MEITRACK® MD600 Specifications

Documentation

File Name	MEITRACK MD600 Specifications		
Project	MD600	Creation Date	2023-09-15
Subproject	Specifications	Total Pages	20
Version	V1.4	Confidential	External Documentation

Copyright and Disclaimer

Documentation Update Records

Version	Date	Modified
1.0	2023-09-15	Initial draft.
1.1	2023-10-31	Modify the optional model.
1.2	2023-11-24	Modified I/O port sequence.
1.3	2024-08-08	Modified usage precautions. Change the color of the I/O line.
1.4	2024-11-20	Added AI camera accessories. Modify the ACC color line.

Cautions

Installation Environment

1. To extend equipment life, please install the equipment in locations with little vibration.
2. To ensure normal heat dissipation, do not install the device in a poorly-ventilated area (such as a trunk), and also keep it about 15 cm away from other objects on the same level.
3. The device shall be horizontally installed and protected against water, humidity and lightning; in addition, keep the vehicle still during installation to prevent damage to the device due to falling off.
4. To ensure safe operation, keep the device, camera, cables and other accessories out of reach of passengers and driver.

Avoid electric shock and fire

1. The machine uses 11.4V-36V DC power supply, notice the polarity when wiring to avoid short circuits.
2. Before installation, disconnect the power supply of the device and wrap each unused I/O cable with adhesive tape to prevent other cables from touching the output power cable, which may cause the device to burn.
3. Please power off the device when connecting accessories with device.
4. Do not touch the power and the device with wet hands.
5. Do not spray liquid on the device to prevent internal short circuit or fire.
6. Do not put any other equipment on top of camera.
7. Do not disassemble the housing without authorization to avoid damage or electric shock.

Transport and handling

1. Please use the original package in transport to avoid damage in transport.
2. Please keep power off in moving the device or replacing components.

Contents

1 Product Introduction

MD600 is the second generation of a new solution AI MDVR with high-performance AI processing chips, with a dual-system (dual communication channel), highly stable 6-channel AHD, and 1080P high-definition vehicle-mounted hard disk video recorder. It possesses high computing power and can support AI applications such as ADAS and DMS. The product is based on a dual system of Linux operating system and MCU OS, incorporating advanced technologies including high-performance H.264/H.265 video compression/decompression, 4G, GPS, WiFi, Bluetooth, power-off data protection, wide voltage, high voltage protection, and other technologies. It serves as the core product of the next-generation wireless vehicle-mounted video surveillance solution.

It is widely used in buses, long-distance coaches, taxis, logistics vehicles, special-purpose vehicles (e.g., armored cash transport vehicles), private cars, and forklifts, and other mobile video surveillance fields.

Product features:

Support 6-channel AHD720P/1080P cameras.

Embedded high-performance AI video processing chip (optional AI video algorithm: ADAS, DMS).

M.2 SSD, which is more suitable for low-temperature environments than conventional hard disks, supports up to 2TB hard disk, and comes with an SD card slot (up to 512G).

Adopt industrial grade power supply chip, support 11.4~36V wide range power input, adapt to the harsh environment.

It supports dual working modes of local recording and network transmission.

The built-in 6-axis sensor can be used for sharp turning, rapid acceleration, rapid deceleration, and other alarms.

The self-developed data writing mechanism is adopted to effectively protect the video data and prevent data loss caused by abnormal power failure of the system.

2 Specifications

Power supply	
Rated voltage	DC: 11.4-36V. Rated at 12V/3A
Power consumption	The audio and video on the host is about 6W connected to 6 cameras, about 24W in the day (29W connected to the display), about 32W in the night (37W connected to the display), Connect to a single camera (normal range is 50mA~100mA during the day, 200mA~250mA at night)

AI	
AI video	ADAS、DMS

Storage media	
SD card &SSD hard drive	1*M2 SSD and 2*SD, Capacity: 2 TB + 2* 512 GB, supports PCIe x2 and PCIe x4 NVME protocol M.2 NGFF SSD (2280 specifications)

System structure	
System operation	Dual system operation, dual communication channels (to prevent data loss)

Audio and video

Video input	6-channels AHD camera, can support D1/720P/1080P arbitrary mixing Adaptive camera resolution and format (PAL and NTSC) Maximum support 6x1080P@15fps real-time video recording
Video output	1 channel VGA video output (8Pin aviation head interface), default resolution 1024*7681 1 CVBS aviation plug (level: 1.0Vp-p, impedance: 75Ω) Resolution: PAL 704*576, NTSC 704*480
Compression standard	H.264/H.265 configurable
Image display	Support 1, 6 screen display
Audio input	6 channels for the camera Mic input, the camera should support audio 1 way of intercom handle input 1 channel 3.5MM headphone interface input (GSM call interface)
Audio output	1 independent audio isolation output (and connected to AV-OUT interface, VGA aviation head interface and intercom handle interface)1 channel 3.5MM headphone interface output (GSM call interface)
Audio compression	G.726/G.711a/AAC
Video Request and Playback	It can retrieve and playback by channel, video type, bitstream type and time
Video Recording method	Ordinary video and alarm video, sound and video recording synchronization

Frequency band	
MD600-AU	GSM: B2/B3/B5/B8 WCDMA: B1/B2/B4/B5/B8 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66 LTE-TDD: B40
MD600-A	WCDMA: B2/B4/B5 LTE-FDD: B2/4/5/12/13/14/66/71
MD600-J	WCDMA: B1/B6/B8/B19 LTE-FDD: B1/B3/B8/B18/B19/B26 LTE-TDD: B41
MD600-G	GSM: B2/B3/B5/B8 WCDMA: B1/B2/B4/B5/B8/B6/B19 LTE-FDD:B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28 LTE-TDD:B38/B39/B40/B41
MD600-E	GSM: B3/B8 WCDMA： B1/B5/B8 LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41
WiFi\BLE\GNSS	
WiFi	IEEE 802.11b /g/n, frequency 2.4G&5.8G, supports STA and AP dual mode
Bluetooth	It supports master-slave dual mode, can read Bluetooth accessories, and can configure parameters through APP
Positioning mode	GPS/GPS_BEIDOU/GPS_GLONASS

Positioning accuracy	2.5m
Tracking sensitivity	-162dBm
GNSS antenna	Support antenna insert/pull out/short circuit detection

Others	
SPI memory	Built-in 64Mbit for storing GPRS\SMS\GPS LOG data
Operating temperature	Without battery: -20 to 70 degrees
Sensor	6-axis acceleration sensor
I/O port	Main cable port: 8*Din(Max 8*Din) + 2*Dout(Max 8*Dout) + 2*AD(Max 6*AD) + 1*Speed_IN + 1*1-wire + 2*RS485 + 1*CAN + 1*DC_5V + 1*DC_12V Other interfaces: 2-way RS232, 1-way ACC
Dimensions	Dimensions: 120*154*43mm
Weight	740g (excluding accessories)

Certification
CE certification

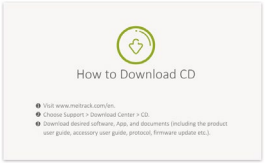
Protocol
Meitrack Protocol (CCE) RTMP (Audio Video Transport Protocol, also compatible with Meitrack's Audio Video Private Transport Protocol)

3 Main Device and Accessories

3.1 Main Device

MD600

Power cord/ACC cord



CD download card

IO cables

Lock key

USB configuration cable

WIFI antenna

4G antenna

GPS antenna

Bluetooth antenna

M.2 Screw

Standard	Quantity	Remarks
Host	1	MD600
Power cord/ACC cord	1	3PIN with 20cm of wire
IO cables	1	24PIN with 20cm thread length
CD download card	1	Neutral packaging does not come standard
USB configuration cable	1	Standard Type C connector cable For connecting PC configuration with upgrades
Key lock	2	For locking SD and SIM cards
4G antenna	1	4G signal gain
GPS antenna	1	GPS signal gain
WIFI antenna	1	WiFi signal gain
Bluetooth antenna	1	Bluetooth signal gain
M.2 Screw	1	Used to fix the M.2 SSD hard disk
Total	12	

3.2 Optional Accessories

3.2.1 MDVR Camera options

AI Camera		
DMS Telescopic Camera (ACP506)	DMS Side-mounted Camera (ACP505)	DMS Camera(ACP503)
		

ADAS Camera(ACP603)	ADAS Wide Dynamic Range Camera (ACP604)
	
BSD Side-mounted Camera (ACP301)	BSD Overhead Camera (ACP504)
	
Install the left and right blind areas of the vehicle.	Install blind spots in front and rear of the vehicle

Waterproof Standard Camera (Outdoor)	
Side-mounted Waterproof Camera 720/1080P (ACA301)	Waterproof Mini Camera 1080P (ACA105)
	
Waterproof Square Camera 720/1080P (ACA501)	Waterproof Square Camera 1080P (ACA503)
	

Non-waterproof Standard Camera (Indoor)
Metal Shell Miniature Snail Camera 720/1080P (ACA303)


Camera extension cable (default: 3M or 5M)

Note: Standard camera cable length is generally 50cm, please adapt the corresponding camera extension cable.

3.2.2 Additional options

Optional Bluetooth external accessory		
Bluetooth temperature and humidity sensor (AST101)	Bluetooth beaco (AB401)	Bluetooth beaco (AB402)
		

Other optional external accessories			
A53 Fuel sensor (voltage AD)	A52 digital temperature sensor	Relay	iButton
			
Ultrasonic Fuel Sensor ASUF103 (range 100cm)	Ultrasonic Fuel Sensor ASUF104 (range 250cm)	Ultrasonic Fuel Sensor ASUF105(range 400cm; AD analog)	Ultrasonic Fuel Sensor A76（range 100cm，Without AD analogue）
			
Microphone (A58) + speaker (A57) + connector cable	RFID reader	High temperature batteries(400mA)	Sound and Light Alarm (AAL101)
			

Intercom (A95)	7\10.1 inch VGA display	7 inch CVBS display	UPS Power Supply(APU101)
			

Memory card	M.2 Hard drive
	

4 Host interface

4.1 Appearance and interface

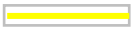
No.	Interface	Signage	Description
1	1.4G indicator light	4G	Green, network status indicator
	2.REC indicator	REC	Green, video status indicator
	3.PWR indicator	PWR	Red, power supply status indication
	4.GPS indicator	GPS	Blue, GPS status indicator
	5.ALM indicator	ALM	Orange, video loss status indication
	6.WIFI/ Bluetooth indicator	WIFI	Green, WIFI& Bluetooth status indicator
2	Microphone/speaker port	Audio	For external microphone \ speaker +GSM two-way calls
3	Infrared interface	IR	Infrared receiver (reserved function)
4	Debug interface	debug	Connect the PC side for parameter configuration
5	SIM card	SIM	SIM card port
6	Lid detection	NA	Start work only when the lid is detected to have

	switch		been installed
7	SD slot	SD	2*SD card loading port
8	Electronic locks	Pick/lock the sign	Lock the SD\SIM card, which is also the on/off machine for the device
9	Ethernet with USB interface	ETH&USB	Used to connect Ethernet for data transfer or parameter configuration. USB is used to upgrade the device and supports USB3.0

No.	Interface	Signage	Description
1	Power port	PWR&ACC	Red wire power 11.4~40V, rated 12V/3A; The black wire is GND.Yellow wire is connected to ACC high level detection, 3V effective, up to 40V
2	Serial Port 1	RS232_1	RS232_1: Used for external RFID, ultrasonic oil sensor and other peripherals
3	Serial port 2	RS232_2	RS232_2: For extended connection peripherals such as G_MOSE
4	24PIN main cable	IO&AD&RS485&CAN	8*Din(Max8*Din)+2*Dout(Max8*Dout)+2*AD(Max6*AD)+1*Speed _IN+1*1-wire +2*RS232+2*RS485+1*CAN+1*DC_5V+1*DC_12V
5	4G antenna port	4G	4G antenna access point
6	Bluetooth antenna interface	BLE	Bluetooth antenna port
7	WIFI antenna interface	WIFI	WIFI antenna access point
8	GPS antenna interface	GNSS	GPS antenna access point
9	Video output	AV-OUT	Vehicle video CVBS output: Resolution -PAL 704*576,NTSC 704*480
10	Video output	VGA	Vehicle video VGA output: Default output resolution 1280*720.
11	1.AV-IN1	AV- IN1~6&USB Backup &SPK&MIC	Label DMS AV-IN1 on the wire — DMS 4-core aviation head
	2.AV-IN2		Identify ADAS AV-IN2 on — ADAS 4-core aviation head

	the wire	
3.AV-IN3	Label AV-IN3 on the wire	4 core aviation head
4.AV-IN4	Label AV-IN4 on the wire	4 core aviation head
5.AV-IN5	Label AV-IN5 on the wire	4 core aviation head
6.AV-IN6	Label AV-IN6 on the wire	4 core aviation head
7.MIC & SPEAKER	MIC & SPEAKER	Intercom handle for external and monitoring platform voice intercom input/output device (A95 intercom handle) Default: 4-core aviation head
8. Backup	Backup	Disaster recovery interface or USB interface default: 5 core aviation head

4.2 I/O Interface Definitions

No	Label	Color	Pin color	Function Description
1	RS485_1A+	Purple/White		485+ signal (MCU)
2	RS485_1B-	Purple		485-Signal (MCU)
3	AD1	Blue		12-bit analogue input 1 with valid input voltage values of 0-30V For connection of external sensors, e.g. fuel sensor
4	SPEED_IN	White/Black		Connect speed signal wire
5	IN8/OUT8	White/Purple		Digital input 8, default positive trigger, can be configured to negative trigger, or OUTPUT8
6	IN7/OUT7	White/Blue		Digital input 7, default positive trigger, can be configured to negative trigger, or OUTPUT7
7	IN6/OUT6/AD6	White/Green		Digital input 6, default positive trigger, configurable as negative trigger,or AD5 (0 to 30V) analogue input or OUTPUT6
8	IN5/OUT5/AD5	White/yellow		Digital input 5, default positive trigger, configurable as negative trigger, or AD5 (0 to 30V) analogue input or OUTPUT5
9	IN4/OUT4/AD4	White/Orange		Digital input 4, default positive trigger, configurable as negative trigger,or AD4 (0 to 30V) analogue input or OUTPUT4
10	IN3/OUT3/AD3	White/Red		Digital input 3, default positive trigger, configurable as negative trigger,or AD3 (0 to 30V) analogue input or OUTPUT3
11	OUT2	Yellow/Brown		Output control 2. default low level trigger (0V), open drain output (OC) when invalidOutput open-drain (invalid) voltage tolerance: 40 volts maximum, 400 mA maximum current,can be set to high level trigger and PWM trigger mode,can be connected to an external relay for remote disconnection of vehicle fuel/engine power etc.
12	OUT1	Yellow/brown		Output control 1. default low level trigger (0V), open drain output (OC)

				when invalid Output open-drain (invalid) voltage tolerance: 40 volts maximum, 400mA maximum current, can be set to high level trigger and PWM trigger mode, can be connected to an external relay for remote disconnection of vehicle fuel/engine power etc.
13	DC_5V	Pink/yellow		5V DC output; MAX current 750MA, software controllable shutdown
14	GND	Black		Ground line
15	SOS/IN1	Grey		Emergency alarm input line Digital input 1, configurable for positive and negative triggering (default is SOS button, negative trigger)
16	RS485_2B-	Purple/Green		485-signal (RS485 interface)
17	RS485_2A+	Purple/Yellow		485+signal (RS485 interface)
18	GND	Black		Ground line
19	CAN_L	Orange		For connection of CANBUS peripherals
20	CAN_H	Orange/White		For connection of CANBUS peripherals
21	GND	Black		Ground line
22	AD2	Blue/Brown		12 bit analog input 1, effective input voltage value 0-30V for connecting external sensors, such as oil level sensors, etc
23	1-WIRE	green		For connecting temperature sensors, iButtons and other 1-Wire accessories
24	DC_12V	Pink/orange		MAX current @1.35A, software controlled off

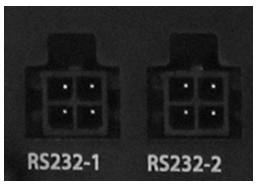
4.3 Power interface Definition

1 Power (+)	2 GND(-)
3 ACC	

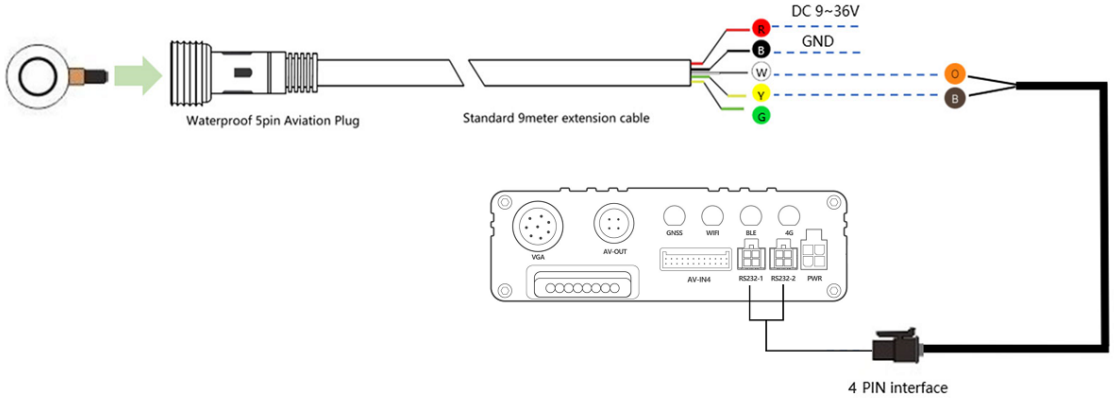
No.	Color	Function Description
1	Red	Power supply positive input
2	black	GND
3	White	ACC signal input

4.4 RS232 interface definition

1 5V(+)	3 RX
2 GND(-)	4 TX

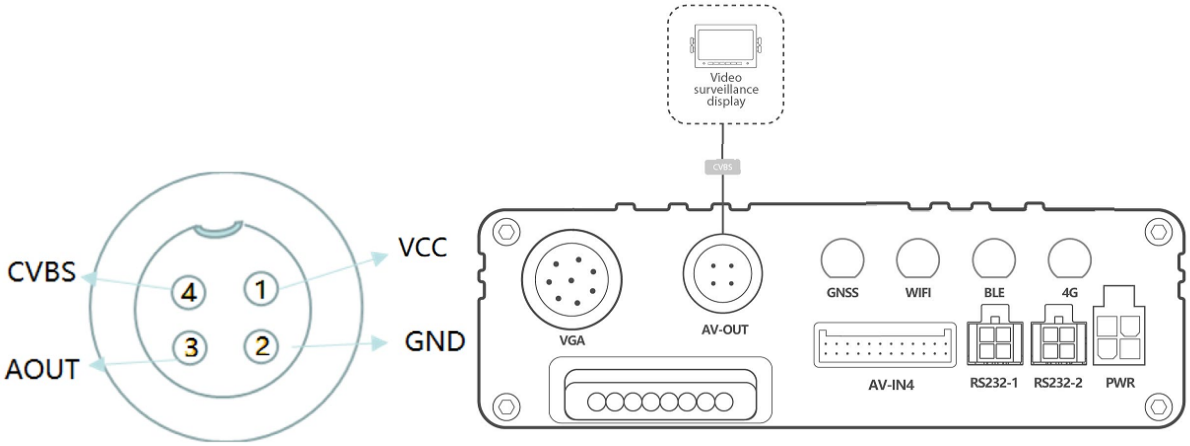


Pin Number	Description
1	Power supply output 5V
2	Ground wire
3	RX
4	TX



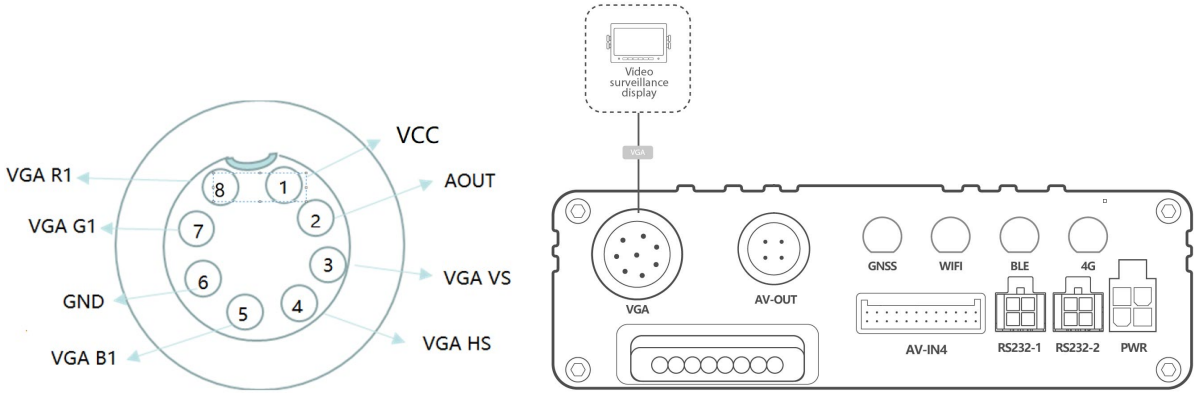
Note: RS232 is used to connect ultrasonic oil sensors, RFID and other peripherals.

4.5 AV-OUT Definition



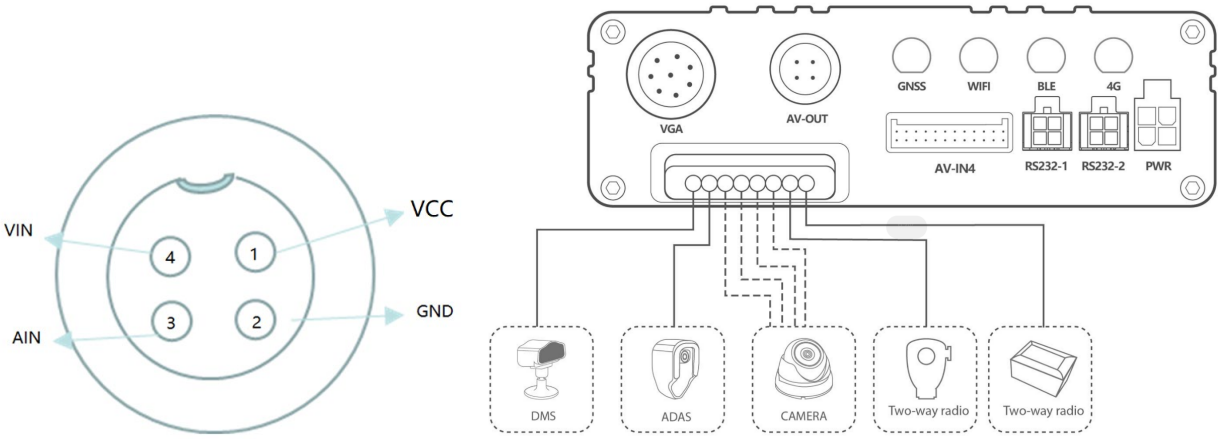
No.	Description
1	VCC (+12V)
2	GND
3	AOUT
4	CVBS

4.6 VGA interface definition



No.	Description
1	VCC (+12V)
2	AOUT
3	VGA VS
4	VGA HS
5	VGA B1
6	GND
7	VGA G1
8	VGA R1

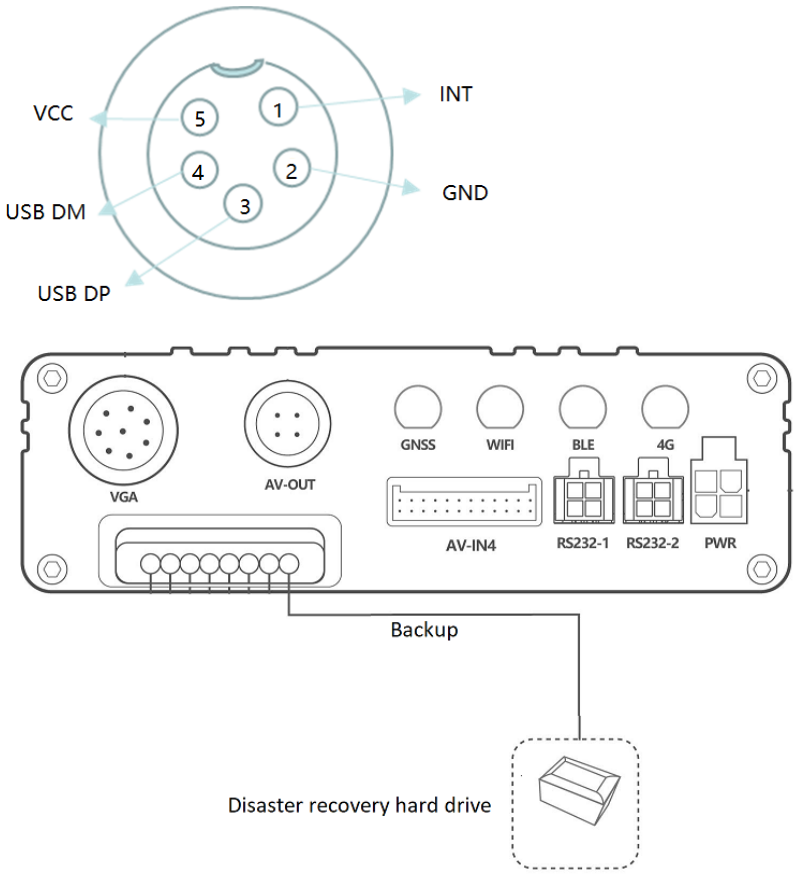
4.7 AV-IN1 to 6 Interface Definition



No.	Description
1	VCC -+12V
2	GND
3	AIN
4	VCC

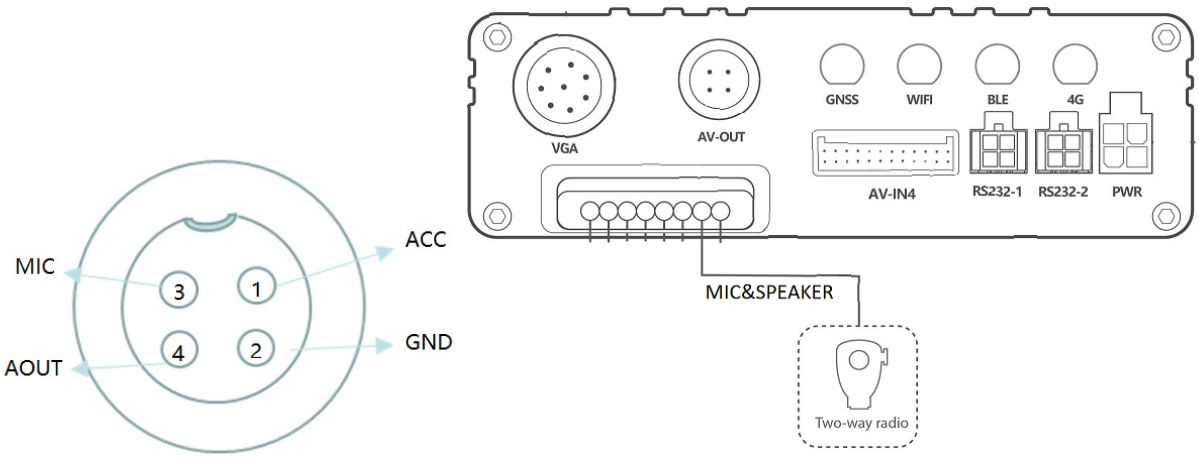
Note: The interface between ADAS and DMS can be set through the MM.

4.8 Backup interface Definition



No.	Description
1	INT
2	GND
3	USB DP
4	USB DM
5	VCC +5V

4.9 MIC&SPEAKER interface definition



No.	Description
1	ACC
2	GND
3	AOUT
4	MIC

5 LED indicator

Identifier	Meaning	Color	Status	Description
PWR	Power LED indicator	Red	Steady on	The ACC is on and the device is locked.
			Steady off	The ACC is off and the device is unlocked.
REC	SD card /M.2 Video instructions	green	Flash (frequency of writing data)	The storage disk is detected and there is written audio and video data
			once every 5 seconds	The storage disk has been detected, but no data has been written
			Steady off	No SD card is detected.

4G	4G LED indicator	Green	once every 5 Seconds	There is a 4G module, but no data is sent.
			Blink fast	4G data is sent and received normally.
			Steady off	There is no 4G module.
ALM	Video loss status	orange	Steady on	All AV inputs are not connected to cameras.
			once every 5 seconds	One AV input is not connected to a camera.
			twice every 5 seconds	Two AV inputs are not connected to cameras.
			3 times every 5 Seconds	Three AV inputs are not connected to cameras.
			4 times every 5 Seconds	Four AV inputs are not connected to cameras.
			5 times every 5 seconds	Five AV inputs are not connected to cameras.
			6 times every 5 seconds	Six AV inputs are not connected to cameras.
			7 times every 5 seconds	Seven AV inputs are not connected to cameras.
			Steady off	All AV inputs are connected to cameras.
WIFI/BT	WIFI/BT LED indicator	Green	once every 5 Seconds	There is a WiFi module, but no data is sent.
			Blink fast (once every 0.1 seconds)	WiFi data is sent and received normally.
			Steady off	There is no WiFi module.
GPS	GPS LED indicator	Blue	Steady on	A button or an input is triggered.
			Blink fast (once every 0.1 seconds)	The MDVR is being initialized, or the battery power is low.
			Blink fast (0.1 seconds on and 2.9 seconds off)	A GPS signal is received.
			Blink slowly (1 second on and 2 seconds off)	No GPS signal is received.

6 AI alarm function

The specific list of violation operations and the description of the corresponding Chinese and English voice alerts are as follows:

Camera	Alarm type	Prompt voice in English
DMS	Phone calls	No phone call
	Smoking	No smoking
	fatigue	Attention, drowsiness detected
	Yawning	Please stay awake

	Turn your head left and right, up and down	Please face forward
	Face lost	Please return to the seat
	Block the lens	Do not block the DMS lens
	Wear sunglasses	Do not block the DMS IR
	Please wear your seat belt	Please fasten your seat belt
ADAS	left Lane departure	Watch out lane departure
	Right lane departure	Watch out lane departure
	Watch out for cars ahead	Watch out for the front vehicle
	keep a safe distance	Keep a safe distance
	Watch out for pedestrians	Watch out for pedestrians

Note: If you need to use the AI camera to detect the alarm voice function, you must have the interphone handle or display screen as the AI alarm voice output.

If you have other questions, please email us at info@meitrack.com, and we will be happy to serve you.