DHI-ITC431-SU1F-GFIR

Dahua 4MP Smart Vehicle Detector

- 1.8" CMOS image sensor with a resolution of 2688 × 1520.
- Adopts advanced image processing technology that makes it ideal for use in areas that are dark or have poor lighting.
- Monitors road events throughout the day and detects up to 128 vehicles at the same time.
- Supports up to 256 GB TF cards.
- Supports H.265, H.264M, H.264H and MJPEG for video compression.
- IP66 rated.

System Overview

Dahua 4MP Smart Vehicle Detector is designed with a high-frequency millimeter wave radar and high-performance AI processor. With its deep learning algorithms, it seamlessly combines radar and video data, collects vehicle metadata in real time, and generates traffic flow statistics. It also provides event detection and traffic warnings to increase road safety.

Functions

Traffic Statistics

Generates traffic flow statistics by lane, the statistics include vehicle flow, average speed, space headway, time headway, time occupancy rate, space occupancy rate, queue length, traffic status, and vehicle type.

All-Weather Detection and Recognition

Radar and video data are both integrated for detection and recognition, allowing the camera to identify and locate objects with the radar when video detection fails. The camera works in rain, snow, fog and at night, performing high-precision detection and recognition regardless of the weather.

Intelligent Recognition

Supports recognizing plate numbers and colors, and vehicle colors and types.

Multi-dimensional Perception

By integrating the camera with the high-precision millimeter wave radar, the device uses deep learning technology to manipulate high-frequency bands, and collect and integrate different types of data such as data from structures and scenes. This makes it suitable for a wide variety of locations.

Wide Monitoring Range

Highly intuitive, it tracks up to 128 targets, and can detect motor vehicles that are 250 meters away.

Scene

It is ideal for use at intersections and road sections, and for event detection.

Technical Specification

Basic

Image Sensor	1/1.8" CMOS
Shutter Mode	Double shutters; Single shutter
Electronic Shutter Speed	Auto/Manual 1/50 s–1/100,000 s
Exposure Mode	Fully automatic/custom interval automatic/custom
Iris Control	Fixed
Image Resolution	2688 × 1520 (OSD black background is not calculated in the pixels)
Video Resolution	4M (2688 × 1520); 1080p (1920 × 1080); UXGA (1600 × 1200); 720p (1280 × 720); D1 (704 × 576); CIF (352 × 288)
Video Frame Rate	PAL: main stream (2688 × 1520@ 25 fps), sub stream (1600 × 1200@ 25 fps) NTSC: main stream (2688 × 1520@ 30 fps), sub stream (1600 × 1200@ 30 fps)
Video Bit Rate	H.264: 32 Kbps–32768 Kbps; H.265: 32 Kbps–32768 Kbps; MJPEG: 512 Kbps–32768 Kbps
Video Compression	H.264H; H.264B; H.265; MJPEG; H.264M
Field of View	H: 37.24°; V: 20.75°; D: 42.96°
Image Encoding Format	JPEG
Min. Illumination	0.001 lux
WDR	120 dB
White Balance	Auto;Night;Area white balance
Noise Reduction	3D NR
Day/Night	Supports ICR auto switch: IR cut-off filter (IRCF) with the polarizing filter is used during the daytime, and switches to the IR transmitting filter at night
HLC	Yes
Bad Pixel Correction	Yes
Edge Enhancement	Yes
Expansion Module	Built in 80G millimeter wave radar, supporting long-distance traffic flow collection
Radar Transmission Frequency	80 GHz
Radar Antenna Beamwidth	Horizontal: -15 °~15 °, vertical: -4.5 °~4.5 °
Speed Measurement Range	1 km/h~250 km/h
Speed Measurement Accuracy	±5 km/h
Detection Region	250 m
Measurement Error	±0.6 m

Function

Composite Image	Supports composing 1, 2, 3, or 4 images
Trigger Mode	Video detection; radar
OSD Overlay	Time; address; lane No.; license plate; vehicle speed; vehicle color (not supported under infrared); vehicle logo; vehicle type
Storage	FTP;TF
Alarm Event	Storage full; storage error; no storage card; abnormal attitude; illegal access; license plate blocklist; security exception; traffic congestion; illegal parking; wrong-way driving; pedestrian event; excessive speeding; not keeping a safe distance from the vehicle ahead; road security warning
Automatic Network Replenishment (ANR)	Platform and FTP (TF card is required)
Image Tampering Prevention	Watermark and verification are available for videos and images
Positioning	GPS
Network Status Monitoring	NTP; GPS
Attitude Detection	Built in electronic gyroscope, supporting detection of abnormal posture and alarm
Security	Authorized username and password, MAC address binding, HTTPS, and network access control
Auto Registration	Yes
Power Transmission	4G: Power class3: 23 dBm ± 2 dB
3G/4G	4G: operating frequency band: LTE FDD: Band 1,3,5,7,8,20,28 LTE TDD: Band 38,40,41 WCDMA/HSPA+: Band 1,5,8 GSM/GPRS/EDGE: 850/900/1800MHz

Intelligence

Target Detection	Supports up to 128 object detections
ANPR	Bengal region recognition algorithm (Recognition algorithm for other regions can be customized)
Vehicle Type Recognition	Vehicle head: Large bus, heavy truck, medium truck, sedan, van, light truck, medium bus, SUV, MPV, and pickup Vehicle tail: SUV, large bus, sedan, light truck, pickup, medium truck, van, and heavy truck
Vehicle Color Recognition	White, pink, black, red, yellow, gray, blue, green, dark, orange, purple, brown, and silver gray (color recognition is not supported during nighttime)
Traffic Flow Detection	Statistics of vehicle flow, average speed, lane occupancy, average time headway, average queue length, road status, and more; statistics can be exported in excel
Traffic Event	Records videos, take snapshots and triggers alarms for various events such as wrong-way driving, pedestrian violation, traffic congestion, speeding, driving too slow, not keeping a safe distance from the vehicle ahead, Traffic Road Alert and road security warnings
Lens Mount	M16

Port

Network Port	2 × RJ-45 Ethernet ports, 10/100/1000 M network transmission
GPS	1,GPS
4G Port	1
Storage	1, Maximum support for 256G TF card local storage
RS-485	2, connects to continuous lights and more
RS-232	1, for serial port debugging
I/O	1, for I/O alarm output

Power Supply	12 VDC, 24 VAC, 36 VDC

General

Power Consumption	≤ 20 W
Operating Temperature	–40 °C to +65 °C (–40 °F to +149 °F)
Storage Temperature	–40 °C to +70 °C (–40 °F to +154 °F)
Operating Humidity	10%–90% (RH), non-condensing
Storage Humidity	10%–90% (RH), non-condensing
Protection	IP66
Anti-corrosion Level	Basic Protection
Product Dimensions	201.7 mm × 148 mm × 440.5 mm (7.94" × 5.83" × 17.34") (L × W × H)
Net Weight	3.4 kg (7.50 lb)
Gross Weight	5.4 kg (11.90 lb)
Certifications	CE
Installation	Column bracket mount
Power Adapter	36 VDC (included)
Lens	Standard
Focal Length	12 mm
Lens Type	Fixed-focal

Ordering Information

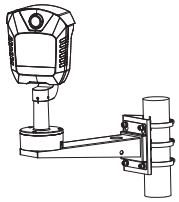
Type	Model	Description
4 MP Camera	DHI-ITC431-SU1F-FGIR	4MP Smart Vehicle Detector
Accessories (Optional)	PFA150	Mounting bracket (purchase separately)
	3012	Side Mounting Bracket (purchase separately)

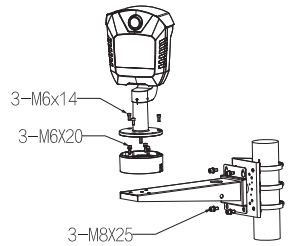
Accessories

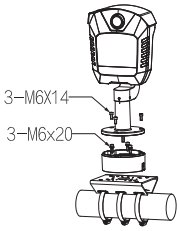
Optional:

PFA150
Mounting bracket
(purchase separately)

3012
Side Mounting Bracket
(purchase separately)







Dimensions (mm [inch])