4MP License Plate Recognition Camera

10 mm to 40 mm Motorized Vari-focal Lens

- 1/1.8-in. 4 MP CMOS Sensor
- H.265 and H.264 Dual Codec
- 2688 x 1520 at 25 fps Maximum Resolution
- 10 mm to 40 mm Motorized Vari-focal Lens
- Maximum IR LED Distance 30 m (98.43 ft)
- IP67 Ingress Protection
- Five-year Warranty*

System Overview

The DHI-ITC431-RW1F-IRL8 is a license plate recognition with a recording resolution of 4 MP at 25 frames per second with a 1/1.8-in. CMOS sensor. The camera includes a 10 mm to 40 mm motorized vari-focal lens that provides long-range video capture. The camera comes in a rugged, IP67-rated housing and offers IR illumination making the camera suitable for most harsh environments and dark applications. The License Plate Recognition camera captures and recognizes license plate alphanumeric characters from a distance of up to 25 m (82 ft) and at vehicle speeds of 120 kph (75 mph).

Functions

License Plate Recognition

The camera automatically captures vehicle license plate images and recognizes license plate numbers and letters. During playback, an operator can perform a license plate search by Time and Date to view thumbnail images of all plates captured during the specified time period or can enter a license plate number to search for vehicles recorded with that plate. License plate recognition technology offers effective entrance/exit management, traffic surveillance, and parking lot monitoring.

High Efficiency Video Coding (H.265)

The H.265 (ITU-T VCEG) video compression standard offers double the data compression ratio at the same level of video quality, or substantially improved video quality at the same bit rate, as compared to older video compression technologies. H.265 offers such impressive compression by expanding the pattern comparison and difference-coding, improving motion vector prediction and motion region merging, and incorporating an additional filtering step called sample-adaptive offset filtering.

Cybersecurity

Dahua network cameras are equipped with a series of key cybersecurity technologies including: security authentication and authorization, access control, trusted protection, encrypted transmission, and encrypted storage. These technologies improve the camera's ability to prevent malicious access and to protect data.

Environmental

With a temperature range of –40 °C to +65 °C (–40 °F to +149 °F), the camera is designed for extreme temperature environments. Subjected to rigorous dust and water immersion tests the camera suitable for the most demanding outdoor applications. The camera carries an IP67 rating that ensures protection from total dust ingress and protection from water immersion between 15 centimeters and 1 meter in depth.

*Warranty applies to products sold through an authorized Dahua Dealer.

Technical Specification

Camera

Image Sensor	1/1.8-in. 4 MP CMOS
Effective Pixels	2688(H) x 1520(V)
Shutter Mode	Single Shutter
Electronic Shutter Speed	1/25 s to 1/100000 s (manual or automatic)
IR Distance	30.0 m (98.43 ft)
IR On/Off Control	Auto, On, Off
IR LEDs	Four (4), 850 nm, adjustable brightness

Lens

Lens Type	Motorized Vari-focal
Focal Length	10 mm to 40 mm
Max. Aperture	F1.5
Exposure Mode	Full Auto, Customized Auto, Customized
Angle of View	Horizontal: 11.86° to 38.38° Vertical: 6.64° to 21.42° Diagonal: 13.69° to 44.35°
Iris Control	Fixed Iris, Manual Iris, Auto Iris, P Iris
Focus Control	Motorized, Automatic
Focus Width Range	7.50 m (24.61 ft) Note: One lane width is 3.75 m (12.30 ft)

Video

Video Encoding	H.265, H.264M, H.264H, H.264B, MJPEG
Image Encoding	JPEG
Streaming Capability	Dual Stream
Resolution	4 MP (2688 x 1520), 1080p (1920 x 1080), 720p (1280 x 720), D1 (704 x 576)
Frame Rate	Main Stream: 2688 x 1520 at 25 fps Sub Stream: 1280 x 720 at 25 fps
Bit Rate Control	CBR, VBR
Bit Rate	H.264: 32 Kbps to 32767 Kbps H.265: 32 Kbps to 32767 Kbps MJPEG: 512 Kbps to 32767 Kbps
Day/Night	Auto (ICR), Color, B/W
Wide Dynamic Range	90 dB
White Balance	Auto, Outdoor, Manual, Part White Balance, Natural Street Lamp
Advanced Optics	Bad Pixel Correction, Edge Enhancement, HLC
Gain Control	Automatic
Noise Reduction	2DNR, 3DNR

Network

Ethernet	RJ-45 (10/100/1000 Base-T)
Protocol	IPv4/IPv6, HTTP, TCP/IP, UDP, NTP, DHCP, DNS
Streaming Method	Unicast, Multicast
Maximum User Access	Six (6) Users
Auto Registration	Support
Edge Storage	TF Card Slot, 256 GB maximum
Web Viewer	IE
Management Software	DSS Pro, DSS Express
Cybersecurity	Video Encryption, Firmware Encryption, Configuration Encryption, Digest, WSSE, Account Lockout, Security Logs, IP/MAC Filtering, Generating and Importing X.509 Certification, Syslog, HTTPS, 802.1x, Trusted Boot, Trusted Execution, Trusted Upgrade

Certifications

Safety	UL 62368-1 EN 62368-1:2014/A11:2017 CAN/CSA C22.2 No. 62368-1-14
Electromagnetic Compatibility (EMC)	CFR 47 FCC Part 15 subpart B EN 55032:2015; EN 61000-3-3:2013+A1:2019; EN 61000-3-2:2019 EN 50130-4:2011/A1:2014; EN 55024:2010/A1:2015; EN 55035:2017

Interface

RS485		One (1) Port
RS232		Two (2) Ports: • G T R for serial debugging
Audio	Input	N/A
	Output	
Alarm	Input	Three (3) Channels
	Output	Two (2) Channels): • One (1) Relay • One (1) Optocoupler

Electrical

Power Supply	12 VDC to 36 VDC or PoE (IEEE802.3af Class 0)
Power Consumption	≤ 8 W

Environmental

Operating Temperature	–40° C to +65° C (–40° F to +149° F) 10% to 90% RH (non-condensing)
Storage Temperature	–40° C to +70° C (–40° F to +158° F)
Ingress Protection	IP67

Construction

Casing	Metal and Plastic
Dimensions (L x W x H)	466.40 mm x 135.80 mm x 134.10 mm (18.36 in. x 5.35 in. x 5.28 in.)
Net Weight	2.80 kg (6.17 lb)
Gross Weight	4.50 kg (9.92 lb)

Performance

Composite Image	Supports composing 1, 2, 3, or 4 images
Trigger Mode	Video, Radar
Image Tampering	Video/Picture Watermark
Alarm Event	• No Storage Card, Storage Full, Storage Card Error • Inadequate Storage Space • Network Disconnect, IP Address Conflict, Illegal Access • License Plate on Block list
Security Mode	• Authorized Username and Password • MAC Address Binding • HTTPS Encryption • Network Access Control
Automatic Network Replenishment (ANR)	Platform, FTP (TF card required)
Time Synchronization	NTP
Detection Area	Support automatic detection lines

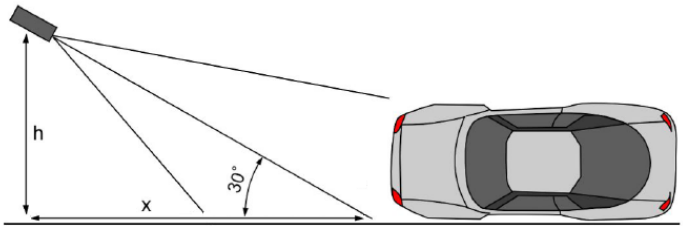
Installation Distances

Camera Height (h)	Snapshot Distance (x)	Lane Width	Vehicle Speed, max
Side Installation			
6.0 m (19.69 ft)	20.0 m to 25.0 m (65.62 ft to 82.02 ft)	3.5 m (11. 48 ft)	120 kph (75 mph)

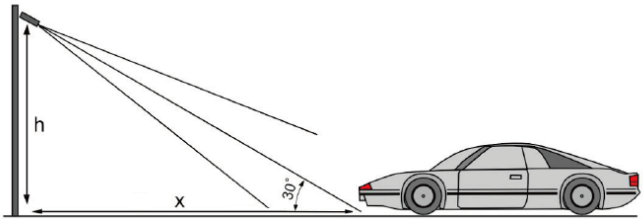
Distance to License Plate	Minimum/Maximum: 8 m to 30 m (26.25 ft to 98.43 ft) Optimal: 4 m to 6 m (13.12 ft to 19.69 ft)
Horizontal/Vertical Angles	< 30°
Inclination Angle	< 5°

Camera Placement

Horizontal Direction



Vertical Direction



In both the vertical and the horizontal placement, the angle between the camera lens and the farther lane border must be less than 30°. Ensure the snapshot distance (*x*) of the camera is greater than 1.7 times the height (*h*) of the camera ($x \geq 1.7 \times h$) for optimal license plate images.

Ordering Information

Type	Part Number	Description
4 MP License Plate Recognition	DHI-ITC431-RW1F-IRL8	4 MP IR, Motorized Vari-focal Lens, with license plate recognition
Accessories, Optional	PFA150	Pole Mount

Dimensions (mm/in.)