Industrial Panel PC with Windows OS

USER MANUAL

Please read this manual carefully and keep it in a safe place before use.

V1.0 2024.05

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The images in this manual (including but not limited to their models, appearance, colors, dimensions, screen display content, etc.) are for illustrative purposes only. Please refer to the actual product for accuracy.

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READING TIPS

Symbol Key

	Note or Information		Warning		Caution

USAGE RECOMMENDATIONS

General Touch provides you with the following documentation:

"Sales Drawing"

"Specification Sheet"

"User Manual"

We recommend starting with the "Specification Sheet" to learn about the Panel PC’s specifications and structural dimensions. For more information, refer to the "Sales Drawing". To fully understand the product, please read the "User Manual."

The introductory page of each chapter in the user manual provides an overview of the chapter's content.

This manual is intended for Industrial Panel PC with Windows OS.

CATALOGUE

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Reading tips 2

1 Precautions Before Use 2

1.1 Safety Precautions 2

1.2 Battery Information 3

1.3 Delivery Status 3

1.4 Delivery Checklist 3

1.5 Preparation 4

2 Overview 6

2.1 Product Definition 6

2.2 Key Features 6

2.3 Application Scenarios 6

3 Product Description 8

3.1 Exterior 8

3.2 Components Introduction 9

3.2.1 Structure 9

3.2.2 Interfaces 11

3.2.3 VESA Installation Interface 13

3.2.4 Power Supply 14

3.3 Operation Instructions 14

3.3.1 Unboxing 14

3.3.2 Installation 14

3.3.3 Usage 20

3.3.4 Software Installation and Configuration 25

3.3.5 Cleaning, Maintenance 32

4 Troubleshooting Guide 34

4.1 Common Troubleshooting and Handling Guidelines 34

5 Service and Support 37

5.1 Pre-sales Consultation 37

5.2 After-sales Service 37

5.2.1 After-sales Process 37

5.2.2 Warranty Policy 38

5.2.3 Service Assurance 38

5.3 Customization Services 38

5.4 Driver and Operating System Upgrades 39

5.4.1 Driver Upgrades 39

5.4.2 Updates for the Operating System 39

6 Appendix 41

6.1 Specifications 41

6.1.1 Dimensions 41

6.1.2 Technical Indicators 41

6.2 Terms 44

6.3 Contact Us 44

PRECAUTIONS BEFORE USE

This section primarily covers some important points to note when using the product.

1 PRECAUTIONS BEFORE USE

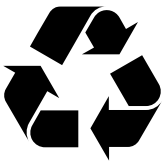
1.1 Safety Precautions

Here are some safety precautions to be followed when using our product. Please read and adhere to them carefully.

Please ensure that the machine is not placed in close proximity to a radiator or heat source. Please ensure that no objects are allowed to compress or entangle the power and video cables. Please do not use the machine in areas with high humidity or in the vicinity of water sources. It is important to ensure that the ventilation holes on the back of the machine are not obstructed to prevent the internal heat from dissipating in a timely manner, which could potentially lead to damage to the internal components. Prior to supplying power to the device, please ensure that the power supply voltage meets the device's requirements. Please ensure that the power outlet is not overloaded to avoid the risk of fire or electric shock. Please take all necessary precautions to avoid rupture, corrosion, damage, etc. of the product or parts (such as the shell, LED screen, chassis, components, wiring, etc.) caused by insects, rodents, or foreign object intrusion. Please avoid contact or exposure to inappropriate temperatures, solvents, acids, alkalis, flooding, or humid environments. Please ensure that no liquid is allowed to flow into or splash inside the device, as this may cause a short circuit or fire. Please unplug the unit if it is not to be used for an extended period of time. To prevent damage to the product from frequent switching on and off, please allow at least 30 seconds to elapse between turning off the machine and turning it on again.		Please note that the touch screen part of the machine is a glass product with sharp edges and corners. Therefore, we request that you wear gloves or finger cots for assembly and refrain from applying strong impacts to the touch screen during assembly. It is important to ensure that the power cord is kept in good contact to avoid any potential issues with loose, fire, high, and low voltage. To shut down the machine, please close the current program, click Start → Shutdown, and then turn off the AC power supply. After the display of no signal prompts, the machine will be powered down. In the event of thunder and lightning, it is recommended that the machine not be used. It is advisable to unplug the power cord and disconnect the network cable to prevent lightning strikes. After the use of external storage devices such as USB disks and portable hard disks, please exit according to the correct operation procedure before unplugging. This will help to prevent data loss. If you are not a professional, please refrain from modifying the computer system files and settings to avoid any potential issues with the device. Please do not use third-party software to repair the system operation unless there is a special need. Please do not open the device without authorization from the Company. When cleaning the machine, please unplug it from the power supply first, then apply the cleaning solution to a soft cloth and wipe gently. Please avoid placing the machine in direct light for extended periods to prevent damage to the screen.

1.2 Battery Information

Batteries, battery packs, and accumulators should not be disposed of as unsorted household waste. Please use the public collection system to return, recycle, or treat them in compliance with local regulations.



1.3 Delivery Status

According to the product specifications, all components are delivered with specific hardware or software configurations, including firmware versions. It is important to note that any modifications or changes made to the hardware or software configurations (including firmware versions) beyond the specified limits are not allowed for this product. In such cases, General Touch (the company) will not be held responsible for any consequences or liabilities that may arise.

1.4 Delivery Checklist

Number	Name	Quantity	Remarks
1	Industrial Panel PC with Windows[1]	1	Windows 10 IoT Enterprise (OEM)
2	Microsoft® Product Key	1	Optional
3	Power Adapter	1	
4	Power Cable	1	
5	Clamps	N	Accessories for installation
6	Specification sheet	1	Electronic version
7	Sales drawing	1	Electronic version
8	User manual	1	Electronic version

Note: Due to variations in specific models within this product series, please refer to the actual provided model for accuracy.

[1] The key is not included with the panel PC. You must purchase it separately if you need it.

1.5 Preparation

Follow these simple precautions to protect yourself from harm and the products from damage:

To reduce the risk of electric shock, it is imperative to adhere to all safety precautions and refrain from disassembling the Panel PC without authorization. The equipment is strictly prohibited from being serviced by the user.

It is crucial to avoid obstructing the ventilation holes or inserting any objects into them.

The use of an unapproved AC/DC power adapter will result in the nullification of the warranty.

OVERVIEW

This section primarily focuses on introducing the features and applicable scenarios of this product series.

2 OVERVIEW

2.1 Product Definition

Industrial panel PCs are the natural evolution of HMIs and industrial monitors. By integrating the processing power of a computer with the functionality of a touchscreen, they offer complete solutions for the control and management of industrial processes.

The integrated design, which combines computer and screen, saves a lot of space. This feature makes it ideal for environments where space optimization is critical, thus improving the efficiency and flexibility of configurations.

Panel PCs are designed to withstand the challenges of industrial environments, including shocks, vibrations, dust, and humidity. This level of resistance helps ensure reliable operation even in the most demanding conditions.

2.2 Key Features

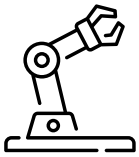
Being mindful of the varying industrial environments, the Touch Panel PC features panel mount[2] & VESA mount installations, fanless heat dissipation, front sealing that meets IP65[3] rating and an aluminum alloy frame for durability. The operating temperature ranges from -15℃ to 60℃.

2.3 Application Scenarios

For Industrial scenarios such as production lines, production control or data collection, GT's industrial Panel PCs are reliable companions for smooth and reliable performance that enhances production efficiency.

Vending Machine

Kiosk



Industrial Automation

[2] Note on locking torque of clamps during installation: Set the torque driver to 8.0-8.2kgf/cm. Ensure that the clamps are placed vertically to prevent shifting during the locking process.

[3] Regarding the IP65 protection level claimed in the product specification: Our panel mount series touch monitors can achieve an IP65 protection level, but it requires proper installation to achieve this effect. The touch monitors and cabinet must be installed correctly according to the installation steps and requirements. The cabinet surface must be flat and without deformation after installation, and the clamps must be firmly attached to the back panel of the cabinet. Please refer to section 3.3.2.1 for specific installation instructions.

PRODUCT DESCRIPTION

This chapter primarily covers the components, installations, usage, and routine maintenance of the product.

3 PRODUCT DESCRIPTION

3.1 Exterior

The front of the Panel PC is covered by a high-strength tempered glass, which ensures the overall protection of the device without compromising its display quality and touch experience.

Front View of the Industrial Panel PC

The Panel PC is equipped with several mounting holes on the side. These holes are used to mount the clamps and secure the Panel PC to the cabinet.

Slanted Rear Side of the Industrial Panel PC

Back of the Industrial Panel PC

3.2 Components Introduction

3.2.1 Structure

A panel PC is typically comprised of touch components, a display module, a motherboard, and various structural components. The touch components are comprised primarily of the touch screen and touch controller, which serve as the core devices, and the display module, which contains the LCD panel, A/D board, and other components. The structural component is comprised of the front frame, metal plate, shielding cover, stand/base, and other related components.

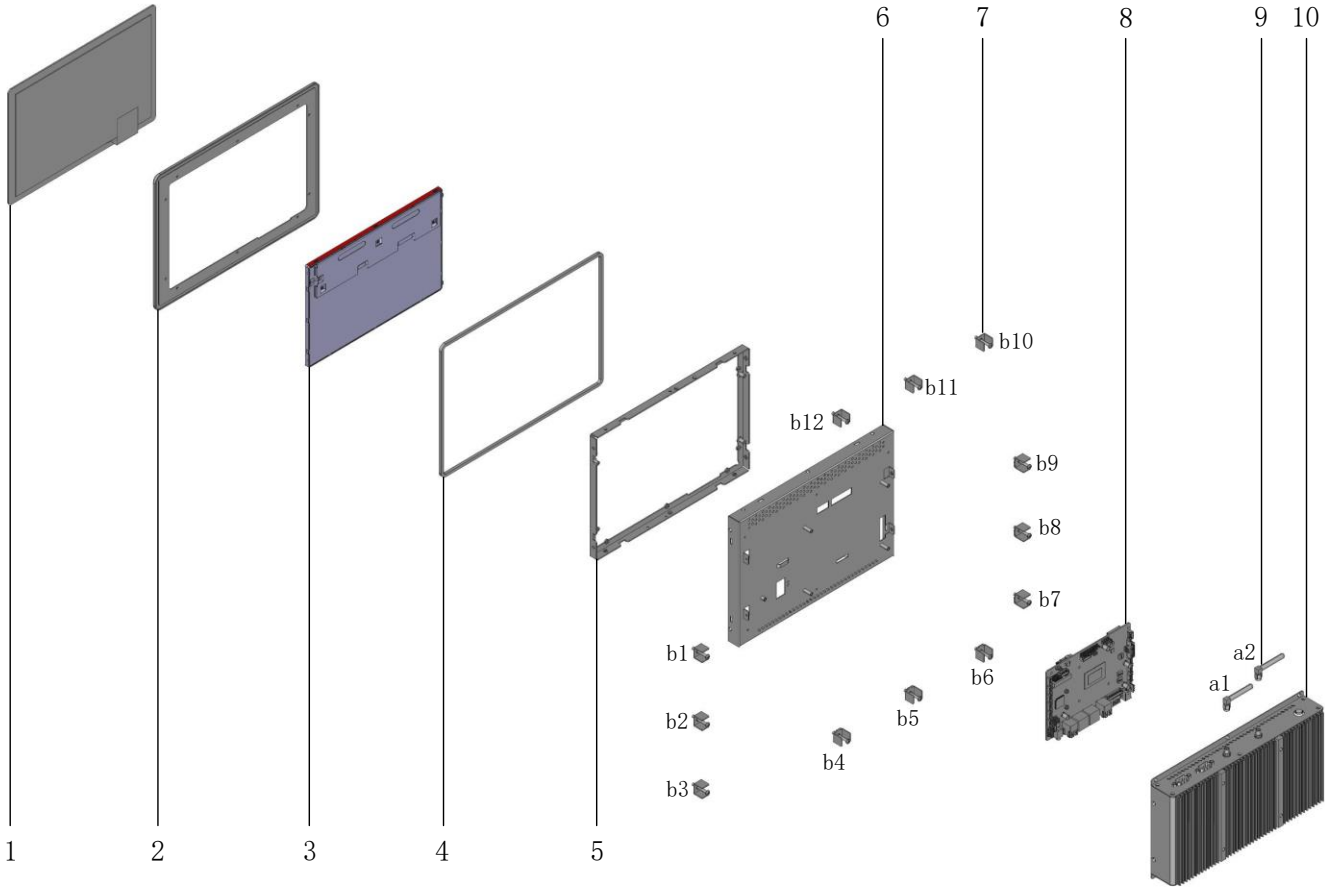


Fig 1 Cross-sectional view of the main structural components of a Panel PC

Industrial Panel PC Component

1	**Touch Screen (include cover glass)** Used for touch interaction	**6**	**Metal Plate** Provides fixation, limitation, and space for electronic components.
2	**Front Frame** Provides fixation and connects the screen body to the back cover	**7**	**Clamps**[4] Includes b1, b2, b3, b4, b5, b6, b7, b8, b9, b10, b11 and b12, accessories for installation.
3	**Panel** Display the visual content.	**8**	**Motherboard** Core Electronics
4	**Waterproof Rubber Strip** Structural elements for waterproofing.	**9**	**Wi-Fi & Bluetooth Antenna**
5	Middle Frame Structural Component	**10**	**Shield Cover** Protecting the electronic components from damage.

[4]The number of clamps may vary depending on the size or model in question, subject to the outcome of sales drawings for specific models.

3.2.2 Interfaces

3.2.2.1 External Interfaces

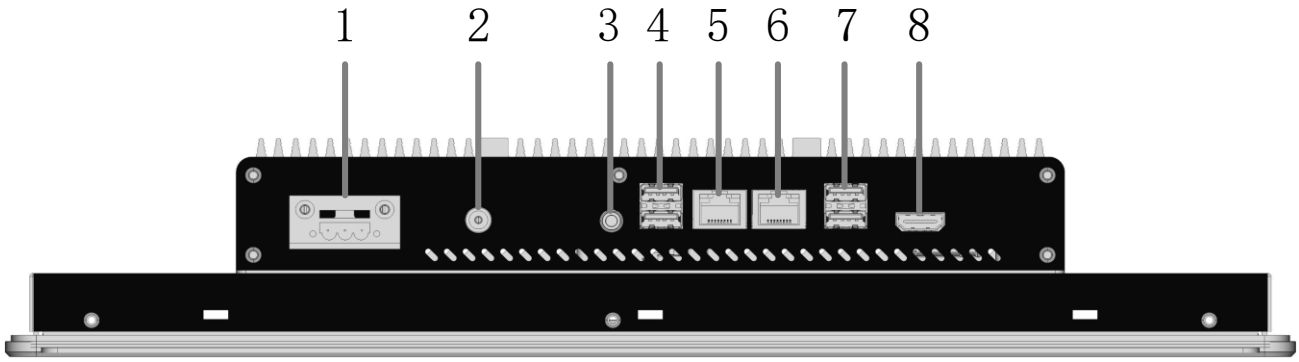


Fig 2 Bottom View of Panel PC

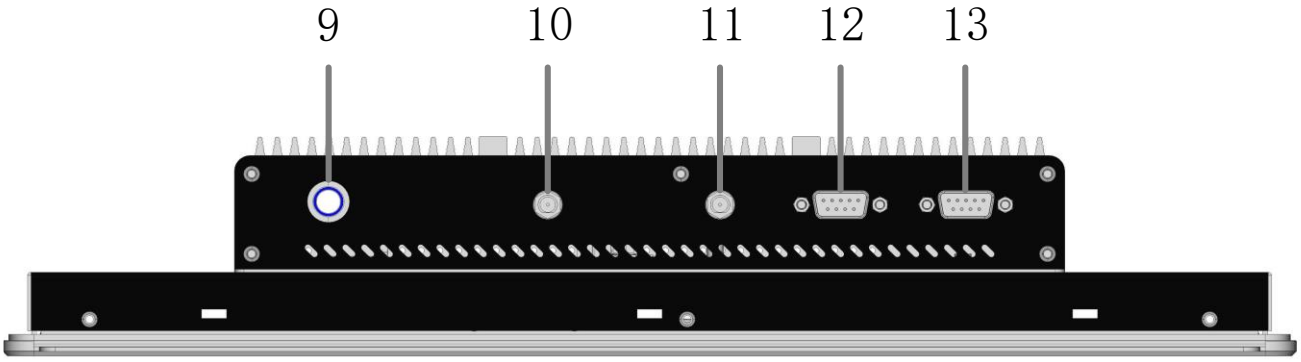
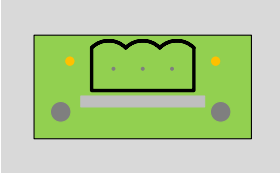


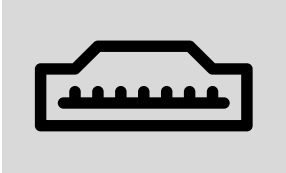
Fig 3 Top View of Panel PC

Panel PC's Interfaces Description



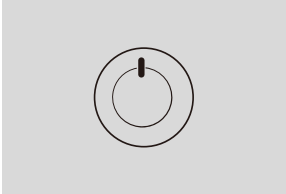
1 DC Input

3 pins Terminal Block



8 **HDMI out**

2 **12V DC Input (Pin Outer Diameter 2.5mm)**



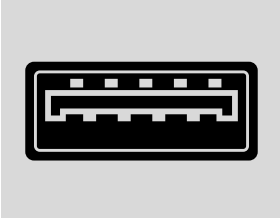
9 **Power Switch**

Power On/Off

3 3.5mm Line-out/Mic 2 in 1

10 **SMA-K**[5]

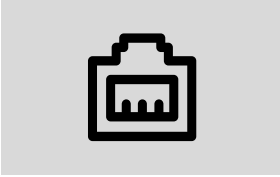
Wi-Fi & Bluetooth or 4G LTE model



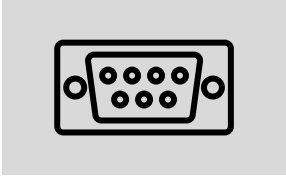
4 USB 3.0 x 2

11 **SMA-K**[6]

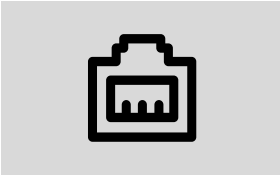
Wi-Fi & Bluetooth or 4G LTE model



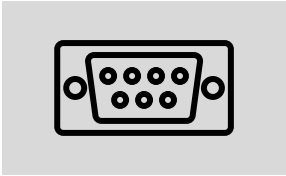
5 RJ-45



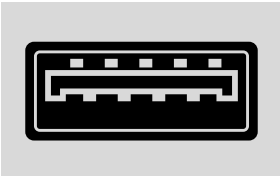
12 **RS-232**



6 RJ-45



13 **RS-232**



7 USB 3.0 x 2

[5] The device has a single Mini PCI-e slot, which can accommodate either a Wi-Fi andBT 2-in-1 module or a 4G LTE module.

[6] The device has a single Mini PCI-e slot, which can accommodate either a Wi-Fi andBT 2-in-1 module or a 4G LTE module.

3.2.2.2 Clamps

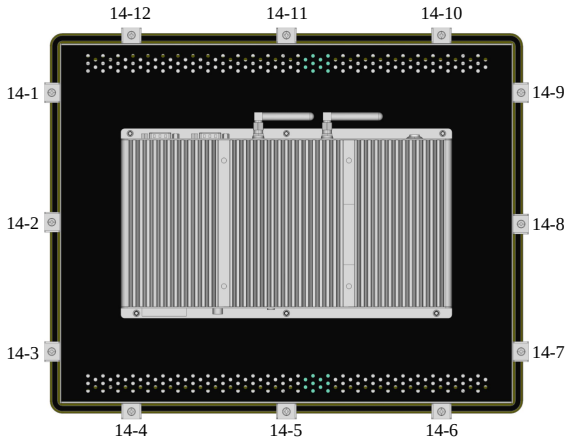


Illustration of Panel PC Clamps location

Clamps

For securing an Industrial Panel PC to a cabinet or backplane platform.

3.2.3 VESA Installation Interface

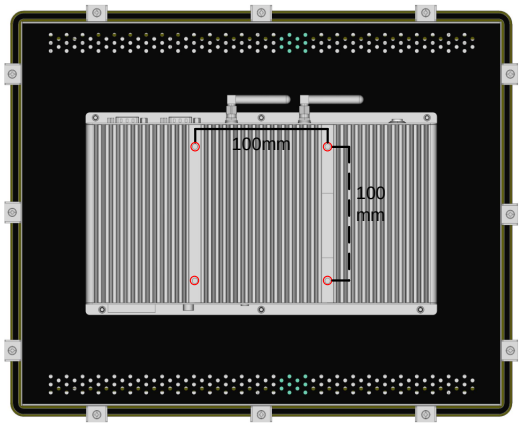


Illustration of Panel PC VESA Mounting Interface

The VESA hole is primarily used for customer installation and comes in different specifications.

VESA holes

○ 100mm x 100mm

3.2.4 Power Supply

You can power the input DC 12V with either the power jack or the 6-pin terminal block.

3.3 Operation Instructions

3.3.1 Unboxing

Upon delivery of the product, please inspect the shipping carton for damage.

If any damage is found, please retain all packaging materials for later inspection by General touch or the carrier responsible for the shipping damage.

When removing the Panel PC from its packaging, please place it carefully and gently, taking care not to scratch the touch screen.

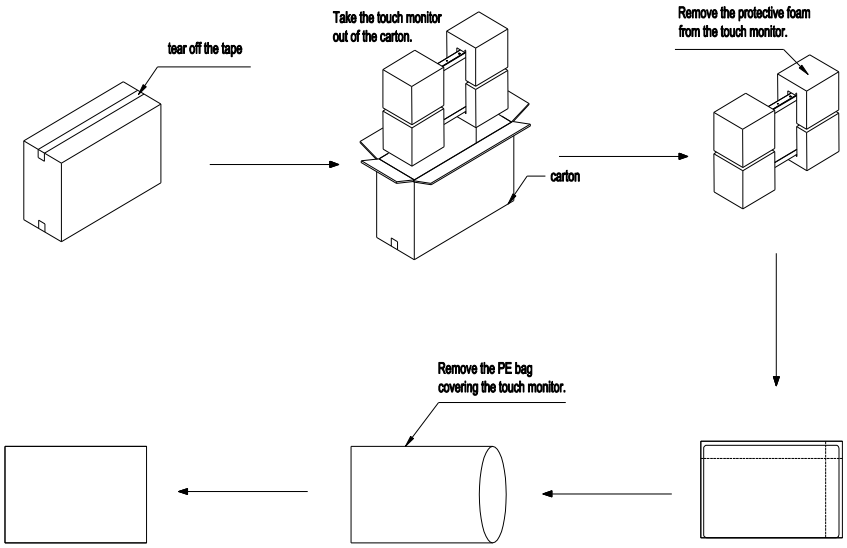


Fig 4 Standard Unboxing Process

3.3.2 Installation

3.3.2.1 Structural Installation

The Industrial Panel PC is commonly installed in a variety of settings, including embedded applications, based on the specific use scenarios and space constraints present in each case. It is also compatible with wall-mounted, desktop, cantilever, boom type, and other installation methods.

3.3.2.1.1 Embedded installation

For embedded mounting, select an appropriate cabinet and secure it with clamps.

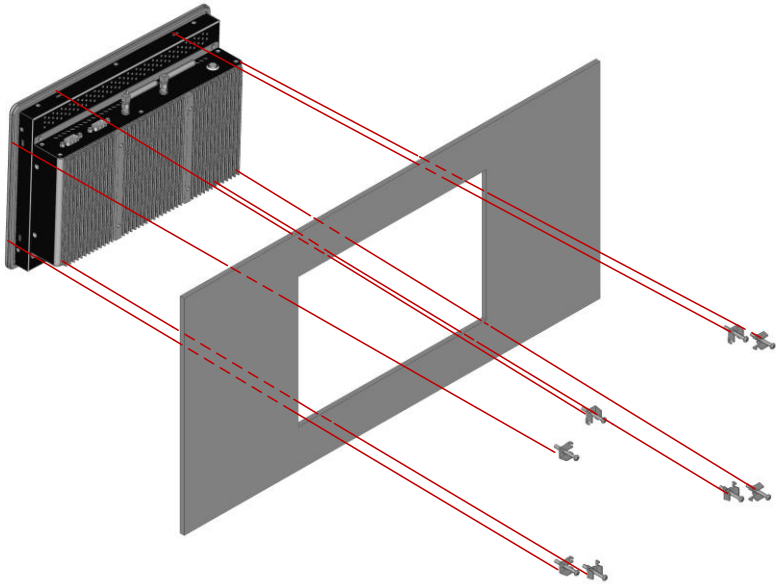
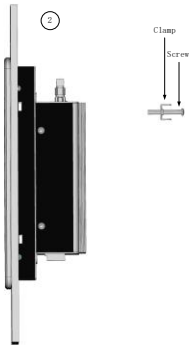


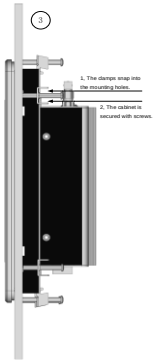
Fig 5 Embedded Mounting Installation Diagram

Here is a diagram of how the installation is broken down:

① Embed the Panel PC inside the cabinet.



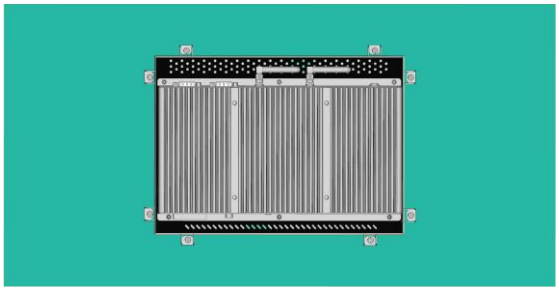
②Fit the Panel PC to the cabinet. Remove the clips and screws.



③The clamps snap into the mounting holes on the side of the Panel PC. Tighten the screws until they are against the cabinet.

Diagram of the complete installation

Front view of the Panel PC



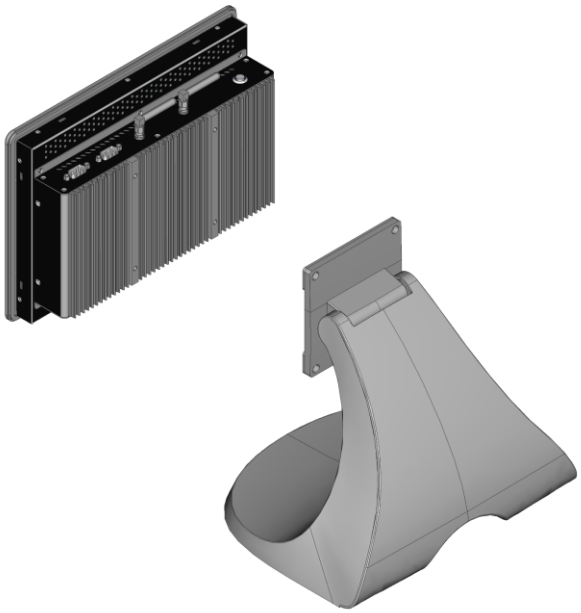
Back view of the Panel PC

3.3.2.1.2 Wall mount installation

The Panel PC is mounted on a wall using VESA holes and a bracket.

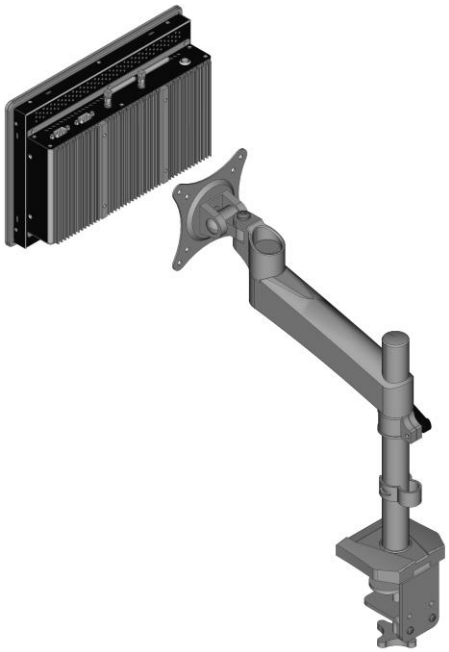
3.3.2.1.3 Desktop installation

The Panel PC is mounted on a desktop via VESA holes in the base.



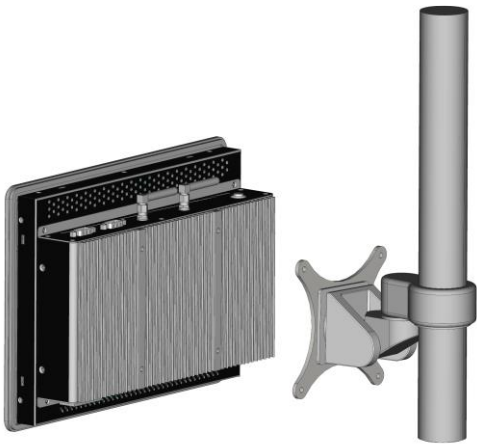
3.3.2.1.4 Cantilever installation

The Panel PC is mounted in a cantilever configuration via VESA holes and a bracket.



3.3.2.1.5 Boom type installation

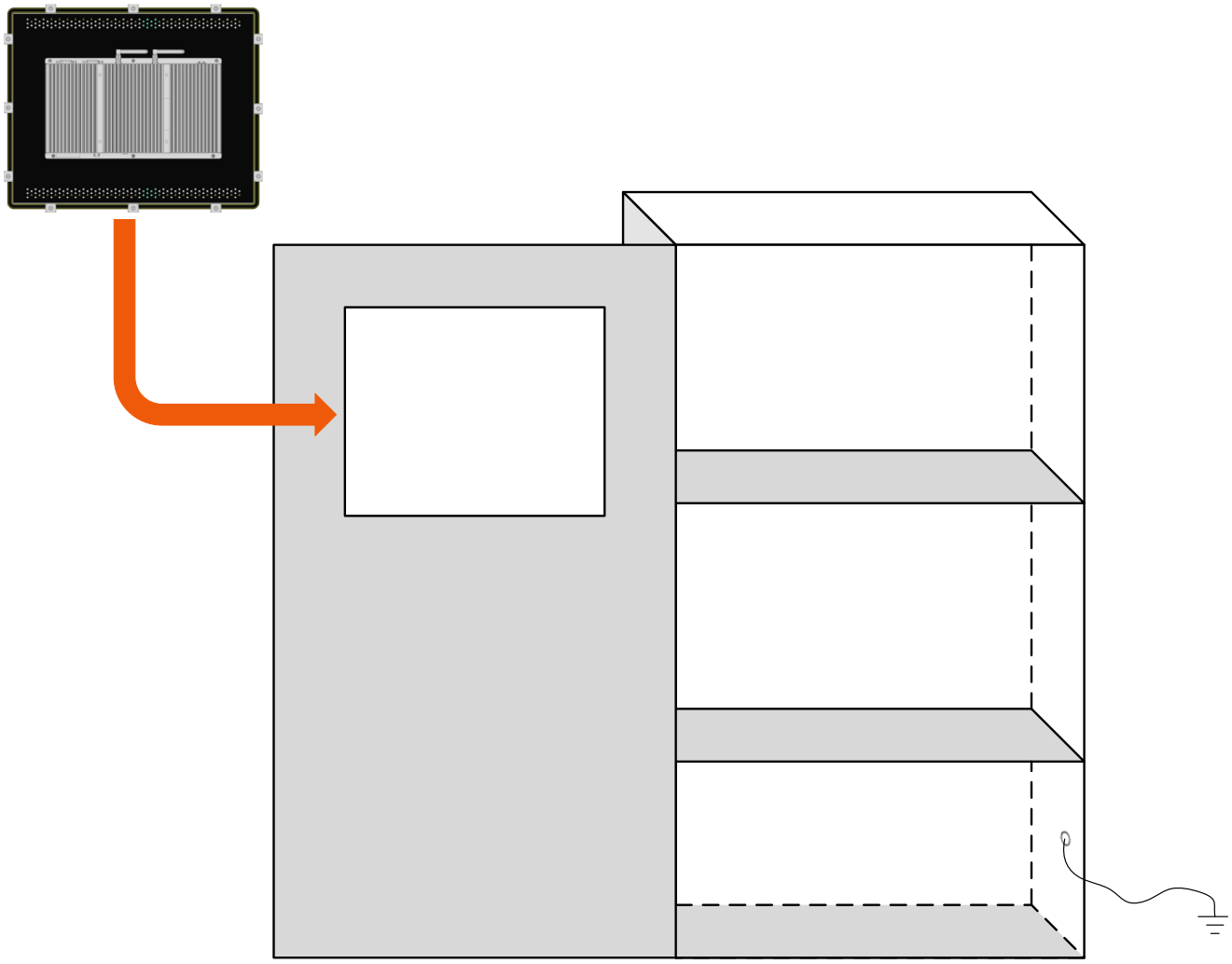
The Panel PC is mounted on a boom via VESA holes and a boom arm.



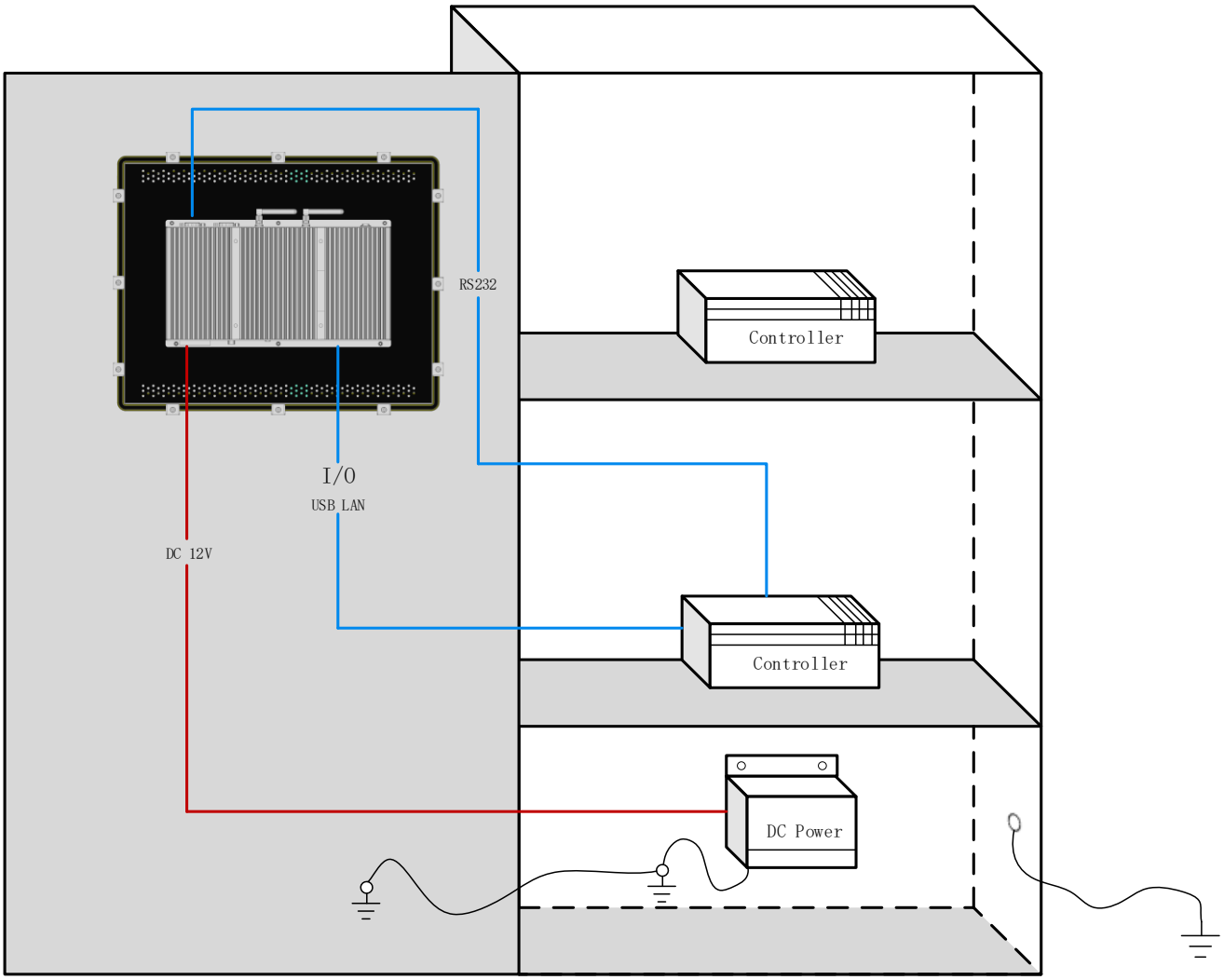
3.3.2.2 Scenario Schematic (Cabinet Installation)

Install the Panel PC according to these instructions. Connect the ground pin to earth/ground. If the Panel PC is in the cabinet, connect the Panel PC's ground, the cabinet's ground, and the earth/ground.

Install the panel PC into the cabinet.



The panel PC is mounted in the cabinet and wired to serial devices.



Note:

- Connect the cabinet to the earth/ground.
- Connect all cabinets together.
- Connect the power supply ground to the cabinet.
- Connect the Industrial Panel PC ground to the cabinet.
- Ensure that the voltage of the power source is correct before connecting the equipment to a power outlet. By means of a power cord connected to a socket- outlet with earthing connection.

3.3.3 Usage

3.3.3.1 Power connection and switch on/off

Our Panel PC supports two methods of power supply: through a power adapter, or a DC Power Cabinet. To turn on the computer, press the power switch until the system desktop appears. Once the operating system has been activated, the user is prompted to perform a series of simple configuration steps in order to begin using the system.

3.3.3.1.1 DC Power Jack

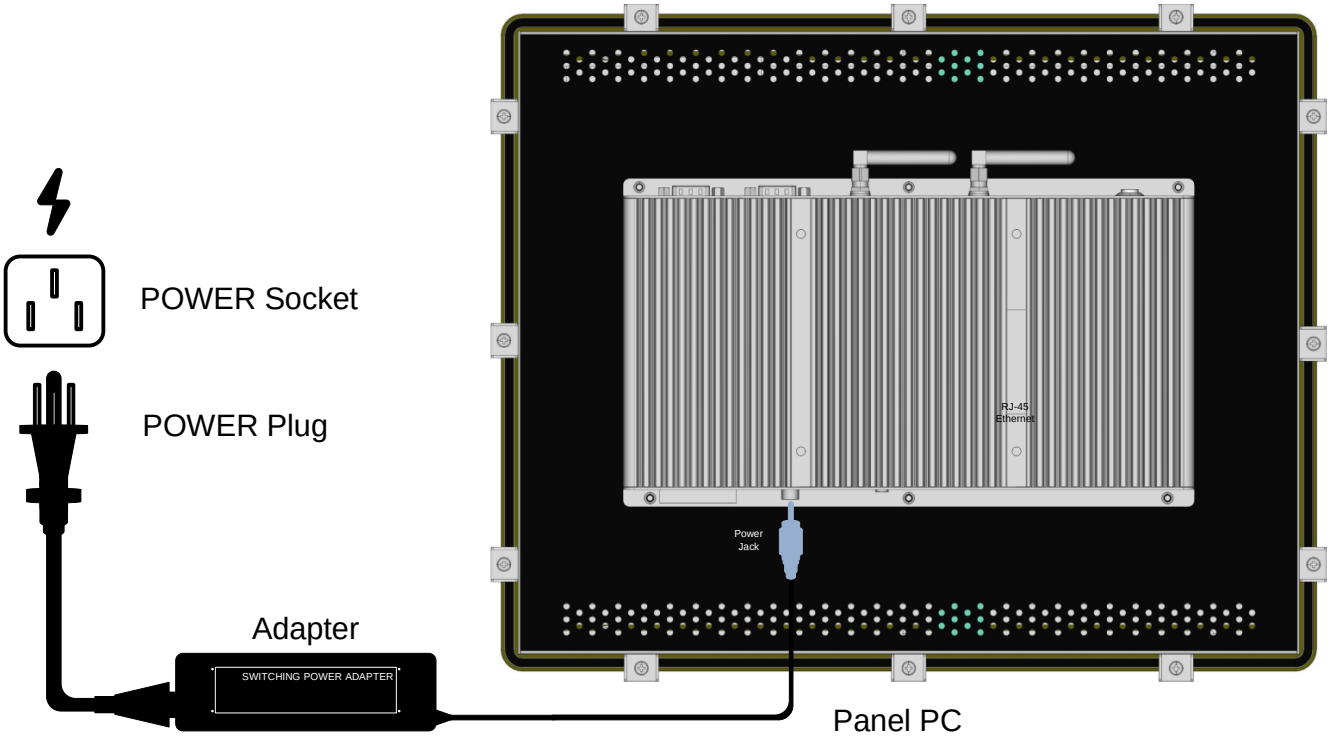


Fig 6 Panel PC Connection Diagram (via Power Adapter to Power Jack)

3.3.3.1.2 Terminal Block

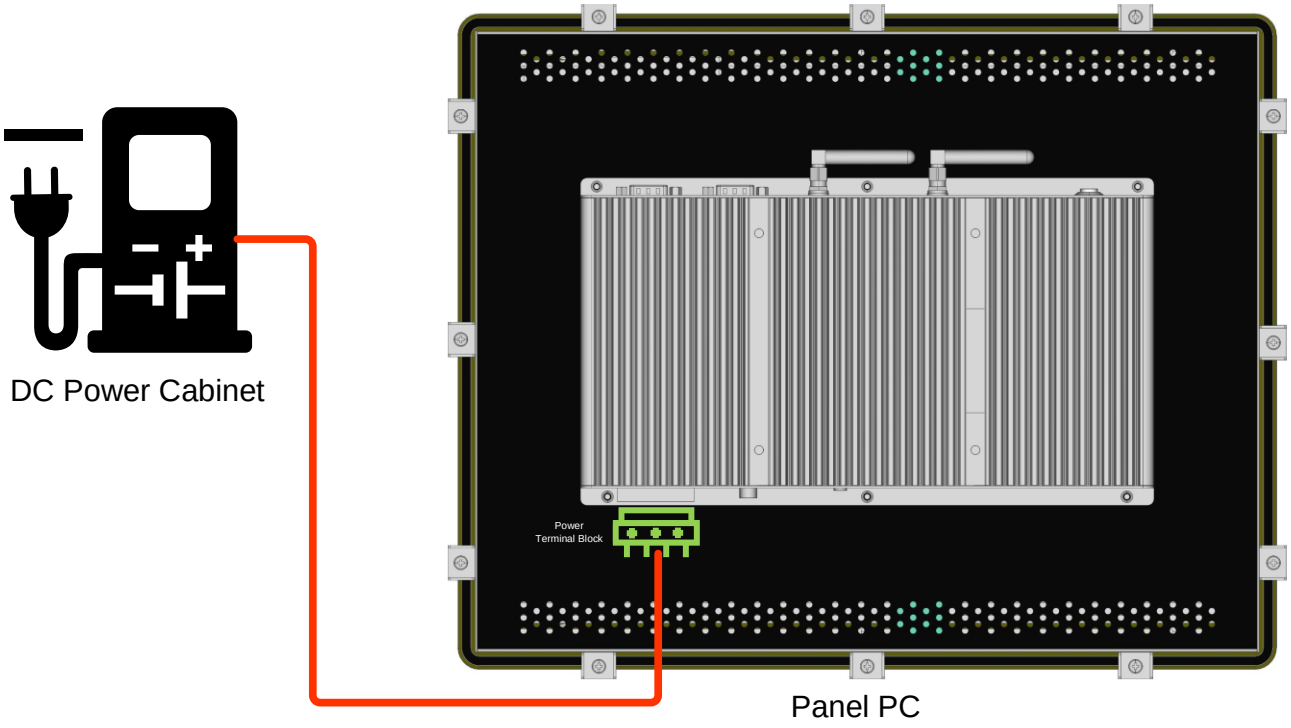


Fig 7 Panel PC Connection Diagram (via DC Power Cabinet to Terminal Block)

3.3.3.2 Access Network

The Panel PC is compatible with both Ethernet cable and wireless connections.

3.3.3.2.1 Ethernet Cable

The Panel PC is accessed through a Ethernet switch to enable connection to a network, either a local area network (LAN) or the Internet.

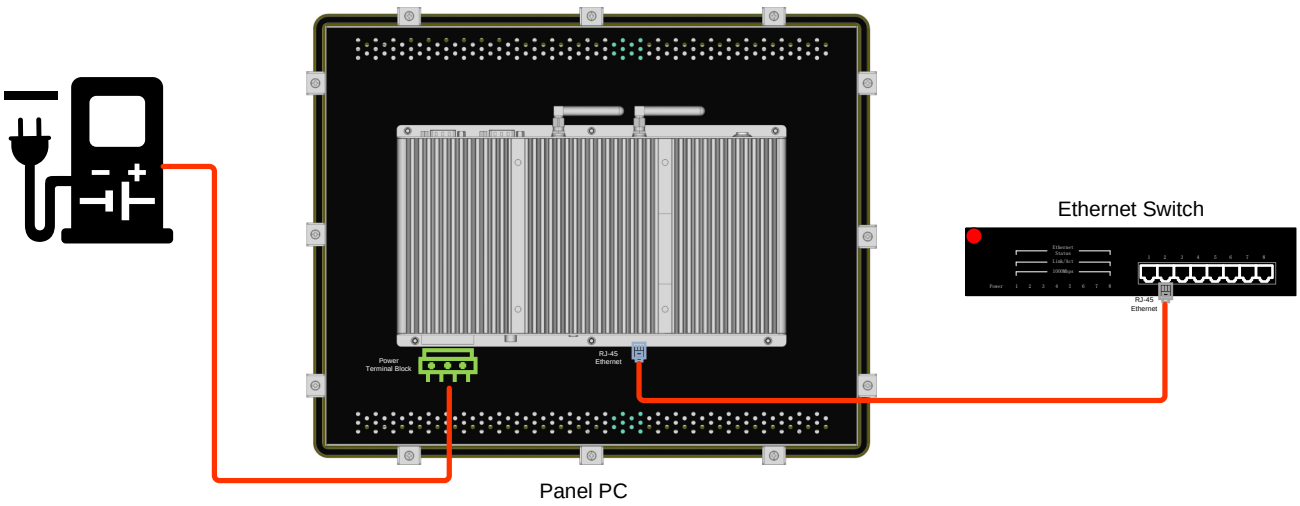


Fig 8 Panel PC Connection Diagram (via Ethernet Switch)

3.3.3.2.2 WiFi

In instances where network wiring is not readily available, the Panel PC offers a convenient alternative through WiFi connectivity. This approach involves the wireless router transmitting WiFi signals, which are then received and processed by the built-in WiFi module of the Panel PC.

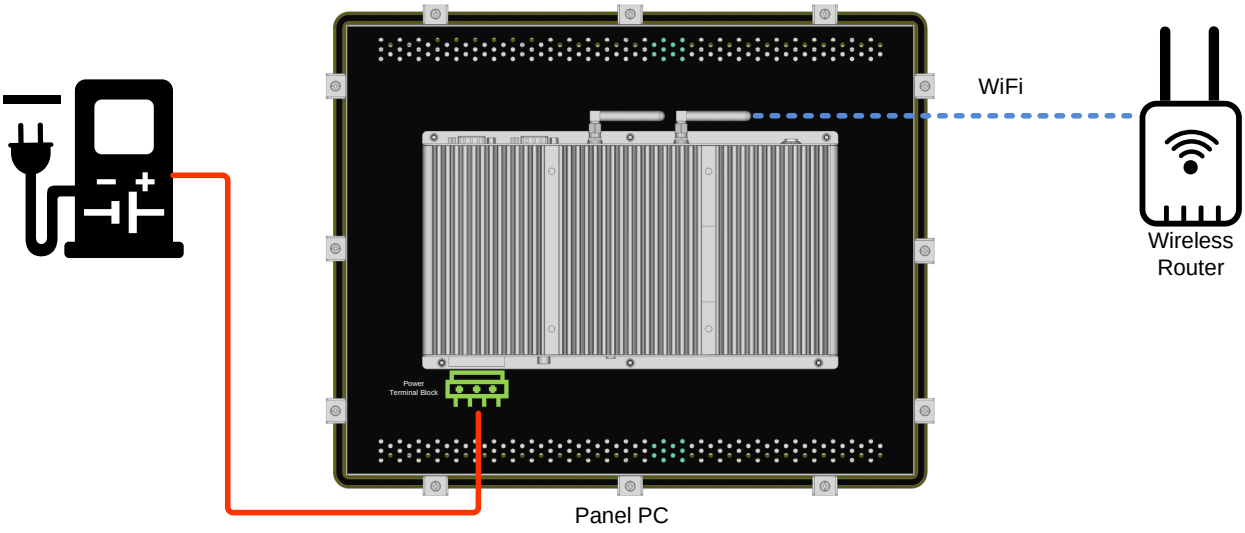


Fig 9 Panel PC Connection Diagram (via WiFi)

3.3.3.3 Access to Serial Devices

The Panel PC's external RS-232 interface allows the customer's serial device to be connected, enabling the monitoring of the serial device's operation status, the acquisition of its device data, and the configuration of parameters.

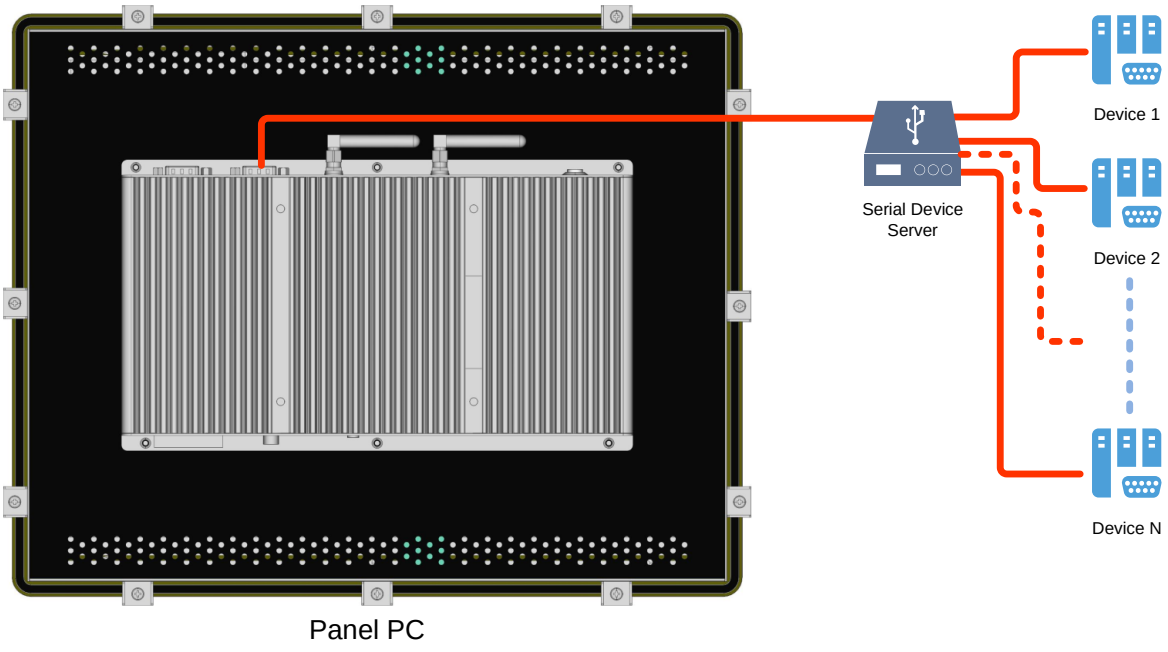


Fig 10 Panel PC Connection Diagram (Serial Device Topology)

3.3.3.4 Access to Keyboard and Mouse

The Panel PC provides users with the ability to connect an external keyboard and mouse to the USB port of the Panel PC, enhancing the overall user experience.

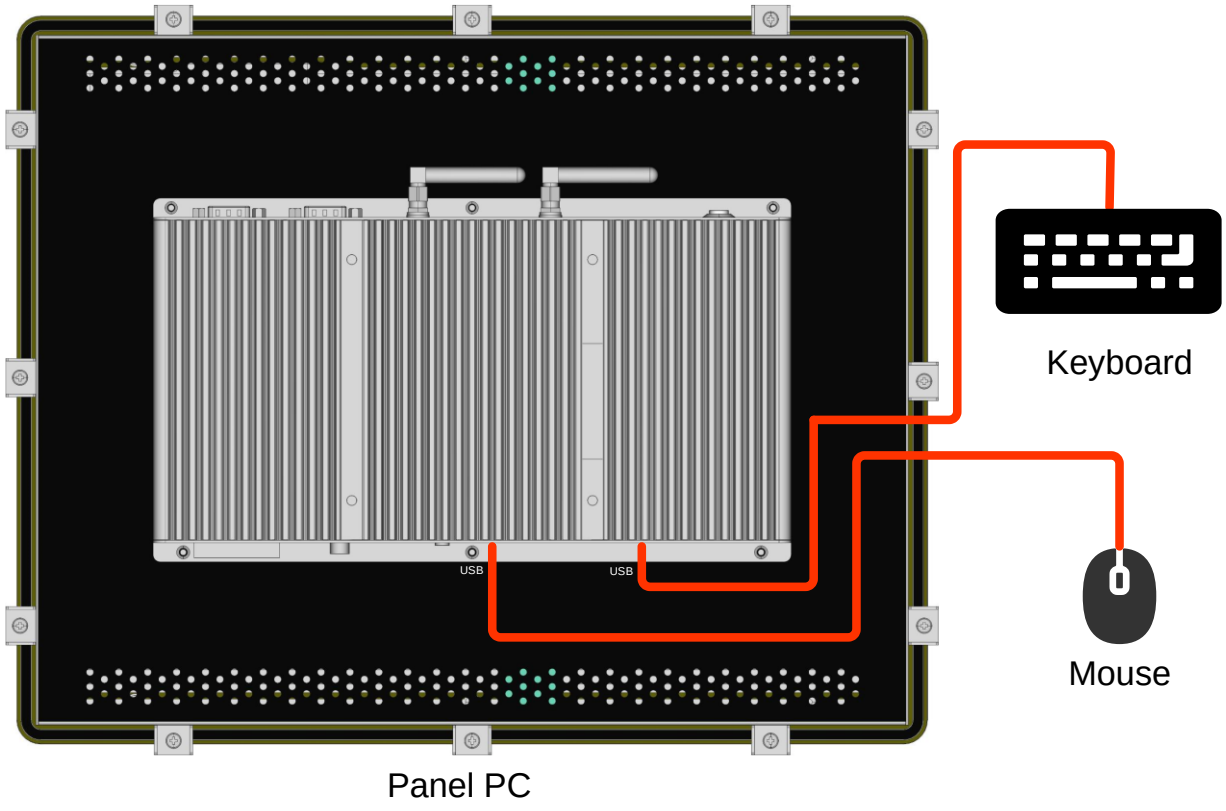


Fig 11 Panel PC Connection Diagram (Keyboard and Mouse)

3.3.3.5 External Display

The Panel PC's HDMI port allows for the connection of an external monitor, which can be used for duplication and expansion of the display window.

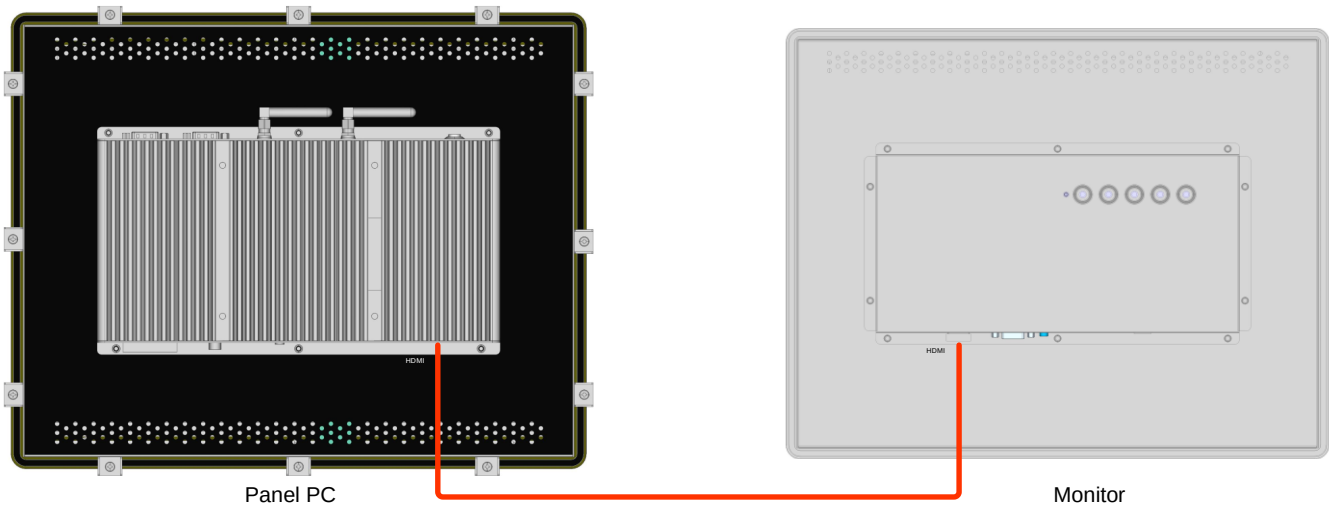


Fig 12 Panel PC Connection Diagram (External Monitor)

3.3.3.6 Touch

Our Panel PC supports various gesture operations such as tapping and swiping. Please refer to the following gesture table for more details:

Table 1 Touch Gesture Descriptions

Gestures	Name	Type	Descriptions
	Tap	Static Gestures	Single Finger (Pads) to Touch and Swipe the Screen
	Multi Tap	Gesture Operations	Multiple Fingers (Pads) to Touch and Swipe the Screen
	Swipe	Gesture Operations	Moving a finger (Pads) across the screen
	Other	Gesture Operations	Supports Touch Operations on Different Platforms

Note: The above gestures are based on the Windows Universal Platform for the host operating system, as well as support from certain applications. The icons are for reference only, and the actual display on the touchscreen may vary depending on the specific model.

Please find below a list of the Windows-based touch gestures.

Operation	Touch Gesture
Select an item.	Tap the screen.
Scroll.	Place two fingers on the screen and slide.
Zoom in or out.	Place two fingers on the screen and pinch or stretch.
Show more commands (right-click)	Long press on the screen.

3.3.4 Software Installation and Configuration

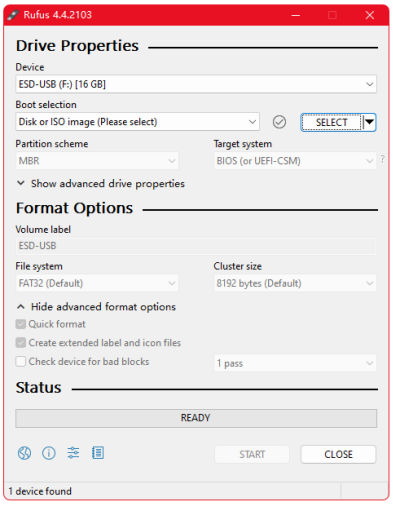
The industrial Panel PCs are compatible with the installation of Windows 10, Windows 11, and Linux. The default operating system is Windows 10 IoT Enterprise x64, and Microsoft® Product Key is an optional order accessory.

Please exercise caution when selecting the reinstallation of the Operation System, as well as the recovery of the system and other operations. Please do not attempt this process unless the system has crashed or you are unable to access the system desktop. Additionally, we recommend that you back up any important files before proceeding.

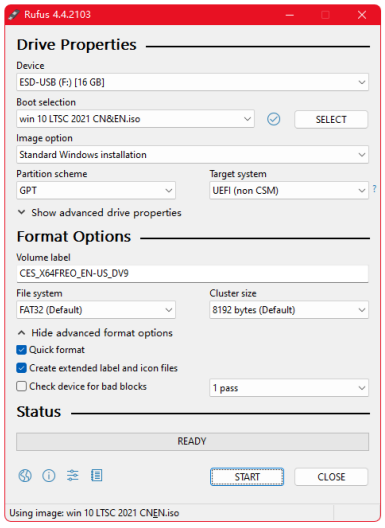
3.3.4.1 USB Flash Drive Boot Disk

In this example, we will use Rufus 4.4 as the creation tool for the boot disk and will install Windows 10 IoT. Before beginning the installation process, please ensure that the USB flash drive has a capacity of at least 8GB.

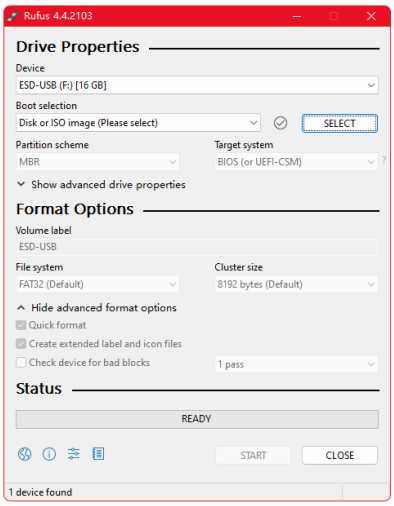
Please select the Operation System image file.



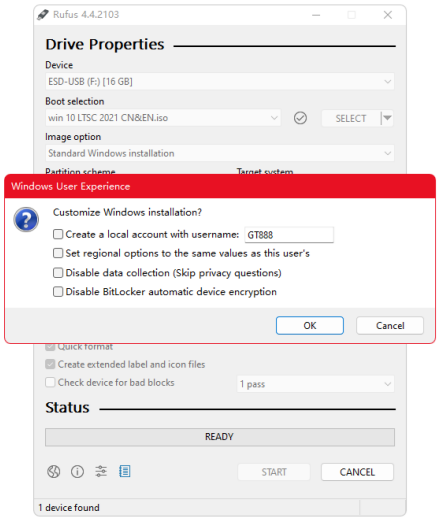
Please click on the “START” button.



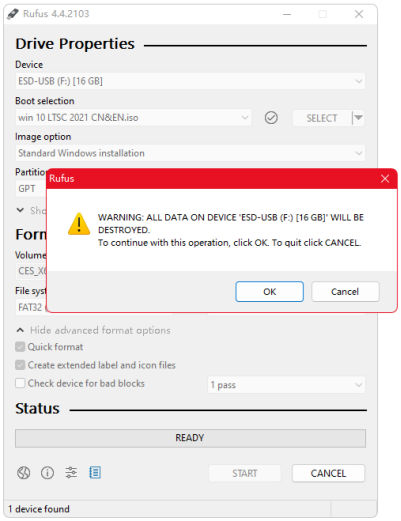
The operating system image file is currently being prepared.



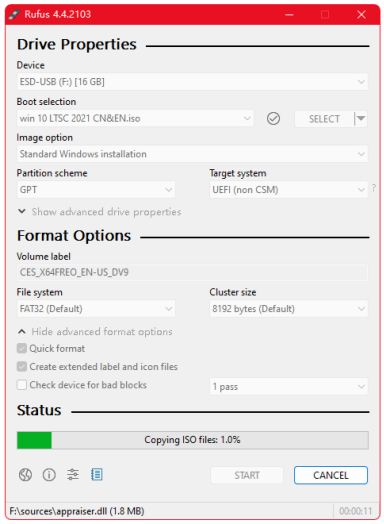
In the pop-up window, please ensure that all the options are unchecked and click “OK”.



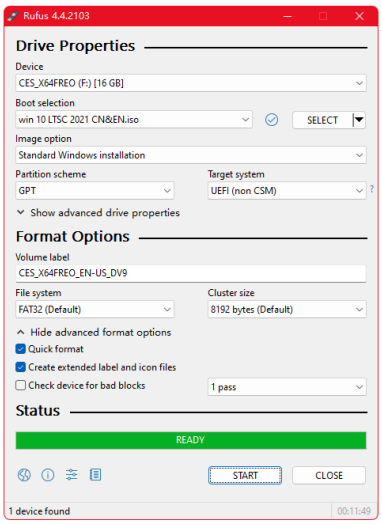
When prompted to format the USB flash drive, please click “OK”.



In progress.



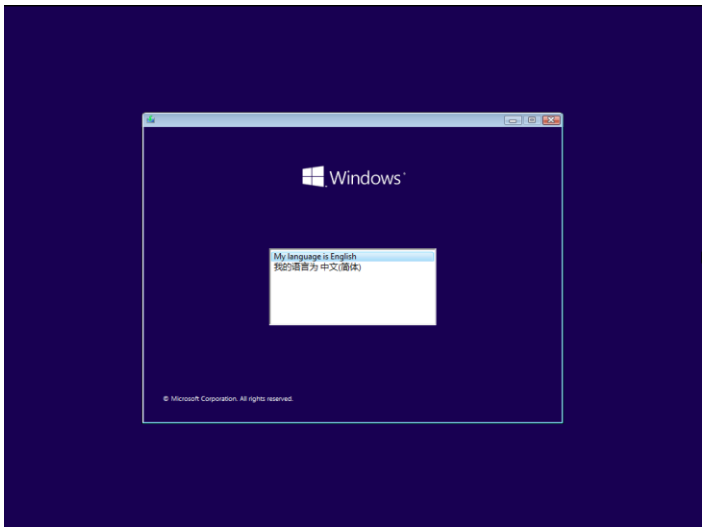
The USB boot disk has been created and is ready for use.



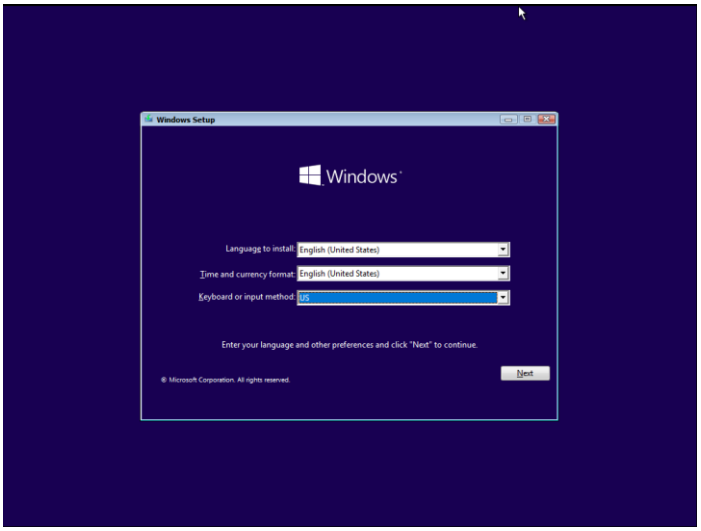
3.3.4.2 Install Windows

Please insert the USB flash drive into the USB port of the computer. Press the power button to start the computer. When you hear the motherboard buzzer, keep clicking F12 to enter the boot options interface. Use the keyboard up and down keys to select the USB flash drive boot, and then click “Enter”. Wait for a while until you enter the installation screen. Then, please follow the instructions below to install.

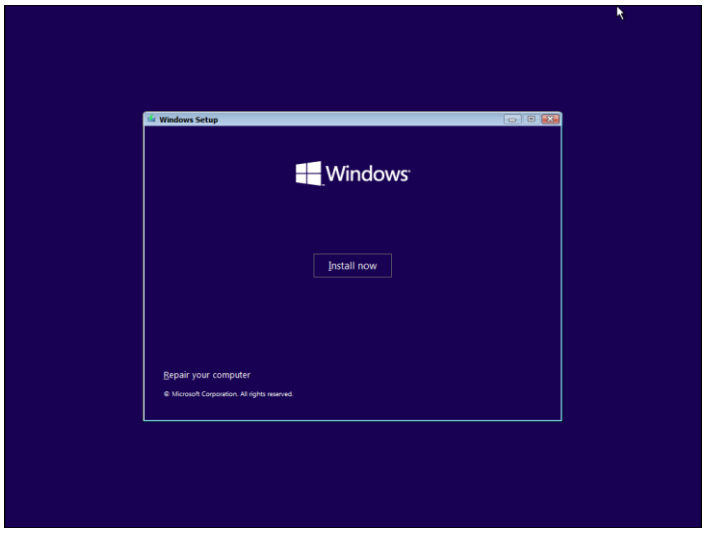
Please follow the prompts to make your selection.



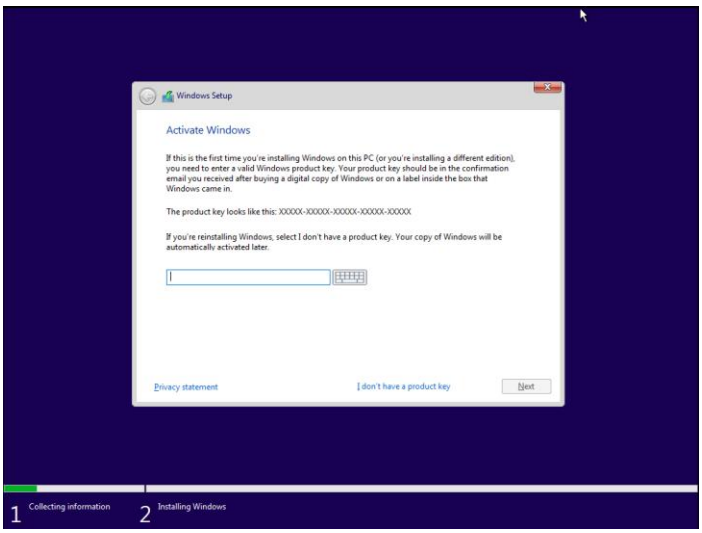
Please follow the prompts and click “NEXT”.



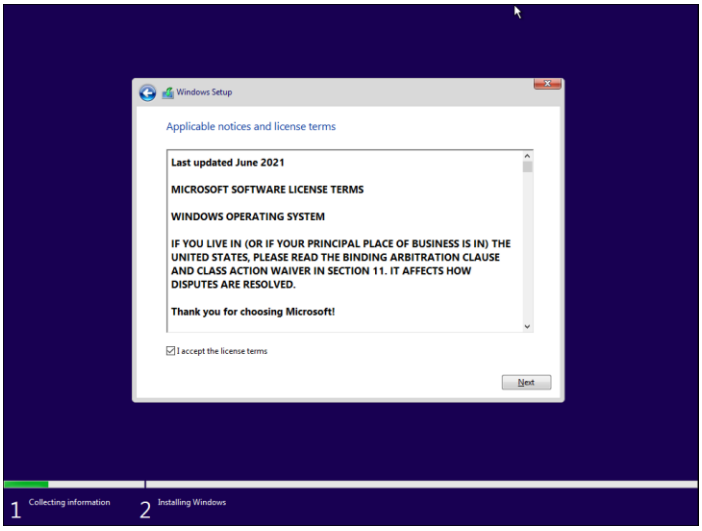
Please click on the “Install now” button.



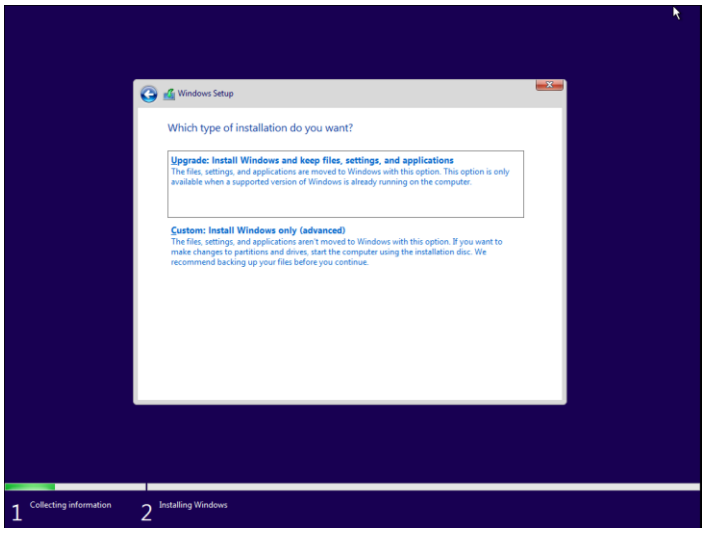
Please follow the prompts to make your selection.



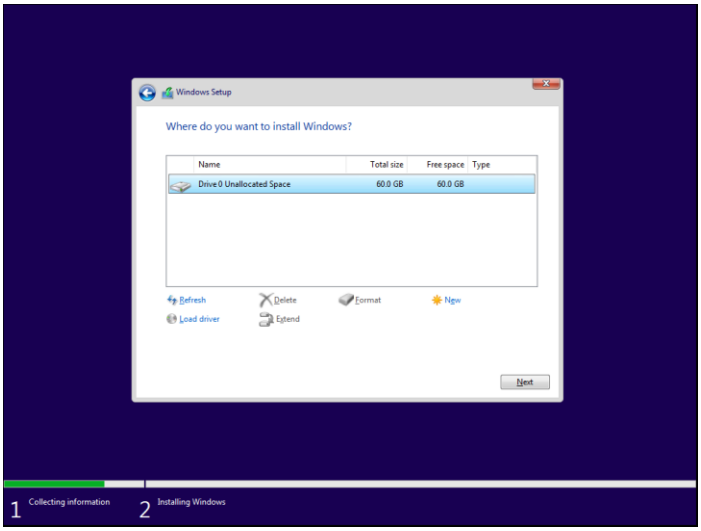
Please read and confirm the License terms, then click “Next”.



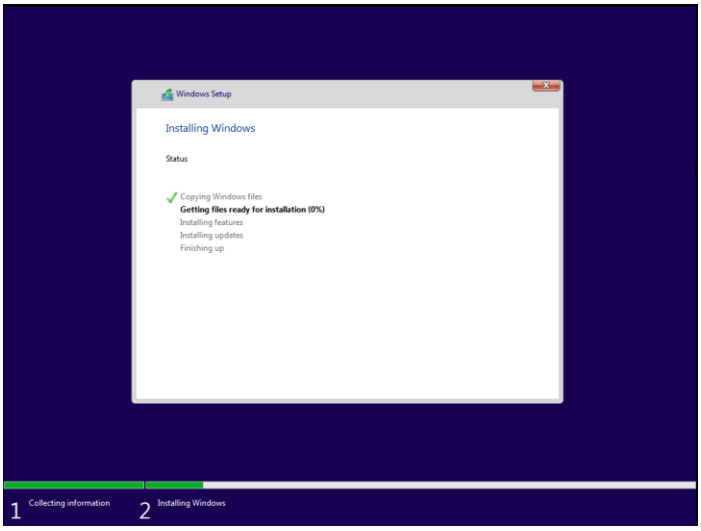
Please select “Custom: Install Windows only (advanced)”.



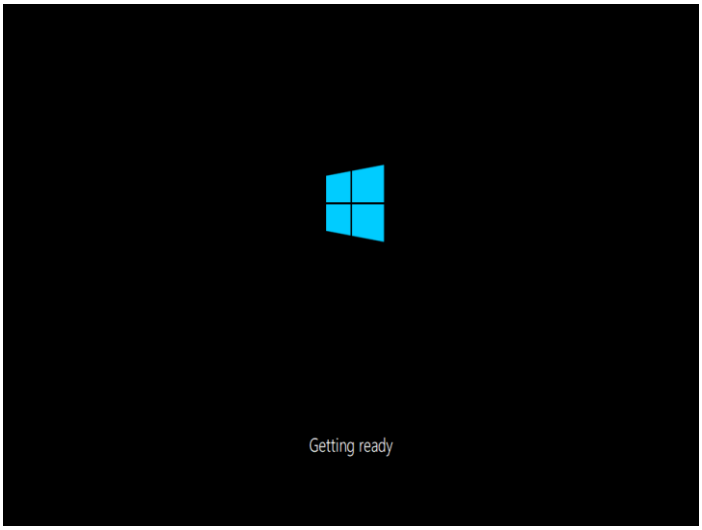
Please select the drive disk where the operating system is installed and click “Next”.



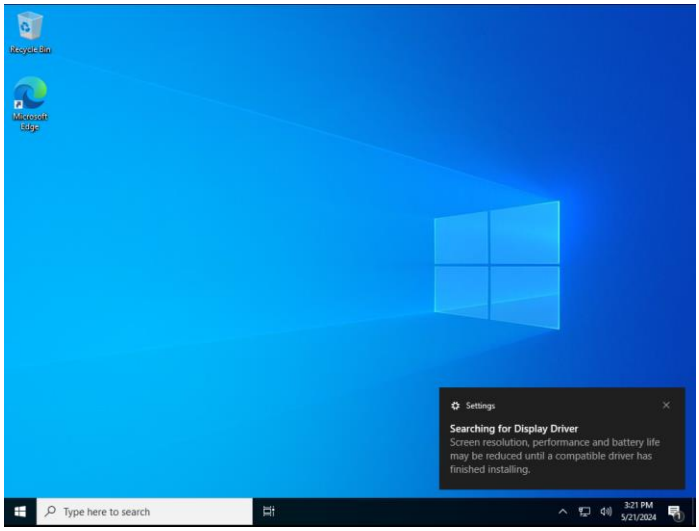
Installing Windows.



The installation of the operating system is now complete, and the configuration of the system will commence shortly.



System desktop.



3.3.4.3 Reset Your PC

Once the operating system of the Panel PC has been restored to its original factory settings, It is important to note that all user settings and data will be lost during the formatting process. Prior to formatting, it is therefore of the utmost importance to ensure that all data, settings, and user-installed software have been fully backed up.

3.3.4.4 Install Drivers

Please be advised that drivers are installed at the factory and should not be uninstalled or reinstalled if they do not match your hardware specifications, unless necessary.

3.3.4.5 BIOS Configuration

Our Panel PC is AMI UEFI BIOS. To set it up, enter the BIOS as follows:

Please power up the Panel PC.

When you hear the motherboard buzzer, keep clicking F2 on the keyboard until enter the BIOS.

Select a configuration item by using the keyboard arrow keys (←, ↑, →, ↓), and then click “Enter” to set it. Click “Exit” to save and exit.

3.3.5 Cleaning, Maintenance

Please unplug the power cord before cleaning. Use a rag with a little neutral detergent to clean the unit (except the touch screen).

It is important to note that the touchscreen all-in-one must be kept dry at all times. Do not spill or splash liquids. If liquid gets inside the unit, please turn off the unit and have it inspected by a qualified service technician before powering up the unit.

To clean the touchscreen, apply glass cleaner to a clean rag or sponge. Do not apply the cleaner directly to the touchscreen. Do not use alcohol (methanol, ethanol, or isopropanol), thinner, benzene, or other caustic cleaners.

TROUBLESHOOTING GUIDE

This section provides an overview of common types of product malfunctions and troubleshooting methods.

4 TROUBLESHOOTING GUIDE

In different use environments, an Industrial Panel PC may exhibit varying failure phenomena.

4.1 Common Troubleshooting and Handling Guidelines

Problem Description	Possible Causes	Troubleshooting Methods
The system is experiencing a technical issue that is preventing it from functioning properly.	The issue may be caused by an operating system or hardware failure. For instance, the operating system may contain bugs or viruses that result in the system crashing or becoming unresponsive. Hardware failure may be caused by insufficient memory, a failed hard disk, or other factors.	In the event of a system crash or failure, it is essential to first verify that the operating system is functioning correctly. In the event of an issue with the operating system, it is essential to address it promptly through repair or upgrade. If the operating system is functioning as intended, it is necessary to determine whether the hardware is faulty. As a potential solution, you may wish to try re-plugging the memory stick or replacing the hard disk.
Network connection issue	The Ethernet Cable is loose.	In the event of network connection issues, it is first necessary to ascertain whether the network connection status is normal. Should a problem with the network connection be identified, it is imperative to repair or replace the network equipment in a timely manner.
The touch function is not responsive or functioning correctly.		Prior to any further action, it is essential to ascertain whether the touch screen is functioning correctly. In the event that a malfunction is identified in the touch screen, it is imperative that the device be replaced or repaired in a timely manner. Furthermore, it is possible to adjust the touch sensitivity and implement other measures to enhance the user experience.

Problem Description	Possible Causes	Troubleshooting Methods
Blurred screen	The occurrence of these problems may be attributed to malfunctions in either the hardware or software. For instance, a malfunction in the panel itself may result in a blurred screen, while damage to the backlight may result in abnormal brightness.	It is possible that the issue is caused by the plug-in cable between the panel and the motherboard being insecure. One can ascertain whether the plug-in cable is secure and whether the plug-in cable is correctly installed. In the event of a problem, one can return to the factory for repair. In the case of screen display issues, it is first necessary to ascertain whether the connecting cable of the panel is secure and whether the panel itself is faulty. Should the problem persist, it may be necessary to replace the screen or related components.
Power on alarm.	The issue may be due to the memory or video card not being inserted or broken, but in most cases this is due to the memory not being inserted.	One may attempt to diagnose the problem by re-plugging the memory, replacing the test memory and video card, and then identifying the source of the issue and replacing it.
Can't power on		Once the device has been powered up, please check to see if the power button light is on. If it is not, please verify that the power supply is functioning properly and replace the adapter or power cord if necessary. Once the device has been powered up, the power button light should turn on, but there should be no power-on auto-check sound. This may indicate a bad memory or hard drive hardware connection. To resolve this issue, please remove the machine and re-insert the memory stick and hard drive.

* If you need to test the device yourself, please contact our customer service personnel in advance. If you are unable to solve the problem, please contact our customer service personnel.

SERVICE AND SUPPORT

This chapter mainly introduces our after-sales service and technical support.

5 SERVICE AND SUPPORT

5.1 Pre-sales Consultation

We provide professional pre-sales consultation services to our users. You can obtain timely and comprehensive information about our products and corresponding services through various channels such as our official website, email, and telephone.

5.2 After-sales Service

If you have any questions about the product or need assistance with equipment malfunctions, you can first refer to the user manual and frequently asked questions available on our website. If the issue persists, please contact us directly.

To provide global support, we collaborate with local representatives/service providers to assist customers with support and services. For more information, you can contact us or leave a message using the following methods, and we will respond promptly and provide assistance as soon as possible!

5.2.1 After-sales Process

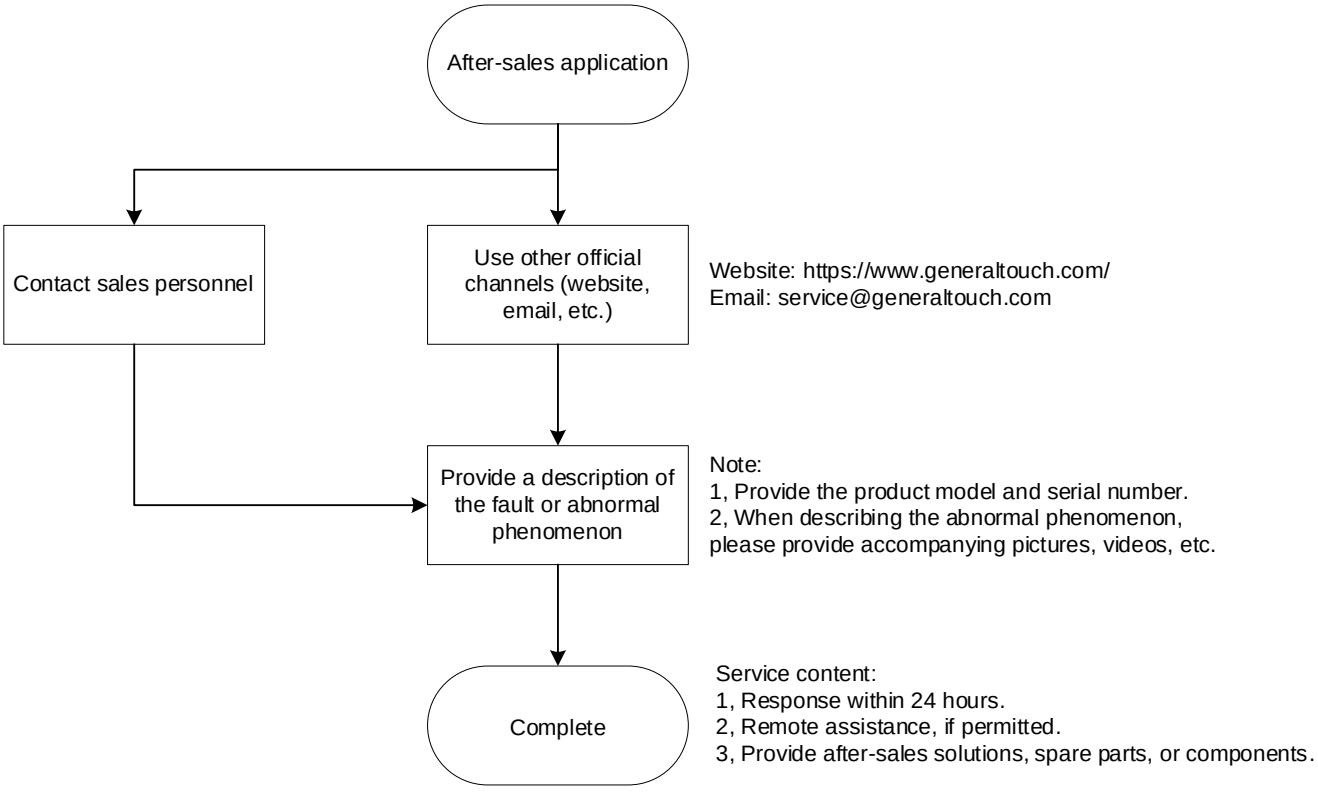


Fig 13 After-sales Process

5.2.2 Warranty Policy

The following is our product warranty commitment. During the warranty period, we provide free product repairs and replacement services for key components. For products that have exceeded the warranty period, we may charge a certain fee. For more details, please refer to our warranty policy on the official website under the "Warranty Services" section. Throughout the entire lifecycle of the product, you can expect comprehensive service from our company. The warranty policy provided below is for reference only. In case of any inconsistencies, the contract or specification sheet shall prevail.

Table 2 Warranty Policy

Touchscreen Components	SAW		5 Years
	PCAP		3 Years
	IR		1.5 Years
	FOG/Touch film/Touch Glass		6 months
	Resistive		1 Year
Touch Monitor	Flat	Not High TNI & High Brightness	3 Years
		High TNI & High Brightness	1 Year
	Curved		1 Year
Touch Computer (All-In-One)	With or without touch function		2 Years
Touch & Display Kits	Touchscreen and LCD panel bonding together		1 Year

5.2.3 Service Assurance

We are based in Chengdu, China, and have established after-sales repair centers in Europe. We also work with local agents and partners in the Americas, India, and other regions to provide diverse after-sales services.

We have dedicated departments and professionals to promptly and efficiently respond to customer needs. For common issues, we provide online consultation and support. For severe faults that require factory repairs, we offer return-to-factory repairs and the option of sending spare parts, based on our warranty policy.

5.3 Customization Services

We specialize in providing professional customized solutions for users. Based on your needs, we can offer complete product customization, such as touchscreens, touch displays, and all-in-one touch systems. You can learn about our customization service policies and options on the official website under "Customer Customization", or you can directly consult with us.

5.4 Driver and Operating System Upgrades

Our panel mount touch displays usually do not require additional debugging and can be used directly. However, if you have specific requirements for touch experience, we also provide corresponding services, including touch calibration, touch signal testing, and firmware upgrades.

5.4.1 Driver Upgrades

The necessity for upgrading the driver is determined by the system prompts.

5.4.2 Updates for the Operating System

Microsoft provides security updates on a regular basis during the support cycle of the Windows operating system.

Note: All users are required to comply with the terms and conditions of the Microsoft license agreement.

APPENDIX

This chapter primarily introduces the product models within this series, as well as some terms and annotations.

6 APPENDIX

6.1 Specifications

6.1.1 Dimensions

For detailed dimensions and specifications, please refer to the sales drawings.

6.1.2 Technical Indicators

Model	CTL109	CTL159	CTL15N
Motherboard Parameters			
Processor	Intel® Celeron® Processor J6412		
GPU	Intel® UHD Graphics for 10th Gen Intel® Processors, integrated in CPU		
Memory	1 x DDR4 SO-DIMM Slot, up to 32GB		
Storage	1 x M.2 Interface		
Operating System	Windows 10/ Windows 11/ Linux (Note 1)		
Wi-Fi & Bluetooth	Mini PCI-e Module, optional (Note 2)		
4G LTE	Mini PCI-e Module, optional (Note 2)		
LCD Panel Parameters			
Display Technology	Active Matrix TFT-LCD with LED Backlight		
Aspect Ratio	16:9	16:10	4:3
Active Display Area (W x H)	344.16mm x 193.59mm	219.96mm x 135.60mm	344.16mm x 193.59mm
Native Resolution	1920 x 1080	1280 x 800	1024 x 768
Response Time	25ms	30ms	23ms

Model	CTL109		CTL159		CTL15N	
(Typ.)						
Display Colors	16.7M		16.2M		16.2M	
Luminance (Typ.)	350nits		400nits		350nits	
Contrast Ratio (Typ.)	800:1		900:1		2500:1	
Viewing Angle (Typ.)	Horizontal (Left/Right) CR≥10	178° (89°/89°)	Horizontal (Left/Right) CR≥10	170° (85°/85°)	Horizontal (Left/Right) CR≥10	176° (88°/88°)
	Vertical (Up/Down) CR≥10	178° (89°/89°)	Vertical (Up/Down) CR≥10	170° (85°/85°)	Vertical (Up/Down) CR≥10	176° (88°/88°)
Touchscreen Parameters						
Touch Technology	PCAP					
Touch Point	10					
Light Transmission	≥85%		≥85%		≥83%	
Thickness	3.3mm ± 0.5mm		3.3mm ± 0.3mm		3.3mm ± 0.4mm	
I/O Port						
LAN	2 x RJ45 (10/100/1000Mbps)					
USB	4 x USB 3.0 (Type-A)					
Display	1 x HDMI out					
COM	2 x RS232					
Audio	1 x 3.5mm Line out & Mic 2 in 1					

Model	CTL109	CTL159	CTL15N
Antenna	2 x SMA-K, available on Wi-Fi & Bluetooth or 4G LTE model		
Power	1 x DC Jack (Pin Outer Diameter 2.5mm) 1 x 3-Pin Terminal Block, DC 12V		
Overall Parameters			
Bezel/Case Colour	Black		
Mounting Options	Panel Mounting, VESA 100mm x 100mm		
Outline Dimensions (W x H x D)	412.9mm x 262.2mm x 71.4mm	375mm x 345mm x 285mm	378.3mm x 302.3mm x 71.4mm
Power Consumption	32W Max	24W Max	32W Max
Operating Altitude	≤3000m		
Temperature	Operating: -15℃ to 60℃, storage: -20℃ to 70℃		
Humidity (Non-condensing)	Operating: 20% to 80%, storage: 10% to 90%		
Carton Dimensions (W x H x D)	TBD	375mm x 345mm x 285mm	TBD
IP Rating	Front Panel IP65		
Agency Approvals	CE, FCC		
MTBF	50,000 Hours Demonstrated		
Warranty	2 years		

Note 1: The default operating system is Windows 10 IoT Enterprise x64, and Microsoft® Product Key is an optional accessory.

Note 2: There is only 1 Mini PCI-e slot for Wi-Fi & BT 2-in-1 module or 4G LTE module installation.

6.2 Terms

PCAP: Projected Capacitive

AIO: All-in-one

VESA: Video Electronics Standards Association

6.3 Contact Us

Address: No. 6, Keyuan South Road, Chengdu High-tech Zone, Sichuan Province, China

This manual may be subject to updates without prior notice.

You can check the latest version on the General Touch official website or contact us directly.

https://www.generaltouch.com/

If you have any questions or suggestions regarding the user manual, please contact us via the following email: **info@generaltouch.com**。

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