

ePX15 TPM (R)

Product Manual



For your personal safety and to avoid property damage, you must pay attention to the tips in this manual. Tips relating to property damage do not carry a warning triangle. Warning Warning The warning is displayed in descending order of danger level.

Warning

Indicates that if you do not take appropriate measures, the machine may be damaged beyond repair.

Note

Indicates that an undesired result or state may occur if you do not follow the corresponding prompts.

The product/system to which this document belongs is only allowed to be operated by qualified personnel who meet all job requirements.

They must follow the accompanying documentation instructions, especially the safety and warning tips. With relevant training and experience, qualified personnel can detect risks of the product/system and avoid possible hazards.

Warning

Yanling Industrial control products(Yanling) are only allowed to be used in the catalog and related technical documents specified in the use of the situation. If you want to use other company's products and components, must be recommended and permitted by the industrial control research. Correct transportation, storage, assembly, assembly, installation, commissioning, operation and maintenance are the premise of safe and normal operation of products. Permissible environmental conditions must be guaranteed. You must pay attention to the prompts in the relevant files.

Disclaimer

The Company reserves the right to change this manual, and the product will be changed without prior notice. It is not responsible for any direct, indirect, intentional or inadvertent damage and hidden danger caused by improper installation or use.

Before ordering products, please check with the distributor to see if the product performance meets your needs.

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Warranty Terms:

The product warranty period is three years. If otherwise requested by the user, the contract signed by both parties shall prevail.

For more information please visit:

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I 、 Product Introduction

1.1 Overview

eNX cl/i5/i7 TPM (R) is a fan-less resistive touch industrial tablet. It adopts Intel Core celeron/i5/i7 quad-core processor and on-board TPM2.0 security encryption. It supports Windows 10, Windows 11, Linux and other operating systems. It is very convenient to use.

The whole machine is made of aluminum alloy mold forming, simple structure, has good dust, heat dissipation, vibration resistance and EMC performance, high system reliability, strong environmental applicability.

1.2 Specification

Color	Titanium gray (Color can be customized)
Material	Aluminum alloy chassis
Processor	Onboard Intel Celeron 4205U (Dual core dual threads, 1.8Ghz, 2MB Cache);
	Onboard Intel Core i5-8265U (Quad core eight threads, 1.6Ghz, Max turbo 3.9Ghz, 6MB Cache);
	Onboard Intel Core i7-8565U (Quad core eight threads, 1.8Ghz, Max turbo 4.6Ghz, 8MB Cache);
RAM	Support 1*DDR4 2133/2400 SODIMM Memory Slot, Max. Support 32GB
BIOS	AMI EFI BIOS
Display Chip	Integrated Intel UHD Graphics
Display Port	1*HDMI, 1*LVDS (Support synchronous and asynchronous dual display)
Storage	Onboard 1*M.2 2280 slot (SATA Protocol), 1*2.5" HDD, Support RAID 0/1
Expansion Slot	Support 1*Mini PCIE slot (Support WIFI/Bluetooth/3G/4G Optional, embedded SIM slot)
I/O	1*HDMI, 2*COM (COM1&COM2 RS232/RS422/RS485 Optional, 6*COM Optional), 1*Power Switch
	1*2Pin power supply phoenix connector, 1*Audio (Support Mic and Speaker at the same time), 4*USB3.0, 2*Intel 1000M LAN (4*LAN Optional)
Other Function	TPM2.0 security encryption, Auto power on when there is electricity, Timing boot, Wake on LAN, PXE boot, Watchdog (0~255 level) (Standard version doesn't set these function)
Expansion Function	GPIO (8 Input 8 Output), 2*LAN, 4*COM, 2*USB2.0 (Standard version doesn't include these ports)
LCD	Size: 15 inch TFT-LCD; Brightness: 350 cd/m ² ; Viewing Angle: Full Angle
	Ratio: 4:3; Resolution: 1024 * 768;
Touch Screen	Industrial resistive touch screen (single touch), Life Time: more than 50000 Thousand Times;
Speaker	2*8-ohm 2-watt speaker
Input Voltage	DC 9V ~ 36V wide voltage Input, support positive pole and negative electrode connect reversely protection;
Work Temp	0℃ ~ +50℃ (Commercial), -20℃ ~ +60℃ (Industrial SSD), Surface air flow
Work Humidity	5% ~ 95% non-condensing
Dimension	366 * 290 * 60 mm
Embedded Installation	355 * 279 mm
Weight	3.9 kg
Application	Industrial Automation, Medical, Logistics Transportation, Warehousing, Machine Vision, etc

II、Application

2.1 Transportation

The packaged products may be transported to any place by any means of transportation, shall not be packed in open cabins and carriages during long distance transportation, shall not be stored in open warehouses during transit, shall not be loaded in the same car (or other means of transportation) with inflammable, explosive and corrosive articles during transportation, and shall not be subjected to rain, snow or liquid substance wetting and mechanical damage.

2.2 Storage

The product should be stored in the original packing box. The ambient temperature of the warehouse where the product is stored is $0^{\circ}\text{C} \sim 40^{\circ}\text{C}$, and the relative humidity is $20\% \sim 85\%$. All kinds of harmful gases, inflammable, explosive products and corrosive chemicals are not allowed in the warehouse, and there is no strong mechanical vibration, impact and strong magnetic field. The packing box should be at least 10cm away from the ground and at least 50cm away from the wall, heat source, cold source, window or air inlet.

Be careful of the risk of damaging the equipment! Extreme changes in temperature should be noted when transporting machinery in cold weather conditions. In this case, ensure that no water droplets (condensation) form on or inside the device. If condensation forms on the device, wait at least 12 hours before connecting the device.

2.3 Unpack and check the delivered equipment

Note the following when unpacking the equipment:

- It is recommended that you do not discard the original packaging materials.

Please keep the original packaging materials for use when transporting the equipment again.

- Please store the document in a safe place. It is required for initial debugging of the device.
- Inspect the delivered equipment to see if any obvious damage was caused in transit.
- Verify that the shipment contains complete equipment and accessories you ordered separately. If there is any discrepancy

Or transportation damage, please contact customer service.

2.4 Installation

■ Desktop ■ embedded ■ VESA standard ■ Portable

III、Device Connection

3.1 Precautions before connecting

warning

Connected or built-in peripherals must not be connected to devices of opposite polarity.

warning

The device can only run on a grounded power network. Do not run on an ungrounded power network.

warning

The rated voltage of the device must comply with the power supply characteristics of the product.

Note

Connect only peripherals approved for industrial applications. Hot-swappable I/O can be connected while the machine is running

USB module: An I/O device without hot swap can be connected only after the device is disconnected from the power supply.

3.2 Connect the device to the power supply

Steps to connect a device to a power supply	diagram
Connect the DC 9 ~ 36V power adapter to the power input port ①, and then press the power switch button on the front panel of the device to start the device, and the blue power light will turn on.	 A photograph of the rear panel of a small, silver electronic device. The panel features a large black heat sink at the top. Below it, there are several ports: a green DC power input port, a yellow USB port, a blue USB port, and a blue Ethernet port. A blue arrow points to the green DC power input port, which is labeled with a circled number 1 (①).

warning

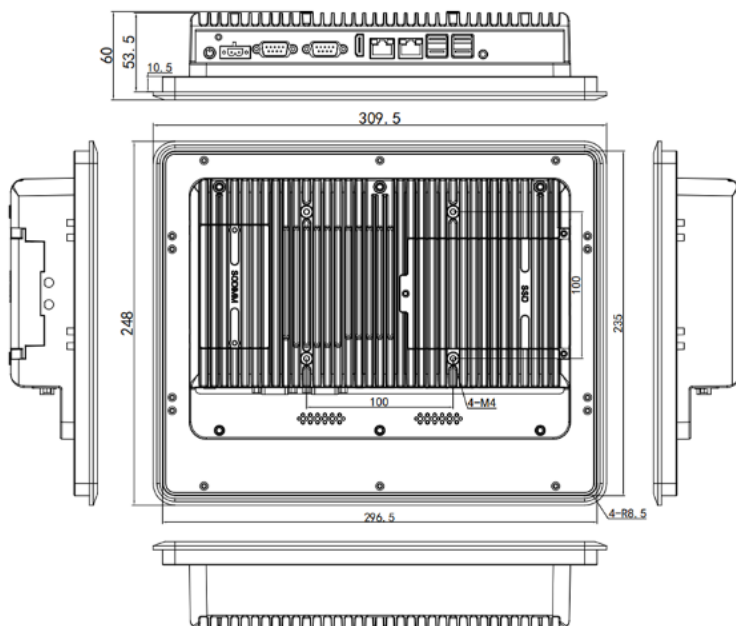
The on/off button signal will not cut off the PC power!

IV、Use description

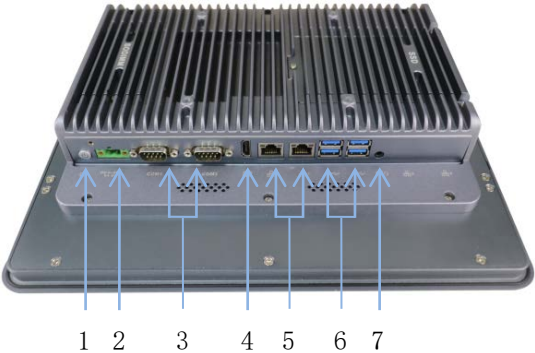
4.1 product appearance



4.2 product dimension



4.3 external interface

Rear view of machine	Code	Port name
	1	Power button
	2	DC 9~36V power
	3	2*RS232/422/485
	4	HDMI
	5	2*LAN
	6	4*USB3.0
	7	Mic&audio
Note: 1、HDMI display Max resolution: 4096x2160@30Hz; 2、LCD screen resolution: 1024x768@60Hz;		

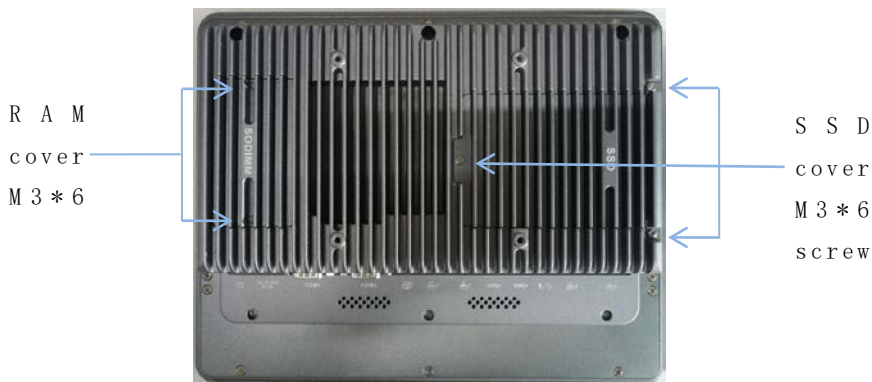
4.4 Status indicator

Display	meaning	LED	Description
POWER	Machine status display	Not bright	The device is powered off or the power is disconnected
		Brighting	The device is running

4.5 Install internal fittings

1. Remove the M3*6 screws on the memory cover or hard disk cover (as shown in the following figure) and remove the memory cover to install the memory.
2. Remove the hard disk cover to install WIFI module, 4G module, M.2 hard disk,

2.5 inch hard disk and other accessories.



2. After installing the internal accessories (as shown below), cover the memory cover and hard disk cover with 5 M3*6 screws.



warning

This operation is only applicable to customers who have purchased ePX15 quasi system. Customers who have installed internal parts are not allowed to remove the installation box at will.

4.6 Pin definition:

JP/CN	pin#		pin#	Signal	Remark
JLV	1	3.3V			1-2: choose 3.3V 2-3: choose 5V
	2	JSEL			
	3	5V			
JP/CN	pin#	Signal	pin#	Signal	Remark
JBK	1	PWRDN	2	GND	1-2P: Turn on/off the backlight 3-4P: Brightness rise 5-6P: Luminance dip
	3	BKL_UP	4	GND	
	5	BKL_DN	6	GND	
JP/CN	pin#	Signal	pin#	Signal	Remark
IVCN	1	12V			
	2	12V			
	3	BKLT_ON			
	4	BKLT_PWM			
	5	GND			
	6	GND			
JP/CN	pin#	Signal	pin#	Signal	Remark
LVDS	1	AUX+	2	HPD	1. LVDS/EDP signal two choose one Default is LVDS 2. P-12: DETECT need ground
	3	AUX-	4		
	5	EDP1-	6	EDP0-	
	7	EDP1+	8	EDP0+	
	9		10	GND	
	11	GND	12	DETECT	
	13	CLK2+	14	CLK1+	
	15	CLK2-	16	CLK1-	
	17	GND	18	GND	
	19	TX7+	20	TX3+	
	21	TX7-	22	TX3-	
	23	TX6+	24	TX2+	
	25	TX6-	26	TX2-	
	27	TX5+	28	TX1+	
	29	TX5-	30	TX1-	
	31	TX4+	32	TX0+	
	33	TX4-	34	TX0-	
	35	GND	36	GND	
	37	GND	38	VCC	
	39	VCC	40	VCC	

JP/CN	pin#	Signal	pin#	Signal	Remark
FP	1	HDD LED+	2	PWR LED+	6-8 short circuit: Turn on/off 5-7short circuit: restart
	3	HDD LED-	4	PWR LED-	
	5	GND	6	PWRSW	
	7	Reset	8	GND	
	9	NC	10		
JP/CN	pin#	Signal	pin#	Signal	Remark
JUSB1	1	VCC			
	2	DT-			
	3	DT+			
	4	GND			
JP/CN	pin#	Signal	pin#	Signal	Remark
JUSB2	1	VCC	2	VCC	
	3	DT-	4	DT-	
	5	DT+	6	DT+	
	7	GND	8	GND	
	9		10	GND	
JP/CN	pin#	Signal	pin#	Signal	Remark
SPK	1	L-			2W/4Ω
	2	L+			
	3	R+			
	4	R-			
JP/CN	pin#	Signal	pin#	Signal	Remark
JVGA	1	GND	2	5V	
	3	RED	4		
	5	GND	6	CLK	
	7	GREEN	8	DATA	
	9	GND	10	VSYNC	
	11	BLUE	12	HSYNC	
	13	GND	14	GND	
JP/CN	pin#	Signal	pin#	Signal	Remark

AT_ATX	1	SIGNAL			1-2: Automatic power-on 2-3: Manual power-on
	2	PWRBTSW			
	3	NC			
JP/CN	pin#	Signal	pin#	Signal	Remark
JCMOS	1	NC			
	2	RST			
	3	GND			
	2	V-			
JP/CN	pin#	Signal	pin#	Signal	Remark
DC_IN	1	V+			
	2	V-			
JP/CN	pin#	Signal	pin#	Signal	Remark
JCOM3-6	1	DCD1	2	RXD1	
	3	TXD1	4	DTR1	
	5	GND	6	DSR1	
	7	RTS1	8	CTS1	
	9	RI1	10	DCD2	
	11	RXD2	12	TXD2	
	13	DTR2	14	GND	
	15	DSR2	16	RTS2	
	17	CTS2	18	RI2	
	19	DCD3	20	RXD3	
	21	TXD3	22	DTR3	
	23	GND	24	DSR3	
	25	RTS3	26	CTS3	
	27	RI3	28	DCD4	
	29	RXD4	30	TXD4	
	31	DTR4	32	GND	
	33	DSR4	34	RTS4	
	35	CTS4	36	RI4	
	37				

JP/CN	pin#	Signal	pin#	Signal	Remark
 GP1	1	5V	2		
	3	GPI01	4	GPI02	
	5	GPI03	6	GPI04	
	7	GPI05	8	GPI06	
	9	GPI07	10	GPI08	
	11	GND	12	GND	
JP/CN	pin#	Signal	pin#	Signal	Remark
 GP2	1	5V	2		
	3	GPI01	4	GPI02	
	5	GPI03	6	GPI04	
	7	GPI05	8	GPI06	
	9	GPI07	10	GPI08	
	11	GND	12	GND	
JP/CN	pin#	Signal	Signal	Signal	Remark
 COM1/COM2		RS232	RS485	RS422	
	1	DCD	D-	TX-	
	2	RXD	D+	TX+	
	3	TXD		RX+	
	4	DTR		RX-	
	5	GND	GND	GND	
	6	DSR			
	7	RTS			
	8	CTS			
	9	RI			

 Note

The identification of the first pin of the starting pin in the pins on the motherboard is as follows: 1 There is a white bold silk screen mark or an arrow mark; 2 The pins on the rear of the mainboard are square holes.



4.7 BIOS setting

BIOS The menu is divided into the following options (for specific BIOS Settings, please consult the customer service of Yanling Industrial Control) :

Aptio Setup Utility							
Main	Setting	Advanced	Chipset	Boot	Security	Save & Exit	
Boot Configuration						Item Specific Help	
Setup Prompt Timeout			1				
Bootup NumLock State			[On]				
Quiet Boot			[Disable]				
Boot Option Priorities							
Boot Option #1			[KinstongDataT...]				
Boot Option #2			[UEFI: Kingsto...]				
Boot Option #3			[UEFI: Built- ...]				
Driver Option Priorities							
Driver Option #%							
F1	Help	↑ ↓	Select Item	-/+	Change Values	F9	Setup Defaults
Esc	Exit	← →	Select Menu	Enter	Select Sub-Menu	F10	Save and Exit

Main: check BIOS info

Advanced: BIOS option main setting

Chipset: display setting&audio setting

Security: safe setting

Boot: Boot option setting

Save & Exit: Save&exit BIOS setting

warning

Do not change the BIOS Settings. Otherwise, the machine may not work properly.

4.7.1 Power-on self-starting power setting

Enter BIOS setting screen , choose <Setting> → <AC Power Loss Setting>, set the option, choose “Power ON” then Enable the auto-power on function, change to “Power Off” , Disable the power on function.

Aptio Setup Utility						
Setting						
Restore AC Power Loss		[Power off]			Item Specific Help	
		Power Off Power On Last State				
F1	Help	↑ ↓	Select Item	-/+	Change Values	F9 Setup Defaults
Esc	Exit	← →	Select Menu	Enter	Select Sub-Menu	F10 Save and Exit

4.7.2 COM1、COM2 RS232/422/485 Setting

Enter the BIOS setting screen, choose <Setting> → <Special Setting> → <COM1 Mode Configuration> option, Select the Settings in the box, as shown below:

Aptio Setup Utility					
Setting					
BIOS Lock	[Enabled]	Item Specific Help			
Video	[Legacy]				
Boot Option filter	[UEFI and Legacy]				
EUP Function	[Disabled]				
Soft-off by PWR-BTN	[Instant-off]				
Wake up By PCIE LAN	[Enabled]				
COM1 Mode Configuration	[232]				
COM2 Mode Configuration	[232]				
232 422 485					
F1	Help	↑ ↓ Select Item	-/+ Change Values	F9	Setup Defaults
Esc	Exit	← → Select Menu	Enter Select Sub-Menu	F10	Save and Exit

4.7.3 SATA HDD model option

Enter the BIOS setting screen, choose<Setting> → <SATA Model Setting> , setting for<SATA Mode Selection> , as shown below :

Aptio Setup Utility		
Setting		
SATA Mode Selection	[AHCI]	Item Specific Help
AHCI RAID		
F1 Help	↑ ↓ Select Item	-/+ Change Values
Esc Exit	← → Select Menu	Enter Select Sub-Menu
F9	Setup Defaults	F10 Save and Exit

4.7.4 PXE start function (dickless start)

Enter the BIOS setting screen, choose<Setting> → <LAN PXE Setting> → <Network>option, change the default to “Legacy”, achieve PXE setting of start function, as shown below:

Aptio Setup Utility		
Setting		
Network	[Do not launch]	Item Specific Help
Do not launch Legacy		
F1 Help	↑ ↓ Select Item	-/+ Change Values
Esc Exit	← → Select Menu	Enter Select Sub-Menu
F9	Setup Defaults	F10 Save and Exit

V、Daily operation and maintenance

1. When the machine is in normal use, please ensure that the machine works in a non-vibrating environment, so as not to damage the hard disk and internal parts.

2, when using the machine, please pay attention to the ambient temperature should be between -10°C and 50°C.

3, This machine adopts the case heat dissipation, in order to ensure the machine heat dissipation effect, we strongly recommend you. Clean the surface of the machine regularly every three months, and one is recommended in dusty environments. Clean the machine surface once a month.

4, In order to ensure the efficient and reliable operation of the machine, we recommend that you do the hard disk regularly every three months for a disk cleanup and disk defragmentation.

5, When using the internal slot of the machine, we strongly recommend that you do not plug or unplug with power, so as to avoid causing problem of electrostatic damage. When the machine encounters non-human reason power failure, in order to ensure that the machine can work normally and reliably, we strongly suggest that you immediately disconnect the power supply of the machine, confirm the stability of the power grid before

powering on the operation.

6, We suggest that the machine be managed by special personnel.

VI 、 Common hardware faults and troubleshooting methods

No.	Troubles	Cause analysis	Repair methods
1	Can' t turn on after the power button is triggered	The power adapter is not powered on	It is recommended that you fasten the three-core power cable or replace the slot holes. Replace the power adapter;
		Motherboard damage	Return to the factory for repair;
2	No images on the monitor	Probably the signal input is not connected properly	Check whether the computer starts normally; Check whether the running light in front of the display is on; Check whether the display part of the connection line is correct;
		The monitor is in the power saving state	Press any key on the keyboard

3		The power or data cable of the hard disk is damaged	Check whether the power cables and data cables of hard disks (hard disks must be installed and bootable by the system) are loose or loose.
		The disk system file is damaged	Use a bootable CD to access the system (usually WINPE system), check whether the hard disk system is damaged, if necessary, it is best to reinstall the system.
4	Continuous "di di" sound after boot	No memory was detected	Open the case and reinsert the memory.
 warning To open the chassis or enter the BIOS Settings, follow the instructions of technical personnel for non-professional personnel.			