

## 4CH HDD Commercial Vehicle AIMDVR (MA9704E)



### Features:

- Single chip design, integrated ADAS, DSM, BSD
- Support Operate and Maintain by Maintenance Tool
- H.265 video encoding, high compression ratio, high image quality, save more storage spaces and save more bandwidth when transmitting data
- Supports 4CH 1080P/720P AHD
- Support AHD/TVI/CVI/IPC/Analog video inputs
- Built-in G-sensor, monitoring of vehicle driving behavior
- Support reversing image ranging assistance
- Support image horizontal and vertical mirror adjustment
- Unique GPS drift suppression algorithm
- Input pulse automatic calibration algorithm

### Power supply:

- Professional vehicle power supply 9-36V DC wide voltage
- Low voltage, short circuit, reverse connection and other protection
- Support intelligent power management identification, low power automatic shutdown, flameout low power consumption

### Data storage:

- Built-in super capacitor prevents data loss and disk damage
- A special file management adopted to encrypt data to effectively protect data security
- Supports HDD and SD cards, support SD card maximum storage 512 GB

### Wireless module:

- Built-in GPS/BD/GLONASS module, high sensitivity, fast positioning
- Built-in 4G module, support LTE/HSPA/WCDMA
- WIFI module (optional), frequency 2.4ghz

### Active safety early warning system:

- Built-in ADAS (Advanced Driver Assistance Systems),(include: Headway Monitoring Warning, Forward Collision Warning, Lane Departure Warning, etc.,)
- Built-in DSM (Driver Status Monitor) ,(include :fatigue, distraction, smoking, phone calls, infrared blocking sunglasses, abnormal driver, occlusion, driver comparison and other alarms)
- Built-in BSD (Blind Spot Detection) ,(support 3 grades alarm)

### Intense driving assistance

- Support speedup, slowdown, sharp turn alarm and upload platform
- Support rollover, collision alarm and upload platform

### Parameters:

Type	Parameters	Performance indicators
system	System	Embedded Linux operating system
	Language	Chinese/English Etc...
	Interface	Graphical menu operation interface, mouse operation
Audio and video	Video input	4 CH 1080P AHD/TVI/CVI/CVBS
	Video output	VGA+CVBS
	Audio input	4 CH
	Audio output	2 channel analog output (2W)
	Video formats	PAL/NTSC
	Video compression	H.264/H.265
	Video resolution	1080P/720P/960H/D1/CIF

	Video quality	Grades 1 to 6
	Audio formats	G711A G711U G726
Video and playback	Storage	HDD & SD
	Video query	Search by channel, video type and alarm type
	Video playback	Local 4 CH
	Local backup	Supports SD cards and USB drives
Physical interface	Upgrade mode	Manual upgrade, automatic upgrade, remote upgrade
	Upgrade way	USB , SD card, network
	Audio/Video input	4ch M12 aviation interface
	Audio/Video output	1ch VGA video output, 1ch M12 aviation AV output
	Alarm input	4ch inputs (4 Positive/Negative trigger)
	Alarm output	2ch outputs, could drive relay(< 150mA)
	The speed pulse	1
	RS232	2
	TTS interface	4PIN MIC/SPK
	TTL	NA
	RS485	1
Other interface	LED light	PWR/RUN
	IPC	1*6Pin M-12 aviation interface
	Storage interface	1* HDD,1*SD card slot
	HDD interface	1*2.5inch HDD,
	SD card	1*SDXC card slot, support max 512G storage,
	Disk lock	1
The wireless interface	GNSS	GPS/BD/GLONASS
	Wifi	Optional WIFI module, 2.4GHz
	3G/4G	4G module, support all 4G frequency band
Active safety	ADAS interface	1 CH ADAS, 1080P/720P

interface	The DSM interface	1 CH DSM, 1080P/720P
	BSD interface	1 CH BSD, 1080P/720P
other	The power input	DC: 9 v ~ 36 v
	Storage capacity	1080P 622MB/H/CH H.265 1080P 1.2G/H/CH H.264
	Typical power consumption	Power consumption: AVG 4.8W (excluding peripherals) Static power consumption: 12V2.4mA
	load capacity	Camera+Monitor : 12V@1.5mA IPC: 12V@750mA main unitpower consumption : 12V@mA
	Power output	5V@500mA
	Dimension	162mm*153mm*52mm

#### Active security warning system alarm strategy:

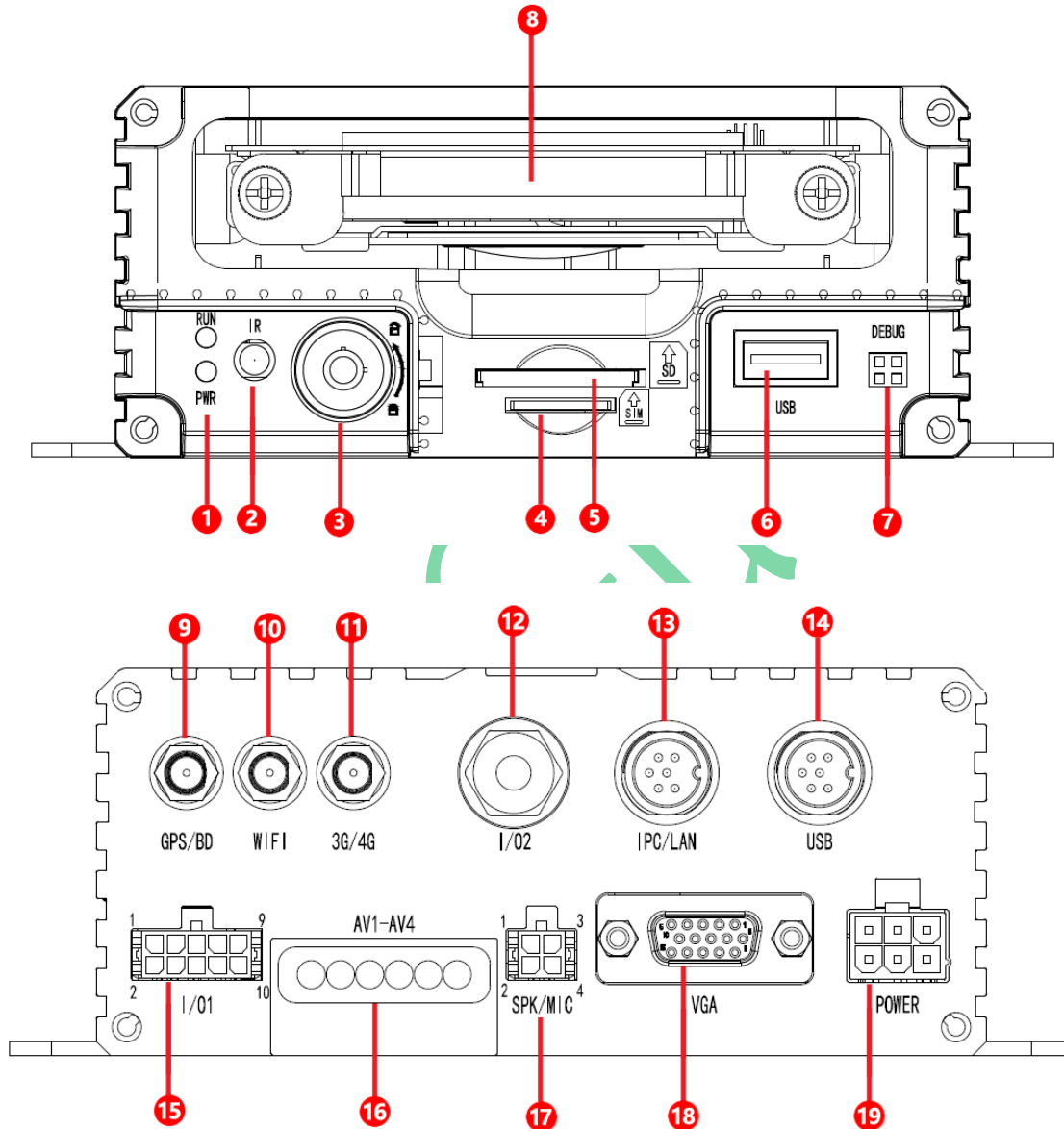
- Built-in ADAS (LDW, HMW, FCW)
- Built-in DSM (fatigue, distraction, smoking, phone calls, infrared blocking sunglasses, abnormal driver, occlusion, driver comparison and other alarms)
- Built-in BSD (support 3 grades alarm)

Alarm Description				
NUM	Types	Alarm	Definition	Voice
1	DSM	Yawn	Yawn more than 3-4s	Please take a rest
2		Close eyes	Drivers squint and close their eyes for more than 3-4s	Please take a rest
3		Phone call	Drivers hold cell phones to their ears or make calls on speakerphone for more than 3-4s	No call please

4		Smoking	The driver lights a cigarette and smokes for more than 3-4s	<b>No smoking please</b>
5		Out of sight	The driver turns his head, head up and head down more than 4-5s from left to right	<b>Please don't look around</b>
6		Driver abnormal	The driver left the lens range and covered his face with foreign body for more than 5s	<b>Driver anomaly</b>
7		Occluding camera	The obstacle completely blocked the lens for more than 5s	Please don't cover the camera
8	ADAS	LDW	Lane offset, cross lane	<b>Lane shift</b>
9		HMW	Lead distance less than 0.8s (adjustable) times current speed	<b>Please keep your distance</b>
10		FCW	Lead distance less than 2.0s (adjustable) times current speed	Collision risk
11	BSD	BSD alarm	Human and non-motor vehicle trigger alarm detected within one meter of the car body, highest priority	<b>Danger please keep away</b>
12		BSD alarm	Within 1~2 meters of the car body, trigger alarm is detected for people and non-motor vehicles, with the second priority	<b>Danger please keep away</b>
13		BSD alarm	Within 2 to 3 meters of the car body, trigger alarm is detected for people and non-motor vehicles. lowest priority	<b>NA</b>

## The interface definition

### 1.0 External interface




Number	Instructions	Number	Instructions
1	LED	11	3G/4G Antenna
2	IR	12	I/O2
3	SD/HDD Lock	13	IPC/LAN port

4	SIM Card Slot	14	USB URAT
5	SD Card Slot	15	I/O 1
6	USB Port (Mouse/Maintenance Tool/USB flash disk)	16	AV1-AV4(Contains CVBS output)
7	DEBUG	17	MIC/SPK
8	HDD Slot	18	VGA
9	GPS/BD Antenna	19	POWER
10	WIFI Antenna		

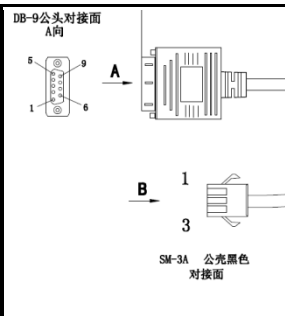
### 1.1 Power interface


<b>9-36V</b>	<b>9-36V</b>	<b>ACC 点火</b>
<b>GND</b>	<b>预留信号输入监测</b>	<b>GND</b>

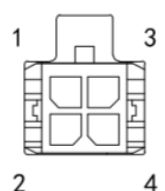
### 1.2 I/O1 Interface definition

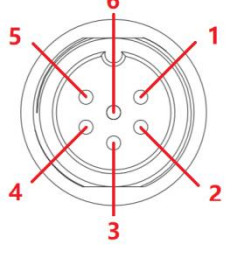
					
PIN	Line mark	Color	PIN	Line mark	Color
1	OUT1	Blue	2	GND	Black
3	IN2/LEFT	Purple	4	IN1/PANIC	Purple
5	IN4/BRAKE	Purple	6	IN3/RIGHT	Purple
7	EXT_5V	Red	8	TXD_RS232	White
9	OUT2	Gry	10	RXD_RS232	Yellow

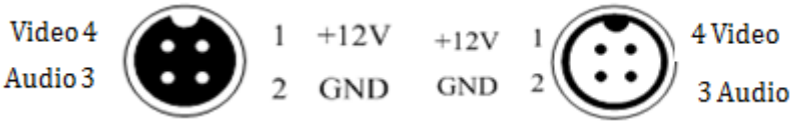
1.3 I/O Port Definition (DB9+RS485)

	Number	Definition
	A	DB9
	B	RS485

	C	VGA
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	Number	Definition
	1	Spk +
	2	Spk -
	3	MIC +
	4	MIC -

	Number	Definition
	1	TX-
	2	TX+
	3	VCC
	4	RX-
	5	RX+
	6	GND



AV-INAV-OUT



## 1.7 Outline drawing

