ED-HMI2020-101C

User Manual

by EDA Technology Co., Ltd

built: 2026-07-29

1 Hardware Manual

This chapter introduces the product overview, packing list, appearance, button, indicator and interface.

1.1 Overview

ED-HMI2020-101C is a 10.1-inch industrial HMI based on Raspberry Pi CM4. According to different application scenarios and user needs, different specifications of RAM and eMMC computer systems can be selected.

- Options for 1GB, 2GB, 4GB and 8GB RAM
- Options for 8GB, 16GB and 32GB eMMC storage

ED-HMI2020-101C provides common interfaces such as HDMI, USB 2.0, USB 3.0 and Ethernet, and supports access to the network through Wi-Fi and Ethernet. ED-HMI2020-101C integrates RTC, EEPROM and encryption chip, improving the ease of use and reliability of the product. It is mainly used in industrial control.

1.2 Packing List

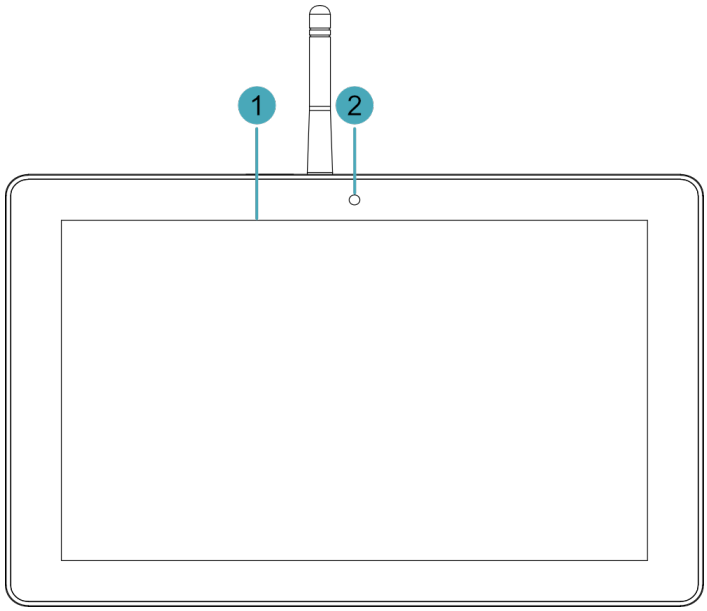
- 1x ED-HMI2020-101C Unit
- 4 x buckles (including 4xM4*10 screws and 4xM4*16 screws)
- [optional Wi-Fi/BT version] 1x 2.4GHz&5GHz Wi-Fi/BT Antenna

1.3 Appearance

Introducing the functions and definitions of interfaces on each panel.

1.3.1 Front Panel

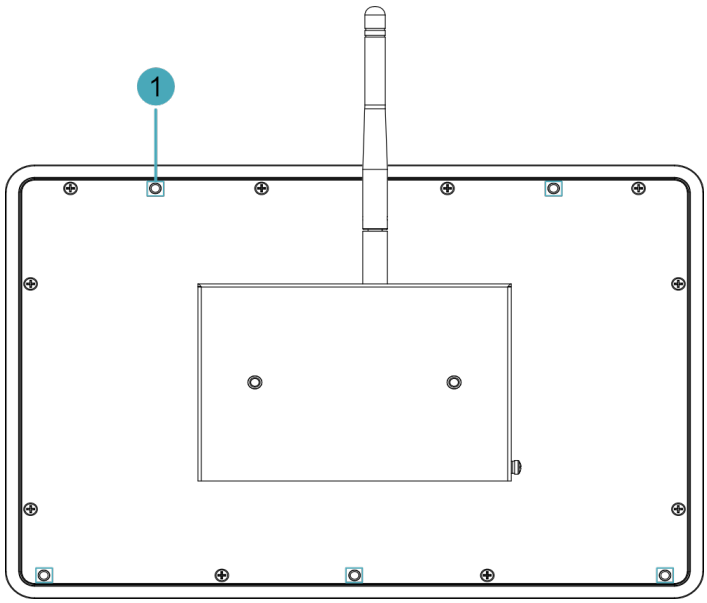
Introducing the front panel interface types and definitions.



NO.	Function Definition
1	1 x LCD display, 10.1-inch LCD touch screen, which supports up to 1280x800 resolution and multi-point capacitive touchscreen.
2	1 x camera (optional), 8-megapixel front camera.

1.3.2 Rear Panel

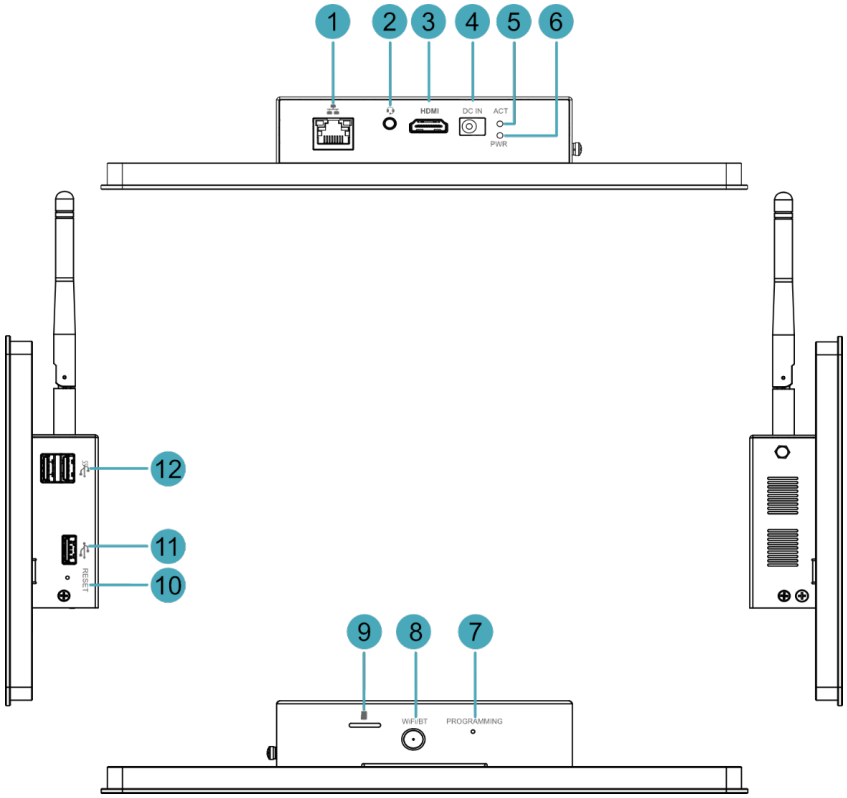
Introducing the types and definitions of the rear panel interface.



NO.	Function Definition
1	5 x installation holes of buckle, which are used to fix the buckles to the device for installation. You only need to use 4 installation holes during installation, and reserve one as a spare.

1.3.3 Side Panel

Introducing the types and definitions of side panel interfaces.



NO.	Function Definition
1	1 x 10/100/1000M adaptive ethernet port, RJ45 connector. It can be used to access the network.
2	1 x Audio input/Stereo output, 3.5mm audio jack connector. It can be used as MIC IN and LINE OUT. • When a headphone is connected, the audio output is switched to the headphone. • When a headphone is not connected, the audio output is switched to the speaker.
3	1 x HDMI port, Type-A connector, which is compatible with HDMI 2.0 standard and supports 4K 60Hz. It supports to connect a displayer.
4	1 x DC input, DC Jack connector (5.5x2.5mm), supports 9V~28V input.
5	1 x system status indicator, green, which is used to view the status of system reading and writing data.
6	1 x power indicator, red, which is used to check the status of device power-on and power-off.
7	1 x PROGRAMMING button, which is used to flash to eMMC for the system.
8	1 x Wi-Fi/BT antenna port (optional), SMA connector, which can connect to Wi-Fi/BT antenna.
9	1 x Micro SD card slot, which is used to install SD card for storing user data.
10	1 x reset button, hidden button, press the button to reset the device.
11	1 x USB 2.0 port, Type-A connector, supports up to 480Mbps transmission rate.
12	2 x USB 3.0 ports, Type-A connector, each channel supports up to 5Gbps transmission rate.

1.4 Button

Introducing the button functions included in the ED-HMI2020-101C device.

1.4.1 RESET Button

ED-HMI2020-101C includes a RESET button, which is a hidden button, and the silkscreen on the case is "RESET". Pressing the RESET button will reset the device.

1.4.2 PROGRAMMING Button

ED-HMI2020-101C includes a PROGRAMMING button, the silkscreen on the case is "PROGRAMMING".

Press the PROGRAMMING button before the device is powered on (keep pressing it for a long time), and then power on the device (release the PROGRAMMING button after powering on), the system will enter the programming mode. The user can flash to eMMC through the USB 2.0 port on the device and the programming tool.

1.5 Indicator

Introducing the various statuses and meanings of indicators contained in ED-HMI2020-101C.

Indicator	Status	Description
PWR	On	The device has been powered on.
	Blink	Power supply of the device is abnormal, please stop the power supply immediately.
	Off	The device is not powered on.
ACT	Blink	The system started successfully and is reading and writing data.
	Off	The device is not powered on or does not read and write data.
Yellow indicatorof Ethernet port	On	The data transmission is abnormal.
	Blink	Data is being transmitted over the Ethernet port.
	Off	The Ethernet connection is not set up.
Green indicatorof Ethernet port	On	The Ethernet connection is in the normal state.
	Blink	The Ethernet connection is abnormal.
	Off	The Ethernet connection is not set up.

1.6 Interface

Introducing the definition and function of each interface in the product.

1.6.1 Micro Card Slot

The silkscreen on the case of Micro SD card slot is "", which is used to install Micro SD card for storing user data.

1.6.2 Power Supply Interface

The ED-HMI2020-101C includes one power input, The silkscreen of port is "DC IN", which uses DC Jack connector (5.5x2.5mm), and supports 9V~28V input.

1.6.3 Audio Interface

ED-HMI2020-101C includes one audio input, the connector is a 3.5mm 4-pole headphone jack. The silkscreen of port is "", which supports OMTP stereo headphone output and mono microphone recording.

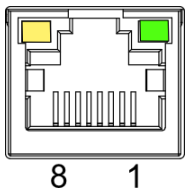
- When the headphone is connected, the audio output is switched to the headphone.
- When the headphone is not connected, the audio output is switched to the speaker.

1.6.4 Speaker

The ED-HMI2020-101C includes a power amplifier output, built-in a 4Ω 3W speaker, supporting single-channel stereo output. When playing audio, if the headphone is connected to the Audio interface, the speaker will have no audio output.

1.6.5 1000M Ethernet Interface

ED-HMI2020-101C includes one adaptive 10/100/1000M Ethernet port, and the silkscreen is "". The connector is RJ45, it is recommended to use the network cable of Cat6 and above. The pins corresponding to the terminal are defined as follows:



Pin ID	Pin Name
1	TX1+
2	TX1-
3	TX2+
4	TX2-
5	TX3+
6	TX3-
7	TX4+
8	TX4-

1.6.6 HDMI Interface

ED-HMI2020-101C includes one HDMI port, the silkscreen is "HDMI". The connector is Type-A HDMI, which can connect to an HDMI display and supports up to 4Kp60.

1.6.7 USB 2.0 Interface

ED-HMI2020-101C includes one USB 2.0 port, the silkscreen is "". The connector is Type-A, which can connect to standard USB 2.0 peripherals and supports up to 480Mbps transmission rate.

1.6.8 USB 3.0 Interface

ED-HMI2020-101C includes 2 USB 3.0 ports, the silkscreen is "". The connector is Type-A, which can connect to standard USB 3.0 peripherals and supports up to 5Gbps transmission rate.

1.6.9 Antenna Interface (optional)

The ED-HMI2020-101C includes one SMA antenna ports, the silkscreens is "Wi-Fi/BT" and it can be connected to the Wi-Fi/BT antenna.

> TIP:
>
> Only the Wi-Fi/BT version has an antenna port.

2 Installing Components (optional)

This chapter describes how to install optional components.

2.1 Install Antenna

If the purchasing ED-HMI2020-101C includes Wi-Fi functions, the antenna need to be installed before using the device.

Preparation:

The Wi-Fi/BT antenna have been obtained from the packaging box.

Steps:

1. Find the location of antenna port, as indicated in the figure below.

2. Align the connectors on both sides of the device and the antenna, and turn the antenna clockwise to secure it.

2.2 Install Micro SD Card

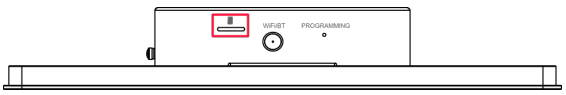
If you need to install the SD card while using the product, you can refer to the following instructions.

Preparation:

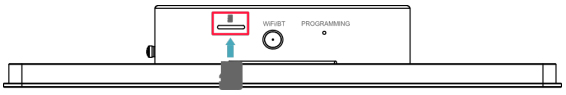
Micro SD card is ready.

Steps:

1. Find the location of Micro SD card slot, as indicated in the figure below.



2. Insert the Micro SD card into the corresponding card slot with the contact side facing down, and hear a sound to indicate that the installation is completed.



3 Installing Device

This chapter introduces how to install the device.

3.1 Embedded Installation

ED-HMI2020-101C device supports front embedded installation. The standard packaging includes the embedded installation Mounting kit (ED-ACCHMI-Front).

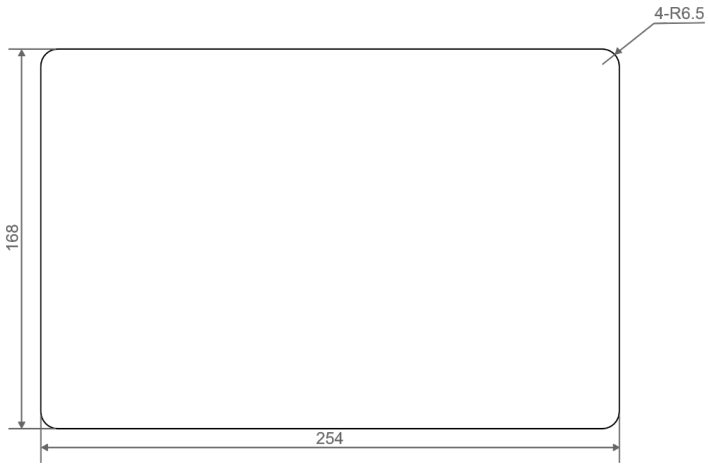
Preparation:

- The ED-ACCHMI-Front Mounting kit has been acquired (includes 4 × M4*10 screws, 4 × M4*16 screws, and 4 buckles).
- A cross screwdriver has been prepared.

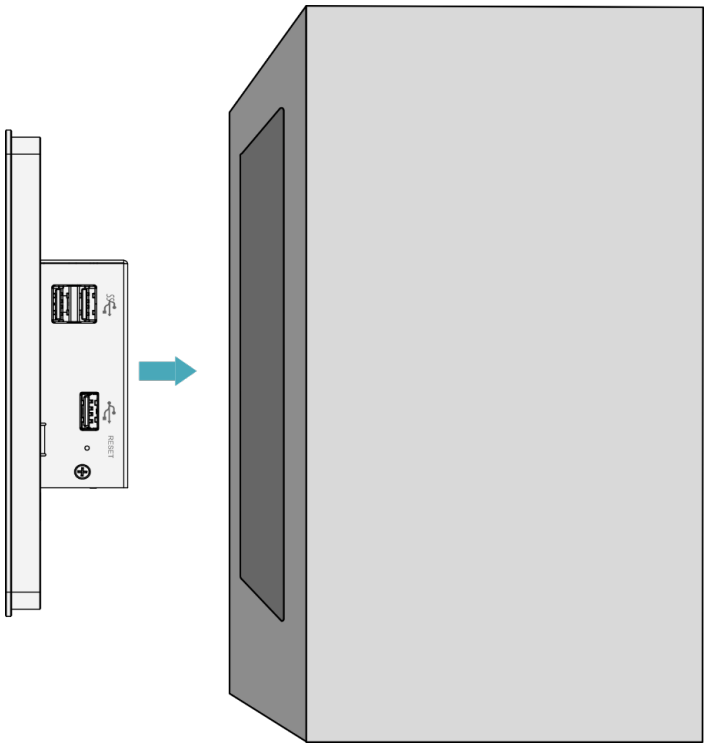
Steps:

1. Determine the cutout dimensions on the cabinet based on the ED-HMI2020-101C's size, as shown in the figure below.

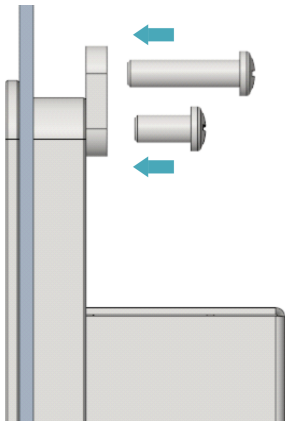
Unit: mm



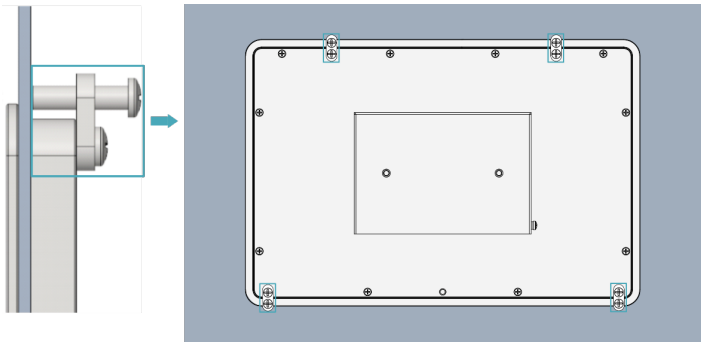
2. Drill a hole on the cabinet according to the aperture size defined in Step 1.
3. Embed the ED-HMI2020-101C into the cabinet from the exterior side.



4. Align the screw holes (non-threaded) of the buckles with the buckle mounting holes on the device side.



5. Insert four M4*10 screws through the unthreaded holes of the buckle. Tighten clockwise with a screwdriver to secure the buckle to the device. Then, insert four M4*16 screws through the threaded holes of the buckle. Press them against the inner surface of the cabinet chassis and drive clockwise with a screwdriver until full thread engagement is achieved.



4 Booting the Device

This chapter introduces how to connect cables and boot the device.

4.1 Connecting Cables

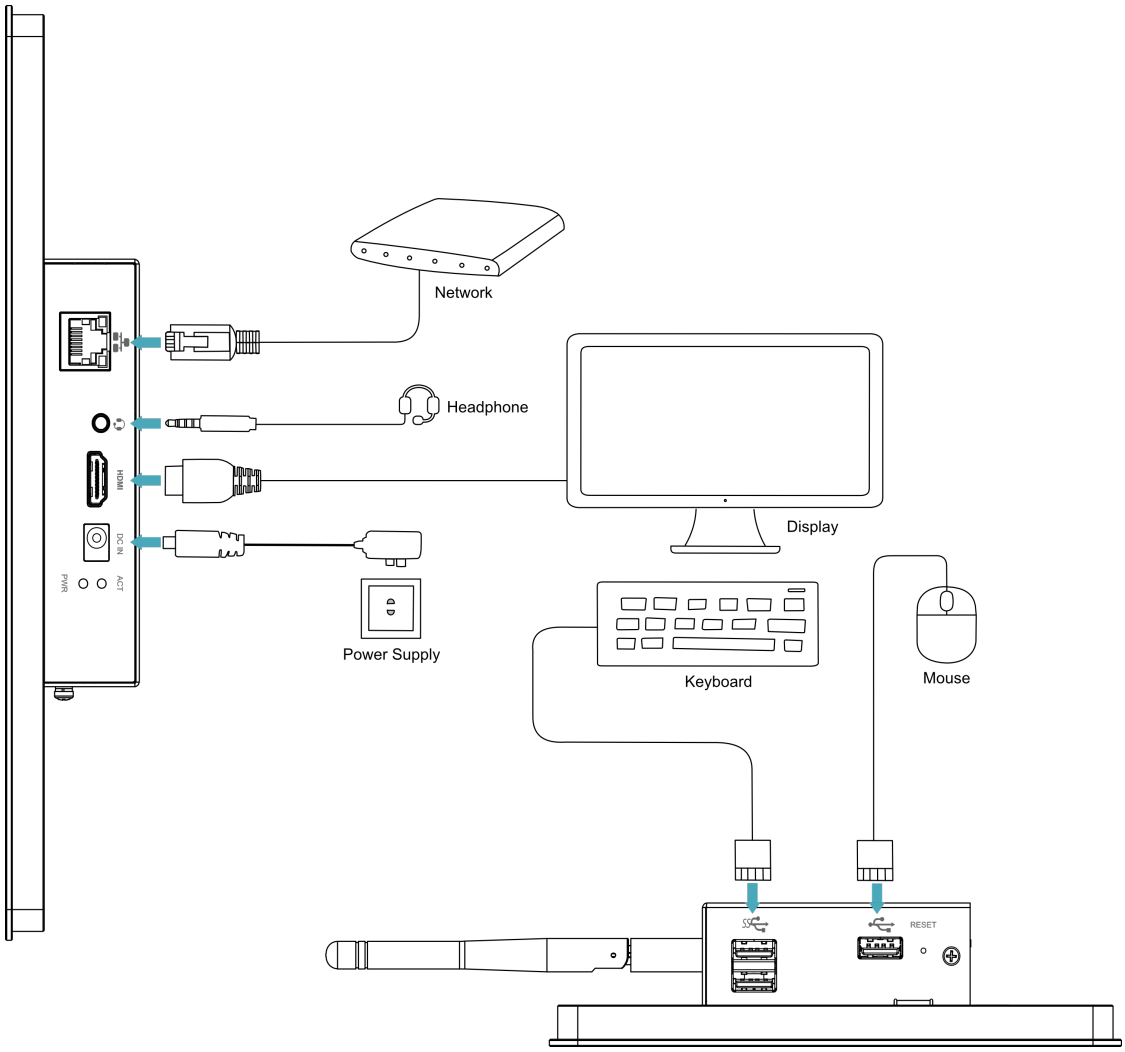
This section describes how to connect cables.

Preparation:

- Accessories such as display, mouse, keyboard and power adapter that can be used normally have been ready.
- A network that can be used normally.
- Get the HDMI cable and network cable that can be used normally.

Schematic diagram of connecting cables:

Please refer to 1.6 Interfaces for the pin definition of each interface and the specific method of wiring.



4.2 Booting The System For The First Time

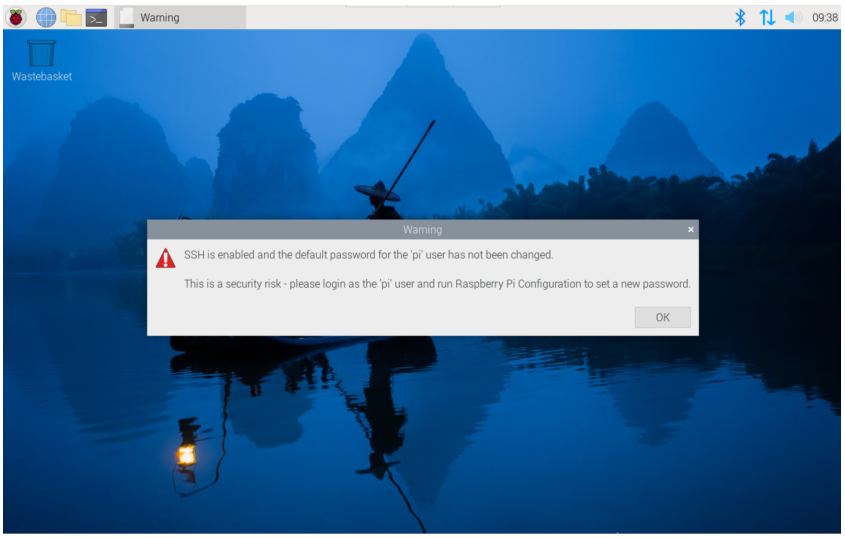
ED-HMI2020-101C has no switching power supply. After the power supply is connected, the system will start.

- The red PWR indicator is on, indicating that the device has been powered normally.
- The green ACT indicator is blinking, indicating that the system is started normally, and then the logo of Raspberry Pi will appear in the upper left corner of the screen.

> TIP:
>
> Default username is `pi` , Default password is `raspberry` .

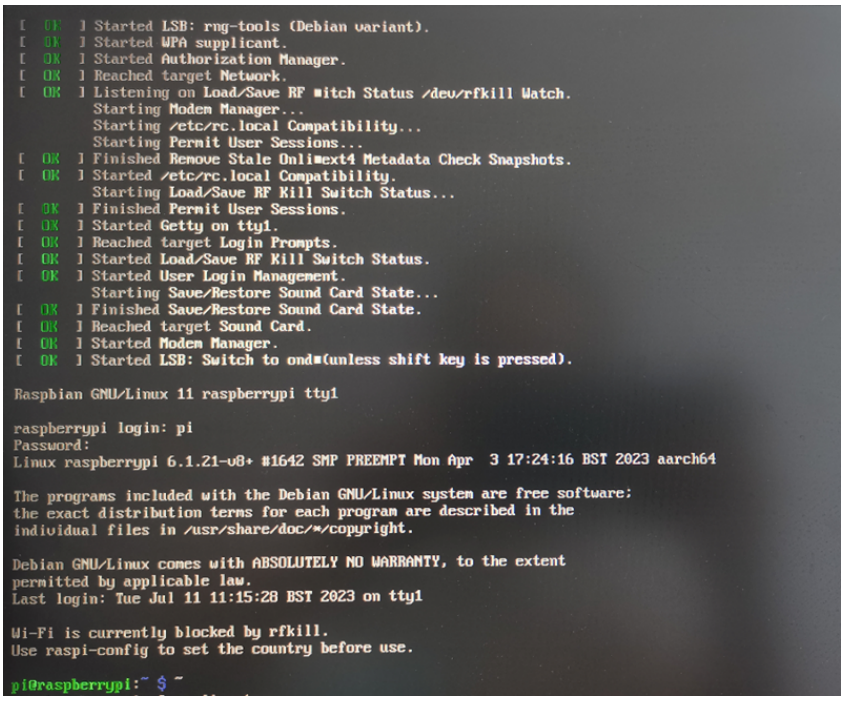
4.2.1 aspberry Pi OS (Desktop)

If the Desktop version of the system is installed when the product leaves the factory, after the device is started, it will directly enter the desktop, as shown in the following figure.



4.2.2 Raspberry Pi OS (Lite)

If the Lite version of the system is installed at the factory, the default username `pi` will be used to automatically log in after the device is started, and the default password is `raspberry` . The following figure shows that the system has been started normally.


[OK] Started LSB: rng-tools (Debian variant).
[OK] Started WPA supplicant.
[OK] Started Authorization Manager.
[OK] Reached target Network.
[OK] Listening on Load/Save RF Switch Status /dev/rfkill Watch.
Starting Modem Manager...
Starting /etc/rc.local Compatibility...
Starting Permit User Sessions...
[OK] Finished Remove Stale Online ext4 Metadata Check Snapshots.
[OK] Started /etc/rc.local Compatibility.
Starting Load/Save RF Kill Switch Status...
[OK] Finished Permit User Sessions.
[OK] Started Getty on tty1.
[OK] Reached target Login Prompts.
[OK] Started Load/Save RF Kill Switch Status.
[OK] Started User Login Management.
Starting Save/Restore Sound Card State...
[OK] Finished Save/Restore Sound Card State.
[OK] Reached target Sound Card.
[OK] Started Modem Manager.
[OK] Started LSB: Switch to ondemand (unless shift key is pressed).
Raspbian GNU/Linux 11 raspberrypi tty1
raspberrypi login: pi
Password:
Linux raspberrypi 6.1.21-v8+ #1642 SMP PREEMPT Mon Apr 3 17:24:16 BST 2023 aarch64
The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Tue Jul 11 11:15:28 BST 2023 on tty1
Wi-Fi is currently blocked by rfkill.
Use raspi-config to set the country before use.
pi@raspberrypi:~ $

5 Configuring System

This chapter introduces how to configure system.

5.1 Finding Device IP

Finding Device IP

5.2 Remote Login

Remote Login

5.3 Configuring Storage Devices

Configuring Storage Devices

5.4 Configuring Wi-Fi (Optional)

Configuring Wi-Fi

5.5 Configuring Ethernet IP

Configuring Ethernet IP

5.6 Configuring Bluetooth (Optional)

Configuring Bluetooth

5.7 Configuring Buzzer

Buzzer controlled by GPIO6.

- Turn on the buzzer:

```sh
raspi-gpio set 6 op dh
```

- Turn off the buzzer:

```sh
raspi-gpio set 6 op dl
```

5.8 Configuring RTC

Configuring RTC

5.9 Configuring Audio

Configuring Audio

6 Installing OS (optional)

The device is shipped with an operating system by default. If the OS is corrupted during use or the user needs to replace the OS, it is necessary to re-download the appropriate system image and install it. Our company supports to install the OS by installing the standard Raspberry Pi OS first, and then install the Firmware package.

The following section describes the specific operations of image download, eMMC flashing and installation of Firmware packages.

6.1 Downloading OS File

You can download the corresponding official Raspberry Pi OS file according to your actual needs, the download path is listed below:

OS	Download Path
Raspberry Pi OS(Desktop) 64-bit-bookworm (Debian 12)	https://downloads.raspberrypi.com/raspios_arm64/images/raspios_arm64-2024-07-04/2024-07-04-raspios-bookworm-arm64.img.xz (https://downloads.raspberrypi.com/raspios_arm64/images/raspios_arm64-2024-07-04/2024-07-04-raspios-bookworm-arm64.img.xz)
Raspberry Pi OS(Lite) 64-bit-bookworm (Debian 12)	https://downloads.raspberrypi.com/raspios_lite_arm64/images/raspios_lite_arm64-2024-07-04/2024-07-04-raspios-bookworm-arm64-lite.img.xz (https://downloads.raspberrypi.com/raspios_lite_arm64/images/raspios_lite_arm64-2024-07-04/2024-07-04-raspios-bookworm-arm64-lite.img.xz)
Raspberry Pi OS(Desktop) 32-bit-bookworm (Debian 12)	https://downloads.raspberrypi.com/raspios_armhf/images/raspios_armhf-2024-07-04/2024-07-04-raspios-bookworm-armhf.img.xz (https://downloads.raspberrypi.com/raspios_armhf/images/raspios_armhf-2024-07-04/2024-07-04-raspios-bookworm-armhf.img.xz)
Raspberry Pi OS(Lite) 32-bit-bookworm (Debian 12)	https://downloads.raspberrypi.com/raspios_lite_armhf/images/raspios_lite_armhf-2024-07-04/2024-07-04-raspios-bookworm-armhf-lite.img.xz (https://downloads.raspberrypi.com/raspios_lite_armhf/images/raspios_lite_armhf-2024-07-04/2024-07-04-raspios-bookworm-armhf-lite.img.xz)

TIP

Our engineers are currently adapting and developing firmware packages for Raspberry Pi OS-trixie (Debian 13), so it is temporarily not supported. We recommend using the Raspberry Pi OS-bookworm (Debian 12) version of the operating system.

6.2 Flashing to eMMC

It is recommended to use the Raspberry Pi official tools. The download paths are as follows:

- Raspberry Pi Imager: https://downloads.raspberrypi.org/imager/imager_latest.exe (https://downloads.raspberrypi.org/imager/imager_latest.exe)
- SD Card Formatter: https://www.sdcardformatter.com/download/ (https://www.sdcardformatter.com/download/)
- Rpiboot: https://github.com/raspberrypi/usbboot/raw/master/win32/rpiboot_setup.exe (https://github.com/raspberrypi/usbboot/raw/master/win32/rpiboot_setup.exe)

Preparation:

- The downloading and installation of the official tools to the computer have been completed.
- A USB-A to USB-A cable has been prepared.
- The OS file has been obtained.

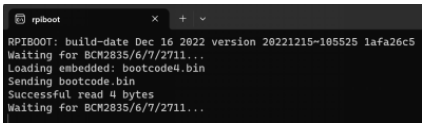
Steps:

The steps are described using Windows system as an example.

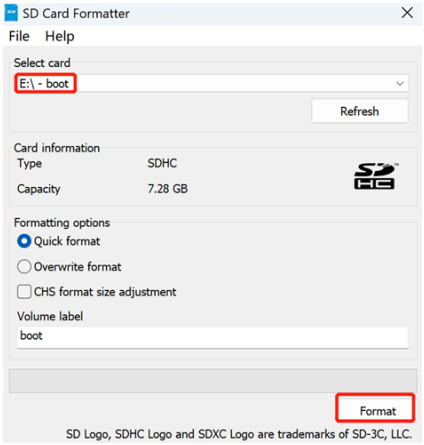
1. When the device is not powered on, press and hold the PROGRAMMING button while connecting the power cord and USB flashing cable (USB-A to USB-A cable). Then, power up the device (release the PROGRAMMING button after powering up).

   - Connecting to USB flashing cable: One end is connected to the USB 2.0 port on the device, and the other end is connected to the USB port on the PC.
   - Connecting to power cord: One end is connected to the DC jack connector on the device, and the other end is connected to the external power supply.

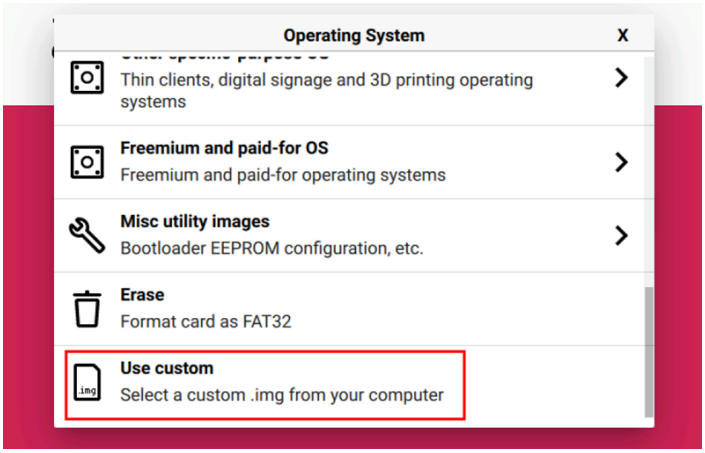
2. Open `rpiboot` tool to automatically convert the drive to a letter



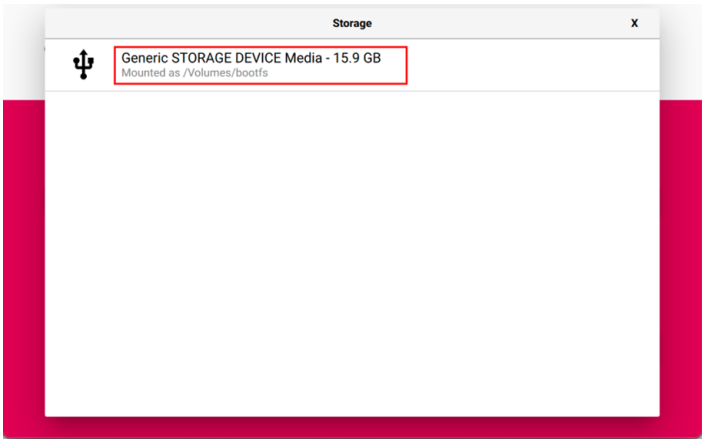
3. After the completion of the drive letter, the drive letter will pop up in the lower right corner of the computer.
4. Open `SD Card Formatter`, select the formatted drive letter, and click "Format" at the lower right to format.



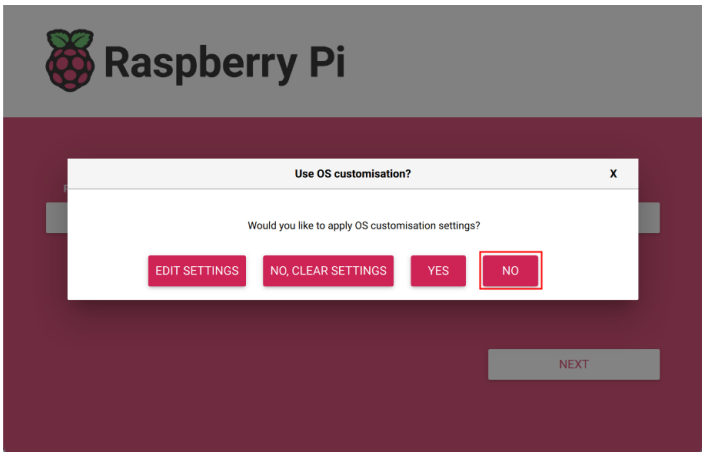
5. In the pop-up prompt box, select "Yes".
6. When the formatting is completed, click "OK" in the prompt box.
7. Close `SD Card Formatter` .
8. Open `Raspberry Pi Imager` , select "CHOOSE OS" and select "Use Custom " in the pop-up pane.



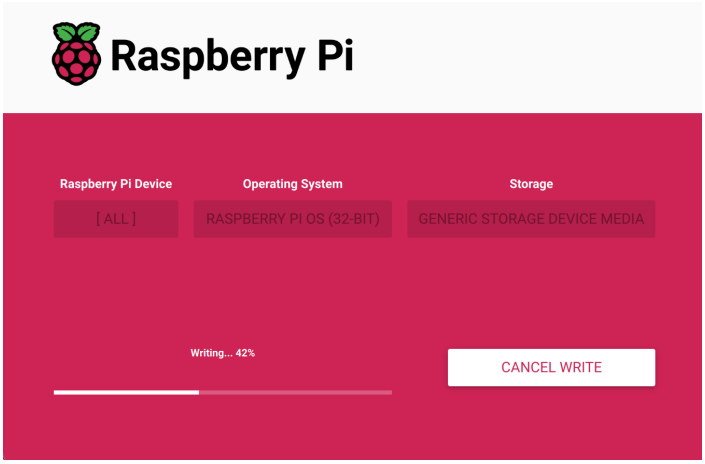
9. According to the prompt, select the OS file under the user-defined path and return to the main page.
10. Click "CHOOSE STORAGE", select the default device in the "Storage" interface, and return to the main page.



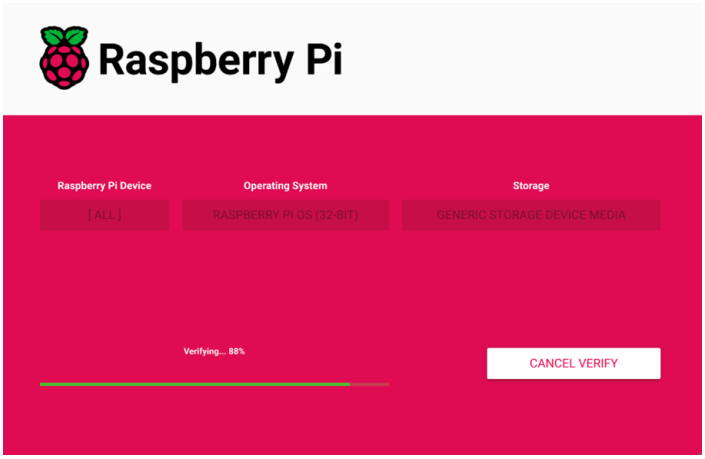
11. Click “NEXT”, select "NO " in the pop-up “Use OS customization?” pane.



12. Select “YES” in the pop-up “Warning” pane to start writing the image.



13. After the OS writing is completed, the file will be verified.



14. After the verification is completed, click “CONTINUE” in the pop-up “Write Successful” box.
15. Close `Raspberry Pi Imager`, remove USB cable and power on the device again.

6.3 Installing Firmware Package

After you have finished flashing to eMMC on ED-HMI2020-101C, you need to configure the system by adding edatec apt source and installing firmware package to make the system work. The following is an example of Debian 12 (bookworm) desktop version.

> TIP
>
> Our engineers are currently adapting and developing firmware packages for Raspberry Pi OS-trixie (Debian 13), so it is temporarily not supported. We recommend using the Raspberry Pi OS-bookworm (Debian 12) version of the operating system.

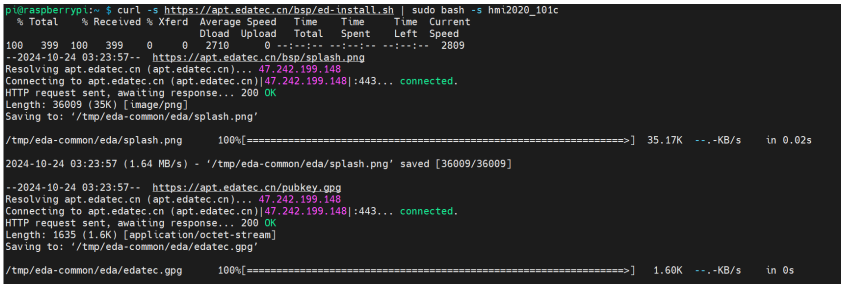
Preparation:

- The flashing to eMMC of the Raspberry Pi standard OS (bookworm) has been completed.
- The device has booted normally and the relevant boot configuration has been completed.

Steps: :

1. After the device starts normally, execute the following commands in the command pane to add the edatec apt source and installing firmware package.

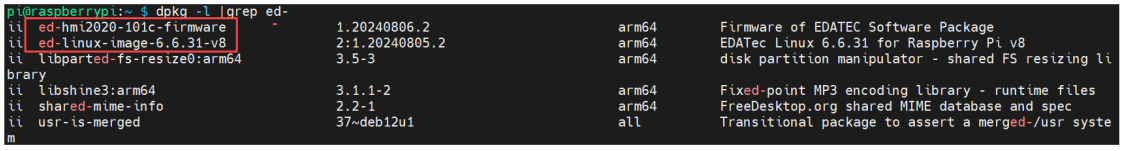
```sh
curl -s https://apt.edatec.cn/bsp/ed-install.sh | sudo bash -s hmi2020_101c
```



2. After the installation is complete, the system automatically reboots.
3. Execute the following command to check whether the firmware package is installed successfully.

```sh
dpkg -l | grep ed-
```

The result in the picture below indicates that the firmware package has been installed successfully.



> TIP:
>
> If you have installed the wrong firmware package, you can execute `sudo apt-get --purge remove package` to delete it, where “package” is the package name.