Programmable Terminal

NT Series

CSM_NT_series_DS_E_2_1

Better Compatibility and Easier-to-use Support Software

- Device monitoring and I/O comment loading functions facilitate system construction.
- Greatly enhanced NT Support Software with reusable screen data and powerful simulation on editing screens.
- Transfer the system program and screen data to ensure smooth on-site system maintenance and improve the efficiency of onsite work.
- Wide Range of Communications Interfaces.

NT20 NT631C

Lineup

Model			NT631C-ST153(B)-EV3	NT20-ST121(B)
Display			TFT color display	STN monochrome display
Effective display area			211 × 158 mm	111.5 × 57.6 mm
Number of dots (resolution)			640 × 480 dots	256 × 128 dots
Max. number of touch switches			32 × 24 switches	12 × 6 switches
External interface			RS-232C, RS-422A, RS-485, and printer port	2 RS-232C ports
Applicable standards			cULus standards, EC Directives, and C-Tick	
Connectable hosts	From OMRON (See note 1.)	1-to-1 NT Link	C200HX(-Z), C200HG(-Z), C200HE(-Z), C200HS-CPU2□, and C200HS-CPU3□ CQM1-CPU4□, CPM1A, CPM2A/C, SRM1, CVM1/CV Series (EV1 or EV2), and C200HX/HG/HE Communications Boards	
		1-to-N NT Link	CJ1□, CS1H, CS1G, C200HX(-Z), C200HG(-Z), C200HE(-Z), and SRM1-EV2 CS1 Communications Unit and CQM1H Communications Board	
		High-speed NT Link	CJ1□, CS1H and CS1G	
		Host Link	CJ1□(-H), CS1□(-H), C200HX(-Z), C200HG(-Z), C200HE(-Z), C200HS-CPU2□, C200HS-CPU3□ and CS1 Communications Units CQM1-CPU4□, CQM1-CPU2□, CPM1A, CPM2A, CPM1C, SRM1, CVM1, CVseries (EV1 or EV2), C-series/CV-series/ CVM1 Host Link Unit	
		Memory Link	Personal Computer, SBC, and Programmable Controller	Personal computer, SBC, or PLC (RS-232C) (See note 5.)
	From Mitsubishi	Mitsubishi FX Series	MELSEC FX1, FX2, FX2C, FXO, and FXON	
		Mitsubishi A-Series (Computer Link Unit)	AOJ2-C214S1, A1SJ71UC24-R2, A1SJ71UC24-R4, and AJ71UC24	
	Allen Bradley (DE1)		SLC 5/02, 03, 04, and 05 (See note 2.)	–
	GE-Fanuc (SNP-X)		90-20 and 90-30 Series (See note 2.)	–
	Siemens (Via HMI Adapter)		S7-300 and S7-400 Series (See note 2.)	–
Language	Japanese		○	
	English		○	
	Simplified Chinese (See notes 3, 4, and 5.)		○	
	Traditional Chinese (See note 3.)		○	–

Note 1: There are some limitations on hosts that can be connected. Refer to the PT manual for details. C200H direct connections can be used with the NT20-ST121 (using the NT20-IF001).
2: The English version of the NT Support Tool must be used.
3: Simplified Chinese is mostly used in mainland China and uses simplified characters. Traditional Chinese is mostly used in Hong Kong and Taiwan and uses traditional characters.
4: Purchase the NT20-ST121(B)-EC to display simplified Chinese on the NT20.
5: A separate system program must be installed in the NT20 to use RS-232C memory links with the NT20. Simplified Chinese is not supported.

Ordering Information

International Standards

- The standards are abbreviated as follows: U: UL, U1: UL (Class I Division 2 Products for Hazardous Locations), C: CSA, UC: cULus, UC1: cULus (Class I Division 2 Products for Hazardous Locations), CU: cUL, N: NK, L: Lloyd, and CE: EC Directives.
- Contact your OMRON representative for further details and applicable conditions for these standards.

Programmable Terminals

Item	Specification		Model	Standards
NT631C	TFT color	Frame color: beige	**NT631C-ST153-EV3**	CU, CE
		Frame color: black	**NT631C-ST153B-EV3**	
NT20	STN monochrome	Frame color: beige	**NT20-ST121-E**	
		Frame color: black	**NT20-ST121B-E**	

Programming Devices

Item	Specification		Model	Standards
Support Software	English	Windows 98, NT, 2000, Me, XP, Vista, or 7. Note: Except for Windows XP 64-bit version. (provided on CD-ROM)	**NT-ZJCAT1-EV4**	–
	Memory Unit for Screen Transfer	NT631C/NT20 (common)	**NT-MF261**	
Cable	For screen transfer	For IBM PC/AT or compatible (2 m)	**XW2Z-S002**	
	Printer	For hardcopies of screens	**NT-CNT121**	

Options

Item	Specification		Model	Standards
Option	DeviceNet Interface Unit		**NT-DRT21**	U, C
	Anti-reflection Sheets (surface only)	NT631C (5 sheets)	**NT610C-KBA04**	–
		NT20 (5 sheets)	**NT20-KBA04**	
	Protective Cover	NT631C (5 sheets) glare	**NT631C-KBA05**	
		NT631C (5 sheets) non-glare	**NT631C-KBA05N**	
		NT20 (5 sheets)	**NT20S-KBA05**	
	Chemical resistant cover (silicon cover)	NT631C	**NT625-KBA01**	
		NT20	**NT20-KBA01**	
	Battery	NT631C/NT20 (common)	**C500-BAT08**	
	Bar-code Reader	Refer to the Catalog for details.	**V520-RH21-6**	
	RS-422A Converter	For NT20 ports A and B	**CJ1W-CIF11**	UC1, N, L, CE
	Interface Attachment	For NT20	**NT20-IF001**	–

Communications Cable between PT and PLC

PT end		PLC end	Cable length	Cable model	Standards
D-sub 9-pin connector	NT631C port A or B NT20 port A or B	D-sub 9-pin connector	2 m	**XW2Z-200T**	–
			5 m	**XW2Z-500T**	
		D-sub 25-pin connector	2 m	**XW2Z-200S**	
			5 m	**XW2Z-500S**	

Specifications NT631C

General Specifications

Item / Model	NT631C-ST153(B)-EV3
Rated power supply voltage	24 VDC
Allowable power supply voltage range	20.4 to 26.4 VDC (24 VDC -15%/+10%)
Power consumption	18 W max.
Ambient operating temperature	0 to 50 °C
Storage temperature	-20 to 60 °C
Ambient operating humidity	35% to 85% (with no condensation)
Ambient operating environment	No corrosive gases
Noise immunity	Conforms to IEC 61000-4-4 at 2 kV (power supply line).
Vibration resistance (during operation)	5 to 9 Hz, single amplitude: 3.5 mm 9 to 150 Hz, 9.8 m/s² 10 times (1 octave/min) each in X, Y, and Z directions
Shock resistance (during operation)	147 m/s², 3 times each in X, Y, and Z directions
Weight	2.5 kg max.
Degree of protection (front panel)	Equivalent to IP65 oil-proof type and NEMA4 (See note.)

Note: The equipment cannot be used for long periods of time in locations which expose the panel to spills of oil.

Display/Panel Specifications

Item / Model			NT631C-ST153(B)-EV3
Display	Display device		Color TFT LCD
	Number of dots (resolution)		640 dots (horizontal) × 480 dots (vertical)
	Effective display area		211 × 158 mm (10.4 inches)
	Display color		8 colors (intermediate colors can be displayed in tiling patterns)
	Service life		50,000 hours (until contrast is reduced by 50%)
	Automatic turn-OFF		1 to 255 minutes/None
Backlight	Service life when brightness is set to high)		50,000 hours min. (See note.)
LED	POWER	Green	Lit while power is being supplied.
	RUN	Green	Lit during operation
		Orange	Lit when the battery voltage is low (when operating)
		Red	Lit when the battery voltage is low (when stopped)

Note: The time until brightness is reduced by half, under normal temperature and normal humidity.

Operation Specifications

Item / Model		NT631C-ST153(B)-EV3
Touch panel	Number of switches	768 (32 × 24)
	Input	Pressure sensitive
	Operating force	1 N max.
	Service life	1,000,000 operations min.

External I/F Specifications

Item / Model		NT631C-ST153(B)-EV3
Serial communications	Serial port A	Conforms to EIA RS-232C. D-sub 9-pin connector (female) +5 V (250 mA max.) output at pin No. 6
	Serial port B	EIA RS-232C, (RS-422A/485 selectable by memory switch setting) RS-232C: D-sub 9-pin connector (female) RS-422A/485: Terminal block (6 terminals)
Parallel I/F		Conforms to Centronics specifications, 20-pin half-pitch connector
Expansion I/F		Dedicated connector

Display Specifications

Item / Model		NT631C-ST153(B)-EV3
Display elements	Character displays (fixed display)	65,535 per screen (including marks)
	Graphic displays	
	Character string displays	Up to 256 per screen (40 bytes (40 characters) per string)
	Numerical displays	256 per screen, max. 10-digit display (2 words)
	Bar graph displays	Up to 50 per screen, percentage display and sign display are possible.
	Analogue meter	Up to 50 per screen, percentage display and sign display are possible.
	Trend graphs	One frame per screen, 50 graphs per frame (only 8 graphs per frame with data logging)
	Broken line graphs	One frame per screen, 256 graphs per frame, 512 points per graph
	Lamps	Up to 256 per screen
	Image library displays	Up to 256 per screen
	Touch switches	Up to 256 per screen, Max. overlap: 256 mesh
	Numeral inputs	Up to 256 per screen
	Thumbwheel switches	
	Character string inputs	Up to 256 per screen
	Alarm lists	Up to 4 groups per screen
	Alarm histories	
Screen types	Normal screen	The normal screen display
	Overlapping screens	A maximum of 8 registered screens can be displayed overlapped with each other.
	Window screens	Up to 3 screens (2 local windows and 1 global window) can be displayed at the same time.
	Display history screens	Order of occurrence (max. 1,024 screens), order of frequency (max. 255 times)
Screen attributes		Buzzer, display history, background color, backlight, keyboard screen number
Number of screens	Max. number of registered screens	3,999 screens
	Screen No.	0: No display 1 to 3999: User-registered screens 9000: "Initializing system" screen 9001: Display history (occurrence order) screen 9002: Display history (frequency order) screen 9020: Programming Console function screen 9999: Return to the previous screen 9021 to 9023: Device monitor
Screen registration method		By transmitting screen data created using the Support Tool to the NT631C By transmitting screen data stored in a memory unit to the NT631C
Screen saving method		Flash memory (screen data memory in the PT)

Display Element Specifications

Item / Model	NT631C-ST153(B)-EV3
Display characters	Half-size characters (8 x 8 dots): Alphanumerics and symbols Normal-size characters (8 x 16 dots): Alphanumerics and symbols Mark data (16 x 16 dots): User defined picture characters
Enlargement function	Normal size, double width, double height, and magnifications of 4X, 9X, 16X, 64X
Smoothing processing	Available for enlarged characters with magnification of 4X or greater (excluding marks)
Character display attribute	Normal, reverse, flashing, reverse and flashing, transparent
Image data	Variable-size pictograph Size: Min. 8 × 8 dots, Max. 640 × 480 dots The size can be set in 8-dot units. It is not possible to set enlarged display, smoothing processing, or display attributes such as reverse/flashing.
Library data	Combination of any characters and graphics Size: Min. 1 × 1 dots, Max. 640 × 480 dots Any size can be set. Enlarged display, smoothing processing, and display attributes such as reverse/flashing are displayed according to the setting registered.
Graphics	Polyline, circle, arc, fan, square, polygon
Line type	Solid line, dotted line, alternate long and short dash, long and two short dashes (only polylines for other than solid lines)
Tilling	10 types
Graphic display attribute	Normal, flashing, reverse, reverse flashing
Display colors	8 colors (black/blue/red/purple/green/light blue/yellow/white)

Data Capacities

Item / Model	NT631C-ST153(B)-EV3
Screen data capacity	1 MB
Numeric memory table	2 words x up to 2,000 (1,000 tables can be backed up with battery)
Character string memory table	40 normal-size characters x up to 2,000 (Data can be written to and read from 500 tables)
Bit memory table	1 bit × 1,000
Mark data	224 (16-by-16-dot basis)
Image data	4,095 items
Library data	12,288 items

Specifications NT20

General Specifications

Item / Model	NT20-ST121(B)/128(B)
Rated power supply voltage	24 VDC
Allowable power supply voltage range	20.4 to 27.6 VDC (24 VDC -15%/+10%)
Allowable power interruption time	Not specified
Power consumption	10 W max.
Ambient operating temperature	0 to 50 °C (See note 1.) (with no condensation)
Storage temperature	-20 to 70 °C
Ambient operating humidity	35% to 85 % (0 to 40 °C) 35% to 50 % (40 to 50 °C) (with no condensation)
Ambient storage humidity	35% to 85 % (-20 to 40 °C) 35% to 50 % (40 to 50 °C) 35% to 45 % (50 to 70 °C) (with no condensation)
Ambient operating environment	No corrosive gases
Noise immunity	Conforms to IEC 61000-4-4 at 2 kV (power supply line).
Vibration resistance (during operation)	5 to 9 Hz, single amplitude: 3.5 mm 9 to 150 Hz, 9.8 m/s² 10 times (1 octave/min) each in X, Y, and Z directions
Shock resistance (during operation)	147 m/s² , 3 times each in X, Y, and Z directions
Dimensions	190 × 108 × 53.5 mm (W × H × D)
Panel cutout dimensions	178.5 + 0.50 × 98.5 + 0.50 mm (horizontal × vertical) Panel thickness: 1.6 to 4.8 mm
Weight	0.7 kg max.
Degree of protection	Front panel operating section: Equivalent to IP65 oil-proof type and NEMA 4. (See note 2.)
Applicable standards	UL 1604 Class 1 Division 2, EC Directives

Note 1: The display quality (e.g., contrast) will deteriorate at temperatures above 40°C. At low temperatures, the response speed will be reduced due to the characteristics of liquid crystal.
2: The NT631/NT31/NT20 may not be able to be used in locations subject to long-term oil exposure.

Display/Panel Specifications

Item		Specifications
Display (See note 1.)	Display device	Monochrome STN LCD
	Number of dots (resolution)	140 (128) × 260 (256) dots (horizontal × vertical) Dot size: 0.42 mm The number of dots that can be used in NT20 system programs is indicated in parentheses.
	Effective display area	66 (57.6) × 120 (115.2) mm (horizontal × vertical) The effective display area that can be used with NT20 system programs is indicated in parentheses.
	Display mode	Blue mode
	Service life	50,000 hours min.
	Contrast adjustment	The contrast can be adjusted from the back of the PT.
Backlight	Service life	50,000 hours min. (See note 2.)
	Replacement	Cannot be replaced.
	Brightness adjustment	Cannot be set.
	Automatic turn-OFF	Can be set to either 10 minutes, 1 hour, or lit.
Front-panel indicator LED	RUN	Lit green: Normal operation with Memory Unit automatic transfer completed. Flashing green: Executing Memory Unit automatic transfer or automatic transfer error.

Note: 1: There are sometimes faulty in the touch panel, but this does not indicate an error as long as the number of bright or dark pixels does not exceed the following limits.
4 total bright or dark defects maximum of the following size with no more than one per 20-mm square: 0.2 mm < (short dia. + long dia.)/2 < 0.55 mm
2: This time is only a guide to the half-life of luminescence at room temperature and standard humidity.
The service life will be dramatically reduced in low-temperature environments. For example, the service life at 0°C or less is approximately 10,000 hours (reference value).

Operation Specifications

Item	Specifications
Touch panel	Number of switches: Up to 72 registered per screen (12 × 6 (horizontal × vertical))
	Switch size: 9.14 × 9.18 mm (horizontal × vertical)
	Input: Pressure sensitive
	Operating force: 1 N max.
	Service life: 1,000,000 operations min.

External I/F Specifications

Item / Model		NT20-ST121(B)
Serial communications	Serial port A	Conforms to EIA RS-232C. D-sub 9-pin connector (female) +5 V (150 mA max.) output at pin No. 6 The +5 V output, however, cannot be used simultaneously at ports A and B.
	Serial port B	EIA RS-232C D-sub 9-pin connector (female) +5 V (150 mA max.) output at pin No. 6 The +5 V output, however, cannot be used simultaneously at ports A and B.
Expansion I/F		Dedicated connector

Display Specifications

Item		Specifications	
		Host Link, NT Link, or C200H Direct Communications	Memory Link (RS-232C) Communications
Display elements	Display characters	Fixed displays (character strings registered for each screen)	
	Character string displays	32 per screen	128 per file, 32 per screen
	Numeric displays (See note.)	50 per screen max., 8-digit display	
	Bar graph displays (See note.)	50 per screen	
	Graphic displays	Any position	
	Lamps	128 per screen	256 max. per file
	Touch switches	72 per screen	256 max. per file
	Numeral settings	Numeral setting display (8 digits), 50 per screen	
Screen types	Normal screen	The normal screen display	
	Overlapping screens	A maximum of 8 registered screens can be displayed overlapped with each other.	
	Continuous screens	Switch among up to 8 screens (Use ↑ and ↓ touch switch keys to switch screens.)	
Screen attributes		Buzzer, numeral settings, backlight	Buzzer, numeral settings, backlight, bit inputs
Number of screens		495 screens max.	
Screen registration method		By transmitting screen data created using the Support Tool to the NT20 By transmitting screen data stored in a Memory Unit to the NT20 (automatic/manual)	
Screen saving method (image data memory)		Flash memory (specific NT20 format)	

Note: No. of numeral table entries that can be used (No. of numeral displays used + No. of graphs used + No. of numeral settings) ≤128

Display Element Specifications

Item	Specifications
Display characters	Half-size characters (8 × 8 dots): Alphanumerics and symbols
	Normal-size characters (8 × 16 dots): Alphanumerics and symbols
	Mark data (16 × 16 dots): User defined picture characters
Enlargement function	Double width, double height, and magnifications 4X, 9X, 16X
Smoothing processing	Available for enlarged characters with magnification of 4X or greater
Character display attribute	Normal, reverse, flashing, reverse and flashing
Graphics	Polylines, circles

Data Capacities

Item	Specifications	
	Host Link, NT Link, or C200H Direct Communications	Memory Link (RS-232C) Communications
Character strings	32 characters × 128	
Numeral data	8 digits × 128	
Mark data	64	
Touch switches	No limit	256 per file max.
Lamps	No limit	256 per file max.

Differences between the NT20, NT20S, and NT20M

Function	NT20M-DT131	NT20S	NT20
Communications	A host interface unit is needed.	• NT20S-ST121-V3: Built-in Host Link/NT Link • NT20S-ST122-V1: Built-in C200H Direct Communications • NT20S-ST128: Built-in Memory Link (RS-232C) (Other host interface units cannot be connected.)	System programs can be downloaded using the System Installer. • Host Link, NT Link, C200H Direct, and Mitsubishi Communications pre-installed: NT20-ST121 • Memory Link (RS-232C) is provided with a different system program.
Communications connectors	Connector on front panel for connection to Support Software (9-pin) and connector on rear panel for connection to host	• NT20S-ST121-V3/ST128: Connector (9 pin) for either Support Software or host • NT20S-ST122-V1: Connectors on rear panel for Support Software (9-pin) and host	Two communications connector ports (9-pin) on rear panel Port A: For either Support Software or host communications Port B: For host communications only
Host RUN input terminal/ Alarm output terminal	Yes	No	No
System keys	Yes	No	No
Contrast adjustment	Front panel	Rear panel	Rear panel
Expansion I/O Unit	Possible with DN type	Not possible	Not possible
Water resistance	Equivalent to IP54.	Equivalent to IP65.	Equivalent to IP65.
Allowable power interruption time	5 ms	Not specified	Not specified
System ROM	A system ROM compatible with the host interface unit is required.	Built in (cannot be replaced)	Built in (cannot be replaced)
Resume function	Yes	No	No
History holding function	Yes	No	No
Screen data compatibility	No	Yes (See note.)	Yes
PLC ladder program compatibility	No	Yes	Yes
LCD life	50,000 hours min.	50,000 hours min.	50,000 hours min.
Backlight life (luminescence half life)	10,000 hours (replaceable)	10,000 hours (replaceable)	50,000 hours (replacement not required)
Image data memory	Sold separately (select EPROM, SRAM, or EEPROM)	Built in (flash memory)	Built in (flash memory)
Image data memory capacity	128 KB max.	96 KB	512 KB
Dimensions	220 × 110 × 82 mm	190 × 110 × 58 mm	190 × 108 × 53.5 mm (with no host interface)
Panel cutout	209 × 98.5 mm	178.50 × 100.5 mm	178.5 × 98.5 mm

Note: If screens require continuous screens, numeral settings, buzzer stop, or other system key functions, touch switches with the system key functions must be set for each screen using the Support Software. For details, refer to the *NT20S Programmable Terminal User's Manual* (Cat. No. V020).

System Program Transfer

By transferring a new system program, functions and performance can be updated without changing hardware.

1) The compatible combinations of NT631 models and system program versions are shown in the table.

   ◎: Indicates the preinstalled default combination of versions (recommended).
   ○: Indicates combinations of versions that can be transferred for operation.
   △: Indicates combinations of versions that can be transferred but for which some functions are restricted during operation (e.g., high-quality character display).
   ×: Indicates combinations of versions that cannot be transferred.

2) NT631 system program version 4.x can be transferred only with System Installer V2, which is available on the CD for NT Series Support Software version 4.08 or higher. Only system programs up to version 3.x can be transferred with older versions of the System Installer.

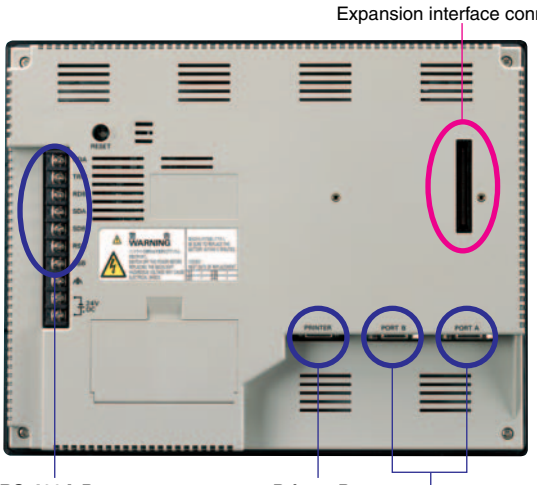
3) The NT20 system program can be transferred only with System Installer V2.1, which is available on the CD for NT Series Support Software version 4.8 or higher. It cannot be transferred with lower versions of the System Installer.

PT / System (See note.)	Pre-V1	-V1	-V2	-V3
Ver. 1.x	◎	○	○	×
Ver. 2.x	△	◎	○	×
Ver. 3.x	△	○	◎	×
Ver. 4.x	×	×	×	◎

Note: The system version is shown in the System Installer program under "Ver."

External Interface

NT631C

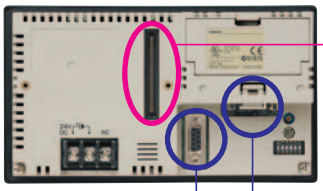


RS-422A Port
Ensures 1-to-N RS-422A or RS-485 communications, as well as long-distance communications.

Printer Port

RS-232C Port
The NT631 has two RS-232C ports that can be connected directly to bar-code readers for POP system construction. These two ports can be used simultaneously for the Support Software and host, to greatly improve debugging and maintenance efficiency.

NT20



RS-232C port
(used for both Support Software and host)

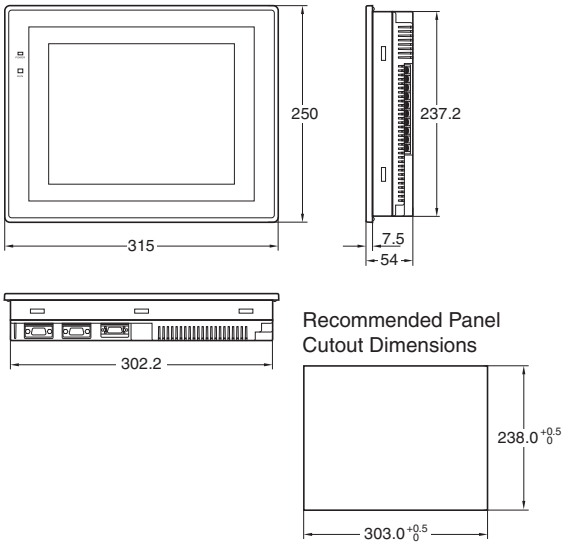
RS-232C port
(host communications only)

Debugging and maintenance is more efficient using two ports.

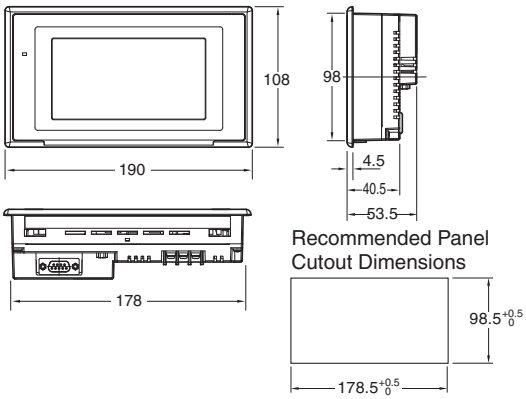
Dimensions

(Unit: mm)

NT631C



NT20



Related Manuals

Cat. No	Model	Name
V062	NT31, NT31C ✻	NT31 and NT31C Programmable Terminals Setup Manual
V063	NT631, NT631C	NT631 and NT631C Programmable Terminals Setup Manual
V069	NT21, NT31 ✻, NT631	NT21, NT31, and NT631 Series Programmable Terminals Reference Manual
V091	NT20	NT20 NT-series Programmable Terminal User's Manual
V061	NT-ZJCAT1-EV4	NT-ZJCAT1-EV4 NT-SERIES SUPPORT TOOL FOR WINDOWS VER.4.□ OPERATION MANUAL
V066	NT-DRT21	DeviceNet (CompoBus/D) Interface Unit OPERATION MANUAL

✻ NT31 and NT31C have been discontinued at the end of March 2014.

Terms and Conditions Agreement

Read and understand this catalog.
Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

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Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

Suitability of Use.
Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.
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 thereof.

Performance Data.
Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

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.

2014.4

In the interest of product improvement, specifications are subject to change without notice.

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