW01B	TW01B
Internal memory			128 M	IB (including sy	/stem area)		
Memory interface		USB Memory		USB Memory		USB Memory	USB Memory
Serial (COM1)	(not iso Transmission 15 m Max. 500 m Max. (F	/422A/485 olated), on distance: (RS-232C), RS-422A/485), D-Sub 9-pin	Transmission distance: 15 m Max., Connector: D-Sub 9-pin				
Serial (COM2)	-			Transmission		n Max. (RS-232 ) m Max. (RS-42	
USB Host	Equivalent to USB 2.0 full speed, type A, Output power 5 V, 150 mA						
USB Slave	Equivalent to USB 2.0 full speed, type B, Transmission distance: 5 m						
Printer connection	PictBridge support						
Ethernet		10/100 base-T		10/100 base-T		10/100 base-T	10/100 base-T

# General

Specifications	NB	3Q	NB5Q		NB7W		NB10W
	TW00B	TW01B	TW00B	TW01B	TW00B	TW01B	TW01B
Line voltage			20.4 to 2	7.6 VDC (24 VI	OC -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, 2 KV (Power cable)						
Ambient operating temperature	0 to 50°C						
Ambient operating humidity	10% to 90% RH (without condensation)						

Note: Flash memory can be written to up 100,000 times.

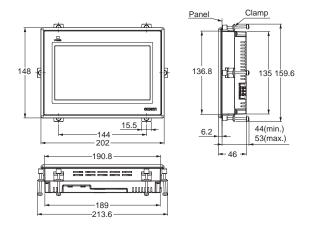
<sup>\*</sup> In-factory battery replacement is available for the NB10W only within 5 years of the date of manufacture. Battery replacement is not available for the NB3Q/5Q/7W.

Dimensions (Units: mm)

# Panel Clamp 103.8 103.8 103.8 103.8 103.8 118.5 118.5

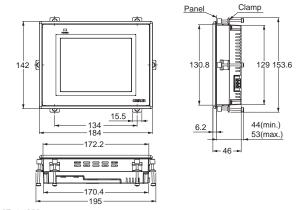
116.9

# NB7W

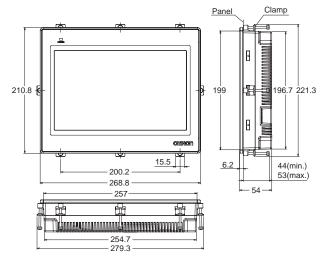


Model	Panel cutout (H × V mm)
NB3Q	119.0 (+0.5/-0) × 93.0 (+0.5/-0)
NB5Q	172.4 (+0.5/-0) × 131.0 (+0.5/-0)
NB7W	191.0 (+0.5/-0) × 137.0 (+0.5/-0)
NB10W	258.0 (+0.5/-0) × 200.0 (+0.5/-0)

# NB5Q



NB10W



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
-	+	

# **NB Series**

#### NB3Q/NB5Q/NB7W/NB10W



Ethernet I/F

Serial I/F (COM1) RS-232C \* **Serial I/F** (COM2) RS-232C/422A/485 \*

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

# [Ethernet Communications]

# **OMRON**

- · CP Series
- · CJ/CJ2/CS/NJ/NX1/NX1P Series

#### Mitsubishi

- · L Series (CPU Ethernet port)
- QnU Series (CPU Ethernet port)
- QnUDV Series (CPU Ethernet port)
- · Q Series/L Series
- (Ethernet Communication Unit)
- FX Series (Communication expansion board)

# **KEYENCE**

· KV Series (KV-5000)

# Siemens

- · S7-200 (Smart) Series
- S7-300 Series
- · S7-1200 Series

# Allen-Bradley (Rockwell)

· MicroLogix Series

# Modbus

· Modbus TCP Slave

# [Serial Communications]

# **OMRON**

- · CP Series
- · CJ/CJ2/CS/NJ/NX1P Series
- · C Series
- G9SP Series

# Mitsubishi

- · FX Series (CPU)
- · FX Series (Communication expansion board)
- · Q Series (CPU)
- · QnU Series (CPU)
- Q Series/L Series (Serial Communication Unit)

# KEYENCE

· KV Series (KV-3000)

### **Panasonic**

· FP Series

## Siemens

- · S7-200 Series
- · S7-300/400 Series

# **Allen-Bradley (Rockwell)**

- · SLC500/MicroLogix Series
- · CompactLogix/ControlLogix Series

# Schneider

- · TSX-Micro/Premium/Nano Series
- · Twido Series

#### **GE Fanuc**

- Series 90-30
- · VersaMax/VersaMax Micro & Nano Series

# Delta

· DVP Series

# LG (LS)

- · Master-K Series
- · XGT Series

# Modbus

- · Modbus ASCII
- · Modbus RTU
- · Modbus RTU Slave
- · Modbus RTU Extend
  - --- OMRON: Temperature Controller E5CC/E5EC, Inverter 3G3MX2-V1 or later

Company	Series	Model				
Company	Oct les	Ethernet communication	Serial communication			
	CP Series	CP1L-EL/-EM, CP2E-N (Built-in Ethernet port) CP1H-X/-XA/-Y, CP1L-L/-M, CP1E-N/-N□□S/-NA (Option Board required)	CP1E-N/-N□□S/-NA, CP2E-S/-E (Built-in serial port) CP1L-EL/-EM/-L/-M, CP1H-X/-XA/-Y, CP2E-N (Option Board required)			
OMRON	CJ/CJ2/CS/NJ/NX1/NX1P Series	CJ1W-ETN21/EIP21 CS1W-ETN21/EIP21 CJ2H-□□□-EIP, CJ2M-CPU3□ NJ□01 NX102-□□□□ NX1P2-□□□□	CJ1, CJ2, CS1 NJ 01 (Serial communication uni required) NX1P2-000 (Option Board required)			
	C Series		C200HX/HG/HE(-Z) CQM1H CPM1□/2□			
	G9SP Series		G9SP-N□□□ (CP1W-CIF01 Option Board required)			
	* For connectable OMRON PLC m Manual (Cat. No. V106).	odels, refer to the Appendices in the				
	FX Series (Port built into CPU)		FX1N/1NC/2N/2NC/3G/3GC FX1S FX3U/3UC/3S			
	FX Series (Communication expansion board)	FX3U-ENET-L	FX-485ADP/485BD/232BD			
	Q Series (Port built into CPU)		Q00, Q00J, Q01, Q02, Q02H, Q06H, Q12H, Q25H			
Mitsubishi	QnU Series (Port built into CPU)	Q03UDE, Q04UDEH, Q06UDEH, Q10UDEH, Q13UDEH, Q20UDEH, Q26UDEH, Q50UDEH, Q100UDEH	Q00UCPU, Q01UCPU, Q02UCPU, Q03UD, Q04UDH, Q06UDH			
	QnUDV Series (Port built into CPU)	Q26UDV				
	Q Series (Communication Unit)	QJ71E71-100	QJ71C24/-R2 QJ71C24N/-R2/-R4			
	L Series (Port built into CPU)	L02CPU/-P, L06CPU/-P, L26CPU/-P/-BT/-PBT				
VEVENOE	L Series (Communication Unit)	LJ71E71-100	LJ71C24/-R2			
KEYENCE	KV Series (Port built into CPU)	KV-5000	KV-3000 FP. FP0. FP1. FP2. FP3. FP2SH			
Panasonic	FP Series		FP10S/SH, FP-M, FP-e, FP-X			
	S7-200 Series	CP243-1, CP243-1 IT, SMART CPU CR40, SMART CPU SR20	CPU212/214/215/216 CPU221/222/224/226			
Siemens	S7-300/400 Series	CP343-1, CP343-1 IT, CPU315-2 PN/DP, CPU317-2 PN/DP, CPU319-3 PN/DP	CPU312/313/314/315/316/318 CPU412/413/414/416/417			
	S7-1200 Series	CPU1211C, CPU1214C				
Allen-Bradley (Rockwell)	SLC500/MicroLogix Series	MicroLogix 1100/1400 (Built-in Ethernet port), MicroLogix 1000/1200/ 1400/1500 (1761-NET-ENI Unit)	MicroLogix1000/1200/1400/1500 SLC 5			
	CompactLogix/ControlLogix Series		1756-L61/63 1769-L20/30/31/32E/35E			
Schneider	TSX-Micro/Premium/Nano Series Twido Series		TSX 37/P57/07 TWD LCAA/LMDA			
	Series 90-30		IC693CPU/CSE			
GE Fanuc	VersaMax/ VersaMax Micro & Nano Series		CPU001/002/005/E05 IC200UAL/UDD/UDR/UAA/UAR			
Delta	DVP Series		DVP-□□ES/EX/SS DVP-□□SA/SX/SC DVP-□□EH/EH2/SV			
LG (LS)	Master-K Series XGT Series		K120s, K200s XGB			
Modbus			Modbus ASCII Modbus RTU Modbus RTU Slave Modbus RTU Extend OMRON:Temperature Controller etc.			

Note: 1. OMRON does not guarantee the normal operation of all PLCs in each series. The NB series can be connected to temperature controllers, inverters, and other devices. For details, refer to the NB Series Host Connection Manual (Cat.No V108).

2. Including models whose production were discontinued.

# Providing components for designing screens with NB-series

Omron provides components for designing the screens with NB-series.

Use of components allows customers to easily and neatly create the HMI screens.

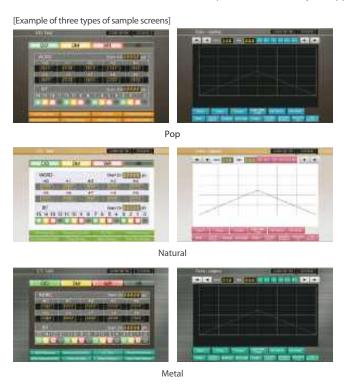
# **Cool objects**

Sample screens, bit switches, and bit lamps are provided in three types such as

"Pop", "Natural", and "Metal". Buttons can be used for labels,

or as ON/OFF buttons in combination with gray buttons.

You can choose components that meet your application from objects in different sizes and colors.





MEMO

# **Terms and Conditions Agreement**

# Read and understand this catalog.

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#### Warranties.

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NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

# **Programmable Products.**

Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence

# Performance Data.

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# Change in Specifications.

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

#### **Errors and Omissions.**

Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

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

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Cat. No. V412-E1-12

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