Chipsee

Industrial PC

AIO-CM5-101

PN: CS12800RA5101A

Content can change at anytime, check our website for latest information of this product.
www.chipsee.com

Contents

AIO-CM5-101

Front View

Rear View


Chipsee
PN:CS12800RA5101A
Rev:C111（CM5104032）
OS:Raspberry Pi OS
SN:20250627I5000093
https://chipsee.com
Origin:Made in China

Side View 1

Side View 2

Product Overview

The AIO-CM5-101 all in one Raspberry Pi PC (PN: CS12800RA5101A) is an all-in-one desktop computer based on Raspberry Pi® CM5.

Its case is plastic, very light to carry around, or mount it to a fixed place as a smart home control center. The case is available in Black / White color.

This single board computer features a 10.1” IPS display with a maximum brightness of 400 cd/m^2. The touch screen is a responsive capacitive screen and supports multi touch.

The product is easy to use, perfect for developers and makers accustomed to the Raspberry Pi and is looking for a computer they can use daily, it handles 1080P video streaming easily and even 4K streaming, like the Raspberry Pi 5.

It is also fully compatible with the Raspberry Pi OS.

Key Applications

- Human Machine Interface HMI
- Edge AI
- Process Control
- Process Monitoring
- HMI
- IIoT node
- Environmental Monitoring
- PLC
- Automotive applications
- Smart Home

Ordering Options

Chipsee products can be customized during the ordering process. The product will be shipped with the pre-installed factory defaults if no extra requirements are specified. The table in the Hardware Features section provides information about the default options bundled with the product.

> **Note**
>
> You can order AIO-CM5-101 from the official Chipsee Store or from your nearest distributor.

Pi® CM5 Module

The Pi® Compute Module 5 appears in different versions (different RAM size: 2GB, 4GB, or 8GB SDRAM based on CM5 and different eMMC size: 0GB, 16GB, 32GB, or 64GB based on CM5).

The AIO-CM5-101 all in one Raspberry Pi PC does not include the CM5 Raspberry Pi® module by default.

If you would like to purchase it with a CM5, you can select it at the Chipsee store during the ordering process.

Operating System

This product comes with a pre-installed Raspberry Pi OS. Chipsee software engineers have created all the drivers, so every hardware feature is readily available for any standard development tool.

If your project requires a different OS, please **Contact us**, and we'll make a customized version that suits your needs.

Optional Features

The AIO-CM5-101 all in one Raspberry Pi PC does not include the 3G/4G/LTE/GPS module by default. This module is optional and can be selected at the Chipsee store during the ordering process.

The product has a M.2 2230/2242 M-key slot, running at PCIe 2.0 x1 speed (PCIe 3.0 is possible but experimental for CM5), you can use it with your NVMe SSD or other modules that can fit in a m.2 2230/2242 M-key slot and supports the protocol. By default the NVMe SSD is not mounted.

The product's RS232/RS485/CAN/Relay can be configured in the factory, these options are supported:

- 2 x RS232, 1 x RS485, 0 x CAN, 1 x Relay **(default)**
- 1 x RS232, 2 x RS485, 0 x CAN, 1 x Relay
- 1 x RS232, 1 x RS485, 1 x CAN, 1 x Relay
- 2 x RS232, 1 x RS485, 1 x CAN, 0 x Relay

Please contact us if you need option 2,3 or 4.

> **Warning**
>
> Installation, repair, and maintenance tasks should be performed by trained personnel only.
> Chipsee does not bear any responsibility for damage caused by inadequate handling of the product.

Hardware Features

The AIO-CM5-101 all in one Raspberry Pi PC offers a board range of performance and connectivity options for scalable integration, providing expandability according to future needs.

Some of the key features are listed in the table below.

AIO-CM5-101	
CPU	Raspberry Pi® CM5/CM5Lite; BCM2712 Quad(4) Core Cortex-A76 at 2.4GHz
Storage	Internal M.2 NVMe connector for SSD card (optional)
RAM	2GB, 4GB, or 8GB SDRAM based on CM5
eMMC	0GB, 16GB, 32GB, or 64GB based on CM5
Display	10.1" IPS LCD, 1280 x 800 px, brightness 400 cd/m^2
Touch	10-point capacitive touch with 1.0mm Armored Glass
USB	2 x USB 3.0 type-A Host, 1 x USB type-C OTG
PCIe	M.2 2230/2242 M-key, PCIe Gen 2.0 x 1(5Gbps) (PCIe Gen 3.0 x1 is compatible but experimental) **(optional)**
LAN	1 x Giga LAN
Audio	3.5mm Audio Out Connector, 2W Speaker Internal
Buzzer	Onboard Buzzer, driven by GPIO
RTC	High accuracy RTC with farad capacitor, can work 1 week after power off (default). High accuracy RTC with lithium coin battery, can work 3 years after power off (optional).
GPIO/Wiegand	**(Optional)** 2 x 5V Logic GPIO Outputs, can be used as Wiegand signal
WiFi/BT	Optional (Depends on CM5)
HAT Connector	N/A
Micro SD card socket	1 x TF(micro SD) card slot, **only** for CM5 Lite module to boot from TF
HDMI	N/A
Power Input	15V to 30V DC
Current	800mA max at 15V, 500mA typical at 15V
Power Consumption	12W Max, 7.5W typical
Relay	1 x relay with "Normally Connected" and "Normally Open" output
RS232	2 x RS232

AIO-CM5-101	
RS485	**Default** 1 x RS485; up to 2 x RS485 **(optional)**
CAN	**Default** 0 x CAN; **Optional** 1 x CAN FD BUS. Arbitration Bit Rate up to 1Mbps, Data Bit Rate up to 8Mbps
3G/4G/LTE/GPS	Internal 4G/LTE module supported, not mounted by default
Working Temperature	From -20°C to +70°C
OS	Raspberry Pi OS
Dimensions	260.54 x 178.54 x 26.9mm
Weight	620g
Mounting	VESA, Stand
Plastic Case Color	Black / White
Certification	CE, ROHS

Table 402 Key Features

Power Input

The AIO-CM5-101 all in one Raspberry Pi PC can be powered by an input voltage of 15V to 30V DC.

The total power consumption is about 12W Max, 7.5W typical, depending on the load and brightness.

The power input connector is a 3.4mm O.D x 1.7mm I.D x 9.5mm DC connector, the products also ships with a 3.4x1.7mm to 5.5x2.1mm connector. You can use either 3.4x1.7 or 5.5x2.1 DC power plug. For a proper DC power adapter, refer to the figure below.

Power Input

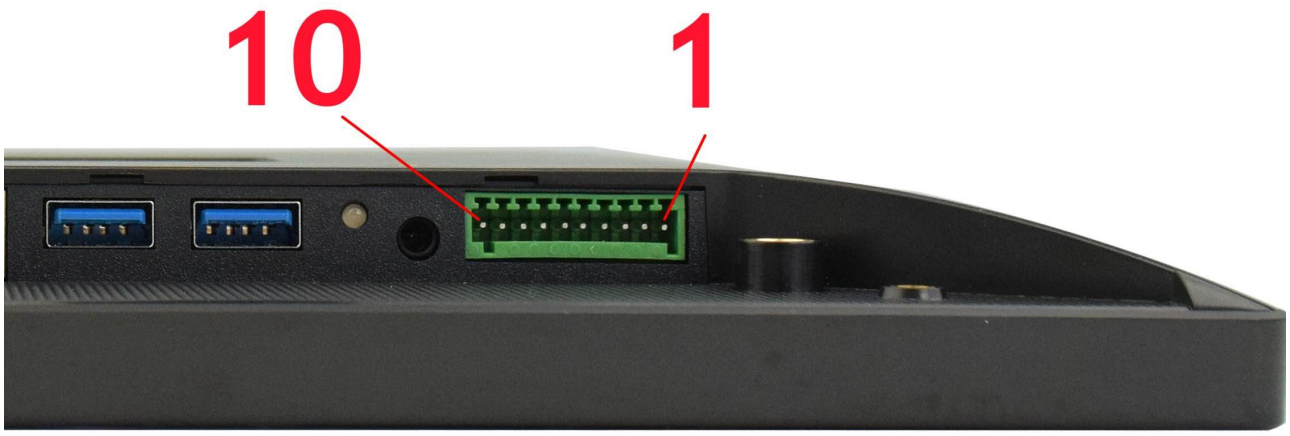
Power Adapter

Connectivity

There are many connectivity options available on the AIO-CM5-101 industrial Pi PC. It has 2 x USB 3.0 type-A Host, 1 x USB type-C OTG, 1 x Giga LAN (RJ45) Ethernet connector supporting up to 1 Gbps.

RS232/RS485/Relay Connector

The serial communication interfaces (RS485, RS232, and Relay) are routed to a **10-pin 2.5mm connector**, as illustrated on the figure below.



RS232/RS485/Relay Connector

The table below offers more detailed description of every pin and its definition:

RS232 / RS485 / Relay Pin Definition:			
Pin Number	**Definition**	**Description**	**OS Node**
Pin 1	GND	System Ground	
Pin 2	RS232_0_RXD	CPU UART0, RS232 RXD signal Can be set as CAN0 H	/dev/ttyAMA0
Pin 3	RS232_0_TXD	CPU UART0, RS232 TXD signal Can be set as CAN0 L	
Pin 4	RS232_2_RXD	CPU UART2, RS232 RXD signal Can be set as RS485_2+(A)	/dev/ttyAMA1
Pin 5	RS232_2_TXD	CPU UART2, RS232 TXD signal Can be set as RS485_2-(B)	
Pin 6	RS485_3+	CPU UART3, RS485 +(A) signal Can be set as GPIO Output	/dev/ttyAMA2
Pin 7	RS485_3-	CPU UART3, RS485 –(B) signal Can be set as GPIO Output	
Pin 8	Relay NO	Relay Normally Open	

RS232 / RS485 / Relay Pin Definition:			
Pin 9	Relay COM	Relay Common Can be set as CAN0 H	
Pin 10	Relay NC	Relay Normally Connected Can be set as CAN0 L	

Table 403 RS232/RS485/Relay Connector

Attention

1. The RS232_2 can be set as the RS485 signal (1 x RS232 + 2 x RS485 + 1 x Relay). If you need it to work as RS485, please **Contact us** before shipping.
2. The RS232_0 can be set as the CAN signal (1 x RS232 + 1 x RS485 + 1 x CAN + 1 x Relay). If you need it to work as CAN, please **Contact us** before shipping.
3. The Relay can be set as the CAN signal (2 x RS232 + 1 x RS485 + 1 x CAN + 0 x Relay). If you need it to work as CAN, please **Contact us** before shipping.
4. The RS485_3 can be set as Two 5V logic GPIO Output, these two GPIO can be used as Wiegand signal. If you need them to work as GPIO, please **Contact us** before shipping.
5. RS485_3 automatically controls input/output direction. It does not need software control.
6. The 120Ω match resistor for the RS485 is **not mounted** by default.
7. The Relay Max switching voltage is 125VAC or 60VDC. The maximum switching current is 1A. Rated load is 0.3A at 125VAC and 1A at 30VDC.

USB HOST and Type C

There are 2 x 3.0 **USB Type-A HOST connectors** and 1 x **Type-C connector** onboard, as shown in the image below.

USB3.0 HOST and Type-C Connectors

Note

- External USB peripherals like a USB disk or USB mouse or keyboard can connect to the USB3.0 HOST.
- You can download software to the Raspberry Pi CM5 eMMC using the Type-C.
- When you connect the Type-C to a device, it will disable 4G module.

M.2 Connector

The product has an **optional** M.2 2230/2242 M-key, PCIe Gen 2.0 x 1(5Gbps) (PCIe Gen 3.0 x1 is compatible but experimental) connector. You can attach an M.2 NVME drive, or an AI module to expand the product's capability. If you need the M.2 slot please contact us before placing an order.

LAN Connectors

LAN (RJ45) connector provides Ethernet connectivity over standardized Ethernet cables as shown the figure below. The integrated Ethernet interface supports up to 1 Gbps data throughput. The Giga LAN signal comes from the CM5 module directly.

RJ45 LAN Connectors

Note

Use CAT5 or better cables to achieve full data throughput over maximum distance defined by the 1000BASE-T standard (100m).

3G/4G/LTE/GPS Module

The AIO-CM5-101 all in one Raspberry Pi PC is equipped with a **mini-PCIe connector** that can connect a 3G/4G/LTE module.

4G/LTE module is **optional**. If you place an order with 4G module included, we will also add a SIM card holder and a 3G/4G/LTE antenna to ensure 3G/4G/LTE works on the AIO-CM5-101.

SIM card does **NOT** support hot plug. **Power off** before inserting or removing SIM card.

The CAT-1 module doesn't support GPS.

The CAT-4 Quectel EC25 module also supports GPS. If you need GPS/GNSS feature please contact us before placing an order.

SIM Card Direction

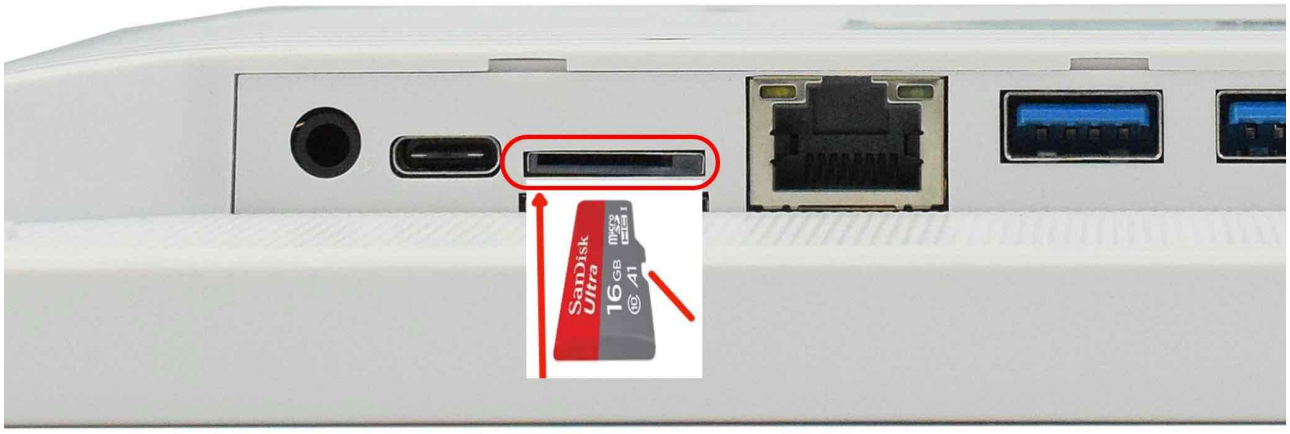
Attention

The product does not come shipped with the 3G/4G/LTE module by default. If you need to use 3G/4G/LTE, you can contact us when placing an order, we can install the necessary hardware for you.

USB-C shares signal with 4G/LTE module, please unplug the USB-C cable while using 4G/LTE module. If you have the USB-C occupied, the 4G/LTE module will be disabled by default.

TF Card Slot

The AIO-CM5-101 all in one Raspberry Pi PC features 1 x **TF Card (micro SD) slot** that can only be used with CM5 Lite modules, as shown in the image below (note the direction of the TF card).



TF Card Slot

Warning

The TF card is **only** for booting operating system for the CM5 Lite. The TF card **cannot** be used for expanding storage for CM5.

The product does not come shipped with the TF Card by default.

Audio Out Connector

The product features 3.5mm audio connector as shown in the image below.

Audio Out Connector

Internal Speaker

The product also has an internal 2W speaker, meaning you can play music without an earphone, the sound can be played from the product directly.

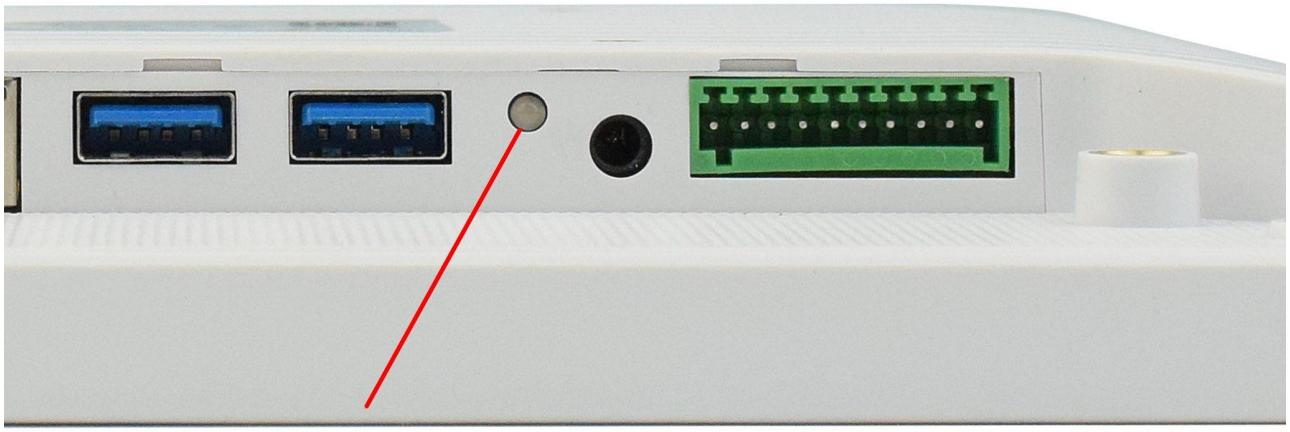
Buzzer

The product has an internal buzzer, suitable for playing beep sounds for alarms.

Buttons and Status LED

Status LED

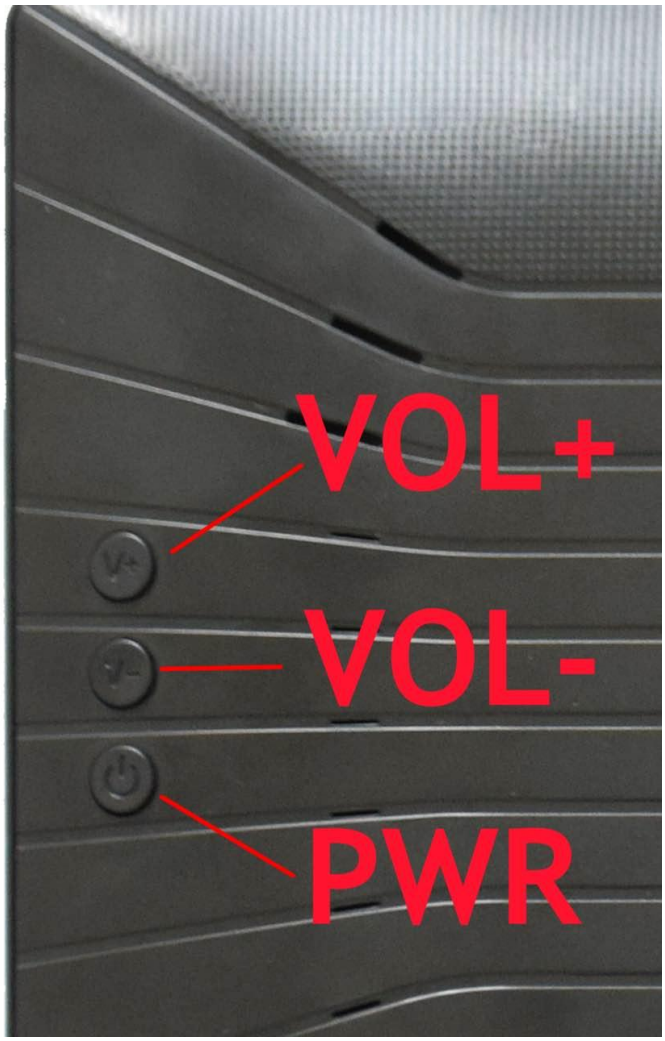
This product has a status LED. The LED turns RED after power on, turns GREEN when the system is booted. It can be controlled by software to flash YELLOW when the CPU is working.



Status LED

Buttons

There are 3 buttons on the back side: Volume+, Volume- and PWR. as the image below shows.



Buttons

What every button does:

Vol+

Volume up and boot mode button.

1. Before powering on, press and hold the Vol+ button, then apply power: the product will boot from USB-C port for flashing OS image.
2. After powering on, adjust volume up. Turn on the screen (if screen is turned off to save power).

Vol-

Volume down button.

1. After powering on, adjust volume down. Turn on the screen (if screen is turned off to save power).

PWR

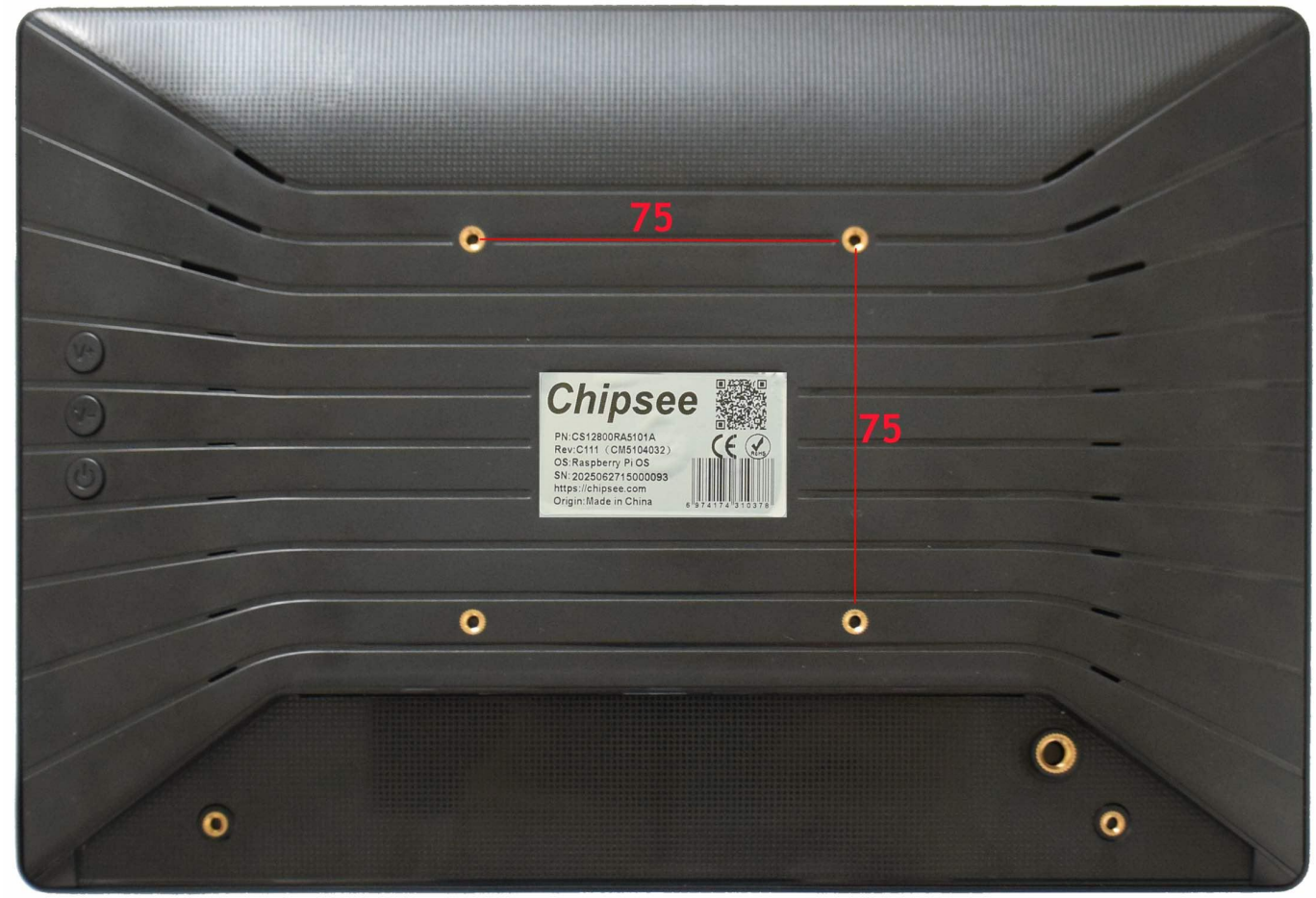
Power button.

1. Before powering on: press to power on the PC (if set to manual boot).
2. After powering on: hold 5 seconds to force power off.

> **Note**
>
> **How to swap the Auto Boot and Manual Boot mode?**
>
> By default the product boots automatically when apply power to it.
>
> *To change from auto boot to manual boot:*
>
> Press and hold **Vol+, Vol-** buttons, apply power, hold for 3 seconds, release. Then the product will be changed to manual boot mode.
>
> *To change from manual boot to auto boot:*
>
> Press and hold **Vol+, Vol-** buttons, apply power, tap PWR once to power on, hold Vol+, Vol- for 3 seconds, release. Then the product will be changed to auto boot mode.

Mounting Procedure

You can mount AIO-CM5-101 with the Vesa (75 x 75mm) and Stand mounting methods, as shown in the figures below.



VESA mounting

The product also ships with a base stand, if you don't need the stand you can contact us when placing orders.

(The keyboard and mouse are **NOT** included in the product.)

Stand mounting

Attention

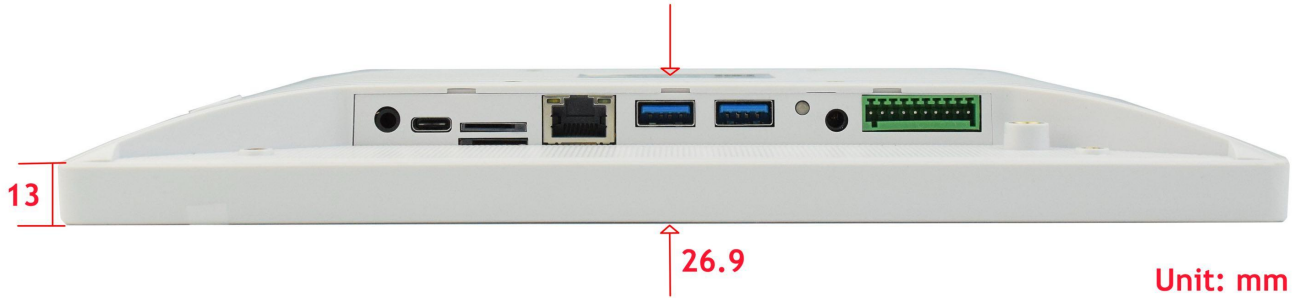
Please make sure the display is not exposed to high pressure when mounting into an enclosure.

You can find detailed information about mounting in the Mount IPC Guide.

Mechanical Specifications

The outer mechanical dimensions of AIO-CM5-101 are 260.54 x 178.54 x 26.9mm (W x L x H). Please refer to the technical drawing in the figures below for details related to the specific product measurements.

Front Panel Dimension Technical Drawing



Side Dimension Technical Drawing

3D Model

AIO-CM5-101 3D model can be viewed in the online doc in a web browser, **if you are reading from the PDF** version, please visit the online doc AIO-CM5-101, select hardware documentation, drag the navigation bar to the 3D Model section.

Disclaimer

This document is provided strictly for informational purposes. Its contents are subject to change without notice. Chipsee assumes no responsibility for any errors that may occur in this document. Furthermore, Chipsee reserves the right to alter the hardware, software, and/or specifications set forth herein at any time without prior notice and undertakes no obligation to update the information contained in this document.

While every effort has been made to ensure the accuracy of the information contained herein, this document is not guaranteed to be error-free. Further, it does not offer any warranties or conditions, whether expressed orally or implied in law, including implied warranties and conditions of merchantability or fitness for a particular purpose. We specifically disclaim any liability with respect to this document, and no contractual obligations are formed either directly or indirectly by this document.

Despite our best efforts to maintain the accuracy of the information in this document, we assume no responsibility for errors or omissions, nor for damages resulting from the use of the information herein. Please note that Chipsee products are not authorized for use as critical components in life support devices or systems.

Technical Support

If you encounter any difficulties or have questions related to this document, we encourage you to refer to our other documentation for potential solutions. If you cannot find the solution you're looking for, feel free to contact us. Please email Chipsee Technical Support at **support@chipsee.com**, providing all relevant information. We value your queries and suggestions and are committed to providing you with the assistance you require.