VT3000 Series Touch Screen PC

User Manual

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Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
Danger	Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.
Caution	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
Note	Provides additional information to emphasize or supplement important points of the main text.

Available Model

This manual is applicable to the VT3000 Series Touch Screen PC.

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Chapter 1 Safety Instruction

The safety instructions are intended to ensure that the user can use the device correctly to avoid danger or property loss. Read and follow these safety instructions before installing, operating and maintaining the device.

1.1 Safety Claim

- To ensure personal and device safety, when installing, operating, and maintaining the device, follow the signs on the device and all safety instructions described in the manual.
- The note, caution and danger items in the manual do not represent all the safety instructions that should be observed, but only serve as a supplement to all the safety instructions.
- The device should be used in an environment that meets the design specifications, otherwise it may cause malfunctions, and malfunctions or component damage caused by non-compliance with relevant regulations are not within the scope of the device's quality assurance.
- Our company will not bear any legal responsibility for personal safety accidents and property losses caused by abnormal operation of the device.

1.2 Safety Instruction

⚠Caution

- Do not install the device if it is found that the device and accessories are damaged, rusted, water ingress, model mismatch, missing parts, etc., when unpacking.
- Avoid storage and transportation in places such as water splashing and rain, direct sunlight, strong electric fields, strong magnetic fields, and strong vibrations.
- Avoid dropping, smashing or vigorously vibrating the device and its components.
- It is forbidden to install the indoor device in an environment where it may be exposed to water or other liquids. If the device is damp, it may cause fire and electric shock hazard.
- Place the device in a place out of direct sunlight and ventilation, away from heat sources such as heaters and radiators.
- Install the device in a stable position. Otherwise, dumping may cause serious personal injury or death.
- In the use of the device, you must be in strict compliance with the electrical safety regulations of the nation and region.
- Use the power adapter provided by the official manufacturer. The power adapter must meet the Limited Power Source (LPS) requirements. For specific requirements, please refer to the device's technical specifications.
- Do not cover the device's plug or outlet for disconnecting power supply.
- It is strictly forbidden to wire, maintain, and disassemble the device is powered on.

Otherwise, there is a danger of electric shock.

- Make sure that the device is installed in good condition, the wiring is firm, and the power supply meets the requirements before powering on the device.
- Avoid powering off the device by plugging and unplugging the power cord directly if the device has a power switch.
- If the device emits smoke, odor or noise, please turn off the power and unplug the power cord immediately, and contact the dealer or service center in time.
- It is strictly forbidden to touch any terminal of the device when operating it. Otherwise there is a danger of electric shock.
- It is strictly forbidden for non-professional technicians to detect signals during device operation, otherwise it may cause personal injury or device damage.
- It is strictly forbidden to maintain the device is powered on. Otherwise, there is a danger of electric shock.
- If the device does not work properly, please contact your dealer or the nearest service center. Never attempt to disassemble the device yourself. We shall not assume any responsibility for problems caused by unauthorized repair or maintenance.
- Please dispose of the device in strict accordance with the relevant national or regional regulations and standards to avoid environmental pollution and property damage.

Note

- Check whether the device's package is in good condition, whether there is damage, intrusion, moisture, deformation, etc. before unpacking.
- Check the surface of the device and accessories for damage, rust, bumps, etc. when unpacking.
- Check whether the quantity and information of the device and accessories are complete after unpacking.
- Store and transport the device according to the storage and transport conditions of the device, and the storage temperature and humidity should meet the requirements.
- It is strictly prohibited to transport the device in combination with items that may affect or damage the device.
- Quality requirements for installation and maintenance personnel:
  - Qualification certificate or working experience in weak current system installation and maintenance, and relevant working experience and qualifications. Besides, the personnel must possess the following knowledge and operation skills.
  - The basic knowledge and operation skills of low voltage wiring and low voltage electronic circuit connection.
  - The ability to comprehend the contents of this manual.
- Please read the manual and safety instructions carefully before installing the device.
- Please install the device strictly according to the installation method in this manual.
- The case of the device may be overheated, and it needs to be powered off for half an hour before it can be touched.
- The device should not be placed with exposed flame sources, such as lighted candles.

1.3 Electromagnetic Interference Prevention

- Make sure that the shielding layer of cables is intact and 360° connected to the metal connector when using shielded cables.
- Do not route the device together with other equipment (especially servo motors, high-power devices, etc.), and control the distance between cables to more than 10 cm. Make sure to shield the cables if unavoidable.
- The control cable of the device and the power cable of the industrial light source must be wired separately to avoid bundled wiring.
- The power cable, data cable, signal cable, etc. of the device must be wired separately. Make sure to ground them if the wiring groove is used to separate the wiring and the wiring groove is metal.
- During the wiring process, evaluate the wiring space reasonably, and do not pull the cables hard, so as not to damage the electrical performance of the cables.
- If the device is powered on and off frequently, it is necessary to strengthen the voltage isolation, and consider adding a DC/DC isolation power supply module between the device and the adapter.
- Use the power adapter to supply power to the device separately. If centralized power supply is necessary, make sure to use a DC filter to filter the power supply of the device separately before use.
- The unused cables of the device must be insulated.
- When installing the device, if you cannot ensure that the device itself and all equipment connected to the device are well grounded, you should isolate the device with an insulating bracket.
- To avoid the accumulation of static electricity, ensure that other equipment (such as machines, internal components, etc.) and metal brackets on site are properly grounded.
- During the installation and use of the device, high voltage leakage must be avoided.
- Use a figure-eight bundle method if the device cable is too long.
- When connecting the device and metal accessories, they must be connected firmly to maintain good conductivity.
- Use a shielded network cable to connect to the device. If you use a self-made network cable, make sure that the shielding shell at the aviation head is well connected to the aluminum foil or metal braid of the shielding cable.

Chapter 2 Overview

2.1 Introduction

The VT3000 series touch screen PC adopts Intel® Coffee Lake CPU and multi-point capacitive touch screen, which is accurate and sensitive in operation. It has multiple interfaces, such as, GigE, USB 3.0, serial ports, and multi-channel GPIO. It is used in simple multi-camera vision applications, providing more flexible options for vision devices.

2.2 Key Feature

- Adopts 8th generation Intel® CPU to offer strong performance.
- Supports multi-channel GPIO and easy to use.
- Adopts GigE interfaces for stable data transmission.
- Built-in USB interface for on-site maintenance is optional.
- Front panel is rated for IP66 protection, offering better environmental resistance.
- Full metal cover, solid and durable.
- Provides extended interface for HDD, Wi-Fi, etc.
- Supports countertop placement, rear and embedded mounting, and VESA standards.

Note

- The specific functions may differ by device models.
- Refer to the device's datasheet for specific parameters.

Chapter 3 Appearance

Note

- For specific appearance and dimension, please refer to the device's datasheet for details.
- The appearance is subject to change, and the actual device you purchased shall prevail.

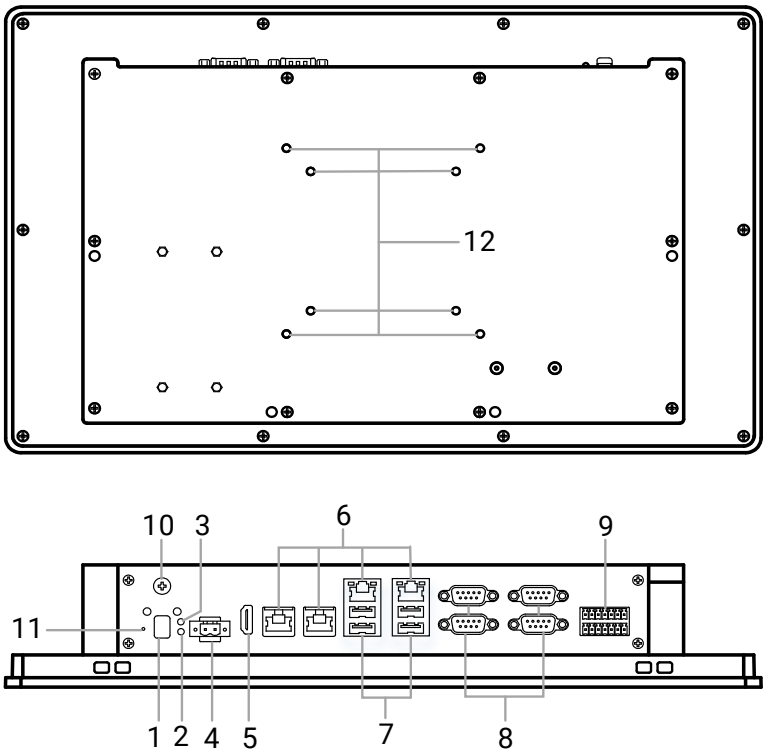


Figure 3-1 Appearance

Table 3-1 Component Description

No.	Name	Description
1	Power Switch	It is used to power on/off the device. Press it shortly to power on the device, and long press it for 4 s to power off.
2	HDD Indicator	It indicates HDD status. The indicator is flashing red when the HDD reads and writes data.
3	Power Indicator	It indicates device's power status. The indicator is solid green when the device is switched on.
4	Power Interface	It provides power supply.
5	HDMI Interface	It is used to transmit audio and video signals.

No.	Name	Description
6	GigE Interface	It is used to transmit network signal.
7	USB 3.0 Interface	It is used to connect USB flash drive, portable HDD, etc.
8	Serial Port	It is used for serial communication. See ***Serial Port*** for details.
9	GPIO Interface	It provides input and output function. See ***GPIO Interface*** for details.
10	GND Screw	It is used to connect ground wire.
11	Clear CMOS Hole	Use a pin to press it shortly to clear the RTC configuration information and restore the BIOS configuration information to factory settings.
12	Screw Hole	It is used to fix the device, and you should use M3 or M4 screw.

Chapter 4 Installation and Access to Device

4.1 Installation Preparation

You need to prepare following accessories before installation.

Table 4-1 Accessories

No.	Name	Quantity	Description
1	Touch Screen PC	1	It is the touch screen PC mentioned in this manual.
2	Power Adapter	1	It refers to the suitable power adapter that is included in the package.
3	GPIO Adaptor	1	It refers to the supplied GPIO adaptor that is included in the package.
4	Screws and Buckle Accessories	Several	They are used to fix the device, and are included in the package.

4.2 Install and Fix Device

Note

The images below are for reference only.

The device supports three types of installation, including workbench placement, embedded mounting, and rear mounting.

Before You Start

- Make sure that the device in the package is in good condition and all the assembly parts are included.
- Make sure that all the related equipment is powered off during the installation.

4.2.1 Workbench Placement

Put the device on a workbench for using, as shown below.

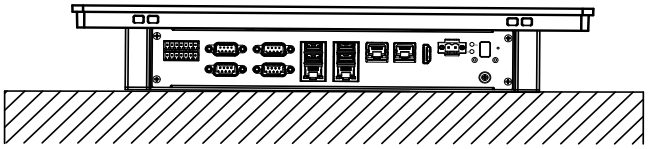


Figure 4-1 Workbench Placement

4.2.2 Embedded Mounting

Use the buckle accessories to embed the device into the panel and fix it, as shown below.

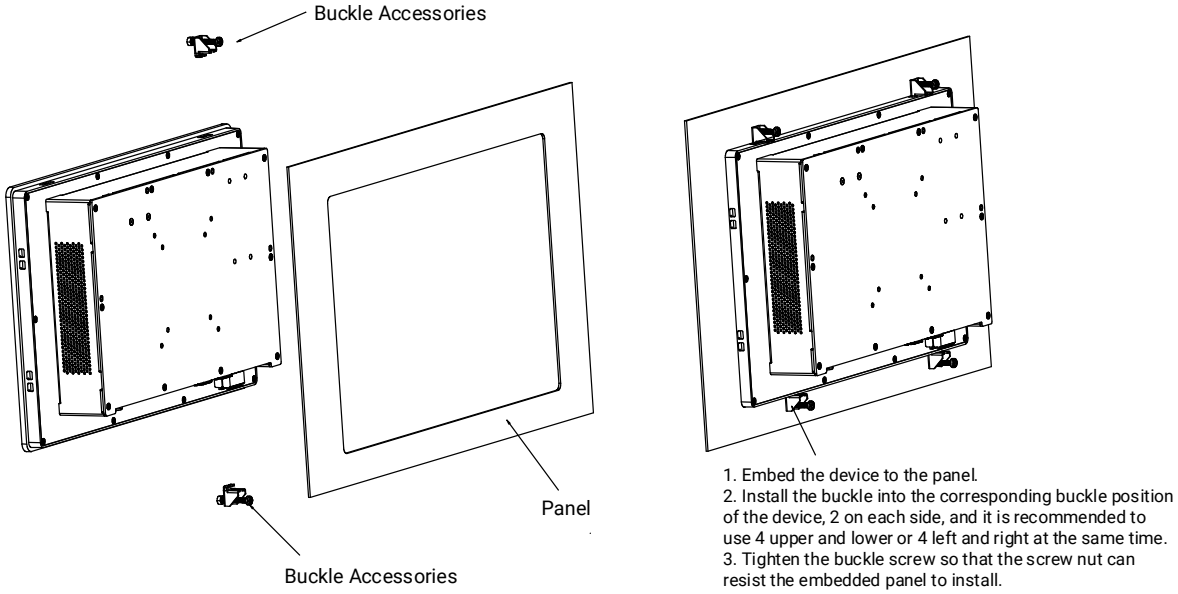


Figure 4-2 Embedded Installation

4.2.3 Rear Mounting

Use screws to fix the device to a rear panel to meet VESA (Video Electronics Standards Association) standard.

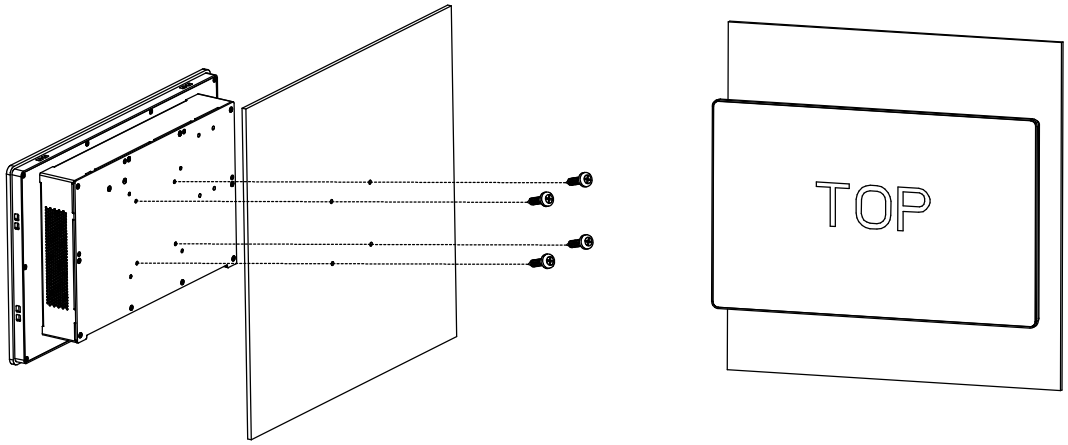


Figure 4-3 Rear Installation

Note

Some device models have a built-in mechanical hard disk. Please install the device in a location as far away from the source of vibration as possible. If the vibration environment is unavoidable, do not place the device freely on the workbench. Securely fix the device and add cushioning materials (such as foam or silicone) between the device and the contact surface.

4.3 Access to Device

You can operate the device on the monitor by connecting them via HDMI cable. Or, you can remotely access the device via the PC that is in the same network segment with the device.

Note

- You can use packet capturing tool or other methods to get the device IP address.
- The default user name of the device is **Administrator**, and the password is **Operation666**
- For security, it is highly recommended to change the default password for the first-time use.

Chapter 5 Interface Description

5.1 GPIO Interface

5.1.1 Pin Definition

The device provides 11-channel GPIO interface, as shown below.

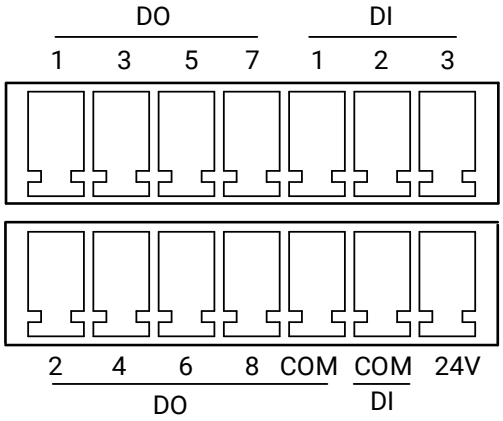


Figure 5-1 GPIO Interface

Table 5-1 Pin Definitions of 11-Channel GPIO Interface

Signal Name	Description	Signal Name	Description
DO 1	Opto-isolated output 1	DO 2	Opto-isolated output 2
DO 3	Opto-isolated output 3	DO 4	Opto-isolated output 4
DO 5	Opto-isolated output 5	DO 6	Opto-isolated output 6
DO 7	Opto-isolated output 7	DO 8	Opto-isolated output 8
DI 1	Digital-isolated input 1	DO COM	Output common port (without polarity)
DI 2	Digital -isolated input 2	DI COM	Input common port (without polarity)
DI 3	Digital-isolated input 3	24 V	Output 24 V voltage

5.1.2 Digital-Isolated Input Wiring

Note

- Wiring may differ when connecting the device to different types of external devices.
- You can design circuit diagram for other external devices according to the diagrams below.

PNP Device

When connecting the device to PNP device, the wiring is shown below.

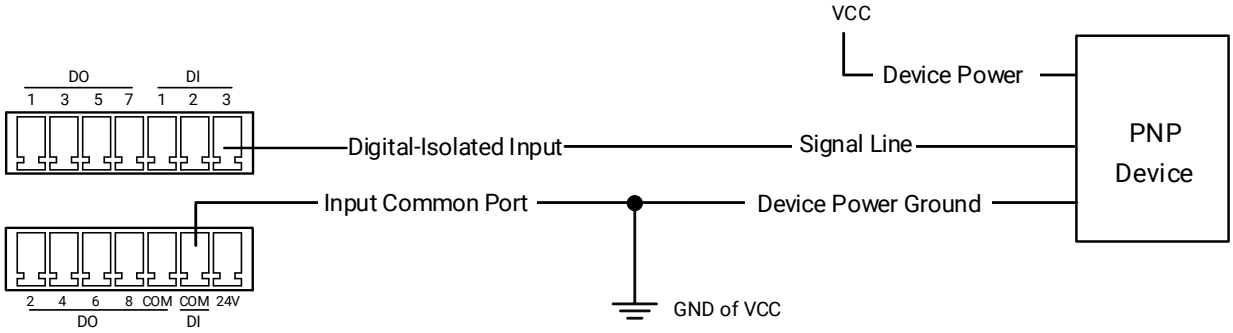


Figure 5-2 Connect to PNP Device

Note

If PNP-type external device needs to use 24 V in the GPIO interface of the VT3000 device for power supply, the maximum output current is 150 mA, and the wiring is shown below.

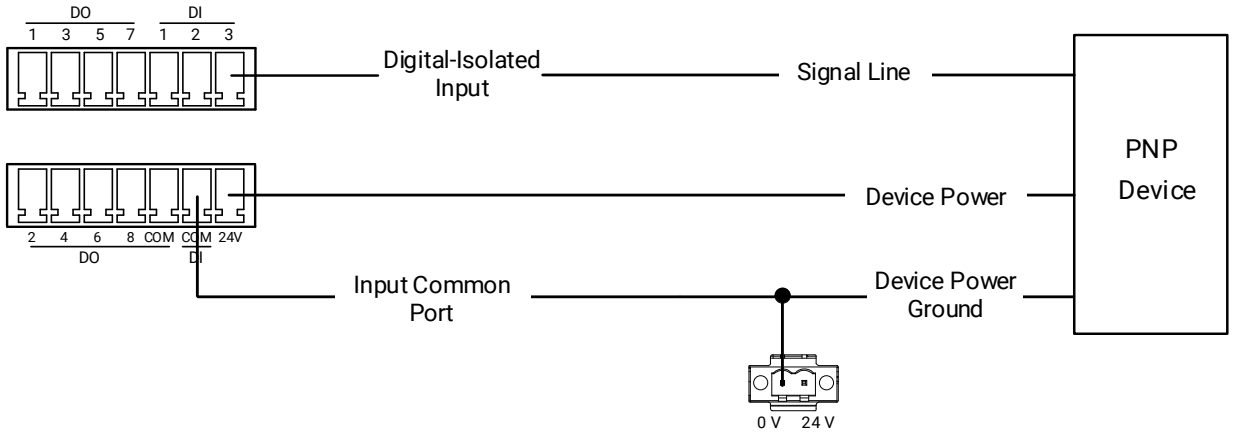


Figure 5-3 Connect to PNP Device (Use IO Power Supply)

NPN Device

The wiring is as following if the VCC of NPN device is 12 V or 24 V and without external resistance.

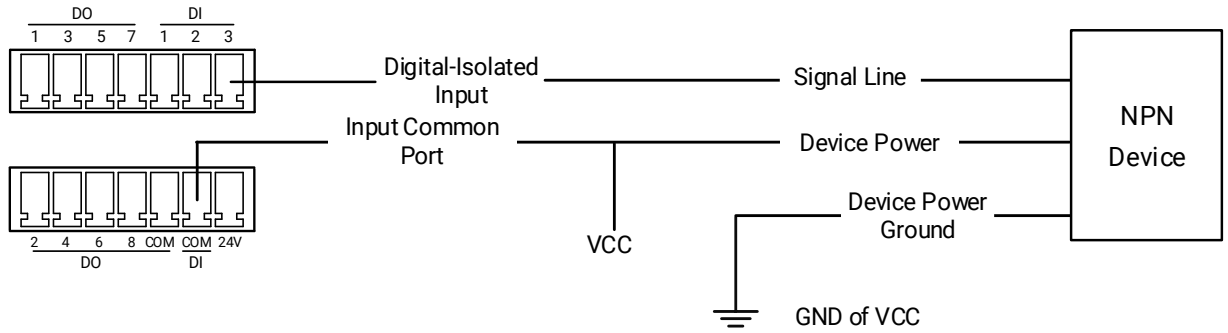


Figure 5-4 Input Signal Connecting NPN Device without External Resistance

The wiring is as following if the VCC of NPN device is 12 V or 24 V and with pull-up resistance.

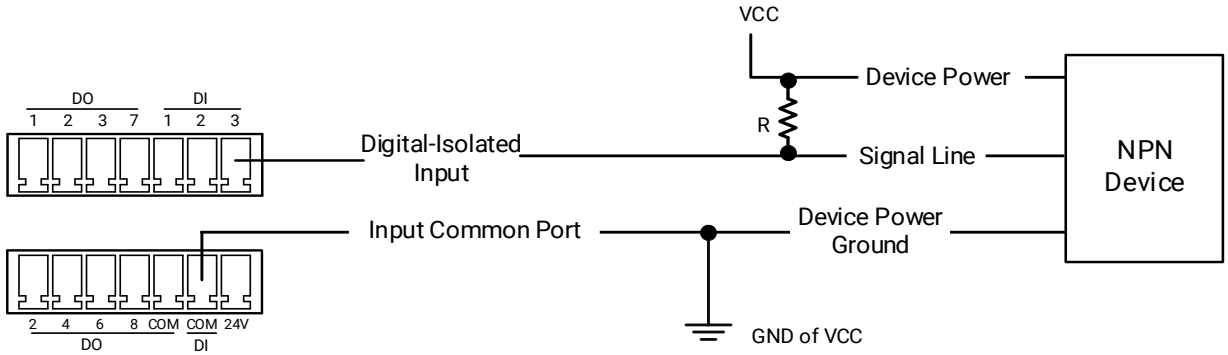


Figure 5-5 Input Signal Connecting NPN Device with Pull-Up Resistance

The resistance value (R) in the image above is different when the VCC of the device changes. Refer to the table below for details.

Table 5-2 Relation between VCC and Resistance

VCC	R
12 VDC	0 KΩ
24 VDC	4.7 KΩ

Note

- The voltage of VCC should not be greater than 24 V. Otherwise, the output signal exception may occur.
- During the wiring, do not short-circuit the 24 V in the GPIO interface of the device with other interfaces, otherwise it will cause a short circuit of the device.

5.1.3 Opto-isolated Output Wiring

Note

- Wiring may differ when connecting the device to different types of external devices.
- You can design circuit diagram for other external devices according to the diagrams

below.

PNP Device as External Device

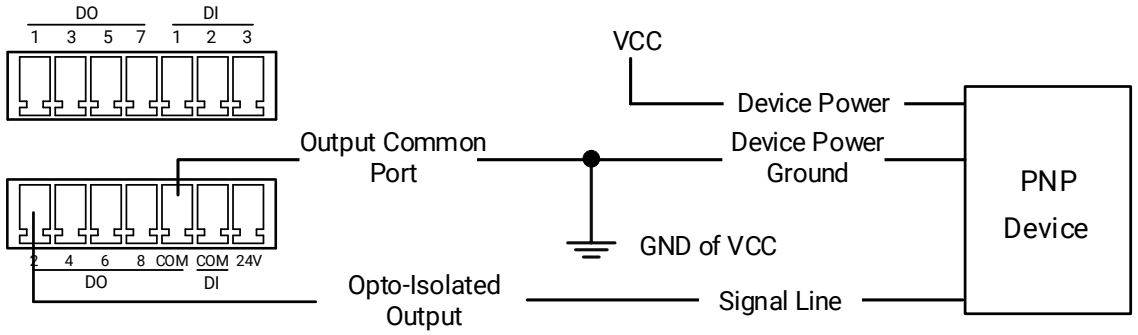


Figure 5-6 Output Signal Connecting PNP Device

Note

If PNP-type external device needs to use 24 V in the GPIO interface of the VT3000 device for power supply, the maximum output current is 150 mA, and the wiring is shown below.

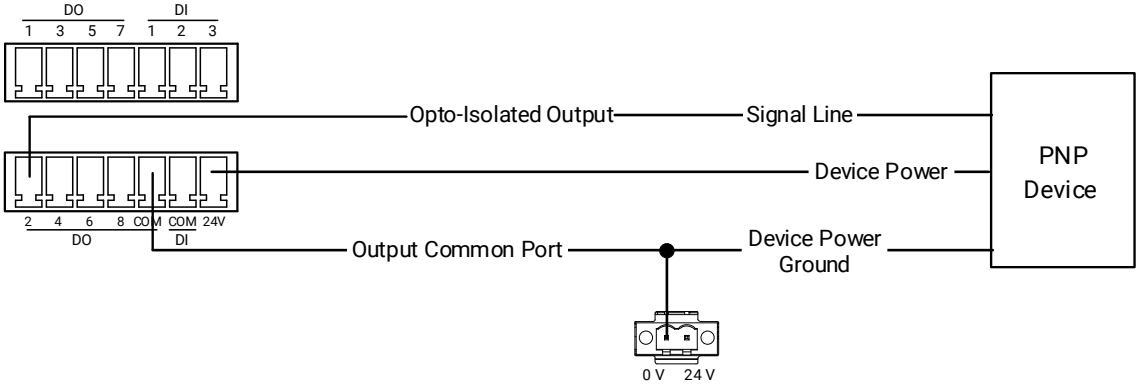


Figure 5-7 Connect to PNP Device (Use IO Power Supply)

NPN Device as External Device

The wiring is as following if the VCC of NPN device is 12 V or 24 V and without external resistance.

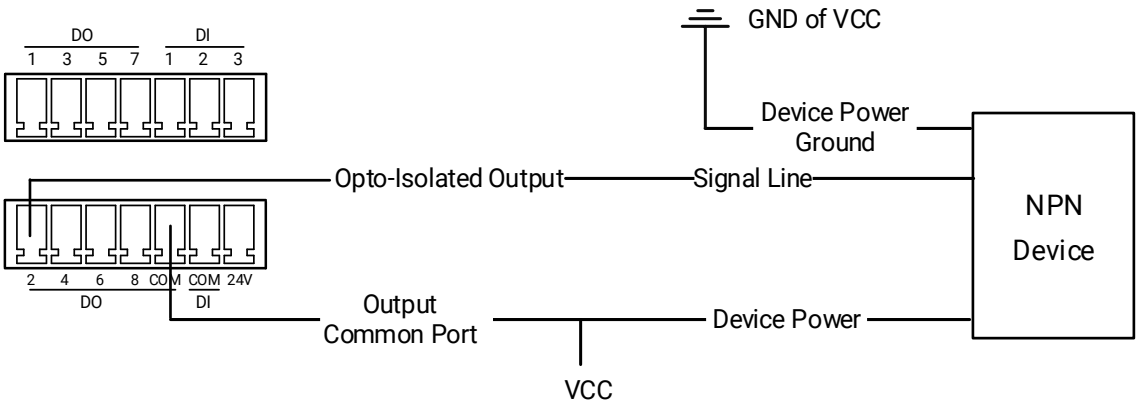


Figure 5-8 Output Signal Connecting NPN Device without External Resistance

The wiring is as following if the VCC of NPN device is 12 V or 24 V and with pull-up resistance.

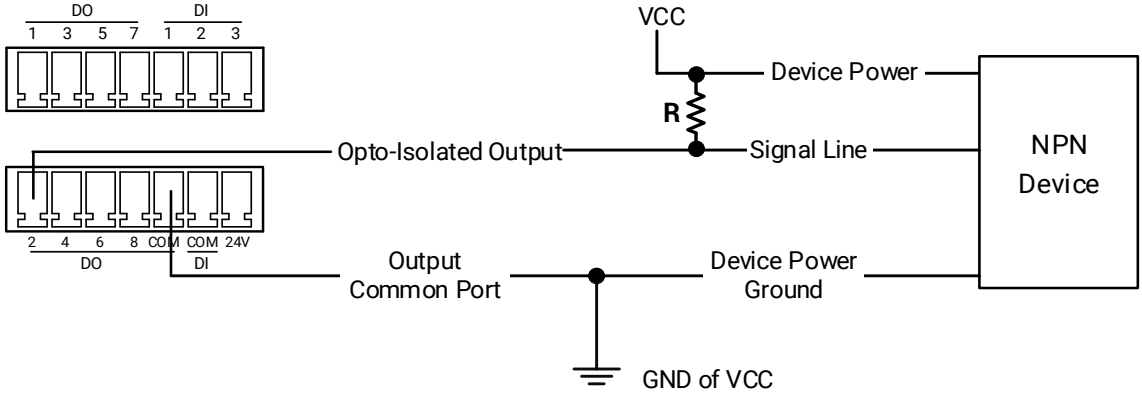


Figure 5-9 Output Signal Connecting NPN Device with Pull-Up Resistance

The resistance value (R) in the image above is different when the VCC of the device changes. Refer to the table below for details.

Table 5-3 Relation between VCC and Resistance

VCC	R
12 VDC	1 KΩ
24 VDC	4.7 KΩ

Note

- The voltage of VCC should not be large than 24 V. Otherwise, the output signal exception may occur.
- During the wiring, do not short-circuit the 24 V in the GPIO interface of the device with other interfaces, otherwise it will cause a short circuit of the device.

5.2 Serial Port

The main module has standard D-sub 9-pin communication interface. The serial port is RS-

232 by default, and you can configure it to RS-485 or RS-422 via Demo settings.

Note

- Refer to ***Serial Port Settings*** for details.
- RS-232 is not fully functional serial port. Currently, only pin No. 2/3/5 is available.

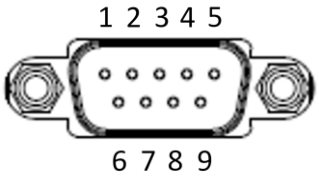


Figure 5-10 Serial Port

Table 5-4 RS-232 Pin Definitions

Pin No.	Description	Pin No.	Description
1	DCD	6	DSR
2	SIN	7	RTS
3	SOUT	8	CTS
4	DTR	9	RI
5	GND	--	--

Table 5-5 RS-485 Pin Definitions

Pin No.	Description
1	D-
2	D+
5	GND

Table 5-6 RS-422 Pin Definitions

Pin No.	Description
1	TX (B)
2	TX (A)
3	RX (A)
4	RX (B)
5	GND

5.3 Power Interface

The device power interface is used to connect the power adapter. On the left side of the 2-pin power interface is a 0 V connector, and you can connect it to power supply negative. On the right side, it is a 24 V connector, and you can connect it to power supply positive.

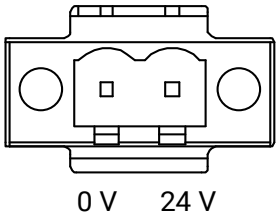


Figure 5-11 Power Interface

5.4 Memory Slot

The device has two memory slots, and it is inserted with a 8 GB memory RAM by default. You can add extra memory ram according to actual demands.

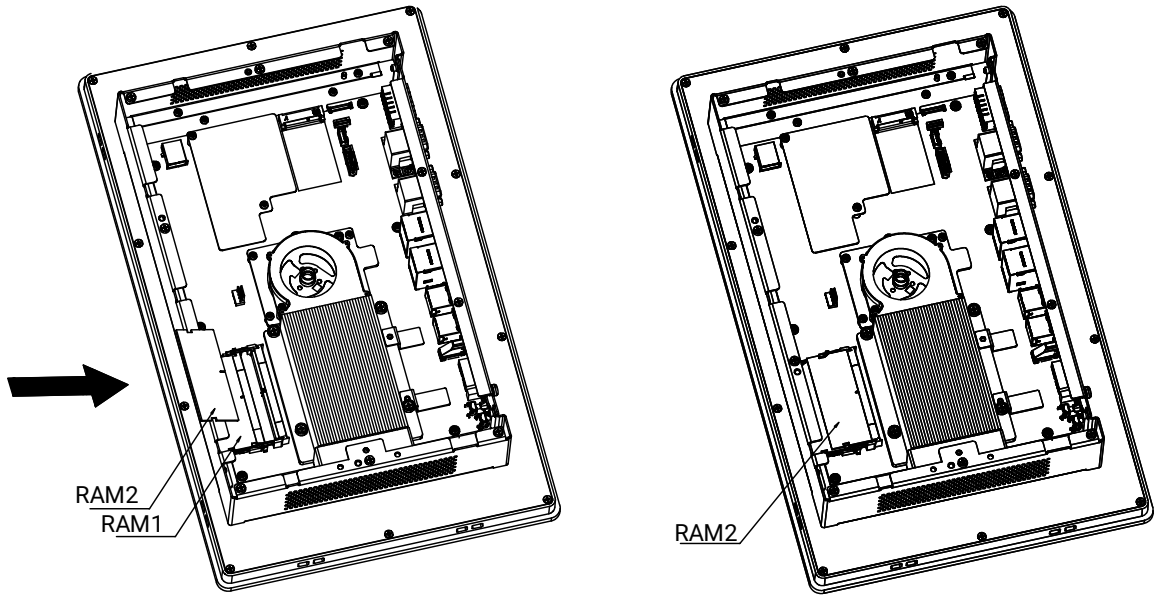


Figure 5-12 Memory Slot

Chapter 6 Demonstration Tool

You can use the demonstration tool to set parameters of the device and extended modules.

6.1 View Message Window

The message window displays logs of the demonstration tool in real time. You can click **Clear** or **Save** to clear or save messages in TXT format.

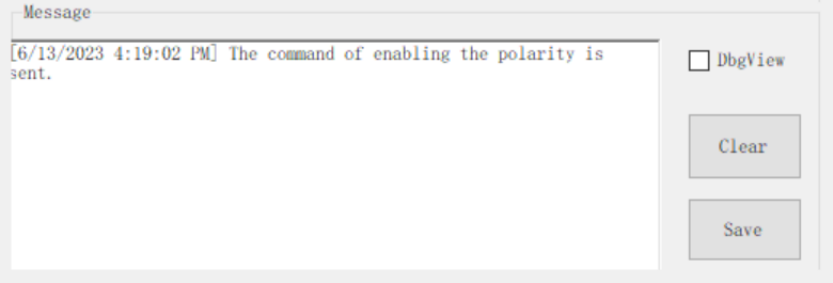


Figure 6-1 Message Window

6.2 Serial Port Settings

The device serial port is RS-232 by default, and you can set it to RS-485 or RS-422. Go to **RS232/485/422 Settings**, select VT3000 series device in **Hard Type**, select corresponding serial port type in COM, and click Apply.

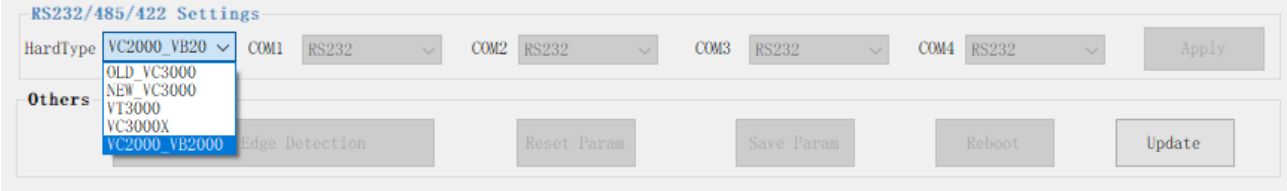


Figure 6-2 Device Type

6.3 GPIO Settings

The GPIO settings allow you to set the device I/O interface.

Note

The GPIO settings are only available for the type I device. You should select the corresponding device in **Hard Type** before setting the GPIO.

Input Settings

Go to **GPI**, click **Detect**, and you can view the electrical level of the input port.

- Input: You can detect the input port level status, and only Level 1/2/3 are valid.
- Output: You can select the output port, and click **Enable** or **Disable** to enable or disable the output signal.

Note

Before setting the GPIO, it is required to select corresponding VT3000 series device in **RS232/485/422 Settings**.



Figure 6-3 GPIO Settings

Chapter 7 System Reinstallation

The default system of the device is Windows 10. If the system exception occurs, or you need to use other systems, and then system reinstallation is required. You can reinstall system by connecting the device to USB flash disk, USB optical disk driver, mobile hard disk, etc. After connection, you need to set in BIOS as follows.

Method 1

- Power on the device, and press **DELETE** to enter BIOS setting window.
- Enter **Save & Quit** sub-menu, find USB device you use, and start system reinstallation.

Method 2

- Power on the device, and press **DELETE** to enter BIOS setting window.
- Go to **Advanced** > **CSM Configuration**, and set **Boot option filer** to **Legacy only**.
- Enter **BOOT** sub-menu, and set **Boot Option #1** as your start-up item.
- Save settings, exit BIOS, and reboot the device.

Note

After system reinstallation, you need to set 1st boot device in **Boot Priority Order** as HDD (Hard Disk Drive).

Chapter 8 FAQ (Frequently Asked Question)

8.1 Why the monitor screen is black?

Table 8-1 Question 1

Issue	Solution
The monitor screen is black.	● Reconnect the HDMI. ● Reboot the device. ● After rebooting the device, press **Ctrl + Alt + Delete**, and press **Delete** quickly until the screen is turned on. ● Long hold **F8** to enter the security mode after powering on, delete or uninstall the software or driver that is installed before, and then reboot the device. ● Reinstall the operating system again. The default system of the device is 64-bit Windows Embedded Standard 10.

8.2 Why the system is blue screen or crashes, or frequent reboots?

Table 8-2 Question 2

Issue	Solution
The system is blue screen or crashes, or frequent reboots.	● Reboot the device. ● Long hold **F8** to enter the security mode after powering on, delete or uninstall the software or driver that is installed before, and then reboot the device. ● Try to solve the problem according to the error codes and hints of blue screen. ● Reinstall the operating system again. The default system of the device is 64-bit Windows Embedded Standard 10.

8.3 Why there is no signal feedback of GPIO input and electrical level change?

Table 8-3 Question 3

Issue	Solution
There is no signal feedback of GPIO input and electrical level change.	● Check if the signal source has any edge signal trigger; check if the parameters are correctly configured (for example, filter parameter, mode configuration delay). ● If the electrical output level does not change, check if the wirings are correct (C port and G port need external power supply) and check if the parameter settings are completely enabled. ● Replace the device and check if the IO port is burned out.

Chapter 9 Revision History

Table 9-1 Revision History

Version	Date	Revision Details
V1.0.0	November 5, 2025	Original version.