



YQ-12

4G AI Monitoring System

Specification





一、 System Introduction

YQ-12 4G AI monitoring system powered by a high-performance CPU with Quad-core and 1 Tops of NPU computing power. Developed on the Linux operating system, it complies with national standards such as 808/1078 protocols. It enables real-time fault tracking and supports intelligent O&M functions including remote parameter query and configuration. As a cost-effective visual intelligent terminal system, it integrates satellite positioning, video surveillance, AI algorithms, and connected vehicle technologies.

AI Functions

These include facial recognition, ADAS warning, DMS driver monitoring, BSD pedestrian/vehicle blind-spot detection, and 360° AVM surround view, providing full coverage of the vehicle's surroundings and blind spots. The pedestrian detection vision algorithm in the BSD warning system actively issues voice alerts when pedestrians or obstacles enter the warning zone around the vehicle. The device supports 6-channel camera input and features communication interfaces such as IO signal, Ethernet, RS485, RS232, USB, and CAN. It can connect to external radar for obstacle detection and supports continuous optimization and upgrades to meet diverse customer needs.

4G Functions

The system supports vehicle CAN data acquisition and processing, including GPS positioning, speed, weighing data, as well as operation mileage statistics, duration statistics, and status information statistics.



二、 Function features

1. **AI Functionality:** Equipped with a high-performance image processing chip delivering 1 Tops of computing power.

Support:

- facial recognition,
 - DMS (fatigue detection for closed eyes/yawning, sunglasses detection, distraction detection, smoking detection, phone call detection, driver detection, camera occlusion detection, driver change detection, seatbelt detection, hard hat detection)
 - ADAS warning (forward collision warning, insufficient distance warning, pedestrian collision warning, lane departure warning)
 - 4-channel BSD blind-spot monitoring system, and algorithm-based zone calibration.
2. **Positioning:** Supports standalone BeiDou positioning, BD/GPS dual-mode high-precision positioning, and electronic fencing.
 3. **Wireless Module:** Supports full-network 4G connectivity.
 4. **Power Supply:** 9–36V vehicle power input with protection circuits against undervoltage, short circuit, and reverse polarity; automatic shutdown under low voltage.
 5. **Video:** Supports 6-channel 720P AHD camera input and 1-channel AHD P-format video output.
 6. **Data Storage:** Supports up to one micro SD card with a maximum capacity of



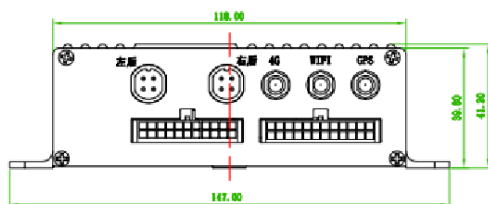
1TB; built-in super capacitor prevents data loss due to unexpected power outages.

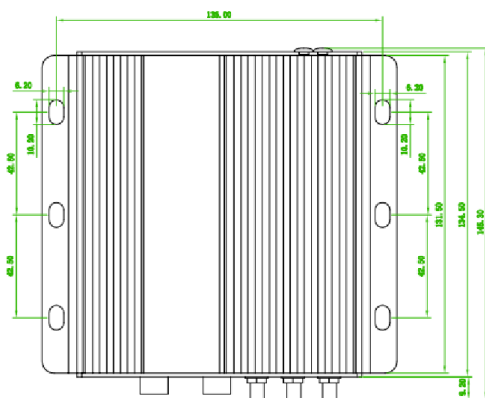
7. **Communication Interfaces:** Supports I/O signal, Ethernet, RS485, RS232, USB2.0, USB3.0, and CAN communication interfaces. Allows connection of external peripherals such as weighing sensors and speed sensors. CAN data acquisition and interaction with vehicle controller data.
8. **Voice Alerts:** Supports speaker and audible/visual alarm devices.
9. **OTA Updates:** Supports over-the-air device firmware upgrades.

三、Parameters

CPU	Quad core Arm-A55 1.8G
NPU	1Tops
DDR	1GB
EMMC	4GB
ADAS	Professional ADAS camera, long focal distance to 30M,1280*720P
DMS	Professional DMS camera, IP support 1280*720P
Side Camera	AHD camera , fisheys, waterproof 1280*720P
Screen	7 inch/9 inch optional
Remote controller	IR remote controller support
GPS	GPS+BD 24 channels
4G	Cat.1 EU(Cat.4 optional) FDD:B1/2/3/5/7/20/28 TDD:B38/39/40/41(Full Band) GSM:850/900/1800/1900MHz AM/CN/JP bands optional
WIFI	WIFI4/WIFI6 Dual mode
G-sensor	6-axis GYRO
Battery	super capacitor
Speaker	8Ω2W
Mic	Single mic
LED	2 LED
SIM card	Mini SIM
SIM card lock	support
TF card	up to 1TB
TF card lock	support
Interface	I/O*3,RS232*1,RS485*2,RJ45*1,USB3.0 *1,USB2.0*1,CAN*2

四、ID & Size





五、 Pin Definition

C3030 HF 2*11 22 PIN Connector					
No	PIN	Remark	No	PIN	Remark
1	RX232		12	MIC-P/232-TX	
2	AHD OUT	AV out	13	AHD-3 Signal	DMS
3	AHD Gnd		14	AHD-3 Power	
4	AHD-4 Power		15	AHD-3 Gnd	
5	AHD-4 Signal		16	AHD-5 Signal	Front
6	AHD-4/6 Gnd		17	AHD-5 Power	
7	AHD-6 Signal	Rear	18	AHD-5/7 Gnd	
8	AHD-6 Power		19	AHD-7 Signal	Front-left
9	AHD-8 Gnd	Front-right	20	AHD-7 Power	
10	AHD-8 Signal		21	CAN-L	
11	AHD-8 Power		22	CAN-H	

C3030 HF 2*12 24 PIN Connector			
No	PIN	No	PIN
1	B+	13	IO output-1
2	Gnd	14	232-RX / 485_A2
3	Relay input	15	232-TX / 485_B2
4	Relay output	16	IO input- 3
5	ACC	17	IR signal
6	IO input-1	18	12V switch output
7	IO input-1	19	12V switch check
8	232-RX / 485A	20	5V/12V Gnd
9	232-RX / 485B	21	12V output
10	SPK-P	22	5V output
11	SPK-N	23	speed-sensor signal
12	MIC-N	24	MIC-P