360-Degree View Of The Cart Active Safety Driving Assistance System Full HD Recorder

Product installation manual

Applicable model: LRS-368

Suitable models:

For more model installations, only consult our company's sales representatives























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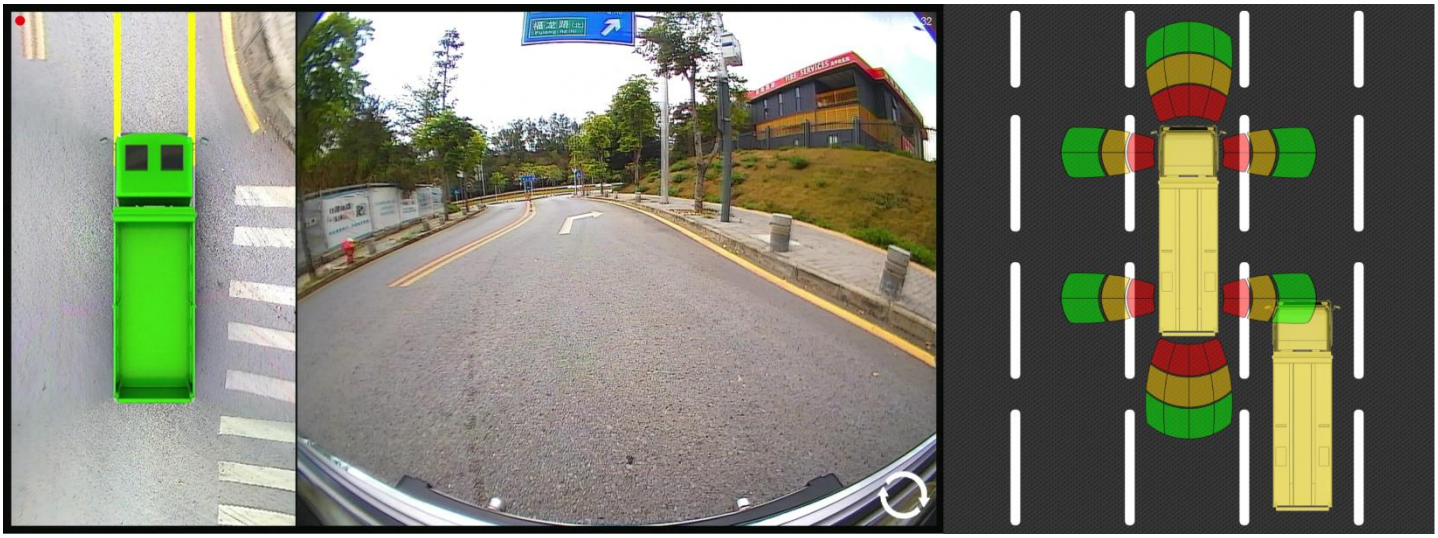
1 The original intention of product design



LRS-368 is a 360-degree panoramic image + active safety driving assistance system developed for the blind spots of large vehicles. The panoramic bird's-eye view is synthesized by the algorithm through the ultra-wide-angle camera installed around the body. The driver can see clearly through the bird's-eye view. The situation around the vehicle greatly reduces traffic accidents caused by blind spots.

The LRS-368 product also integrates CAN communication, which integrates speed, blind zone (BSD) + lane change assist (LCA) sensors, and uses its own algorithm to combine images (passive safety) + sensors (active safety) to realize large vehicles 360-degree active driving safety assistance without dead ends.

2 Product features

1. A 360-degree panoramic image developed specifically for trucks and special vehicles, with its own 360-degree stitching algorithm for large vehicles, small size, highly integrated, and wide-temperature design, and the working temperature can reach -30 to 70 degrees.

2. The product conforms to the ISO-7637 standard, conforms to the vehicle power supply specification, DC10-36V wide voltage design, anti-reverse design, strengthened TVS+ESD design, the main power supply has a farad capacitor to ensure the reliability of illegal power off video recording.

3. The product supports a variety of video output, support CVBS/VGA/AHD.

4. The product supports ultrasonic radar with 16 probes in four directions, combined with a vehicle speed sensor, its own algorithm, and 360 panoramic real-time communication, combined with the panoramic interface, the radar information is intuitively displayed on the 360 car model, and it supports the enhanced right blind zone (BSD) Detection, support lane change assist (LCA) function. The radar is linked with the sound and light alarm to realize the blind area alarm function,

5. The product supports CAN communication function, supports original vehicle data and 360-degree panoramic host communication, realizes IO control, touch, steering wheel angle, vehicle speed, radar and other original vehicle information.

6. The product supports our intelligent voice control system specially developed for the 360-degree panoramic image system of the cart, which can control the 360-degree panoramic image through voice to ensure driving safety.

7. The product supports its own algorithm. Through the sensor in the host, the 360-degree panoramic image can be displayed automatically according to the application scene.

8. The product supports the flameout defense function. This function can be turned on at any time through the defense switch. After the function is turned on, the whole vehicle radar opens the protection at a distance of 0.3 meters. When a person or an object approaches, the buzzer inside the vehicle and the sound and light alarm outside the vehicle Simultaneous warning.

9. The product has two storage designs, supports SD card + MSATA storage mode, small size, low power consumption, and super shock resistance.

10. Cooperating with our company's production and special vehicle-mounted display, it can realize the touch control high-definition display function.

3 Product components

The picture shows the full-featured product accessory diagram, some functions are optional in actual shipment, please refer to the order.

NO	Name	quantity	NO	Name	quantity
1	Host	1	11	Triger cable	1
2	alarm	1	12	Power cable	1
3	Side camera	3	13	buzzer	1
4	Rear camera	1	14	GPS	1
5	5m alarm cable	1	15	IR receiver	1
6	5m camera cable	3	16	Remote control	1
7	15 camera cable	1	17	Radar host	1
8	Camera cable	1	18	Radar detector	16
9	Radar cable	1	19	Radar bracket	16
10	Power cable	1	20	Radar cable	4

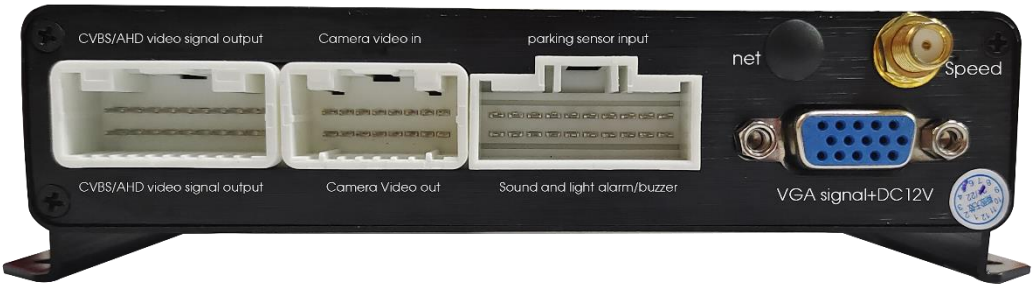
4 Product specifications

Specifications	Product number:	LRS-368_720P	LRS-368_1080P
Electrical parameters	power consumption	The maximum power consumption of the whole machine is 10W, and the working voltage is DC10-36V.	
	Power protection	It has anti-surge function, anti-reverse connection function, low-voltage protection, short-circuit overload protection.	
Video output interface	AHD video output【Optional】	Support, standard GX12-4P female head, dual 720P_25 or 30 frame output.	c Support, standard GX12-4P female head, dual 720P_25 or 30 frame output.
	CVBS video output	Support, standard GX12-4P aircraft head.	
	VGA video output	Support, standard DB15 female connector, built-in DC12V stabilized power supply, serial communication function.	
Video input interface	AHD video input	4 720P_AHD camera inputs, standard GX12-4P aviation male connector, DC12V regulated power supply.	4 channels 1080P_AHD camera input, standard GX12-4P aviation male connector, DC12V regulated power supply.
Ultrasonic radar Radar host option	Radar host	A host is equipped with 4 radar probes as standard, GX12 aviation head interface, and a communication line with the 360 host. The 360 host supports the radar function. The radar host needs to be individually selected and can be used directly after it is connected.	
	Detection distance	The detection distance in all four directions is 2.5 meters, and when the fire is turned off, all are 0.35 meters.	
	Power parameters	The power supply voltage is DC12-36V, and the maximum power consumption is 0.2W.	
	waterproof level	The waterproof rating of the whole machine is IP67.	
	Radar function	It is used for vehicle blind area (BSD) + lane change assist (LCA) + parking assist and other functions, combined with the company's independent algorithms and protocols, to achieve various complex scene applications.	
	Radar interface	20P car connector (25413) 4 directions radar interface (4 GX12-4P aviation female head), 1 sound and light alarm interface (1 GX12-4P aviation male head), 1 buzzer interface (3P BMW plug Female), 1 fortification switch interface (3P BMW plug male).	
CAN communication function	Functions and features	High-speed CAN bus transceiver, in line with ISO11898 standard, low-power management, network wake-up function.	
Storage function	MSATA_SSD storage	Support MINI PCIE SSD storage. Capacity 128G-2TB.	
	SD_CARD storage	Standard SD_CARD storage function, support 8-256G.	
Sound and light alarm function (Optional)	Specifications	The power supply voltage is DC9-30V, the maximum power consumption is 3W, the protection level is IP65, the volume is ≤ 105dB within 1 meter, the volume is adjustable in 16 levels, and RS485 communication supports up to 10 sounds.	

	feature of product	When the vehicle turns left, it announces "The vehicle turns left, please stay away." The vehicle turns right and announces "The vehicle turns right, please stay away." When the vehicle is reversing, it announces "Reversing, please pay attention." The blind spot on the right announces "The big car is dangerous, please stay away." Double flash, no broadcast. When the vehicle speed exceeds 25 kilometers, turn left and right without broadcasting, and broadcasting in blind spots. During the day, the volume is 100%, and at night, the volume is 60%.	
Physical specifications	Product Size	Length*width*height=100*130*29 (unit: mm).	
	product weight	Main machine weight: 0.4KG; whole machine: 2.9-4KG (the difference in weight is the length of the wiring harness).	
Camera parameters	Camera voltage	DC8-16	
	Camera power consumption	Single camera 0.5-1W.	
	Resolution	AHD1280*720P	AHD1920*1080P
	Working/storage temperature	Working temperature: minus 30℃~+70℃; storage temperature: minus 40℃~+85℃.	
	Video frame rate	The acquisition frame rate is 30 FPS/sec.	
	waterproof level	IP68	
	Low illumination	0.01 Lux	
	Vibration/shock	Comply with MIL-STD-810F, Method 516.5	
Recording parameters	Video format	H264	H265
	Video resolution	4 channels plus 1920*1080P together.	
	File capacity	1.2GB/hour.	
Host parameters	IP protection level	IP51	
	Operating temperature	Minus 20~70℃.	
	storage temperature	Minus 40~80℃.	
	Vibration/shock	Comply with MIL-STD-810F, Method 516.5.	
	Body material	Body, high-quality aluminum alloy, surface oxidation drawing process.	

5 Product interface function definition

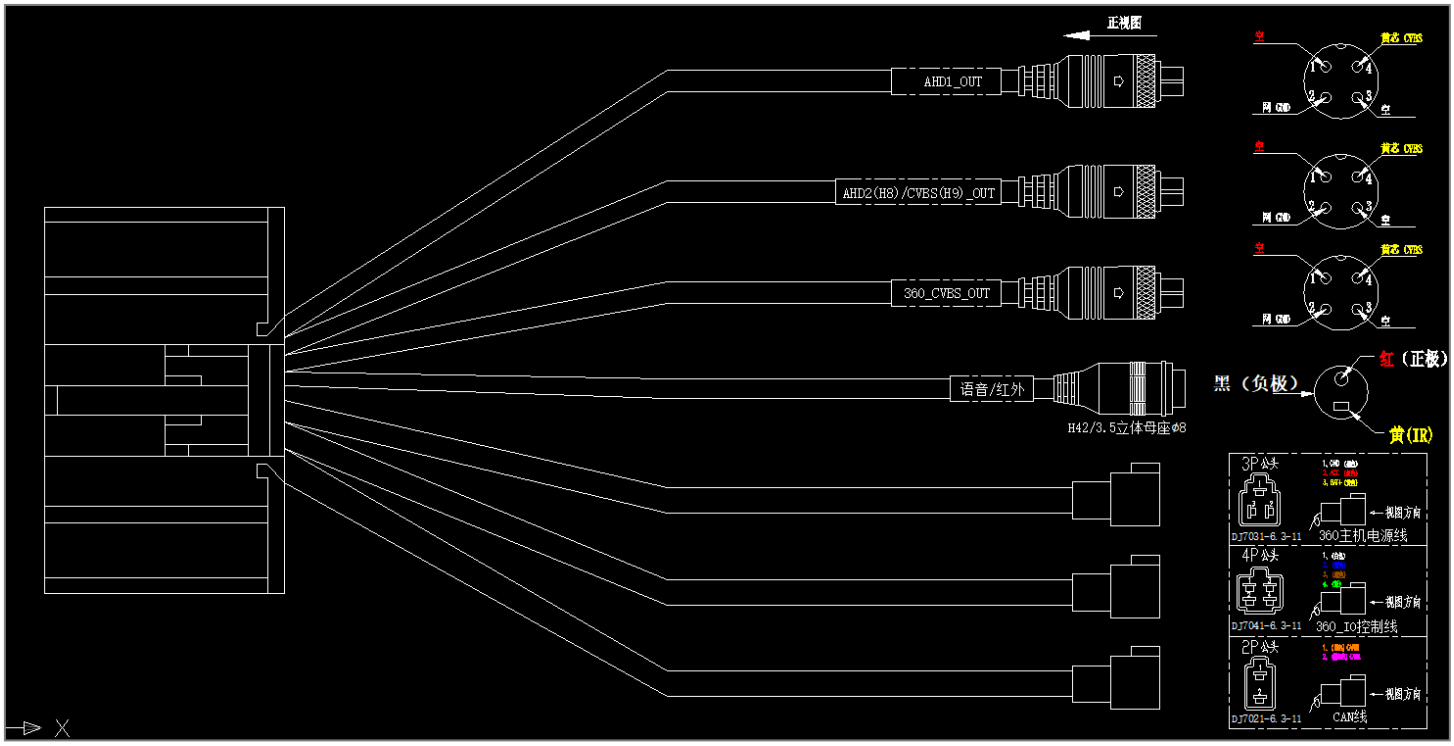
1 Definition of the interface on the rear panel of the host:



1.1Power supply/CAN/sound control/IO control/CVBS/AHD video output connector, the interface is defined as follows

The input voltage is DC10-36V, the IO detection voltage range is DC10-36V, the IO output voltage is consistent with the system voltage, the maximum current is 1A, and the CAN 2.0 bus.

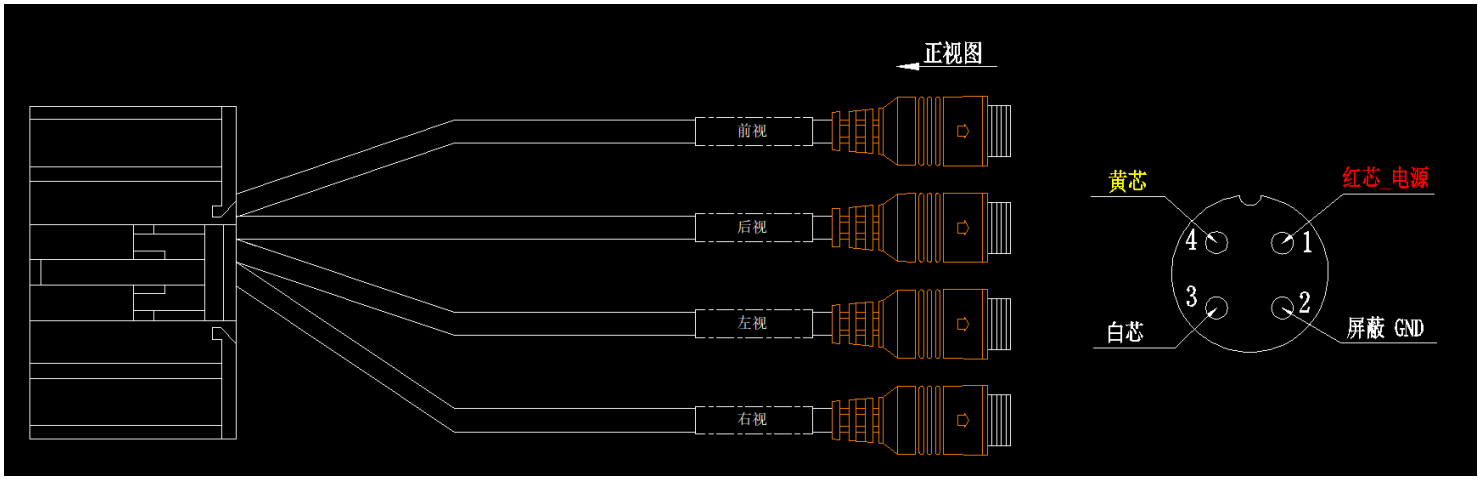
2	4	6	8	10	12	14	16	18	20
CAN_H	CAN_L	VGND	VGND	VGND	IO_IN	P gear detection	GND	IR_IN	VCC5V
1	3	5	7	9	11	13	15	17	19
ACC+	BATT+	GND	AHD1_OUT	AHD2_OUT	CVBS_OUT	IO_OUT	LEFT+	RIGHT+	BACK+



1.2 The 16P camera interface is defined as follows

The power supply voltage of the camera is regulated DC12V.

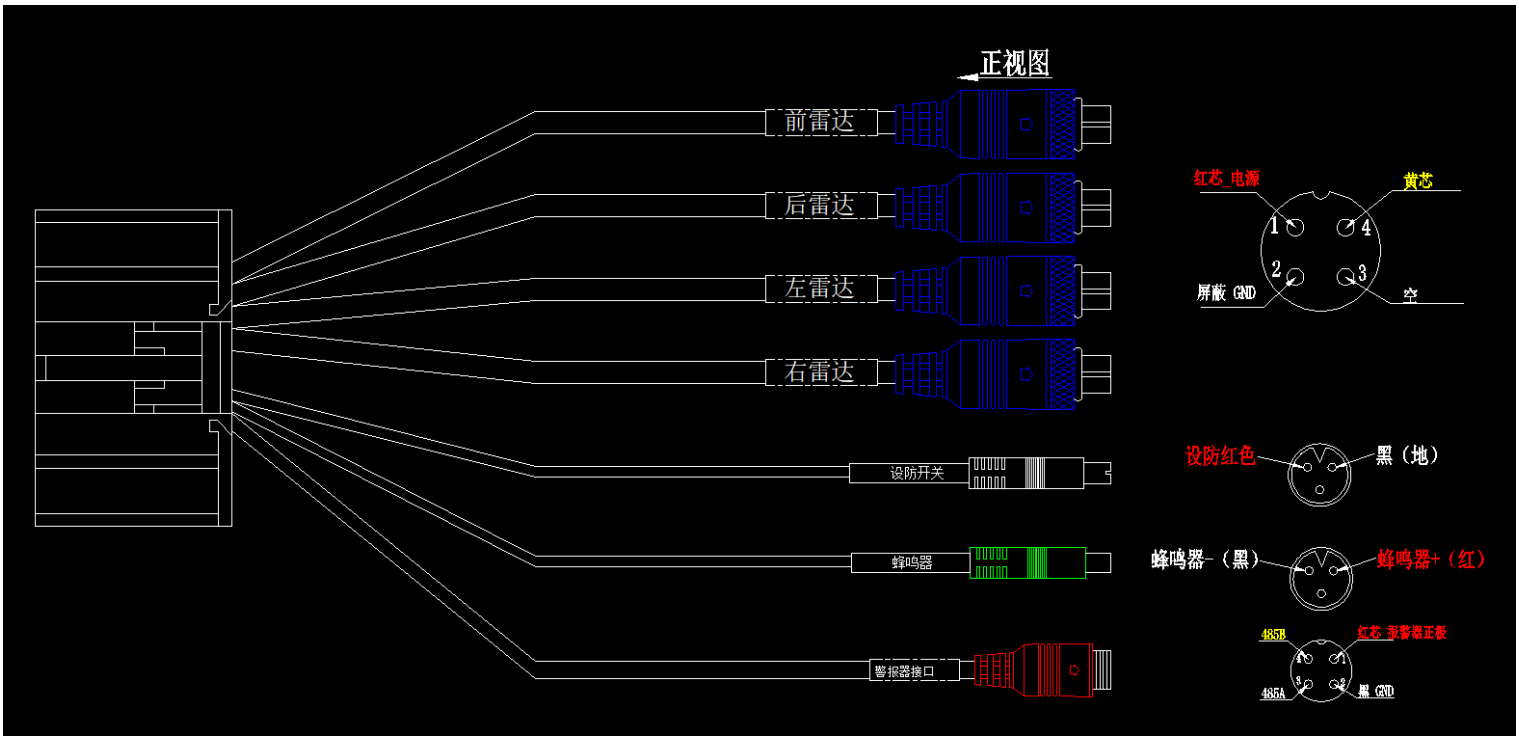
2	4	6	8	10	12	14	16
12V	GND	12V	GND	12V	GND	12V	GND
1	3	5	7	9	11	13	15
Front video input	Front video output	Rear video input	Rear video output	Left video input	Left video output	Right video input	Right video output



1.3 20 The radar interface is defined as follows

The power supply of the radar & alarm is the same as that of the system; the communication is RS232, the baud rate is 19200; the working voltage of the buzzer is DC12V; the high level of the fortification switch is effective, and the voltage can be 10-36V.

2	4	6	8	10	12	14	16	18	20
Radar power supply	GND	Front radar communication	Radar power supply	GND	Left radar communication	Left radar detection	buzzer	GND	485A
1	3	5	7	9	11	13	15	17	19
Radar power supply	GND	Front radar communication	Radar power supply	GND	Right radar communication	Radar power supply	Fort switch	Alarm power	485B



1.4 VGA interface

The standard DB15 interface has a regulated 12V power output and UART serial communication function.

5、GND	4、UART_RX	3、RGB_B	2、RGB_G	1、RGB_R
10、GND	9、DC_12V_OUT	8、RGB_B_GND	7、RGB_G_GND	6、RGB_R_GND
15、CLK(NON)	14、VGA_V	13、VGA_H	12、SDA(NON)	11、NC

1.5 Antenna interface

Network antenna interface, interface type SMA (female).

Speed antenna interface, interface type SMA (female).

1 Definition of interface functions on the front of the product:

2.1 Infrared & indicator light function

name	Function and status
IR	360 host remote control receiver.
Power	Power indicator, the light is on to indicate that the 360 host is working.
Recording	360 video recording indicator, flashing slowly indicates that during recording, it is always on and there is no card or the card is not formatted.
Video	360 host video output indicator, the light is on to indicate that the host has a video display, and the light is off to indicate that the host 360 is working in the background.
Working	MCU status indicator, when the light is on, it means that the MCU is working, the light flashes quickly, and the upgrade is in progress.
Fortify	The fortification function indicator, when the light is on, the host has turned on the fortification function, and the light is off and the fortification function is not activated.
Alarm	The audible and visual alarm indicator is for the working status of the alarm. The light is on to indicate that the alarm is powered on.
Net	4G network status indicator, the light is on. 4G is connected to the Internet.
Speed	GPS status indicator, the light is on to indicate that it has been positioned.

2.2 Flow card & SD memory card & debug port

The data card type is Nano SIM card, and some data cards need to be registered before they can be used.

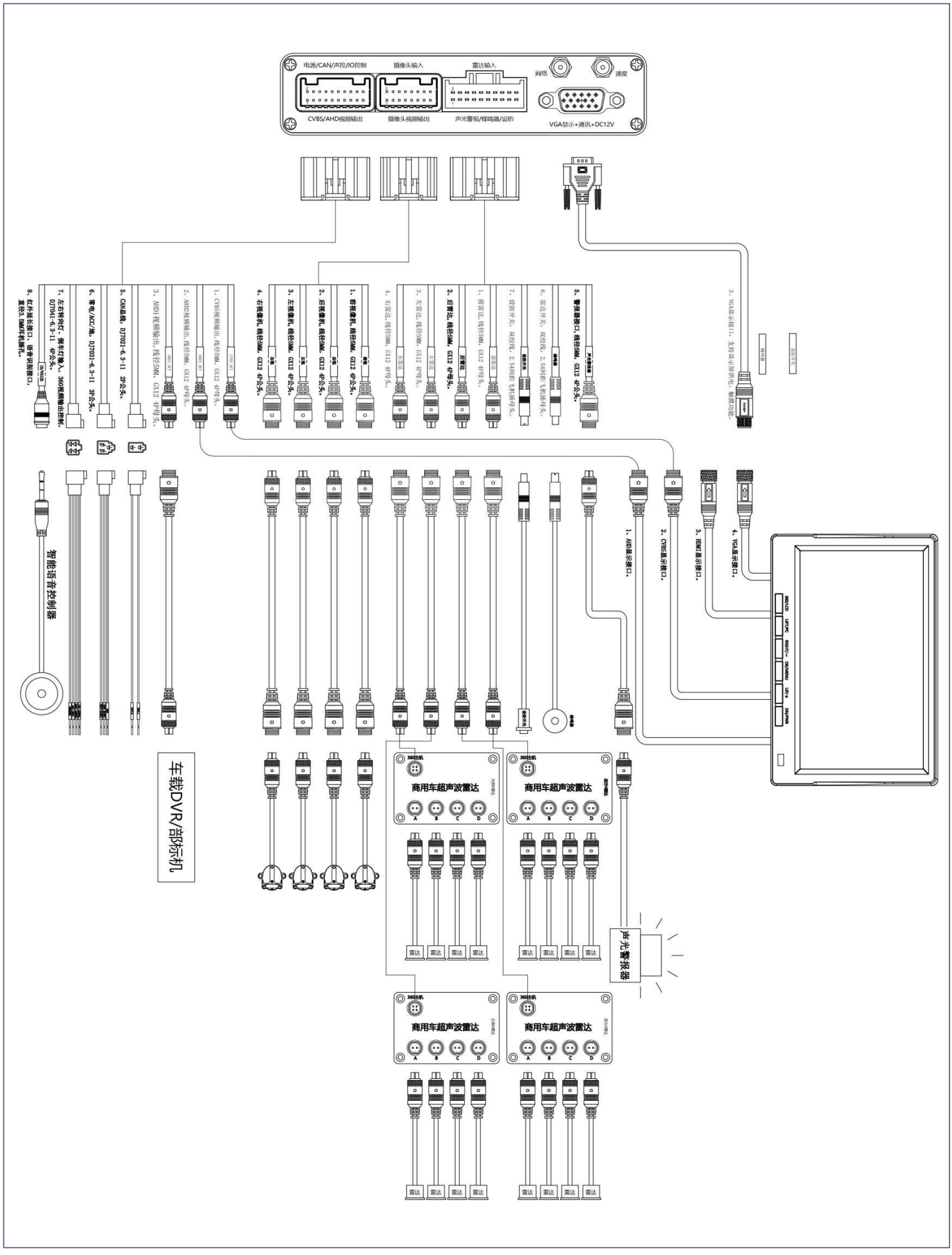
Special note: the host must be completely powered off. Insert the SIM card until the "power" indicator light is completely off! If there is no power failure, insert the SIM card. Then the host needs to be powered off and on again to recognize the SIM card.

The SD card type is a standard large card and requires a card with a speed of C10 or above. It is recommended to use an industrial-grade MLC card with a card with a read/write life of more than 1500 times, which greatly improves the reliability of video recording.

Ordinary cards can also be used, but the life span will be shorter.

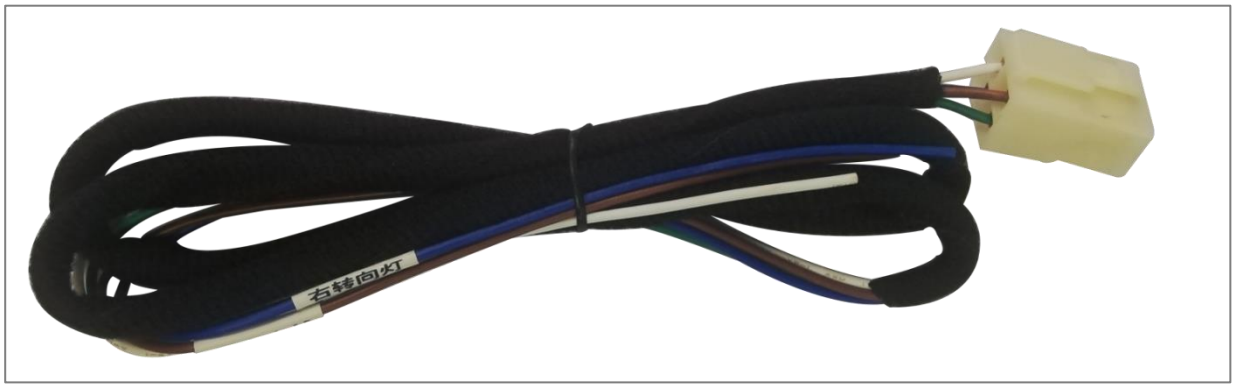
The debugging port is a standard 2*2_2.54MM pitch connector, which is used for device simulation and debugging.

6 Product wiring diagram, and wiring instructions



When looking for the required wiring harness in the original car, you need to use a test pen (LED or neon tube is recommended, but not a light bulb) or a multimeter to find the required wiring harness.

6.1 **4P IO detection line connector (reverse+left+right+hand brake detection line)**



Detection line voltage range DC10-36V

Reversing line (purple)

Put the car key in the ON position, connect one end of the test pen to the iron, and one end to the wire to be tested. Connect the reverse gear. The test pen lights up, the reverse gear is cancelled, and the test pen goes out, it is the reverse gear control line.

Left turn signal wire (white)

Put the car key in the ON position, ground one end of the electric tester and connect the other end to the wire to be tested, turn on the left turn signal switch, the frequency of the electric tester light and the turn signal are the same. Right turn signal line (white)

Put the car key in the ON position, ground one end of the electric tester and connect the other end to the wire to be tested, turn on the left turn signal switch, the frequency of the electric tester light and the turn signal are the same.

Handbrake switch line (P gear)

Put the car key in the ON position, ground one end of the electric test pen, and connect one end to the wire to be tested. Put down the handbrake. Pay attention to the signal of the handbrake light P on the instrument of the original car. Pull the handbrake light off, it is the handbrake line.

It is especially emphasized that the hand brakes of large vehicles are all air brakes. When the air pressure of the vehicle cylinder is insufficient, the P light will always be on when the handbrake is lowered, and the handbrake will not be released. At this time, the vehicle should be started to pump up and try again.

The handbrake sensor is generally located on the handbrake air pipe and can be found along the handbrake air pipe.

For products without optional radar function, this line can be left unconnected.

6.2 3P power cord connector (normal power, ACC, ground wire)

Power supply voltage input range DC10-36V

B+ normal power (yellow)

Put the car key in the OFF position, ground one end of the electric tester, and connect the other end to the wire to be tested. When the electric tester is on, it is a normal current.

It is particularly emphasized that the normal electricity should be connected to the line controlled by the original car's main power supply, so as not to use the car for a long time, causing the car battery to leak.

ACC ignition switch control wire (red)

Put the car key in the OFF position, ground one end of the electric pen, and connect one end to the wire to be tested. The electric test pen is turned off. At this time, turn the car key to one gear (ACC position), and the electric test pen is on, it is ACC.

GND ground wire, ground wire (black)

Ground directly with the body.

The above three wires are usually found behind the main radio of the original car.

6.3 2P CAN wire connector (CAN_H, CAN_L)

CAN_H bus high (orange)

Put the car key in the OFF position, ground one end of the electric tester, and connect the other end to the wire to be tested. When the electric tester is on, it is a normal current.

It is particularly emphasized that the normal electricity should be connected to the line controlled by the original car's main power supply, so as not to use the car for a long time, causing the car battery to leak.

CAN_L bus low (pink)

Put the car key in the OFF position, ground one end of the electric pen, and connect one end to the wire to be tested. The electric test pen is turned off. At this time, turn the car key to one gear (ACC position), and the electric test pen is on, it is ACC.

There is no need for CAN function, this line will not be equipped.