

■ General Specifications

Item	Specification
Power supply voltage	24 VDC ±15%
Power consumption	7 W max.
Noise resistance	Conforms to IEC61000-4-4. Power supply line: 2 kV
Vibration resistance	10 to 57 Hz with 0.075-mm single amplitude, 57 to 150 Hz with 9.8 m/s ² acceleration, for a total of 60 min in X, Y, and Z directions
Shock resistance	Peak acceleration 15 G, 3 times each in X, Y, and Z directions
Ambient operating temperature	0 to 50°C (with no icing)
Storage temperature	-20 to +70°C (with no icing)
Ambient operating humidity	35% to 85% (with no condensation)(0 to 40°C) 35% to 55% (with no condensation)(40 to 50°C)
Dimensions	190 x 110 x 53.5 mm (W x H x D) (thickness inside panel: 49.0 mm)
Enclosure ratings	Front panel operating section: Equivalent to IP65F, NEMA 4.*
Weight	0.6 kg max.

*Usage may not be possible in places where the unit would be exposed to oil for long periods.

■ Display Capacity

Item	Specification	
Display elements	Character displays	A total of 65,535 per screen With overlapping screens, the total is 524,280 per screen
	Fixed character data	Continuous straight lines, rectangles, circles, polygons, arcs, sectors
	Graphics	
	Marks	
	Numerical displays	256 positions per screen, max. 10-digit display (2 words)
	Character string displays	256 positions per screen, max. 1,024 display elements for overlapping screens
	Graph displays	50 positions per screen, capable of displaying signs and percentages
	Analog meters	50 positions per screen, capable of displaying signs and percentages
	Trend graphs	One frame per screen, 50 items per frame (8 items max. for data logging)
	Broken line graphs	One frame per screen, 256 items per frame, 260 points per item
	Lamps	256 positions per screen
	Image library images	256 positions per screen
Screen types	Touch switches	256 positions per screen, max. 256 meshes
	Numerical settings *1	256 positions per screen (numerical key pad) Total of 256 positions for both numerical and thumbwheel settings
	Thumbwheel settings	26 positions per screen
	Character string settings	256 positions per screen
	Temporary inputs	One position per screen
	Alarm lists/histories	Four groups per screen
	Recipes	One position per screen
	Normal screens	Displays screens registered as normal
	Overlapping screens	A maximum of eight screens can be displayed overlapping each other.
	Windows	Up to three window screens can be displayed.
	Display history screens	Order of occurrence (1,024 screens max.), order of frequency (255 times max.)
	System startup screen	Displayed when powering ON (or resetting) the PT, and when switching to RUN mode.
Programming Console screen	Emulates PLC Programming Console functions, capable of being called from RUN mode.	
Screen attributes	Buzzer, display history, normal background colors, backlight mode, local windows	
Number of screens	Max. number of registered screens	3,999
	Screen number	0: No display 1 to 3999: User registered screens (normal, overlapping, windows) 9000: System startup screen 9001: Display history screens, order of occurrence 9002: Display history screens, order of frequency 9020: Programming Console screen 9021 to 9023, 9030: Reserved 9999: Return to previous screen designation
Screen registration method	By transferring screen data from the NT Support Tool to the PT via serial communications By mounting the Memory Unit and downloading (automatic/manual transfer) data to the PT	
Saving screen data	Flash memory (PT internal image memory)	

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■ Display Specifications

Item	Specification	
Display panel	Display device	Monochrome STN LCD
	Number of dots (resolution)	260 dots horizontally x 140 dots vertically
	Effective display area	117 mm horizontally x 63 mm vertically
	Viewing angle	Left/right direction: 30°, up/down: 30°
	Display color	Black & white (with blue mode)
	Service life	50,000 hours min. (until contrast reduced to 50%)
Backlight (white cold cathode tube)	Automatic turn-OFF	Can be set to turn OFF in 1 to 255 min or to remain ON with screen saver
	Service life	50,000 hours min. (at room temperature, until brightness is reduced to 50%)
Replacement	Non-replaceable	

■ Panel Specifications

Item	Specification	
Touch panel	Number of switches	91 (13 horizontally x 7 vertically)
	Input	Pressure-sensitive
	Threshold force for operation	1 N max.
	Life expectancy	1 million operations min.

■ External Interface Specifications

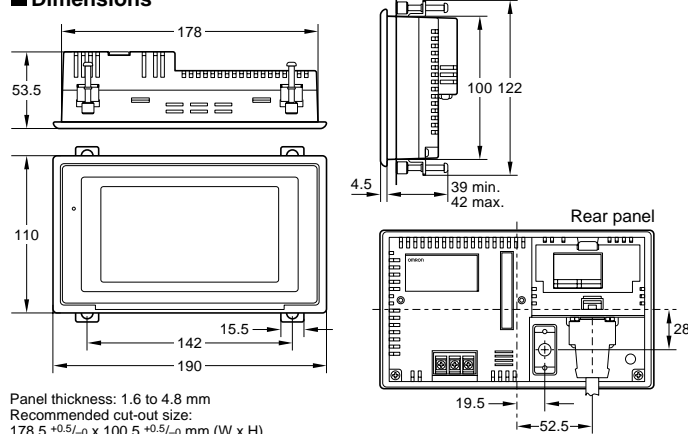
Communications method	Serial port A	Serial port B
NT Support Tool	Supported	Not supported
PLC	Host Link	Supported
	1:1 NT Link	Supported
	1:N NT Links	Supported
	NT Link, PT Programming Console function	Supported
SBC/personal computer	Memory Links	Supported
Bar Code Reader	Supported	Not supported

*Connection via RS-422A/485 is possible using the NS-AL002 RS-232C/422A Adapter (connector), which can be connected only to serial port B. (RS-485 connections must use 1:N NT Links.)

■ NT21 Standard Models

Product	Specifications	Model number	
NT21 Programmable Terminal	Monochrome STN	Frame color: beige NT21-ST121-E Frame color: black NT21-ST121B-E	
	Support Tool	Windows 95, 98, Me, NT, or 2000 CD-ROM NT-ZJCAT1-EV4	
Cables	For screen transfer	XW2Z-S002	
	For PLC connection	PT: 9-pin PLC: 9-pin	Cable length: 2 m XW2Z-200T
		PT: 9-pin PLC: 9-pin	Cable length: 5 m XW2Z-500T
		PT: 9-pin PLC: 25-pin	Cable length: 2 m XW2Z-200S
		PT: 9-pin PLC: 25-pin	Cable length: 5 m XW2Z-500S
		PT: 9-pin PLC: Mini-peripheral	Cable length: 2 m XW2Z-200T-2
PT: 9-pin PLC: Mini-peripheral		Cable length: 5 m XW2Z-500T-2	
Options	Reflection Protective Sheets	Display area only (5 sheets) NT20M-KBA04	
	Chemical-resistive Cover	Silicon cover NT20S-KBA01	
	Battery	For alarm lists/histories C500-BAT08	
	Memory Unit	For screen and system data transfer NT-MF161	
	RS-232C/422A Adapter	NS-AL002	
Connector Kit	XM2S-0911-S003		

■ Dimensions



Panel thickness: 1.6 to 4.8 mm
Recommended cut-out size:
178.5 +0.5/-0 x 100.5 +0.5/-0 mm (W x H)

Authorized Distributor:

Programmable Terminals

NT21

Small and Smart



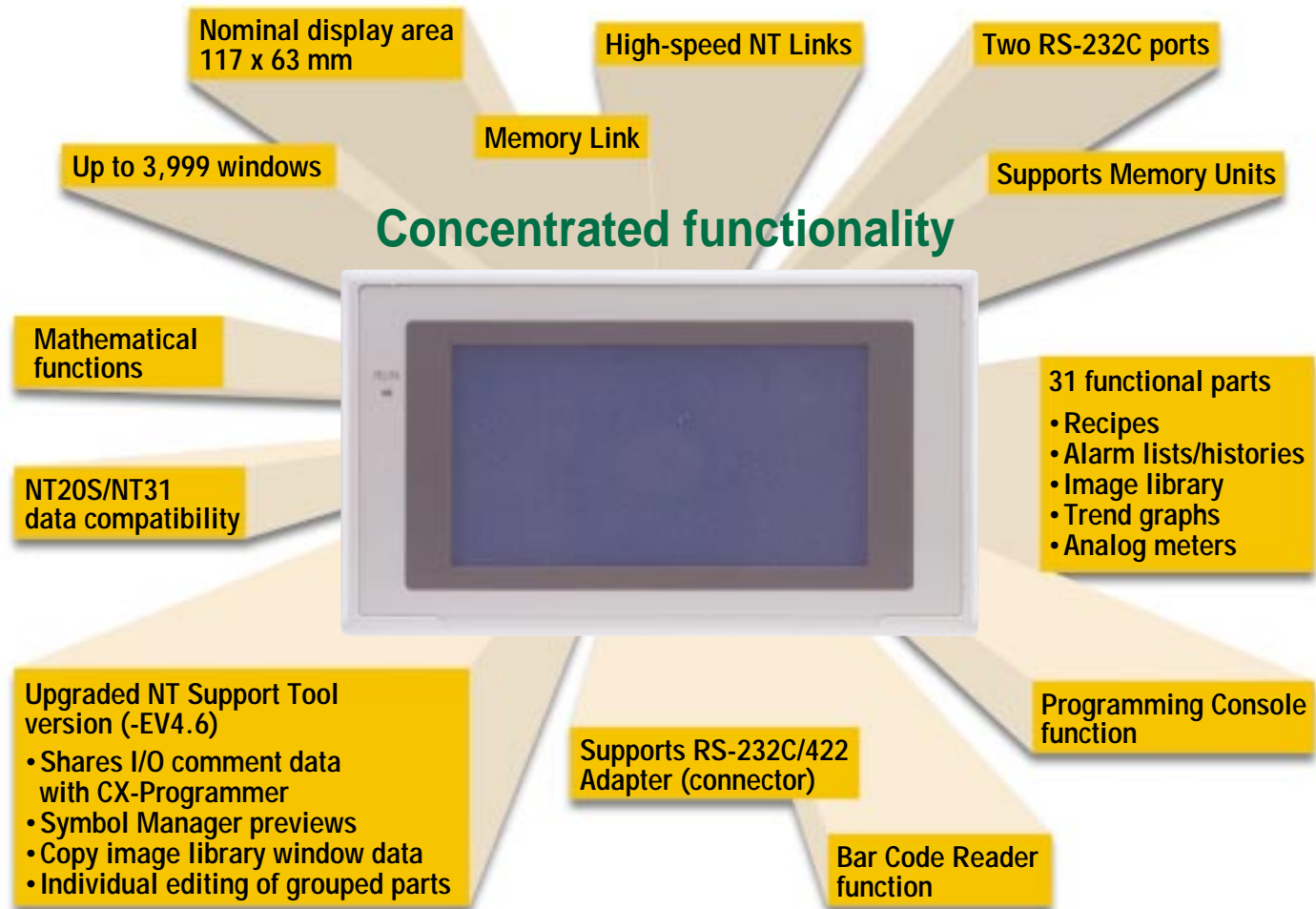
PT

Programmable Terminal

Small and Smart

Compact Size, High Performance

Superb functionality with a compact screen size



Versatile I/O and Large-capacity Screen Memory in a Space-saving Size

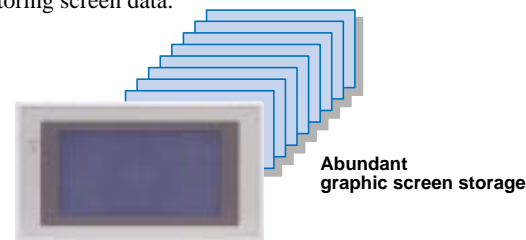
Small Size, Large Screen

The LCD screen is larger than the OMRON NT20S (increased from 256 x 128 dots to 260 x 140 dots), but the external dimensions and panel cut-out size are the same.



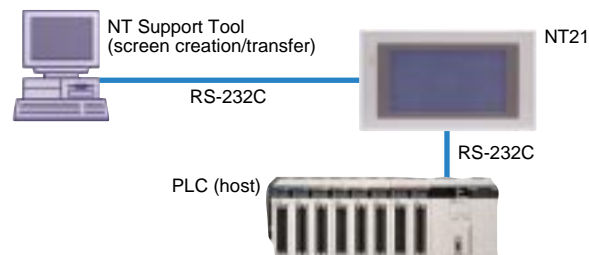
Plenty of Capacity for Saving Graphic Screens

With 512 Kbytes of memory capacity, there is more than ample space for storing screen data.



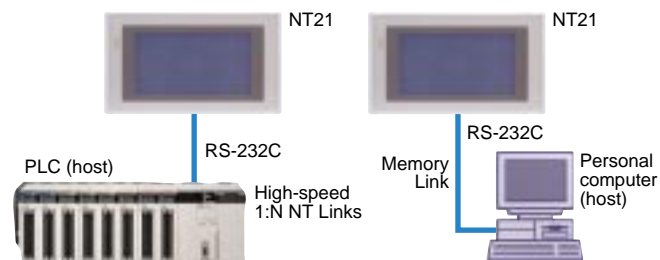
Two RS-232C Ports

Two RS-232C ports in the NT21 (compared with one in the NT20S) enable simultaneous connection of a PLC, Bar Code Reader, and NT Support Tool (connectable to serial port A only).



Versatile Communications

In addition to the Host Link and 1:1 NT Link communications, the NT21 supports high-speed 1:N NT Links and Memory Link communications.



Function Support Equivalent to That of a Mid-size Operator Interface

Recipe Function

Parts tables on the PT screen can be used to set multiple word data in records, which can then be written to the PLC by a simple PT touch panel operation. For example, the setting parameters for separate models can be edited on the PT, then written to or read from the PLC.

No.	Cake	Cream	Sugar	Egg
1	Cheese	1000	300	20
2	Almond	300	200	10
3	Pound	1000	200	10
4	Carrot	800	150	10
5	Apple	500	300	5
Write		Read		

Alarm List/History(*)

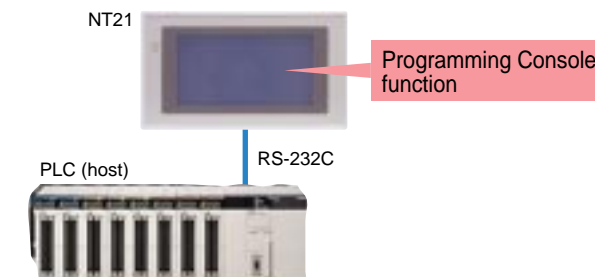
An alarm message can be displayed in response to PLC bit status, and the content and time of the message can be stored as an alarm history.

Alarm History		Menu
order of occurrence		Reset
Cur. Time	01/09/17 17:24:08	
Battery Error	01/09/17 14:20	▲
Sensor Error	01/09/14 16:15	▲
Feed Error	01/09/12 10:05	▼
Pump Error	01/09/11 11:48	▼

*C500-BAT08 Battery (sold separately) required.

Programming Console Function

The NT21 is equipped with many of the same functions as the SYSMAC PLC Programming Console.



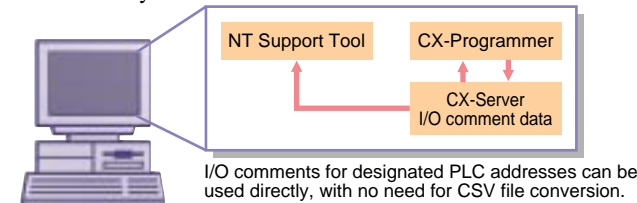
Mathematical Functions

Up to 256 math equations can be stored in the PT processing table to allow automatic PT processing, and the results can be written to the numeral memory table or other destinations. This makes it possible to perform scaling and other mathematical operations automatically in the PT.

Upgraded NT Support Tool Version (-EV4.6)

Enhanced Editing Functions

I/O comments in the I/O tables of the CX-Programmer can be used directly.



•Symbol Manager previews are supported. This function makes it possible to preview symbols (parts created from graphics data).



•Parts can be copied by drag & drop operations of image, library, or mark data.

•The properties of grouped parts can be edited without having to ungroup them.

•Because NT20S and NT31 screen data is compatible with the NT21, existing software assets can be utilized to greatly reduce the number of design steps.

Note: Some data revisions may be required due to size differences.

Highly Reliable Hardware

Long, Maintenance-Free Life (50,000 h)

Conforms to International Standards

The NT21 conforms to the EC Directives, as well as UL, cULus (Class 1 Div2), and C-Tick. The front panel has an enclosure rating equivalent to IP65F.

System and screen data can be stored in NT21 Flash Memory.

Comparison with the NT20S

Model	NT21	NT20S (Previous model)	
Basic functions	Dimensions	190 (W) x 110 (H) x 53.5 (D) mm	
	Resolution	260 x 140 dots (5.2 inches)	256 x 128 dots (4.91 inches)
	Effective display area	117 x 63 mm	112 x 56 mm
	Display color	Black & white (with blue mode)	
	Panel cut-out size (W x H)	178.5 x 100.5 mm	
	Max. number of registered screens	3999	500
	Screen data capacity	512KB	96KB
	Bit memory table	Supported (1,000 entries)	None
	Windows	Supported (3)	None
	Display elements	Rectangles, polygons, arcs, sectors	Supported
Painting out		Supported	None
Image/library displays		256 positions per screen	None
Analog meters		50 positions per screen	None
Trend graphs		1 position per screen	None
Broken line graphs		1 position per screen	None
Alarm lists/histories		4 positions per screen Note: An optional battery is required.	None
Recipes		1 position per screen	None
Additional functions	Interlocks	Supported	None
	Mathematical Function	Math equations: Max. 256 (arithmetic functions, logic operations, bit manipulations, comparison operations)	None
	Programming Console function	(Executes functions equivalent to C200H-PR027 and CS1 Programming Consoles.)	None
	High-quality font	Supported	None
	Memory Unit	Supported	None
Communications	Backlight service life	50,000 hours min.	10,000 hours min.
	Memory Links	Supported	Via RS-232C communications
	Bar Code Reader connection	Supported	None
RS-232C ports	2 ports	1 port	