ED-CM4IND

Datasheet

by EDA Technology Co., Ltd

built: 2026-08-14

1 Product Overview

The ED-CM4IND is an industrial embedded computer based on the Raspberry Pi CM4. Depending on the application scenarios and user requirements, it offers a variety of configurations for RAM, eMMC, or SD card storage.

- The available RAM options include 1GB, 2GB, 4GB and 8GB.
- The eMMC options include 0GB, 8GB, 16GB and 32GB.
- The SD card options include 0GB and 32GB.

> TIP
>
> When purchasing the product, either an SD card or eMMC must be selected, and they cannot be chosen simultaneously.

The ED-CM4IND provides commonly used interfaces such as HDMI, USB, RS232, RS485, DI, Relay, and ADC, and supports network connectivity via Wi-Fi, Ethernet, and 4G. Integrated with RTC and Buzzer, it enhances the product's ease of use and reliability, making it primarily suitable for industrial control and IoT applications.

1.1 Target Applications

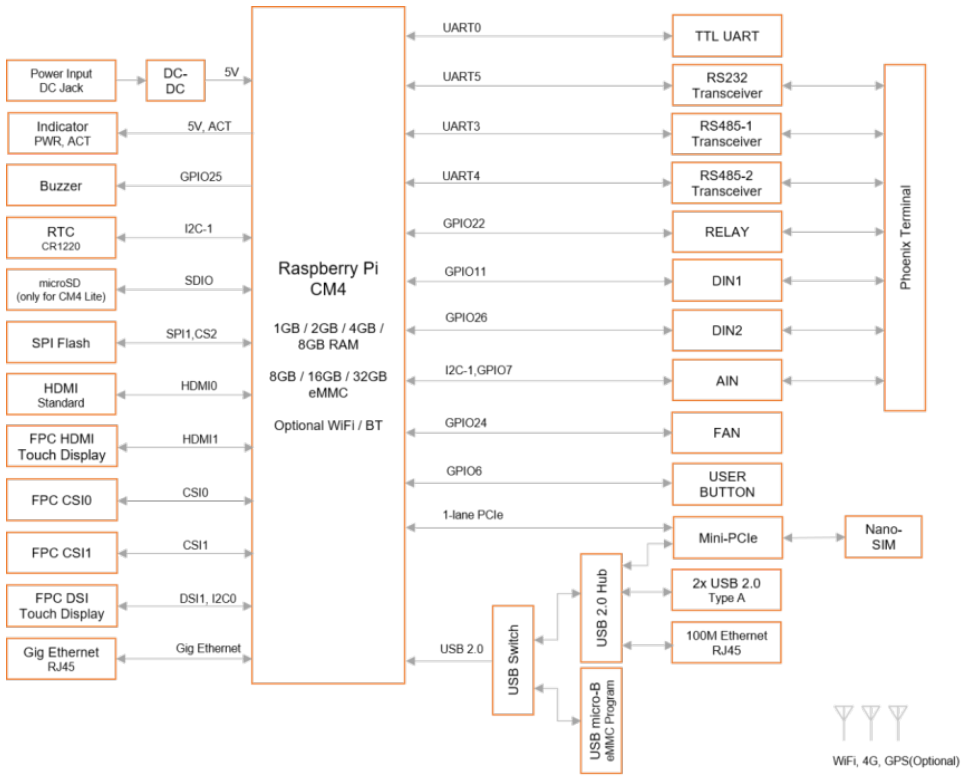
- IoT Gateways
- Industrial Control
- Display Devices
- Smart Manufacturing

1.2 Specifications

Function	Parameters
CPU	Broadcom BCM2711 quad-core Cortex-A72 (ARM v8) 64-bit SoC @ 1.5GHz
RAM	1GB/2GB/4GB/8GB optional
eMMC	0GB/8GB/16GB/32GB optional
Micro SD card	Supports 32GB SD card if CM4 without eMMC is selected
Extended storage	1 x 4MB Serial Flash
Ethernet Interface	Dual Ethernet ports: 1 x 1000M port, 1 x 100M port
WiFi/BT	Dual-band WiFi (2.4GHz & 5GHz), Bluetooth 5.0
4G	1 x PCIe 2.0 interface, supports optional 4G module
HDMI	1 x Standard HDMI interface
USB	2 x USB 2.0 interfaces, dual-layer Type-A connectors
RS485	2 x RS485
RS232	1 x RS232
ADC	3 x ADC interfaces, 12-bit ADC
DI	2 x DI
Relay	1 x DPDT (Double Pole Double Throw) relay interface
Internal Reserved Interfaces	1 x FPC HDMI, supports LCD screen expansion 1 x DSI, supports LCD screen expansion 2 x CSI, supports Raspberry Pi Camera expansion 2 x USB 2.0 Pin Header, supports USB 2.0 interface expansion 1 x Micro USB, for eMMC programming 1 x Serial (TTL), can be used as the default system console or configured as a standard serial port 1 x DC OUT, 5V@1A, can be used to power an expanded LCD screen 1 x Adjustable fan control interface 1 x Raspberry Pi 40-Pin GPIO 1 x RTC 1 x Buzzer
User Button	1 x User button
Reset Button	1 x Reset button
LED Indicators	Red (Power indicator), Green (System status indicator)
Operating System	Compatible with official Raspberry Pi OS, provides BSP support package, and supports APT online installation and updates

Function	Parameters
Input Power	V1.4: 9V ~ 36V DC V1.1~V1.3: 9V ~ 18V DC
Dimensions	170mm (L) x 120mm (W) x 30mm (H)
Enclosure	Full metal enclosure, supports DIN rail mounting
Antenna Accessories	Supports optional WiFi/BT antenna and 4G antenna
Operating Temperature	-25°C to 50°C
Certifications	• FCC ◦ FCC 47 CFR Part 15 Subpart B • CE ◦ EN IEC 62368-1:2020 + A11:2020 ◦ EN IEC 62311:2020 ◦ ETSI EN 301 489-1 V2.2.3 (2019-11)/Draft ETSI EN 301 489-17 V3.2.6 (2023-06) ETSI EN 301 489-52 V1.2.1 (2021-11)/EN 55032:2015 + A1:2020 + A11:2020 EN 55035:2017 + A11:2020/EN IEC 61000-3-2:2019 + A1:2021 EN 61000-3-3:2013 + A1:2019 + A2:2021 ◦ ETSI EN 300 328 V2.2.2 (2019-07)/ETSI EN 301 893 V2.1.1 (2017-05) ETSI EN 301 908-1 V15.2.1 (2023-01)/ETSI EN 301 908-13 V13.2.1 (2022-02)

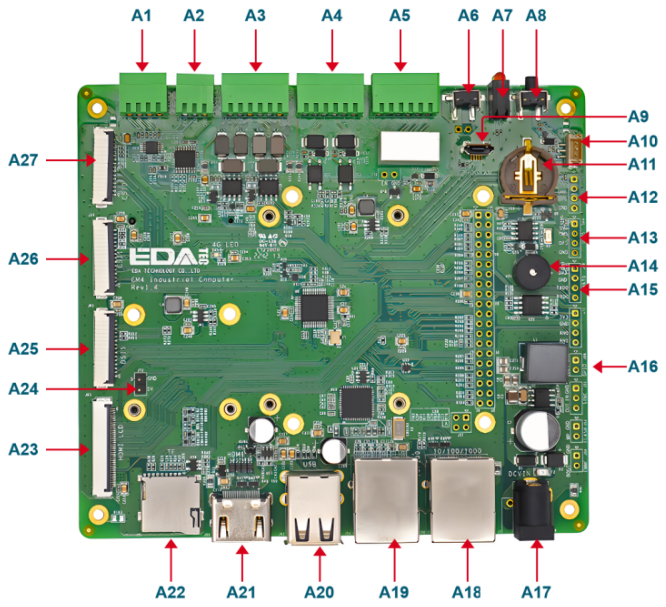
1.3 System Diagram



ED-CM4IND: EDATEC CM4 Industrial

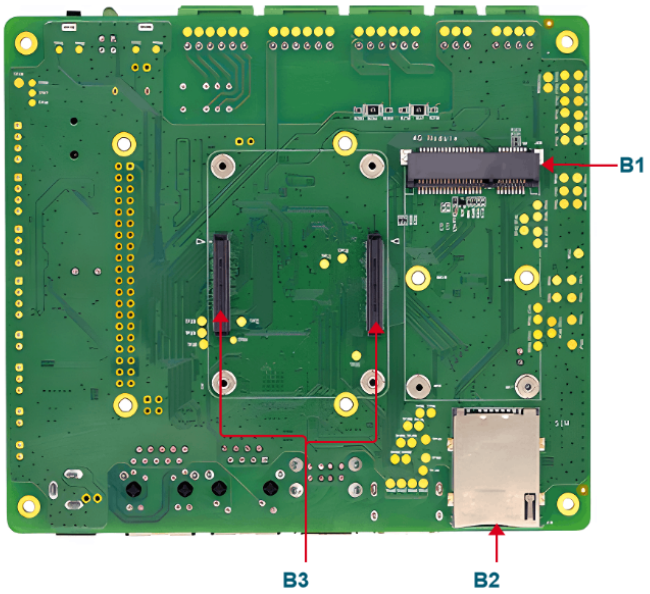
> NoTE
>
> The power input range for version V1.4 is 9V ~ 36V, while for versions V1.1 to V1.3, the power input range is 9V ~ 18V.

1.4 Functional Layout



No.	Function	No.	Function
A1	3 × ADC	A15	Debug serial port
A2	1 × RS232	A16	Custom GPIO Pin Header
A3	2 × RS485	A17	DC Jack Connector (5.5x2.1mm)
A4	2 × DI	A18	1000M Ethernet Port
A5	2 × Relay	A19	100M Ethernet Port
A6	Reset Button	A20	2 × USB 2.0
A7	Power and Status Indicators	A21	Standard HDMI Interface
A8	User Button	A22	Micro SD Card Slot
A9	Micro USB Interface	A23	HDMI FPC Interface
A10	Fan Interface	A24	5V Power Output Interface
A11	RTC Battery Base	A25	DSI FPC Interface
A12	USB6 Pin Header	A26	CSI1 Interface
A13	USB5 Pin Header	A27	CSI0 Interface

No.	Function	No.	Function
A14	Buzzer	-	-

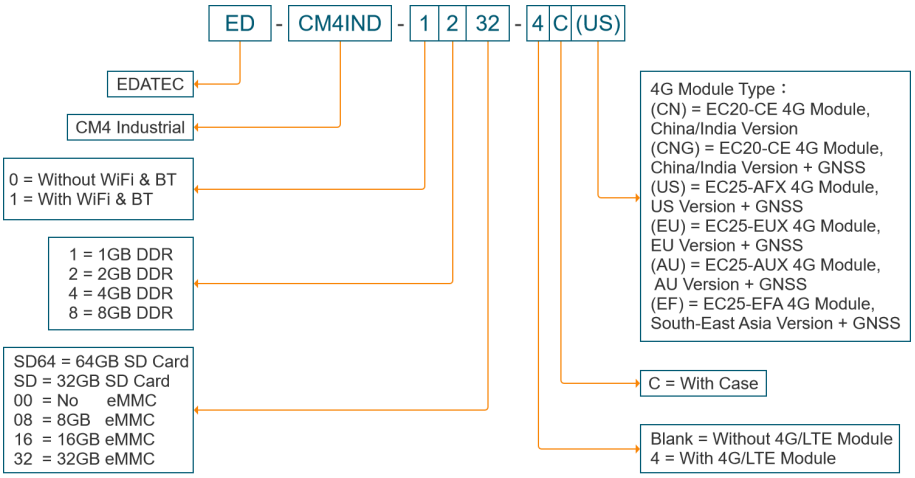


No.	Function	No.	Function
B1	Mini PCIe interface	B3	CM4 Socket
B2	Standard SIM Card Slot	--	--

1.5 Packing List

- 1 x ED-CM4IND Unit
- [WiFi/BT Version - optional] 1 x 2.4GHz/5GHz WiFi/BT Antenna
- [4G Version - optional] 1 x 4G/LTE Antenna

1.6 Ordering Code



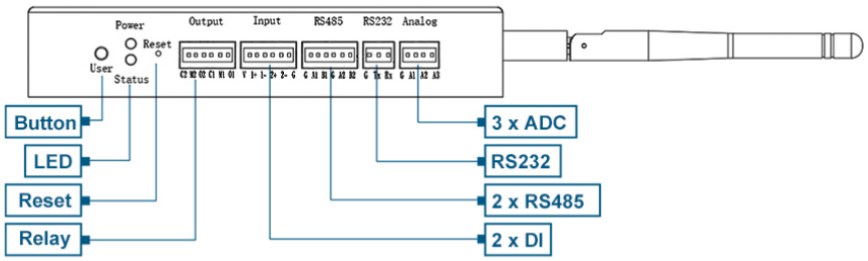
Example

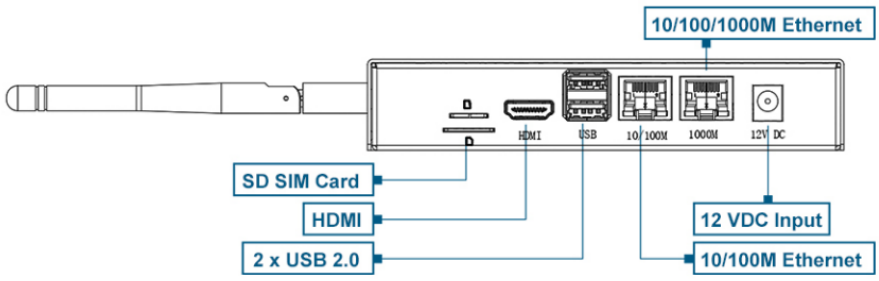
Part# : ED-CM4IND-1232-4C(US)

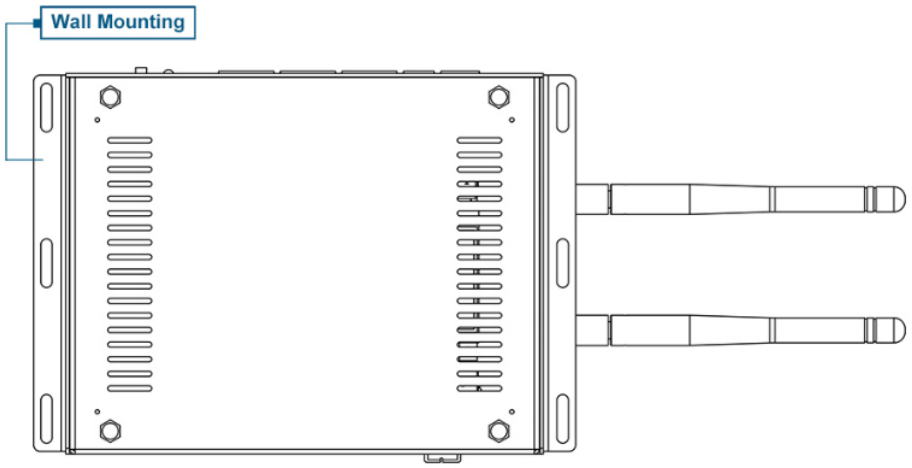
Configration : Industrial Computer Based on Raspberry Pi CM4, with Wi-Fi & Bluetooth, 2GB DDR, 32GB eMMC, 4G (EC25-AFX Module) and metal case.

2 Product Appearance and Structure

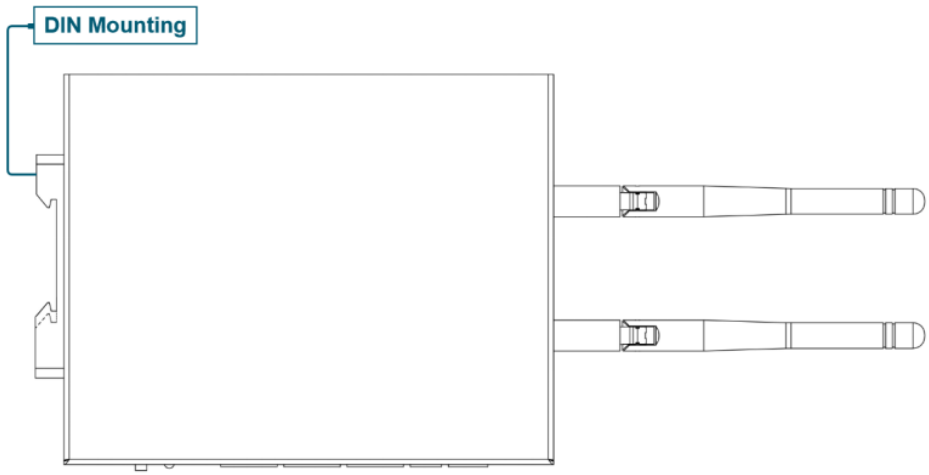
2.1 Product Appearance







> TIP
>
> The packaging list does not include wall-mounting accessories.

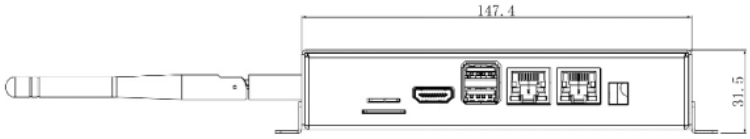

DIN Mounting

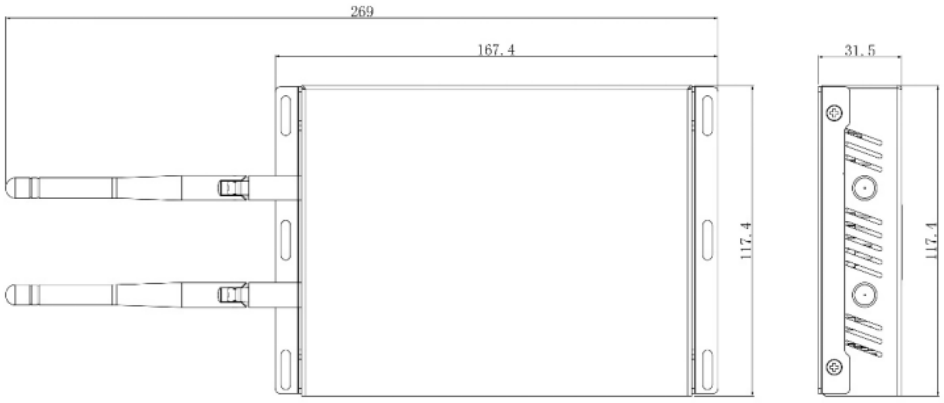
2.2 Product Photo

Power
Reset
User
Status
Output
Input
RS485
RS232
Analog

2.3 Dimensions

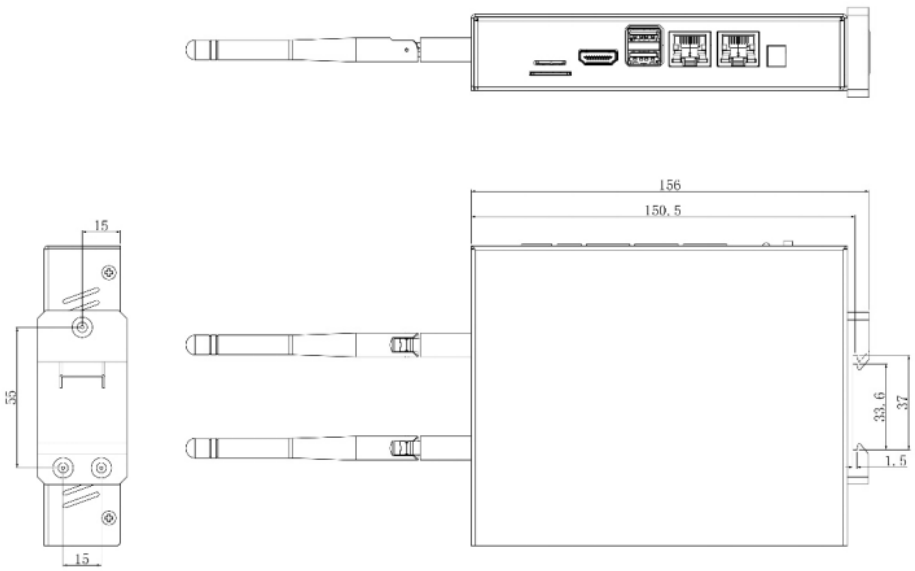
unit: mm，tolerance：±0.1mm



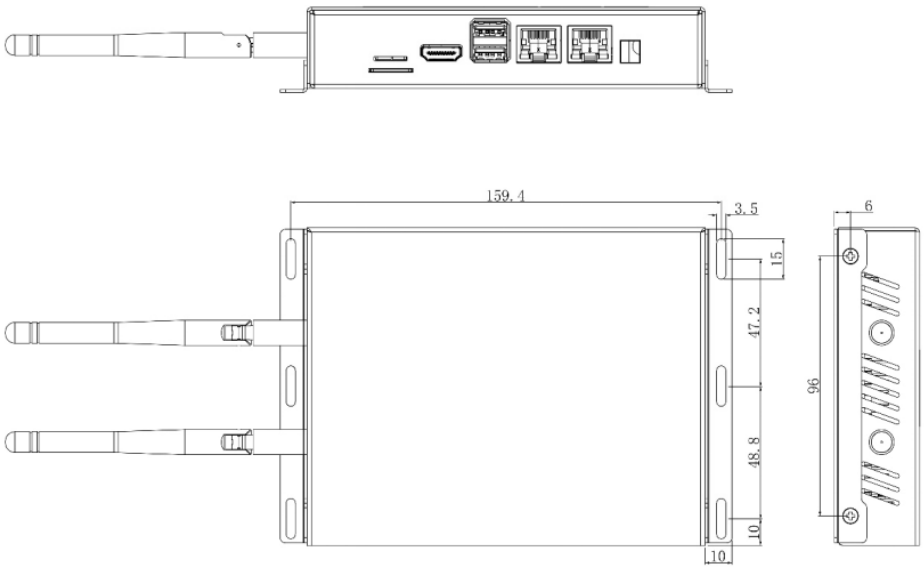


2.4 Mounting Drawings

2.4.1 DIN Mounting



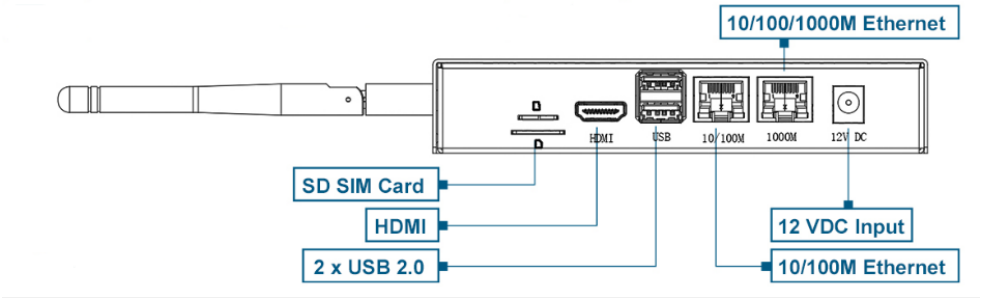
2.4.2 Wall Mounting



> TIP
>
> The packaging list does not include wall-mounting accessories.

3 Interfaces and Connectors

3.1 Front Panel



3.1.1 Power Input

The default input power for the ED-CM4IND is 12V. The power input range for hardware version V1.4 supports 9V to 36V, while hardware versions V1.1 to V1.3 support a power input range of 9V to 18V. The case is marked with "12V DC," and the connector is a standard 5.5x2.1 mm DC power socket with the center pin being positive and the outer sleeve negative.

3.1.2 1000M Ethernet

The ED-CM4IND includes one adaptive 10/100/1000M Ethernet interface, with the case marked as "1000M". It is recommended to use a Cat6 (Category 6) Ethernet cable when connecting to the network.

3.1.3 100M Ethernet

The ED-CM4IND includes one adaptive 10/100M Ethernet interface, with the case marked as "10/100M," used for network connectivity.

3.1.4 USB 2.0

The ED-CM4IND includes two USB 2.0 interfaces with Type-A connectors, supporting a maximum transmission rate of 480Mbit/s.

3.1.5 HDMI

The ED-CM4IND is equipped with one standard HDMI interface, featuring a Type-A connector, designed for connecting HDMI displays and supporting 4Kp60 resolution.

3.1.6 Micro SD Card Slot

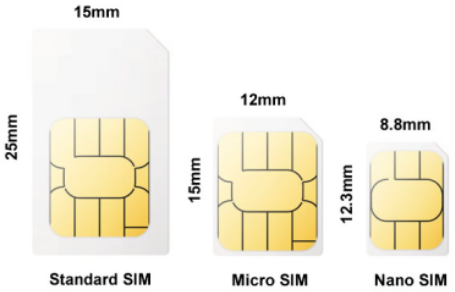
The ED-CM4IND contains one Micro SD card slot for installing a Micro SD card, enabling system booting from the SD card.

> NOTE
>
> The Micro SD card is only required when using the CM4 Lite (without eMMC) core module to boot the system. If a CM4 module with eMMC is selected, the Micro SD card slot is unavailable.

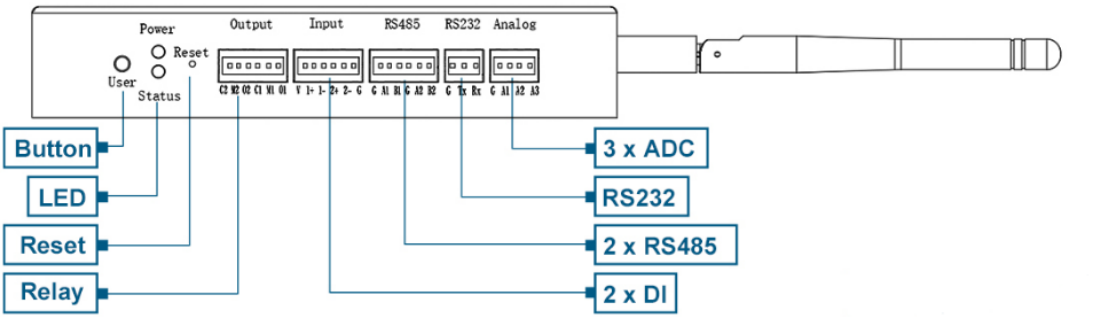
3.1.7 SIM Card Slot

The ED-CM4IND includes one standard SIM card slot, supporting the optional 4G LTE module.

The size differences between a standard SIM card, Micro SIM card, and Nano SIM card are as follows:



3.2 Rear Panel



3.2.1 Indicators

The ED-CM4IND includes two indicators: a red LED for the Power indicator and a green LED for the Status indicator.

- Power Indicator: Used to check the device's power status.
- Status Indicator: Used to check the device's operational status.

Indicator	Status	Description
Power	On	The device has been powered on.

Indicator	Status	Description
	Blink	Power supply of the device is abnormal, please stop the power supply immediately.
	Off	The device is not powered on.
Status	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.

3.2.2 Buttons

The ED-CM4IND includes two buttons: a Reset button and a User button.

3.2.2.1 RESET Button

The Reset button is a hidden button, marked as "Reset" on the case. Pressing the Reset button will reset the device.

3.2.2.2 User Button

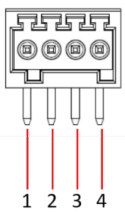
The User button is marked as "User" on the case and is connected to the GPIO6 pin of the CM4 chip. By default, it is in a high-level state. When pressed, the pin goes to a low-level state, supporting user-defined functionality.

User Button Pin Definition:

Pin	Signal	CM4 Pinout
1	User Button	GPIO6

3.2.3 ADC

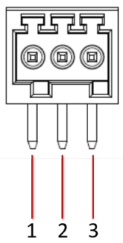
The ED-CM4IND includes three ADC interfaces, communicating with the ADC acquisition chip via the i2c-1 bus. It uses a 2.5mm pitch Phoenix terminal, with the pin definitions as follows:



Pin ID	Pin Name
1	GND
2	ADC1
3	ADC2
4	ADC3

3.2.4 RS232

The ED-CM4IND includes one RS232 serial port, using a 2.5mm pitch Phoenix terminal, corresponding to UART5 on the CM4. The device file is `/dev/ttyAMA5`.



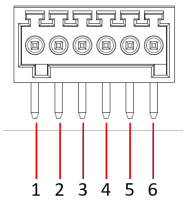
Pin ID	Pin Name
1	GND
2	TXD
3	RXD

RS232 Pin Mapping to CM4 UART5:

Pin	Signal	CM4 Pinout
1	TXD5	UART5_TX/GPIO12
2	RXD5	UART4_RX/GPIO13

3.2.5 RS485

The ED-CM4IND includes two RS485 interfaces, using a 2.5mm pitch Phoenix terminal, with the pin definitions as follows:



Pin ID	Pin Name
1	GND
2	485-1_A
3	485-1_B
4	GND
5	485-2_A
6	485-2_B

The terminal specification model is 2EDGR-2.5-6P/15EDGRC-2.5-06P-14-00AH, the spacing between terminals is 2.5mm.

RS485-1 Pin Mapping to CM4 UART4, the device file is `/dev/ttyAMA4`.

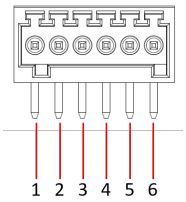
Pin	Signal	CM4 Pinout
1	TXD4	UART4_TX/GPIO8
2	RXD4	UART4_RX/GPIO9

RS485-2 Pin Mapping to CM4 UART3, the device file is `/dev/ttyAMA3`.

Pin	Signal	CM4 Pinout
1	TXD3	UART3_TX/GPIO4
2	RXD3	UART4_RX/GPIO5

3.2.6 DI

The ED-CM4IND includes two isolated DI interfaces, using a 2.5mm pitch Phoenix terminal, with the pin definitions as follows:



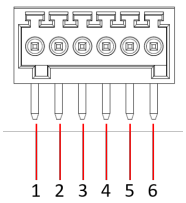
Pin ID	Pin Name
1	12VIN
2	DIN1+
3	DIN1-
4	DIN2+
5	DIN2-
6	GND

DI Pin Mapping to CM4 GPIO are as follows:

Pin	Signal	CM4 Pinout
1	DIN1	GPIO11
2	DIN2	GPIO26

3.2.7 Relay

The ED-CM4IND includes one double-pole double-throw (DPDT) relay interface, using a 2.5mm pitch Phoenix terminal. The relay is controlled by the GPIO22 pin, with high and low levels determining its state. By default, it is normally closed (NC), with COM1 and NC1 connected, and COM2 and NC2 connected. When GPIO22 is high, the relay opens, connecting COM1 to NO1 and COM2 to NO2.



Pin ID	Pin Name
1	NC2
2	COM2
3	NO2
4	NC1
5	COM1
6	NO1

Relay Control Pin definition:

Pin	Signal	CM4 Pinout
1	RELAY	GPIO22

3.2.8 Antenna Interfaces

The ED-CM4IND includes up to two standard SMA antenna interfaces, for connecting the 4G antenna and the WiFi/BT antenna.

4 Internal Interface

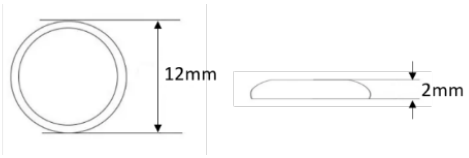
4.1 SPI Flash

The ED-CM4IND expands a 4MB SPI Flash via SPI for user data storage. The SPI Flash is connected to the CM4's spi-1 bus, with the following pin definitions:

Pin	Signal	CM4 Pinout
1	SPI_CS	GPIO16
2	SPI_SCK	GPIO21
3	SPI_MISO	GPIO19
4	SPI_MOSI	GPIO20

4.2 RTC

The ED-CM4IND integrates an RTC. For domestically sold versions, a CR1220 coin cell battery (RTC backup power) is pre-installed to ensure a reliable and uninterrupted clock, unaffected by power loss. The RTC clock chip is connected to the i2c-1 bus with a device address of 0x51.



i2c-1 Bus Pin Definition:

Pin	Signal	CM4 Pinout
1	SDA1	GPIO2
2	SCL1	GPIO3

> NOTE
>
> Some international logistics do not support battery shipments, so some devices may not include the CR1220 battery. Before using the RTC, ensure a CR1220 coin cell battery is installed on the motherboard.

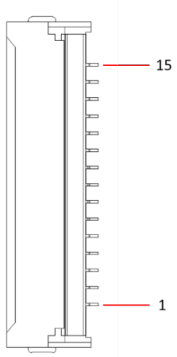
4.3 Buzzer

The ED-CM4IND integrates a buzzer, controllable via GPIO. The pin definition is as follows:

Pin	Signal	CM4 Pinout
1	BEEP	GPIO25

4.4 MIPI DSI

The ED-CM4IND includes one MIPI DSI interface, labeled "DSI1," supporting LCD screen expansion. The pin definitions are as follows:



Pin ID	Pin Name
1	GND
2	DSI1_D0_N
3	DSI1_D0_P
4	GND
5	DSI1_D1_N
6	DSI1_D1_P
7	GND
8	DSI1_CLK_N
9	DSI1_CLK_P
10	GND
11	SCL0
12	SDA0
13	GND
14	3V3
15	3V3

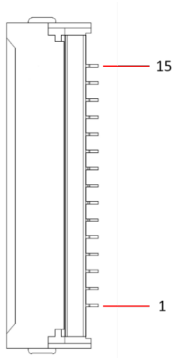
4.5 MIPI CSI

The ED-CM4IND includes two MIPI CSI interfaces, labeled "CSI1" and "CSI0," supporting Raspberry Pi Camera expansion.

4.5.1 CSI0

The Pin definition are as follows:

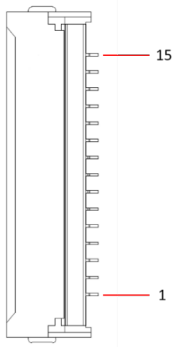
	Pin ID	Pin Name



1	GND
2	DSI1_D0_N
3	DSI1_D0_P
4	GND
5	DSI1_D1_N
6	DSI1_D1_P
7	GND
8	DSI1_CLK_N
9	DSI1_CLK_P
10	GND
11	CAM_GPIO
12	无
13	ID_SC
14	ID_SD
15	3V3

4.5.2 CSI1

The Pin definition are as follows:



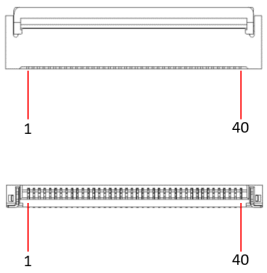
Pin ID	Pin Name
1	GND
2	DSI1_D0_N
3	DSI1_D0_P
4	GND
5	DSI1_D1_N
6	DSI1_D1_P
7	GND
8	DSI1_CLK_N
9	DSI1_CLK_P
10	GND
11	CAM_GPIO

12	NC
13	SCL0
14	SDA0
15	3V3

4.6 FPC HDMI

The ED-CM4IND includes one FPC HDMI interface, labeled "HDMI LCD," with reserved USB 2.0 touch signals and PWM backlight control signals, supporting HDMI touchscreens. A 40-pin 0.5mm pitch FPC cable is recommended for connecting LCD screens.

The Pin definition are as follows:



Pin ID	Pin Name	Pin ID	Pin Name
1	Y+	21	GND
2	X+	22	HDMI1_CLKP
3	Y-	23	HDMI1_CLKN
4	X-	24	GND
5	GND	25	BACKLIGHT_PWM
6	USB_DP	26	GND
7	USB_DM	27	GND
8	GND	28	GND
9	HDMI1_HPD	29	GND
10	HDMI1_SCL	30	GND
11	HDMI1_SDA	31	GND
12	GND	32	LCD_PWR_EN
13	HDMI1_TX2P	33	5V
14	HDMI1_TX2N	34	5V
15	GND	35	5V
16	HDMI1_TX1P	36	5V
17	HDMI1_TX1N	37	5V
18	GND	38	5V
19	HDMI1_TX0P	39	5V

	20	HDMI1_TX0N	40	5V

4.7 40-PIN GPIO

The ED-CM4IND includes one 40-pin GPIO header, compatible with Raspberry Pi HAT, supporting various Raspberry Pi expansion accessories. The Pin definitions are as follows:

Pin	Name	IO	Definition	Configured Function
1	3V3	O	3.3V	--
2	5V	I/O	5V	--
3	PIN3	I/O	GPIO2	I2C1_SDA
4	5V	I/O	5V	--
5	PN5	I/O	GPIO3	I2C1_SDL
6	GND	--	GND	--
7	PIN7	I/O	GPIO4	TXD3
8	PIN8	I/O	GPIO14	TXD0
9	GND	--	GND	--
10	PIN10	I/O	GPIO15	RXD0
11	PIN11	I/O	GPIO17	GPIO17
12	PIN12	I/O	GPIO18	BACKLIGHT_PWM
13	PIN13	I/O	GPIO27	GPIO27
14	GND	--	GND	--
15	PIN15	I/O	GPIO22	RELAY
16	PIN16	I/O	GPIO23	LCD_PWR_EN
17	3V3	O	3.3V	--
18	PIN18	I/O	GPIO24	FAN_EN
19	PIN19	I/O	GPIO10	RST_4G
20	GND	--	GND	--
21	PIN21	I/O	GPIO9	RXD4
22	PIN22	I/O	GPIO25	BEEP
23	PIN23	I/O	GPIO11	DIN1
24	PIN24	I/O	GPIO8	TXD4

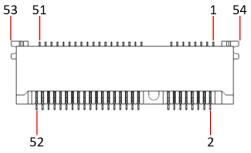
25	GND	--	GND	--
26	PIN26	I/O	GPIO7	ADC_INT
27	PIN27	I/O	GPIO0	ID_SD
28	PIN28	I/O	GPIO1	ID_SC
29	PIN29	I/O	GPIO5	RXD3
30	GND	--	GND	--
31	PIN31	I/O	GPIO6	USER BUTTON
32	PIN32	GPIO12	TXD5	
33	PIN33	I/O	GPIO13	HDMI1_CLKN
34	GND	--	GND	--
35	PIN35	I/O	GPIO19	SPI_MISO
36	PIN36	I/O	GPIO16	SPI_CS
37	PIN37	I/O	GPIO26	DIN2
38	PIN38	I/O	GPIO20	SPI_MOSI
39	GND	--	GND	--
40	PIN40	I/O	GPIO21	SPI_SCK

NOTE

Some GPIO pins on the 40-pin header are pre-configured for onboard functions. Please check before use.

4.8 Mini PCIe Interface

The ED-CM4IND includes one Mini PCIe interface, supporting 4G module expansion (optional). Pin Definitions are as follow:



Pin ID	Pin Name	Pin ID	Pin Name	Pin ID	Pin Name
1	NC	21	GND	41	3V3
2	3V3	22	GPIO10 / PCIE_nRST	42	LED_WWAN
3	NC	23	PCIE_RXN	43	GND
4	GND	24	3V3	44	NC
5	NC	25	PCIE_RXP	45	NC

6	NC	26	GND	46	NC
7	PCIE_CLK_nREQ	27	GND	47	NC
8	USIM_VDD	28	NC	48	NC
9	GND	29	GND	49	NC
10	USIM_DATA	30	NC	50	GND
11	GND	31	PCIE_TXN	51	NC
12	USIM_CLK	32	NC	52	3V3
13	PCIE_CLKP	33	PCIE_TXP	53	GND
14	USIM_RST	34	GND	54	GND
15	GND	35	GND	--	--
16	NC	36	USB_DM	--	--
17	NC	37	GND	--	--
18	GND	38	USB_DP	--	--
19	NC	39	3V3	--	--
20	NC	40	GND	--	--

4G Module Reset Pin Definition:

Pin	Signal	CM4 Pinout
1	RST_4G	GPIO10

4.9 USB 2.0 Pin Header

The ED-CM4IND includes two USB 2.0 pin headers, labeled J44 and J63, with a 4-pin 2.54mm pitch. These can be used to expand USB 2.0 interfaces as needed. Pin Definitions are as follows:

Pin ID	Pin Name
1	5V
2	D-
3	D+
4	GND

4.10 UART Pin Header

The ED-CM4IND includes one UART pin header, labeled J58 and named "UART0." It is a TTL-level serial port with a 4-pin 2.54mm pitch, typically used as a debug serial port. Pin Definitions are as follows:

Pin ID	Pin Name
1	3.3V
2	GND
3	TXD0
4	RXD0

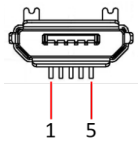
4.11 2-PIN GPIO Pin Header

The ED-CM4IND provides one GPIO via a 2-pin 2.54mm pitch header, labeled J68 and connected to GPIO27 on the CM4. It can be configured for various purposes. Pin definitions are as follows:

Pin ID	Pin Name
1	GND
2	GPIO27

4.12 Micro USB Interface

The ED-CM4IND includes one Micro USB interface, labeled J73 and named "USB PROGRAM," used for eMMC programming. Pin definitions are as follows:



Pin ID	Pin Name
1	5V
2	D-
3	D+
4	NC
5	GND

4.13 5V 1A Output

The ED-CM4IND includes one 5V 1A power output interface, labeled J72, providing 5V 1A DC output for powering external LCD screens. Pin definitions are as follows:

Pin ID	Pin Name
1	5V
2	GND

4.14 PoE Pin Header

The ED-CM4IND includes one PoE pin header for connecting PoE HAT modules. Pin definitions are as follows:

Pin ID	Pin Name
1	VC1-
2	VC1+
3	VC2-
4	VC2+

4.15 Fan Pin Header

The ED-CM4IND includes one fan control interface, labeled J67. Pin definitions are as follows:

Pin ID	Pin Name
1	5V (no pull-up)
2	5V (bring pull)
3	FAN_EN
4	GND
5	GND

> TIP
>
> FAN_EN is connected to GPIO24 on the CM4. By controlling GPIO24, the fan can be turned on/off and its speed adjusted.

5 Wireless Communication

5.1 WiFi

The ED-CM4IND supports dual-band WiFi (2.4GHz & 5GHz).

2.4GHz Band

Parameter	Characteristics
Frequency Range	802.11b/g/n (HT20): 2412-2472MHz 802.11n (HT40): 2422-2462MHz
Modulation	802.11b: DSSS 802.11g/n: OFDM
Channel Spacing	5MHz

5GHz Band

Parameter	Characteristics
Frequency Range	802.11a/n/ac: 5150-5350MHz, 5470-5725MHz, 5725-5850MHz
Modulation	BPSK
Channel Spacing	5MHz

5.2 Bluetooth

The ED-CM4IND supports Bluetooth 5.0.

Parameter	Characteristics
Frequency Range	2402-2480MHz
Modulation	GFSK/DPSK
Channel Spacing	2MHz

5.3 4G LTE

The ED-CM4IND includes a Mini PCIe interface for connecting 4G LTE modules, supporting multiple 4G modules.

4G Module	Support Country	Supported Frequency Band
EC20-CE	China/India	

4G Module	Support Country	Supported Frequency Band
		LTE FDD: B1/B3 LTE TDD: B38/B39/B40/B41 TDSCDMA: B34/B39 WCDMA: B1 CDMA 1x/EVDO: BC0 GSM: 900/1800MH
EC25-AFX	North America	LTE-FDD: B2/B4/B5/B12/B13/B14/B66/B71 LTE-TDD WCDMA: B2/B4/B5 GSM/EDGE
EC25-AUX	Latin America/Australia/New Zealand	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28 LTE-TDD: B40 WCDMA: B1/B2/B4/B5/B8 GSM/EDGE: B2/B3/B5/B8
EC25-EUX	EMEA/Thailand	LTE-FDD: B1/B3/B7/B8/B20/B28A LTE-TDD: B38/B40/B41 WCDMA: B1/B8 GSM/EDGE: B3/B8

5.4 Antennas

5.4.1 4G LTE Antenna

Parameter	Characteristics
Antenna Type	External Antenna
Frequency Bands	LTE-FDD, LTE-TDD
Frequency Range	698-894MHz, 1710-2200MHz, 2496-2690MHz
Antenna Gain	2 dBi
Impedance	50 Ω

5.4.2 WiFi/BT antenna

Parameter	Characteristics
Antenna Type	External Antenna
Frequency Range	2400-2500MHz, 5150-5850MHz

Parameter	Characteristics
Antenna Gain	2 dBi
Impedance	50 Ω

6 Electrical characteristics

6.1 Electrical Parameters

Parameters	Minimum	Typical	Maximum	Unit
System Power Input (V1.4)	9	12	36	V
Operating Temperature	-25	25	60	℃
Storage Temperature	-25	25	60	℃
Operating Humidity	20	-	90	%
Relay AC load	-	-	125V 0.5A	-
Relay DC load	-	-	30V 3A	-

TIP

For hardware versions V1.1 to V1.3, the maximum system power input is 18V.

7 FAQ

7.1 Can Micro SD card be used for system booting?

The Micro SD card Slot is only used with CM4 Lite for primary file system storage. If you choose CM4 module with eMMC, this Micro SD card slot is not available because it shares an MMC interface with eMMC.