

Ultra-AI Series

Make Life Safer

2019.08

IPC Product Overview



Ultra-AI Series | Product Family



HF7842F
HF7442F
HF7442F-FR



HFW7842H-Z
HFW7442H-Z
HFW7442H-Z4
HFW7442H-Z4FR
HFW7442H-ZFR



HDBW7842H-Z
HDBW7442H-Z
HDBW7442H-Z4
HDBW7442H-ZFR
HDBW7442H-Z4FR

Face Recognition

140dB WDR (4Mp) / Starlight+ Technology (4Mp) / Deep Learning Algorithm/
Various intelligent functions/ H.265+ Smart Codec / IP67 Waterproof / IK10 Vandal proof /



PART01

Key Features

PART02

Industry Application

PART03

Installation Guide

PART04

Specification/Supporting

Contnet

Ultra-AI Series | Excellent performance presentation



Face
Detection



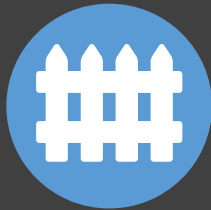
Face
recognition



Privacy
Protection



Target
Classification



Perimeter
Protection



Video
Structurization



People
Counting

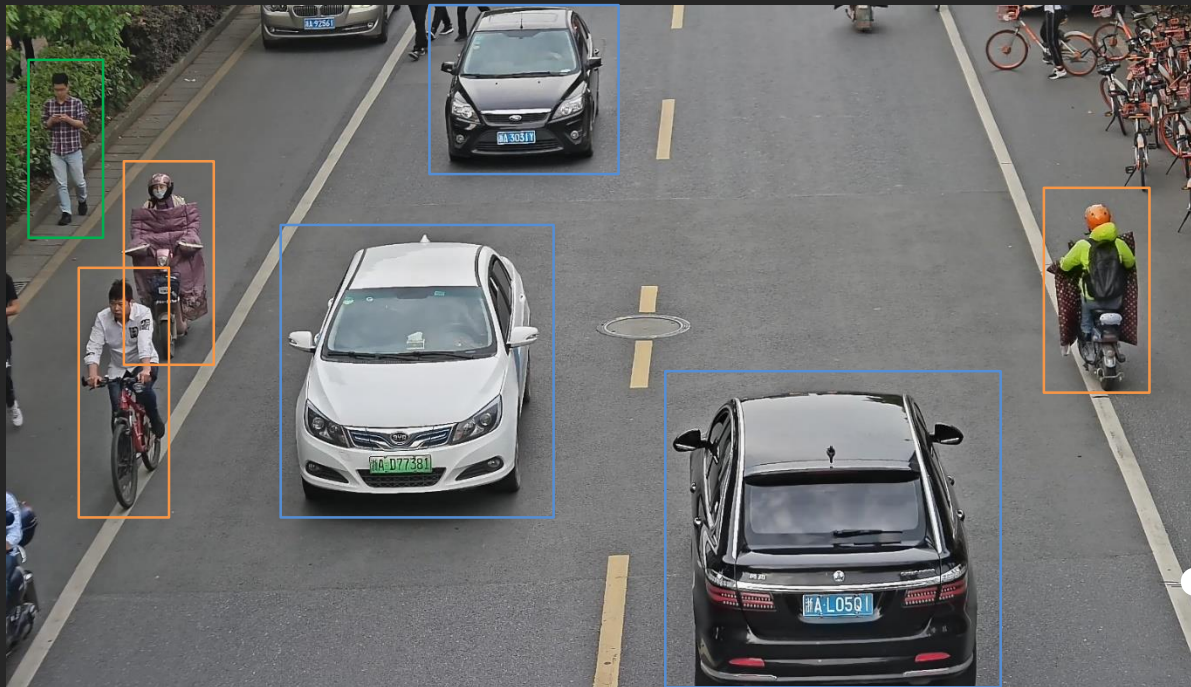


ANPR

Ultra-AI

- Design for the high end project
- Supports more AI functions
- Supports face/body/vehicle/non-vehicle metadata extracting

Key Features 1 | Video Structurization

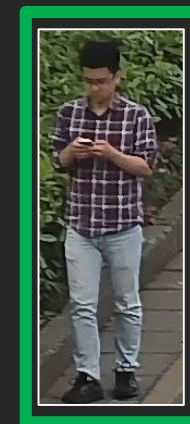


Dahua Video Structurization

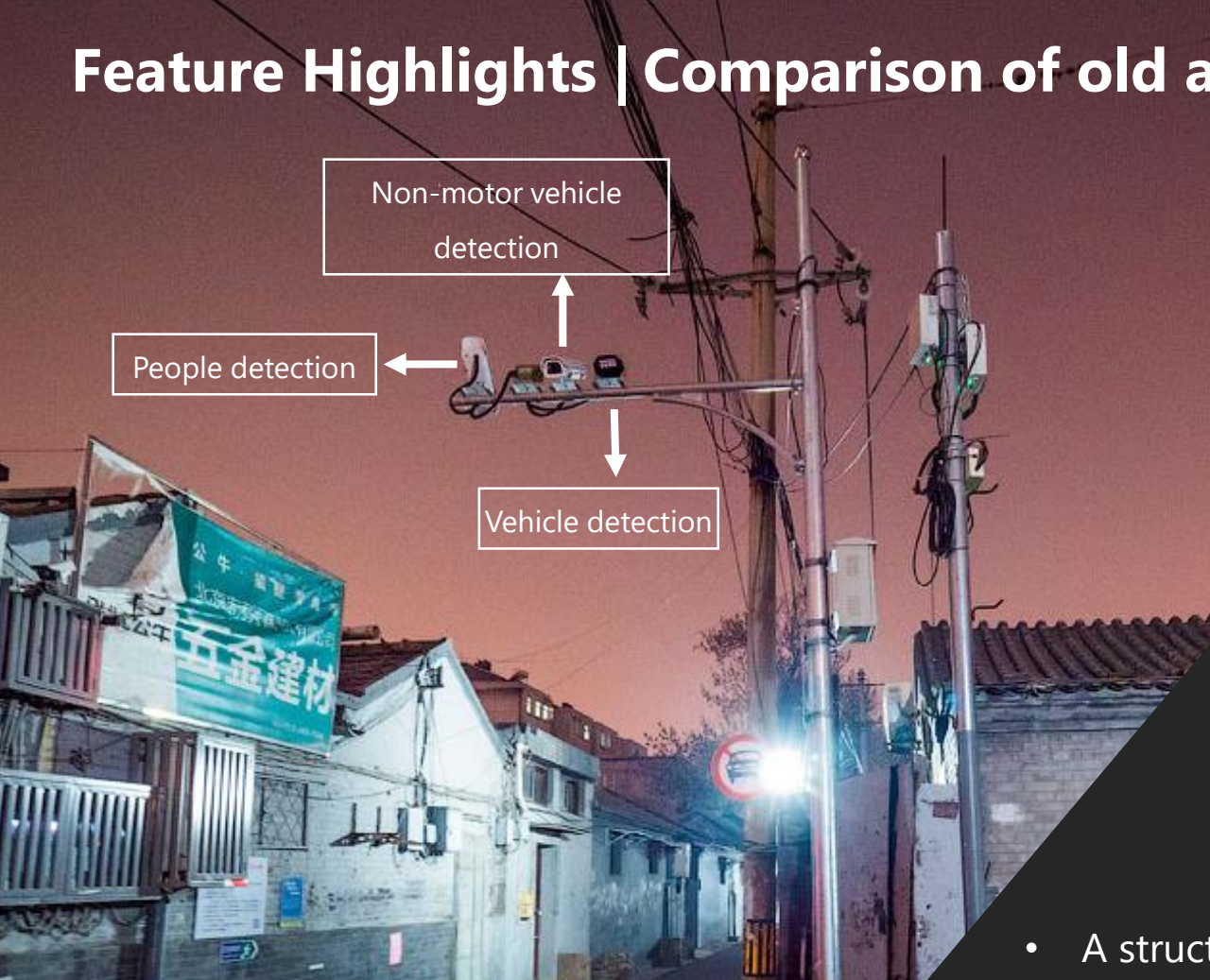
Video Structurization adopts Deep Learning Algorithm to detect vehicle, non-motor vehicle and people in the image, track the target in real time, and then snapshot the target and extract attributes.

Vehicle / Non-motor vehicle / People

Classification

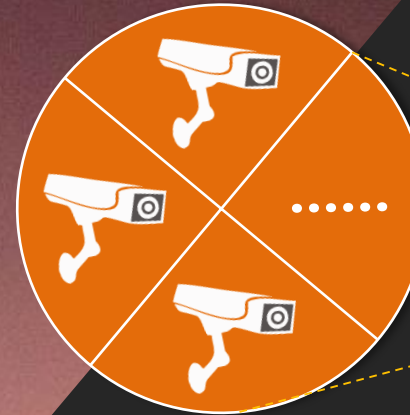


Feature Highlights | Comparison of old and new products



Old intelligent product

- High cost
- Construction complex
- Difficulties in maintenance



Ultra-AI Series

- A structured product is equivalent to multiple traditional intelligent product.
- Simultaneous detection of people, motor vehicle, non-motor vehicle.
- Reduce overall program cost, reduce construction difficulty, and improve maintenance efficiency.

Feature Highlights | Key indicators



Structurization key indicators

- ✓ The maximum number of simultaneous detection targets is **96**.
- ✓ Massive data structure of vehicles:
11 kinds of models, **12** kinds of colors,
86 kinds of car labels

Feature Highlights | Attribute Extraction

Type: human body
Gender: female
Top color: brown
Top type: short sleeve
Trousers color: blue
Trousers type: pants
Hat: no
Backpack: Backpack
Time: 2019-05-18 17:44:12



Type: Motor vehicle
Vehicle type: car
Vehicle color: white
License plate: 浙 AXXXXX
Vehicle brand: Buick
Sun visor: no
Smoking: No
Car accessories: Yes
Seat belt: unknown
Phoning : No
Annual vehicle inspection mark: Yes
Time: 2019-5-18 17:44:17



Type: face
Gender: Male
Age: Youth
Expression: calm
Glasses: no glasses
Mask: No
Beard: No
Time: 2019-05-18 17:44:19



Type: Non-motor vehicle
Vehicle type: two-wheeler
Color: red
Driver number: 1
Top type: long sleeve
Top color: yellow
Hat: helmet
Time: 2019-05-18 17:44:09



Feature Highlights | Face And Body Connection

Dahua Face And Body Connection Technology:

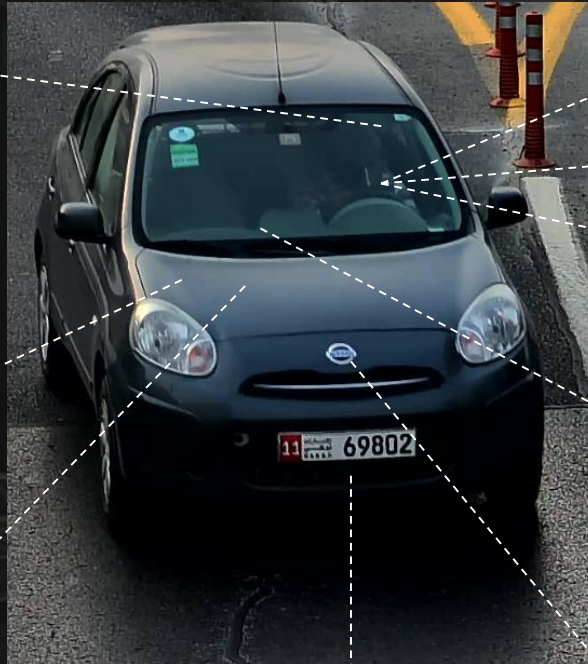
The advanced video algorithm detects the face and body picture of the same person in the image, and performs independent optimization and connection capture.

Specific scene correlation rate up to **99%**



Key Features 2 | ANPR

9 vehicle attributes



Sun visor: N/Y

Vehicle color: white, orange, pink, black...

Vehicle type: Car, van, bus, truck

License plate
(Support recognition of English letters and Numbers)

Vehicle brand

Smoking: N/Y

Seat belt: N/Y

phoning: N/Y

in-car accessories: no, pendant, tissue box, perfume box

Dahua ANPR Technology

Deep Learning Algorithm is used to detect, track, score, screen, capture and extract attributes of motor vehicles in the picture.

Note: Currently only the UAE's license plate detection is supported, which can be customized in other countries.

Key Features 3 | Face Detection

Dahua Face Detection technology

Support to detect, track, score, screen and capture the moving face in the picture, and output the optimal face capture



Hotel - entrance/aisle



Frontage shop - entrance



Station

Feature Highlights | Comparison of old and new products

advantage

Ordinary algorithm



Scene is complicated
Repeat more



Photos, billboards and other unusual faces



Faces can't be seen in backlighting

New generation algorithm



Remove duplicate faces

【coming soon in October】



Non-living Filtering



Automatic face exposure

Face Detection	Old	New
Minimum interpupil distance (2Mp)	40	12
Capture rate	95%	99%
Repeat capture rate	10~30%	10%
WDR Face detection rate	80%~95%	≥95%

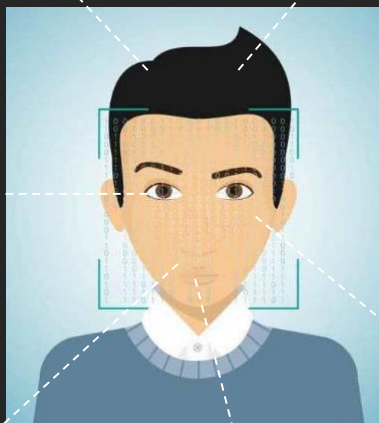


Feature Highlights | Key Indicators

6 face attributes

Gender: male, female, unknown

Age: infant, child, teenager, youth, middle age, old age

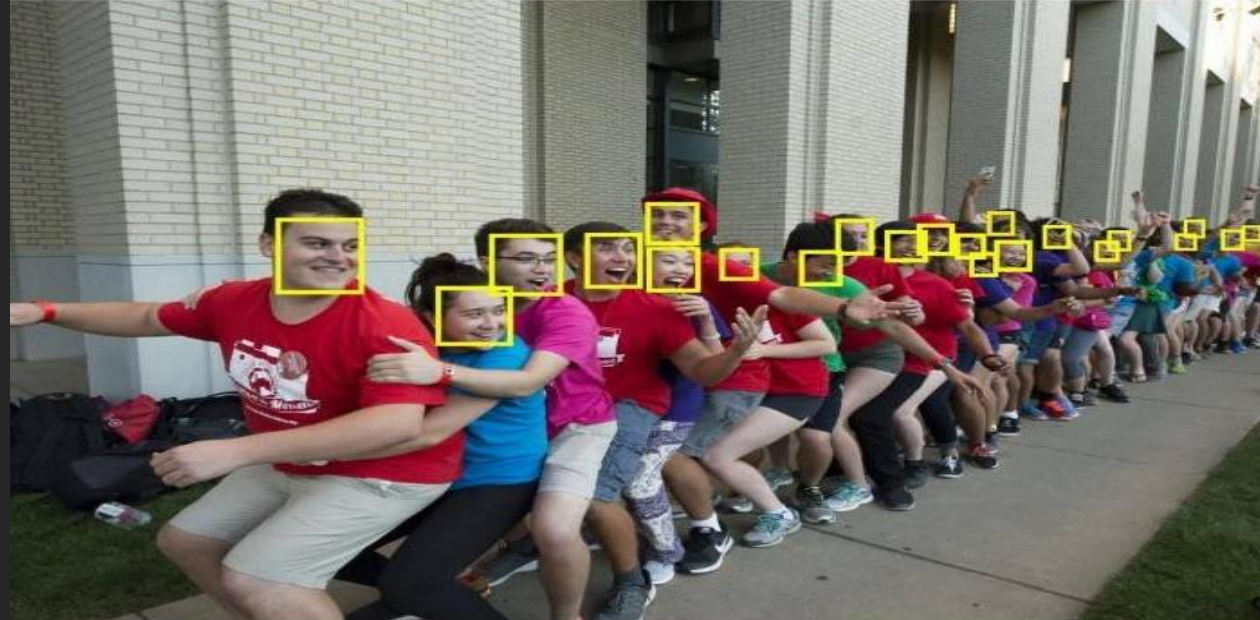


Glasses: no, ordinary glasses, sunglasses

Expression: Anger, sadness, disgust, fear, surprise, peace, joy, confusion

Beard: N/Y

Mask: N/Y



- ✓ Maximum number of simultaneous detection and tracking targets: 64 (4MP) and 40 (8 MP).
- ✓ Support 3 kinds of capture strategies: real-time capture, quality priority, and preferred capture.
- ✓ The push rate can reach 14 people/second (4MP).
- ✓ Support for non-living filtering with an accuracy of at least 95%.
- ✓ The front-end web can display capture and attribute recognition results in real-time.
- ✓ Support face angle filtering function.

Feature Highlights | Ultra WDR



WDR (OFF)

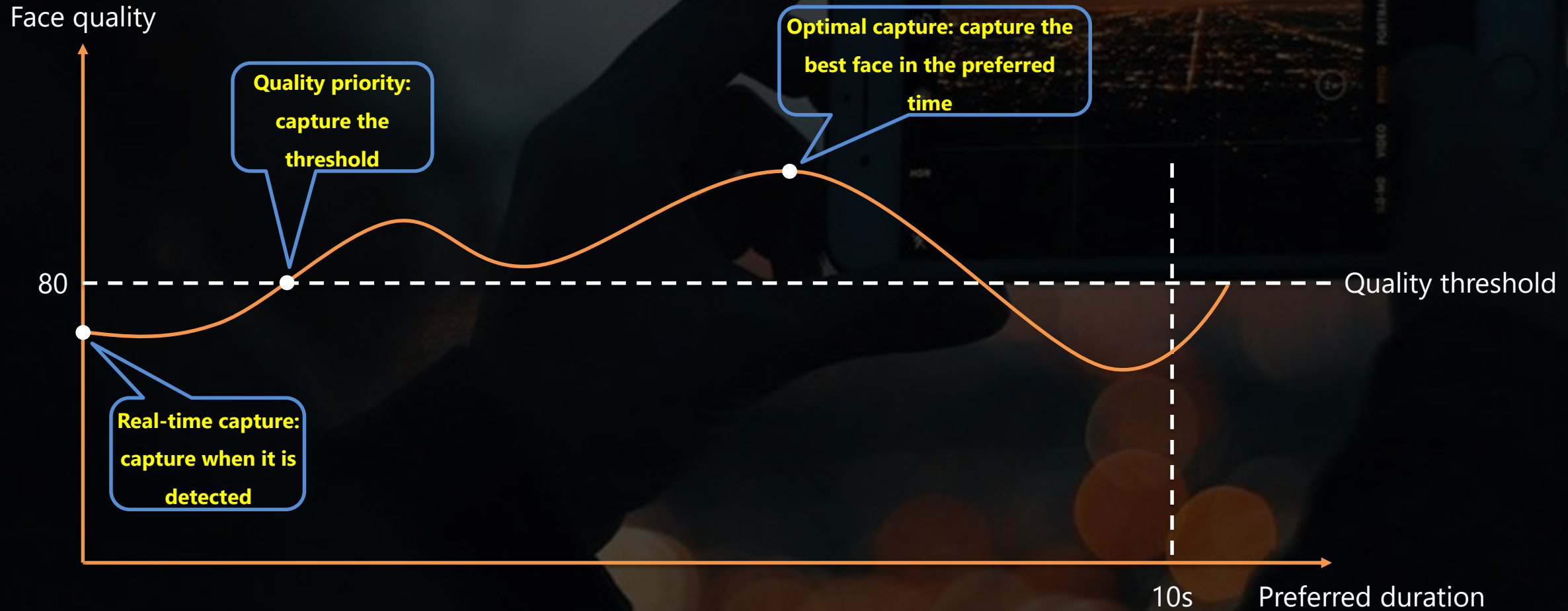


WDR (ON)

The multi-frame fusion technology is used to ensure the dynamic range of the screen, while highlighting the small face of the backlight and the facial features of the face, greatly improving the effect of the face under the backlight scene, thereby improving the accuracy of the capture of the face.

Feature Highlights | Capture Strategy

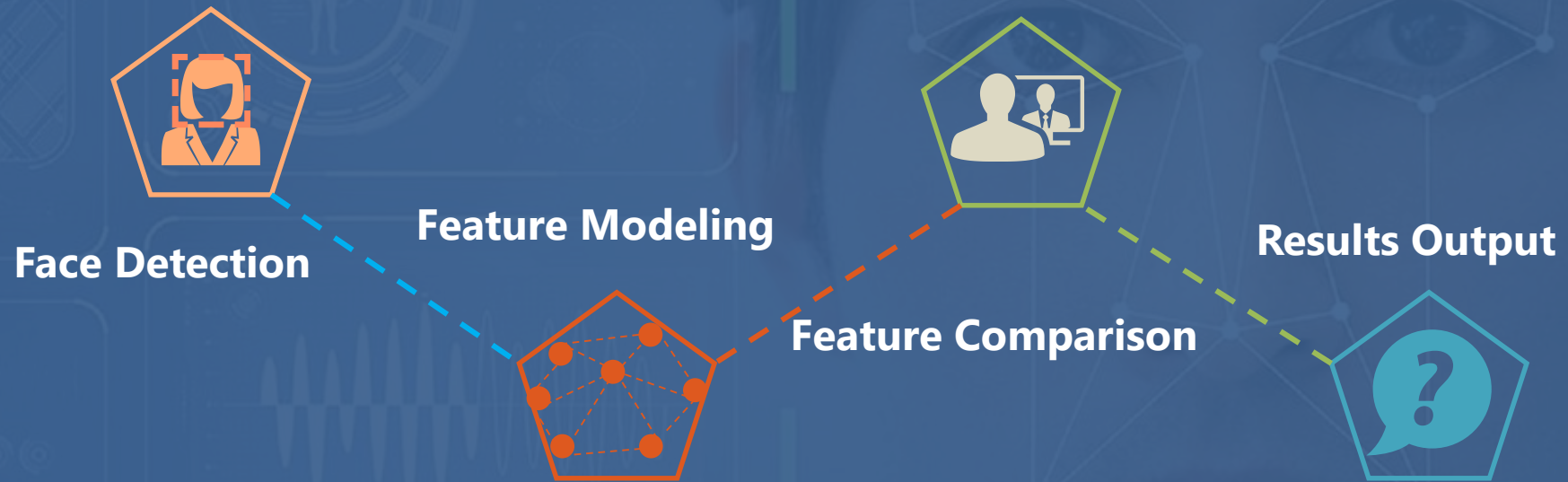
👍 Support real-time capture, optimal capture, quality priority 3 capture strategies.



Key Features 4 | Face Recognition

Dahua Face Recognition Technology

Extract the captured facial features, match the facial features in the human face database, and identify the person.



Feature Highlights | Key Indicators for Face Recognition

- ✓ Maximum simultaneous detection and tracking number: **32**.
- ✓ Support up to **200,000 face database**.
- ✓ Support black and white list linkage alarm function.
- ✓ Support for non-living filtering with an accuracy of **at least 95%**.
- ✓ Support for face database **information encryption**.
- ✓ Support **2 kinds** of capture strategies: optional capture, recognition priority.
- ✓ The front-end web supports real-time display of face capture, attribute recognition, and face comparison results.

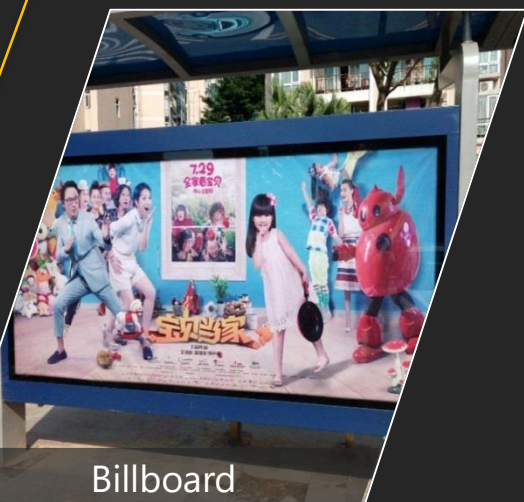


Feature highlights | Non-living Filtering



After the camera detects the face target, it supports the live/non-living recognition of the target, filters the non-living results, and reduces the mis-catch caused by non-living face images appearing in billboards, photos, posters or other media. The rate can reach

more than 95%.



Billboard



Bus



Clothes



Photo

Feature Highlights | Recognition Priority

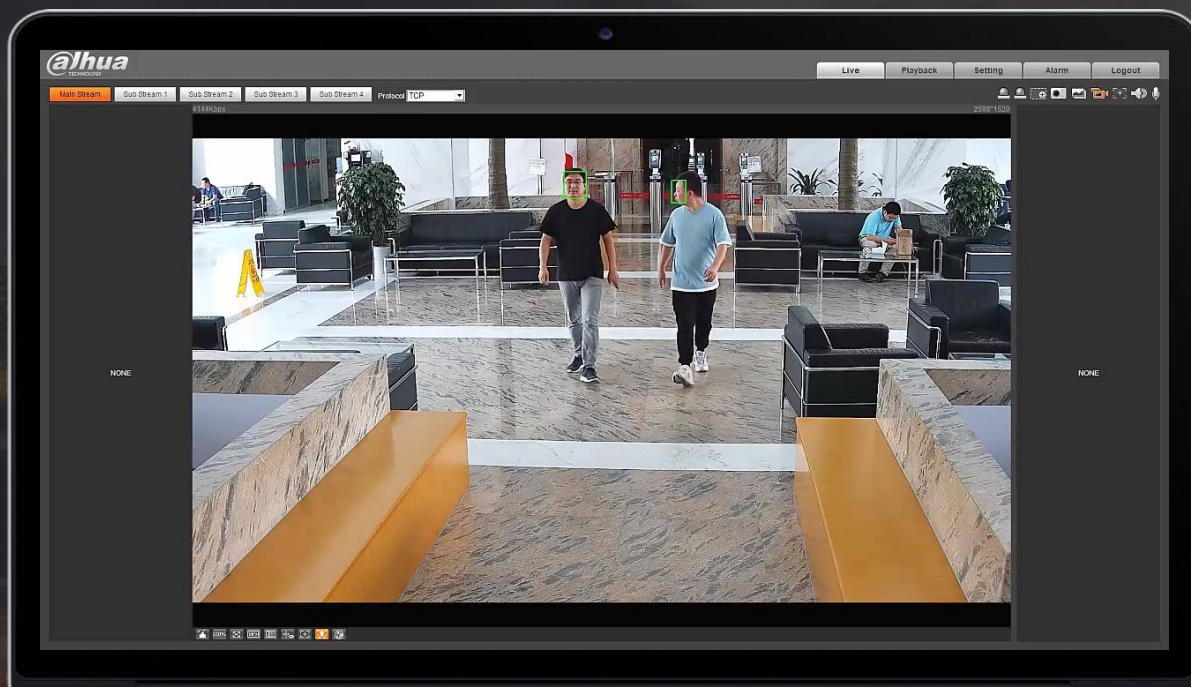
Function

✓ Faster response

The alarm linkage response speed is <math><0.5</math> seconds, which makes the user truly experience the feeling of opening the door.

✓ Higher accuracy

Increase the accuracy of face recognition alignment by at least 10%



It is suitable for application scenarios where the face is opened and the flow is small, such as gates, automatic doors, corridors, etc.

Key Features 5 | People Counting

Dahua People Counting Technology

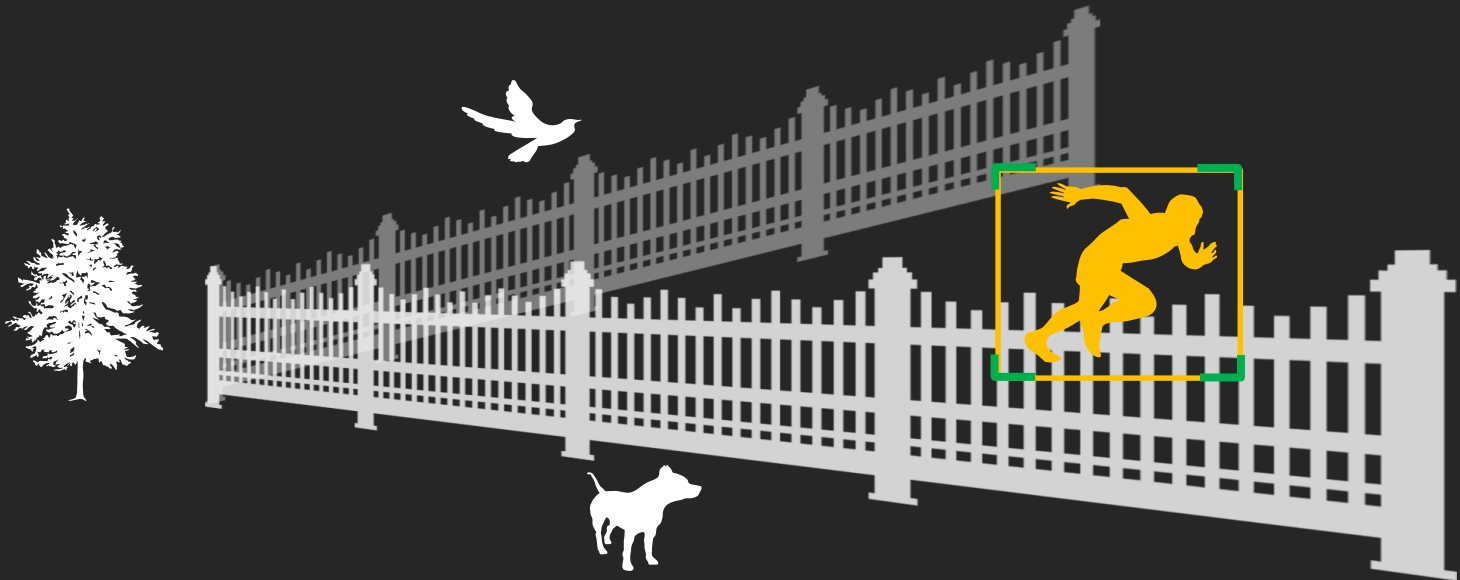
People Counting adopts Deep Learning Algorithm to detect human body target, and track the target in real time, which realizes independent statistics of entry number and exit number. And the **accuracy rate is up to 98%**.



Upgrade of algorithm -4x Efficient

Note: 4 areas coming soon in September.
Currently support 1 area.

Key Features 6 | Perimeter Protection



Traditional

AI



70%

> 96%



70%

> 97%



< 10%

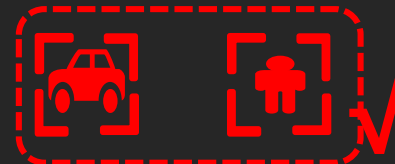
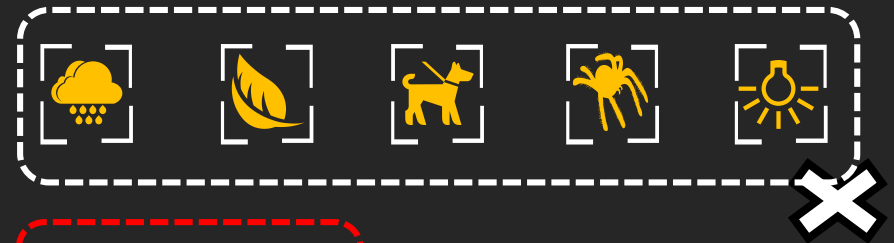
< 2%

False Negatives Rate

Dahua Perimeter Protection Technology

Through advanced Deep Learning Algorithms to provide accurate detection of people and vehicles, in restricted areas (such as pedestrians, vehicle areas), based on object types for tripwire, intrusion, fast moving, loitering detection, parking detection and people gathering, etc. Greatly reduce false positives and false negatives.

False alarm filter



Feature Highlights | Human & Vehicle Classification

Key technology



Deep Learning Algorithm
for human and vehicle
classification

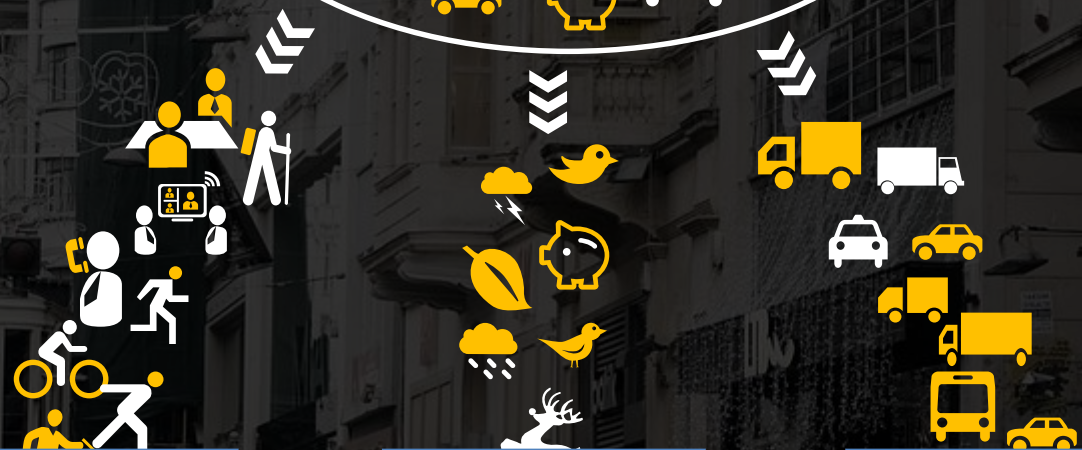


Adopt active defense
alert technology



Intelligent tracking
technology

Accurate classification and
detection of human and
vehicle, greatly reducing
video search time.



Human

Eliminate interference

Vehicle

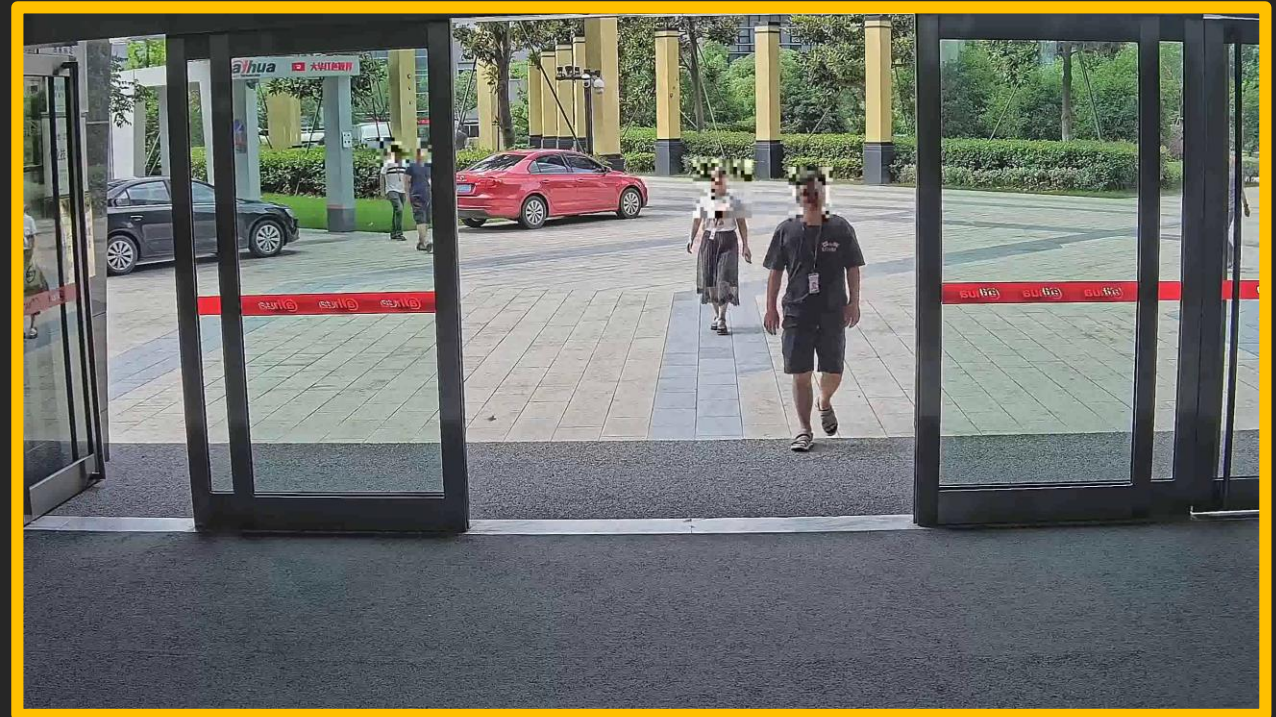
Key Features 6 | Privacy Protection

Dahua Privacy Protection Technology

Based on Deep Learning Algorithm, it supports real-time mosaic covering of the face or body part detected in the monitoring image to protect the privacy of the special people.



Human Body - Privacy Protection



Face- Privacy Protection

1. Privacy Protection supports setting face or body.
2. When the human body pixel reaches 60, privacy masking can be performed, and the protection ability is stronger.
3. Open function can still achieve real-time frame rate (4MP up to 60fps), better real-time effect.

PART01 Key Features

PART02 Industry Application

PART03 Installation Guide

PART04 Specification/Supporting

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Industry Application



Traffic Management



Safe City



Banking&Finance



Building

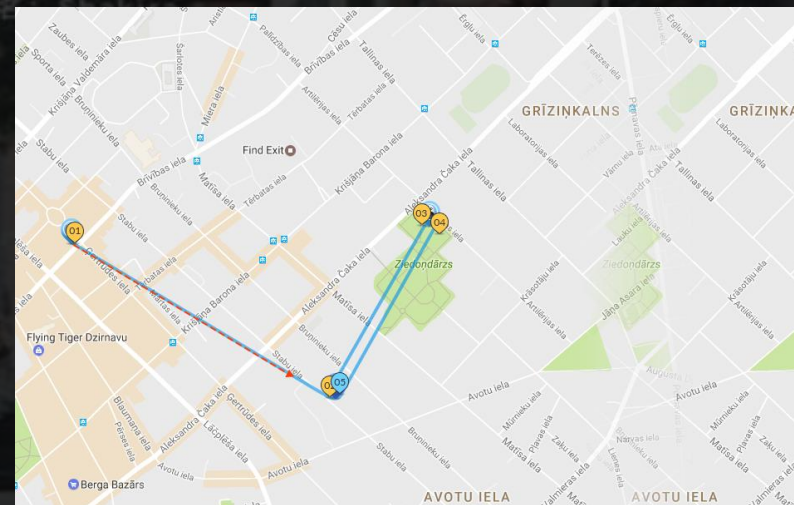
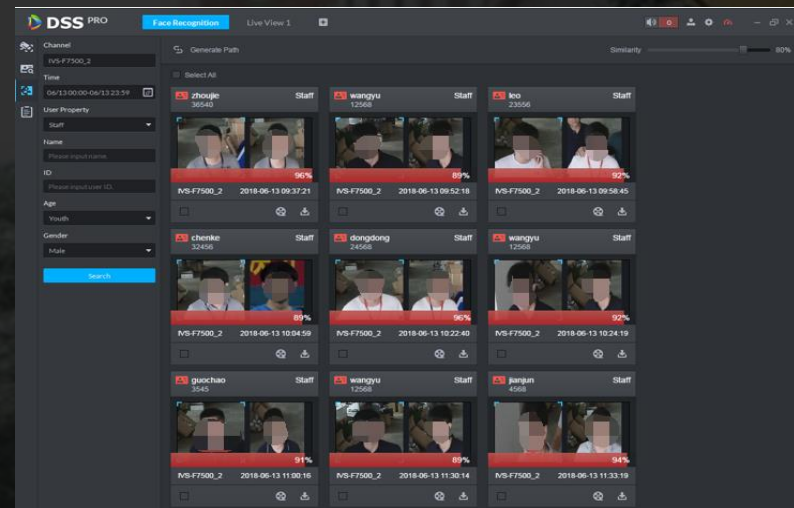


Retail

Industry Application | Safe City



- 1 Criminal suspect
- 2 Looking for accomplices
- 3 Looking for witnesses



Extracting suspect's characteristics

Metadata Search

Track search

Confirm the target

Industry Application | Banking&Finance

Entrance



Blacklist Alarm

Instantly push alarm when suspects appear.

Counter



Identity verification

Authentication of customers and assistant business handling

ATM



Blacklist Alarm

When a blacklist person makes transaction the camera send face picture to the alarm center

Office Area



Access Control/BI Report

Only authorized persons can enter a particular office area and explore potential customers.

Industry Application | Building

The business scenario



Face recognition can provide business applications such as VIP customer identification, man hunter, attendance, access control, visitor management and others.

Feature highlights

Real name authentication

High risk warning

Unimpeded access

Remote authorization of visitors

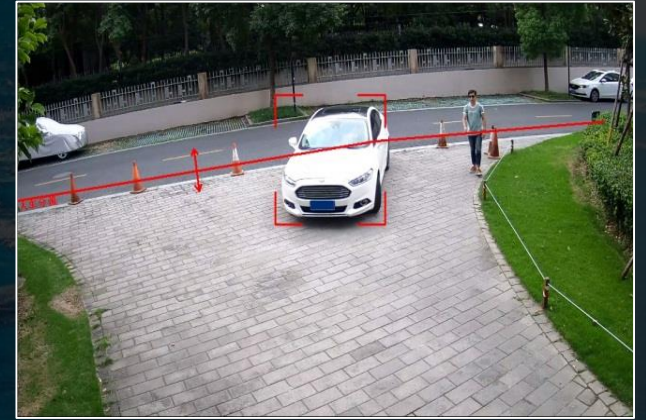
Industry Application | Building



Over the fence detection



Restricted access to areas such as lawns, lakes, rivers, etc



Separate area of people & vehicle



Intrusion detection



Restricted access to areas such as lawns, lakes, rivers, etc



Separate area of people & vehicle

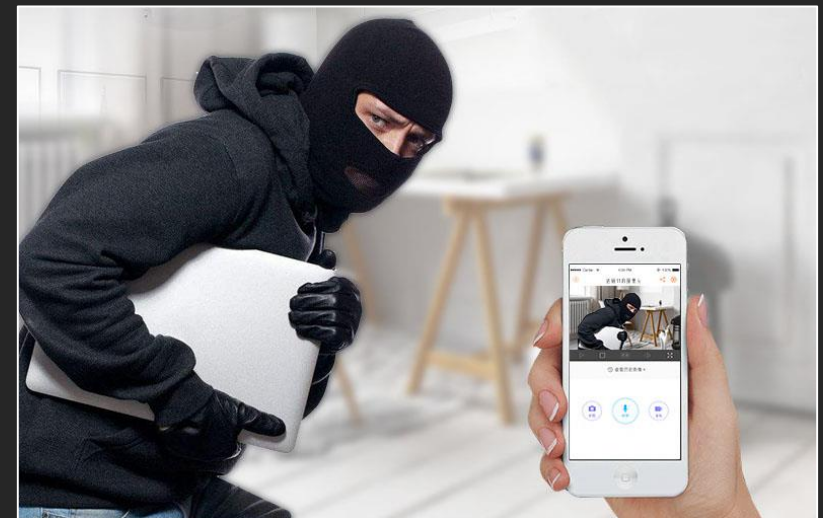
Industry Application | Retail



Accurately identify the customer's identity information, analyze the age, gender, clothing, expression and other attribute information; combined with accurate passenger flow data statistics, store count statistics, can provide customers with effective data support for customer analysis.



When a thief breaks into the store at night, the mobile client prompts the alarm in the form of a text message.



Industry Application | Stadiums



Access Control/ Blacklist Alarm

At the Entrance if any person is Banned from the stadiums he can't enter.

Face Capute

If any person brakes the rule at the stands his face can be record and recognized next time.



Recognize Banned persons, ensure the safety of the stadiums.



PART01 Key Features

PART02 Industry Application

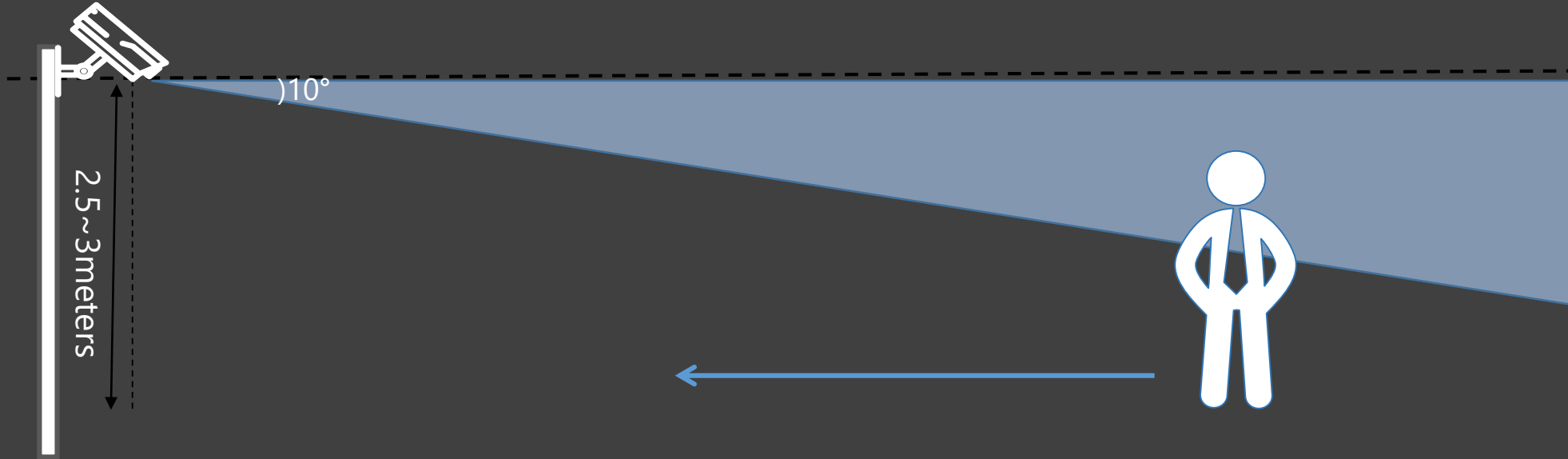
PART03 Installation Guide

PART04 Specification/Supporting

Contnet

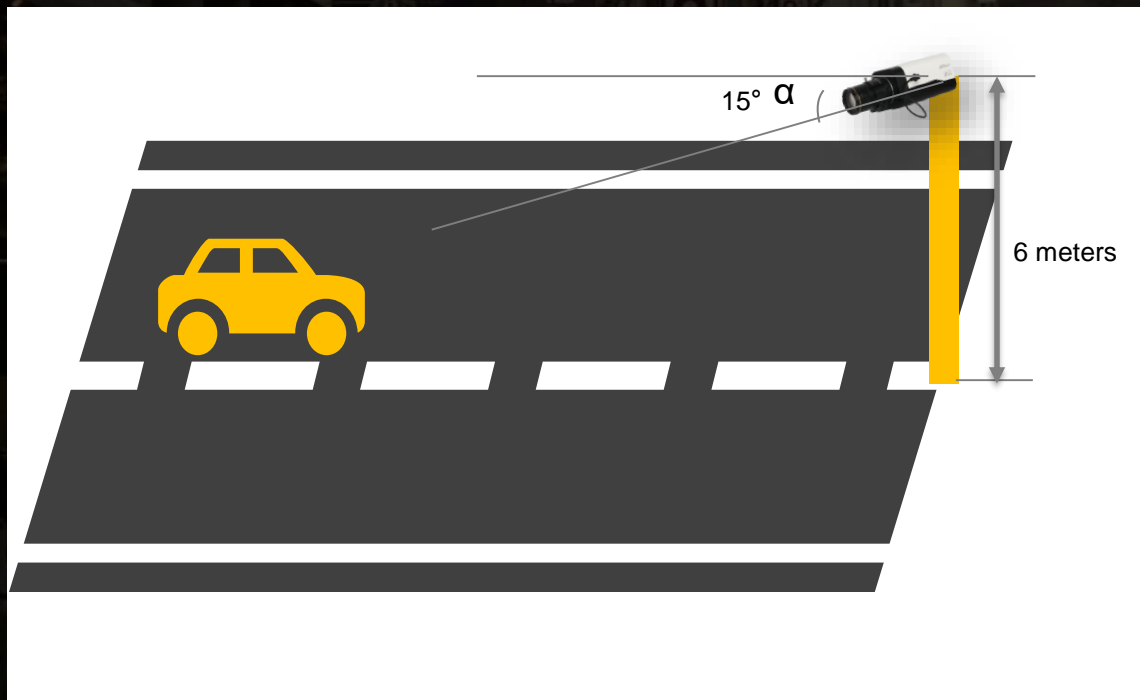
Installation Guide | Face Detection

[Please refer to "construction instruction manual" for detailed information]



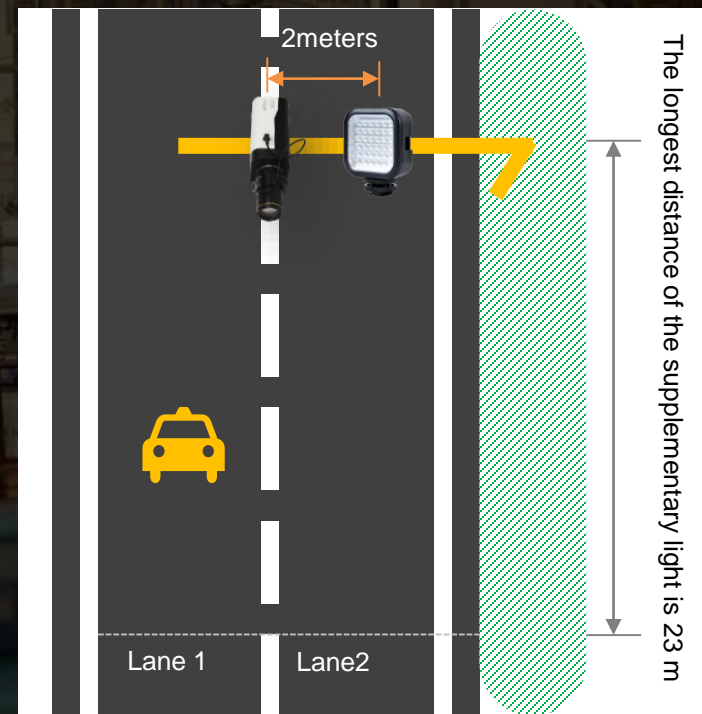
Resolution	Focal Length/mm	Installation height/m	Monitor width/m	Detection Distance /m
4MP	8~32	2.5-3.5	3.5-4	3-12
	2.7~12	2.5	3.5-4	1-4
	3.7~16	2.5	3.5-4	1-5
	10.5~42	2.5-4	3.5-4	5-16
8MP	2.7~12	2.5	4.5-5	2-5
	3.7~16	2.5	4.5-5	2-7
	10.5~42	2.5-5	4.5-5	7-20

Installation Guide | Vehicle Structurization



8MP——2~3 lanes

4MP——2 lanes。



When the light in the scene is not bright enough, in order to achieve a good license plate capture effect, you must increase the constant light fill light.

Note: It is recommended to use continuous light, flash light is not recommended.

Installation Guide | People Counting

Installation	Focal Length/mm	Max mounting height/m	Max channel width/m	Maxi channel thickness/m
Top mount	2.7~12	12	11	6
	8~32	40	11	6

Installation	Focal Length/mm	Depression angle/°	Max mounting height/m	Maxi monitoring distance/m
Inclined mount	2.7~12	45	7	10
	8~32	45	25	30

Installation	Focal Length/mm	Depression angle/°	Max mounting height/m	Maxi monitoring distance/m
Side mount	2.7~12	45	7	7
	8~32	45	25	25

Installation Guide | Perimeter Protection

Top mount



- Installation height: **>3m**
- Installation Angle: **0°~45°**

Focal Length/mm	2.8	3.6	6	8	12	30
Distance/m	6	8	13	17	26	65

Parallel installation



Using two cameras to shoot can avoid dead zone.

- Installation height : The pole on the fence is ≥ 1 m. The inside of the perimeter is 0.5 m. The camera is mounted on the pole.

Focal Length/mm	2.8	3.6	6	8	12	30
Distance/m	1-6	1-7	2-12	3-17	4-25	12-60



PART01 Key Features

PART02 Industry Application

PART03 Installation Guide

PART04 Specification/Supporting

Contnet

Technical Specification



Model	DH-IPC-HFW7442H-ZFR DH-IPC-HFW7442H-Z4FR DH-IPC-HFW7442H-Z DH-IPC-HFW7842H-Z DH-IPC-HFW7442H-Z4	DH-IPC-HDBW7842H-Z DH-IPC-HDBW7442H-Z DH-IPC-HDBW7442H-Z4 DH-IPC-HDBW7442H-ZFR DH-IPC-HDBW7442H-Z4FR	DH-IPC-HF7442F DH-IPC-HF7842F DH-IPC-HF7442F-FR
Pixels	4MP/8MP	4MP/8MP	4MP/8MP
Focal Length	2.7~12mm&8~32mm Note: 8Mp no 8~32mm		--
General IVS Analytics	Abandoned object, moving object		
Perimeter Protection	Tripwire, intrusion, fast moving, loitering detection, parking detection and people gathering.		
Video Structurization	Supported	Supported	Supported
Face Detection	Supported	Supported	Supported
Face Recognition	-FR Supported	-FR Supported	-FR Supported
People Counting	Supported	Supported	Supported
ANPR	Supported (-FR NA)	Supported (-FR NA)	Supported (-FR NA)
Privacy Protection	Supported (8MP NA)	Supported (8MP NA)	Supported (8MP NA)
EPOE	Supported	Supported	Supported
Storage	FTP; Micro SD (256G) ; NAS; SFTP		

Supporting Information

Product	Optimal	Model	Material code	Program version
NVR	NVR5X-I	NVR5X-I	2.6.01.02.02027	DH_NVR5XXX-I_Chn_V3.215.0000011.0.R.20190130.zip
			2.6.01.02.02028	General_NVR5XXX-I_Chn_V3.215.0000011.0.R.20190130.zip
			2.6.01.02.02029	DH_NVR5XXX-I_MultiLang_V3.215.0000011.0.R.20190130.zip
			2.6.01.02.02030	General_NVR5XXX-I_MultiLang_V3.215.0000011.0.R.20190130.zip
	NVR5XX-4kS2	NVR5XX-4kS2	2.6.01.02.02157	DH_NVR5XXX-4KS2_Chn_V3.216.0000006.0.R.20190223.zip
			2.6.01.02.02158	General_NVR5XXX-4KS2_Chn_V3.216.0000006.0.R.20190223.zip
			2.6.01.02.02159	DH_NVR5XXX-4KS2_MultiLang_V3.216.0000006.0.R.20190223.zip
			2.6.01.02.02161	General_NVR5XXX-4KS2_MultiLang_V3.216.0000006.0.R.20190223.zip
NVR4X-I	NVR4X-I	2.6.01.02.02415	DH_NVR4XXX-I_MultiLang_V3.216.0000000.0.R.20190404.zip	
IVSS	ivss7x	ivss7x	2.6.01.02.02123	DH_IVSS7XX_Chn_V2.000.0000000.2.R.190222.BIN
			2.6.01.02.02126	DH_IVSS7XX_Eng_V2.000.0000000.2.R.190222.BIN
			2.6.01.02.02130	General_IVSS7XX_Chn_V2.000.0000000.2.R.190222.BIN
			2.6.01.02.02132	General_IVSS7XX_Eng_V2.000.0000000.2.R.190222.BIN
Client	smartpss	smartpss	2.7.05.01.00271	General_SMARTPSS-Win32_ChnEng_IS_V2.002.0000008.0.R.190225.zip
			2.7.05.01.00273	DH_SMARTPSS-Win32_ChnEng_IS_V2.002.0000008.0.R.190225.zip
Tools	Smartplayer	Smartplayer	2.1.02.01.18296	General_SmartPlayer-Win32_Chn_IS_V4.000.0000000.5.R.20180201.zip
			2.1.02.01.18297	General_SmartPlayer-Win32_Eng_IS_V4.000.0000000.5.R.20180201.zip
DSS	ConfigTool	ConfigTool	2.8.02.01.00180	General_ConfigTool_ChnEng_V4.011.0000001.4.R.20190305.zip
			DSS pro	DSS pro
	DSS EXPRESS	DSS EXPRESS	2.7.01.02.00224	General_DSS-Express_IS_V1.000.0000002.0.R.20181114.exe
DMSS	DMSS	DMSS	Directly in the mobile phone store to download	ios:4.30.001
				android 4.30.000

Thanks

ENABLING A SAFER SOCIETY AND SMARTER LIVING

