

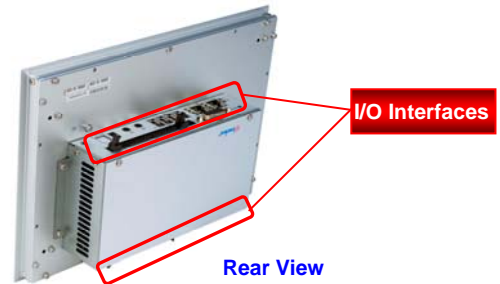
## I/O Touch Panel Industrial Computer Atom N2800 Model



Standard Touch Panel



Touch Panel with Key Switch



Rear View

I/O Interfaces

### Applications

- Train operator instruction display panel
- Traffic control center console terminal
- Rail inspection equipment display & control terminal
- NC machine tool control display & operation
- EV rapid battery charger voltage control & operation terminal
- Measurement control system using I/O interfaces

### Overview

The I/O Touch Panel Industrial Computer is Touch Panel Industrial Computer with I/O interfaces. The small all-in-one I/O Touch Panel Industrial Computer Intel Atom N2800 model boasts film/glass or glass/glass resistive touch panel which allows the users to control the product with their gloves on. The feature is suitable for instruction terminal in production line. With rich interfaces including 5 USB ports, audio I/O, LAN, serial ports, and digital I/O, it is also applicable to digital signage.

### Features

- [Intel Atom N2800 Dual Core \(1.86 GHz\)](#)  
The processor features high performance with low power consumption and high cost performance.
- [Small form factor and high durability](#)  
The film/glass or glass/glass resistive touch panel allows the user to control the product with their gloves on. The feature is suitable for instruction terminal in production line. The small and robust computer and flat touch panel are ideal for embedded systems.
- [Zero Spindle](#)  
Booting up from CF drive, the fan less design achieves silent operation and low maintenance. (except HDD model)
- [Two Drive Composition](#)  
CFast 2 slots can divide OS and data drives.
- [Operating System](#)  
Windows 7 Professional for Embedded Systems (32 bits), Windows Embedded Standard 7 (32 bits), and Interface Linux System (32 bits) can be selected.
- [Wake On LAN](#)  
The system can be turned on from another computer on the same local area network.
- [Faster Process Speed and Disk Protection](#)  
Windows model incorporates EWF (Enhanced Write Filter) which improves disk speed and disk protection. EWF can be easily configured with utilities provided by Interface Corporation.
- [Quick Boot](#)  
In Windows Embedded Standard and Windows XP Embedded, the operating system boots up quickly with Hibernate Once Resume Many (HORM). In Linux, quick boot is also available with the hibernate function of the operating system.
- [Key switches](#)  
Frequently used functions can be assigned to the key switches for convenient & faster operations (key switch type only)
- [High brightness display \(high-brightness model only\)](#)  
Applying the high brightness display, the product improves the level of outdoor visibility. The brightness level is software adjustable on the scale of 0 to 255.
- [Brightness Sensor \(Key switch type only\)](#)  
The ambient light sensor detects ambient brightness and adjusts brightness level automatically according to operating conditions.

## Specifications

Model		Standard model			High-brightness model	
Type	Standard	TIO-NxxxxAE <sup>*1</sup>	TIO-NxxxxCE <sup>*1</sup>	TIO-NxxxxFE <sup>*1</sup>	TIO-NxxxxCyyy <sup>*1</sup>	TIO-NxxxxFyyy <sup>*1</sup>
Panel	LCD Size	10.4 inches	12.1 inches	15 inches	12.1 inches	15 inches
	Visual Field	Right to left: +/-80°, up: +80°, down: +80°			Right to left: +/-80°, up: +60°, down: +80°	
	Brightness Sensor	Yes (Key switch type only)				
	Contrast Ratio	1 : 900 (typ.)	1 : 1000 (typ.)	1 : 800 (typ.)	1 : 600 (typ.)	1 : 800 (typ.)
	Touch Sensor Method	4-wire resistive glass/glass method		4-wire resistive film/glass method		
	Luminance Level	360 cd/m <sup>2</sup> (typ.)	400 cd/m <sup>2</sup> (typ.)	315 cd/m <sup>2</sup> (typ.)	900 cd/m <sup>2</sup> (typ.)	720 cd/m <sup>2</sup> (typ.)
	Luminance Level Adjustment	Software programmable from 0 through 255				
	Touch Sensor Surface Finish	Glare, anti-finger	Anti-glare			
	Resolutions	10 bits 1024 x 1024				
	Environmental Protection	IP54 or equivalent (screen part only), UV protection sheet				
	Durability	Stylus pen: 100,000 times (min.) Finger: 1,000,000 times (min.)		Stylus pen: 100,000 times (min.) Finger: 10,000,000 times (min.)		
	Back Light	LED (lifetime: 70,000 hours or longer at 25 degrees C until the brightness decreases to 50 % of the initial value)		LED (lifetime: 50,000 hours or longer at 25 degrees C until the brightness decreases to 50 % of the initial value)	LED (lifetime: 100,000 hours or longer at 25 degrees C until the brightness decreases to 50 % of the initial value)	
Graphics	Controller	Built into processor				
	Resolution	SVGA 800 × 600 *		XGA 1024 × 768	XGA 1024×768	XGA 1024×768
	Display Color	16,200,000 colors (max.)		16,190,000 colors (max.)	16,770,000 colors (max.)	
	Method	TFT color liquid crystal				
	Aspect Ratio	4 : 3				
Dimensions (W x D x H)[mm]		Standard: 271.3×69×208.9 With key switch: 280×69×208.9	Standard: 306×69×233.9 With key switch: 318.2×69×233.9	Standard: 369×69×279 With key switch: 388×69×279	Standard: 306×69×233.9 With key switch: 318.2×69×233.9	Standard: 369×69×279 With key switch: 388×69×279
CPU	Processor	Intel Atom Processor Atom N2800 1.86 GHz				
Chip Set		Intel NM10				
Main Memory		1 GB/2GB : DDR3-1066				
BIOS/Loader		Phoenix SecureCore Tiano				
Calendar Clock Backup Battery		Large capacity battery (typical life time: 10 years) BR-1/2AA (Panasonic Corporation)				
OS		Windows 7 Professional for Embedded Systems SP1(32bit), Windows Embedded Standard 7 SP1(32bit), Interface Linux System(32bit)				
Boot Device		CFast 8 GB/ 16 GB				
Auxiliary Device		CFast slot × 1 (empty) /4 GB/ 8 GB/ 16 GB * HDD500 GB/ HDD 1 TB/ SSD 8 GB are also available.				
Interfaces	Display	LVDS × 1 (20 pins) (Touch panel connected)				
	Audio	Realtek ALC898 Line output × 1 (stereo φ3.5 mini jack), Line input × 1 (stereo φ3.5 mini jack) Microphone input × 1 (stereo φ3.5 mini jack)				
	LAN	RJ-45 connector × 2 (1 Gaps) Intel WG82574IT controller 1000BASE-T, Wake On LAN, Jumbo Frame compatible				
	USB	USB Rev.2.0 Series A connector × 5				
	RS-232C	1 port (9-pin D-sub connector) <sup>*2</sup>				
	RS-485	1 port (15-pin D-sub connector) <sup>*2</sup>				
	I/O Part	I/O Interfaces are selectable. See "I/O Interface Combination List" below.				
	CFast Slot	2 slots (One slot is used for the system and the other for data.)				
	External Input/Output	4-pin header connector (e-con), power on/off × 1, RAS output × 1				
	Digital Input/Output	16-pin flat cable connector, Isolated digital input × 4 (with interrupt function), normally-open relay contact output × 4				
	Switch	Power switch				
	RAS	Watchdog Timer	Software programmable (1 to 255 seconds) Time-up notification is software selectable either reset or interruption			
Hardware Monitoring		CPU temperature/board temperature/power supply voltage				
RAS Output		Output format: relay 1a contact output × 1, output condition is software selectable. (watchdog timer, CPU temperature, board temperature, power voltage)				

<b>Power</b>	<b>Input Voltage</b>	Rated voltage: +7 Vdc to +27 Vdc (continuous operation) Maximum rated voltage: +6 Vdc to +36 Vdc
	<b>Power Consumption</b>	T.B.D
	<b>Power Supply for External Device</b>	USB I/F: 5 V, maximum supply current 1 A per port, total amount of all ports: 1A (max.)
<b>Weight</b>	T.B.D	
<b>Operating Temperature</b>	Temperature: 0 degrees C to +50 degrees C Humidity: 10 % to 85 % (ambient temperature is lower than 40 degrees C.) (non-condensing) <sup>*3</sup>	
<b>Storage Temperature/ Humidity</b>	Temperature: -20 degrees C to 70 degrees C Humidity: 10 % to 85 % (ambient temperature is lower than 40 degrees C.) (non-condensing) <sup>*3</sup>	
<b>Shock Resistance</b>	10 G (max.) Duration 11 ms (not operating)	

<sup>\*1</sup> Put the four digits of I/O interface's part number in xxxx. The yyy differs depending on the OS and model.

<sup>\*2</sup> Selectable transfer rates in RS-232C and RS-485 are as follows.

75, 110, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9,600, 14,400, 19,200, 38,400, 57600, 115200 [bps]

<sup>\*3</sup> If an ambient temperature is 40 degrees C or higher, use the product under the following conditions for an absolute humidity.  
Ambient temperature: less than or equal to 40 degrees C, Relative humidity: Less than or equal to 85%

## Configuration Selections

System configurations are selectable depending on your requirement.

<b>Model</b>	I/O Touch Panel Industrial Computer Atom N2800 Model			
<b>CPU</b>	Atom N2800 1.86GHz			
<b>I/O Type</b>	See "I/O Interface Combination List" below.			
<b>Memory</b>	<input type="checkbox"/> 1 GB	<input type="checkbox"/> 2 GB		
<b>Display</b>	<input checked="" type="checkbox"/> Touch panel			
<b>Boot Device</b>	<input type="checkbox"/> CFast (8 GB)	<input type="checkbox"/> CFast (16 GB)		
<b>Auxiliary Device</b>	<input type="checkbox"/> None (CFast slot)	<input type="checkbox"/> CFast (4 GB)	<input type="checkbox"/> CFast (8 GB)	<input type="checkbox"/> CFast (16 GB)
	<input type="checkbox"/> HDD (500 GB)	<input type="checkbox"/> HDD (1 TB)	<input type="checkbox"/> SSD (8 GB)	
<b>OS</b>	<input type="checkbox"/> Interface Linux System 6 (L6) (32 bit) <input type="checkbox"/> Windows Embedded Standard 7 (32 bit) <input type="checkbox"/> Windows 7 Professional (32 bit) <input type="checkbox"/> Windows Embedded Standard 2009 (32 bit) <input type="checkbox"/> Windows XP Professional (32 bit)			
<b>Touch Panel Size</b>	<input type="checkbox"/> 10.4 inch	<input type="checkbox"/> 12.1 inch	<input type="checkbox"/> 12.1 inch (High brightness)	<input type="checkbox"/> 15 inch <input type="checkbox"/> 15 inch (High brightness)
<b>Key Switches</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No			

## I/O Interface Combination List

Category	Part No. <sup>*1</sup>	Top Side I/O Functions	Under Side I/O Functions
Composite	3620	Digital input, Digital output, Analog input, Analog output	Counter, USB
Composite	3624	Digital input, Digital output, Analog input, Analog output	Counter, USB
Composite	3625	Digital input, Digital output, Analog input	Counter, USB
Digital input/output	2984	Digital input/output shared	Counter, RS-232C, USB
Motion	7418	Motion, Counter, Digital input, Digital output, Analog input, Analog output	Motion, Counter, Digital input, Digital output, USB
DeviceNet	4874	DeviceNet, Digital input, Digital output	Serial (RS-485), USB
Communication	4005	HDLC (RS-485)	High-speed CAN, USB
Communication	4006	HDLC (RS-485)	High-speed CAN, RS-232C, USB
Communication	4007	HDLC(RS-485)	RS-232C, USB
NTSC	5537	NTSC input, Digital input, Digital output	Counter, USB
NTSC	5538	NTSC input, NTSC output, Digital input, Digital output	Counter, USB
TEDS	3623	Analog input, Analog output	USB
Fiber-optic Express	8821	Fiber-optic Express	USB

Put the four digits of the part number in the table above instead of xxxx in the product type.

Example: TIO-N3620AE for composite type.



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All product specifications are subject to change without prior notice.

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