

Hikvision Turbo HD Analog Solution

Hikvision Certified Security Associate

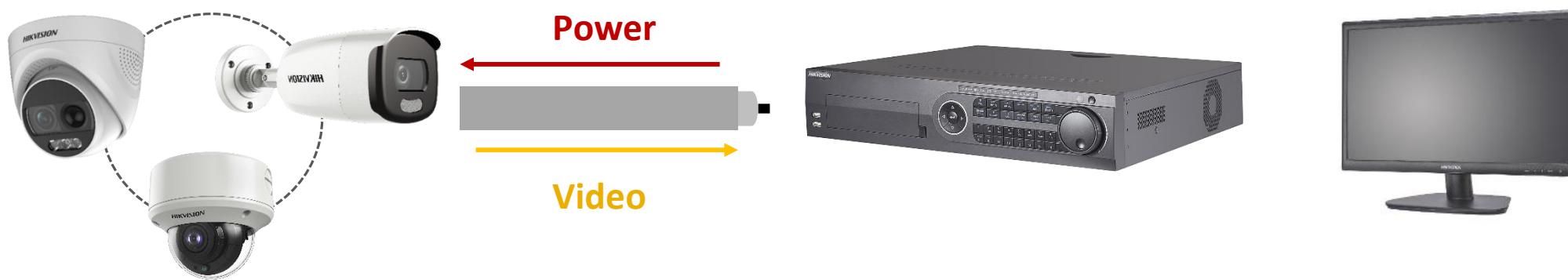
Training Objectives

- **Understand basic theory and advantages of HD TVI technology**
- **Familiar with Hikvision Turbo HD solutions.**
- **Know about Hikvision Turbo HD Products family**

Contents

- ◆ Turbo HD Analog Principle and key features
- ◆ Turbo HD Analog Solutions
- ◆ Turbo HD **5.0** System
 - ColorVu Camera
 - AcuSense DVR
- ◆ Turbo HD **X** System
- ◆ Turbo HD Products

HD Analog Standard



Easy HD

- **Plug and Play**
- **Up the Coax**
- **Easy System Upgrade**

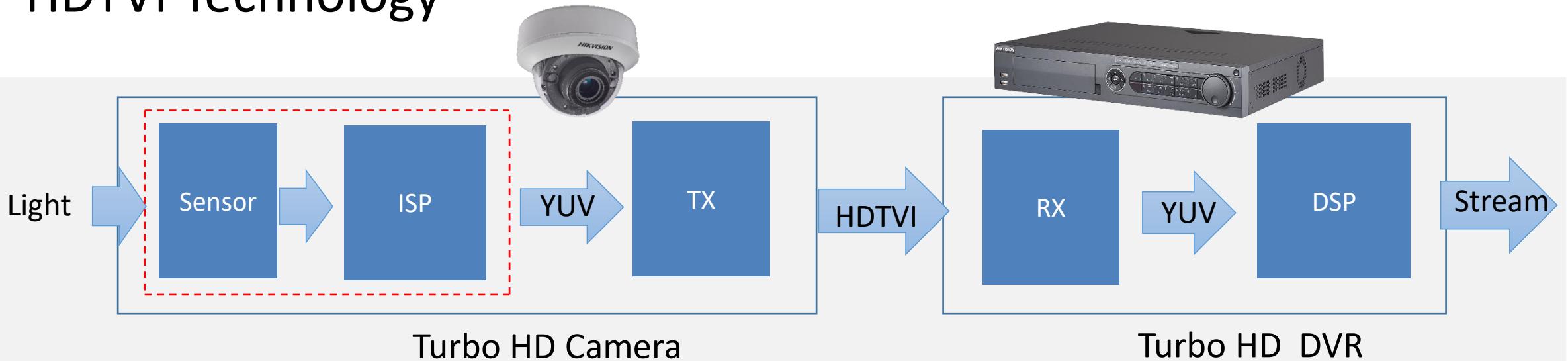
Real-time HD

- **Without encode & decode**
- **Real-time output (vs IP Camera)**

Further HD

- **Long transmission distance**
- **Anti-interference**

HDTVI Technology



Definition

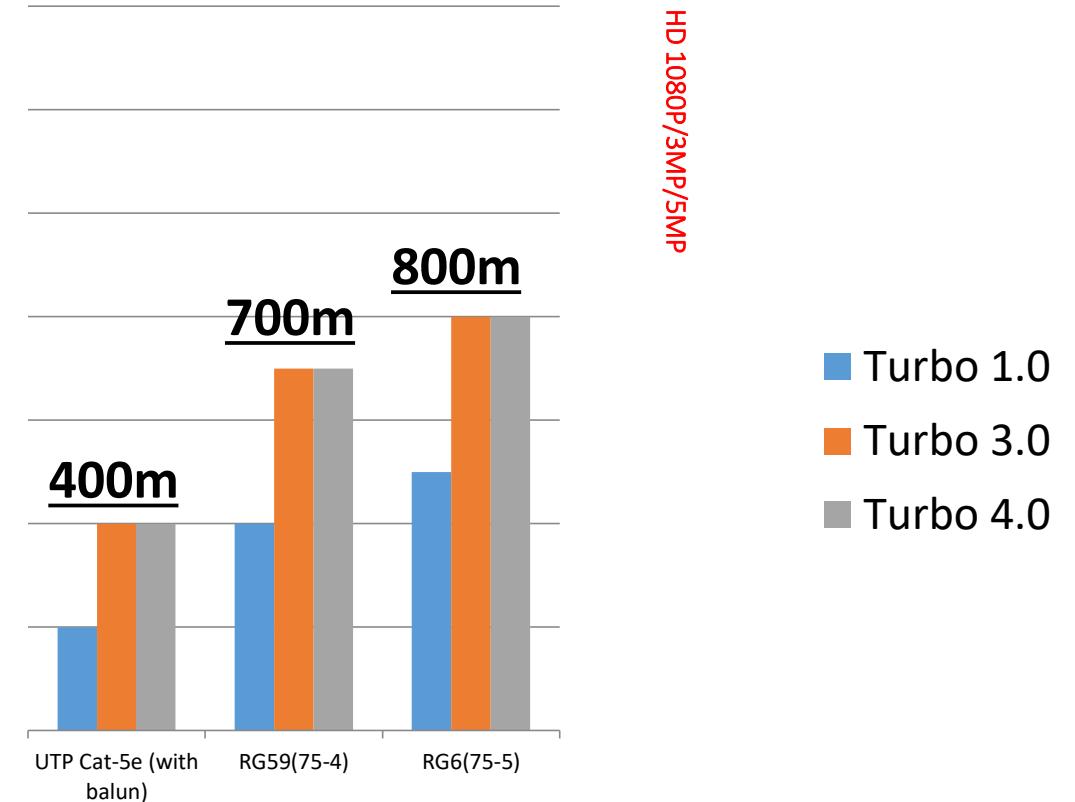
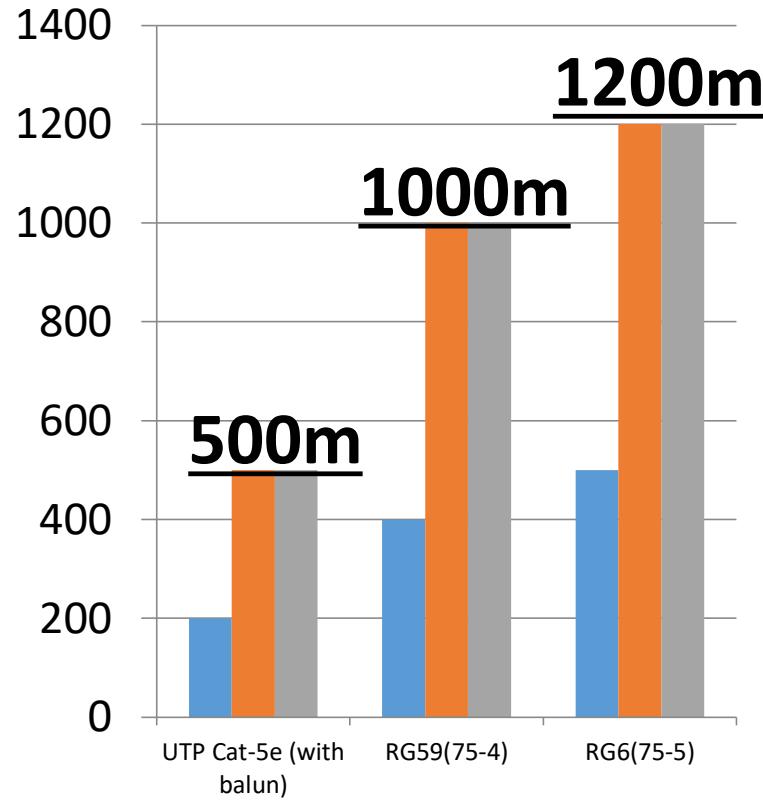
HDTVI (High Definition Transport Video Interface)

Meet HD TVI Standard, Open Technology

----- Coaxial Cable Based High Definition Video Transmission

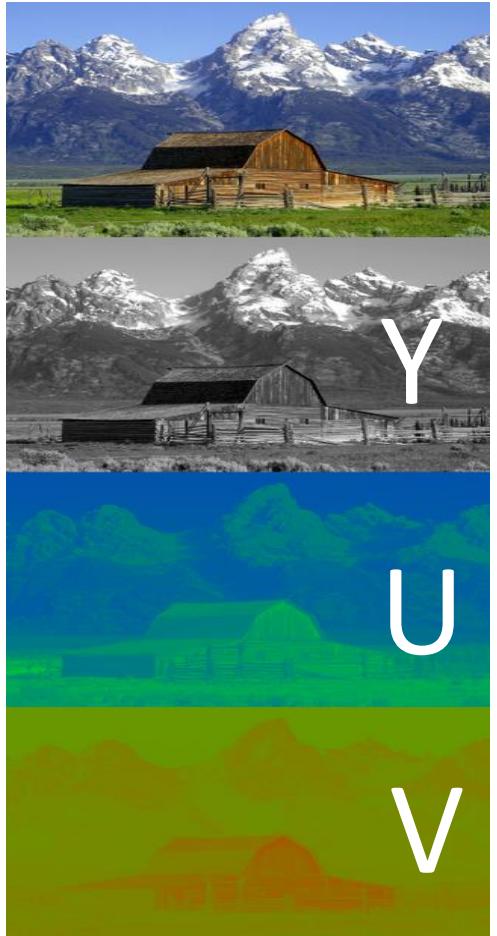
- **High Definition:** 720P 25/30fps; 1080P; 3MP, 5MP, 8MP.....
- **Transmission media :** RG59/RG6/UTP
- **Low-frequency signal, long transmission distance and anti-interference performance**
- **Up the coax, two way control**

Long Transmission Distance



- Turbo 1.0
- Turbo 3.0
- Turbo 4.0

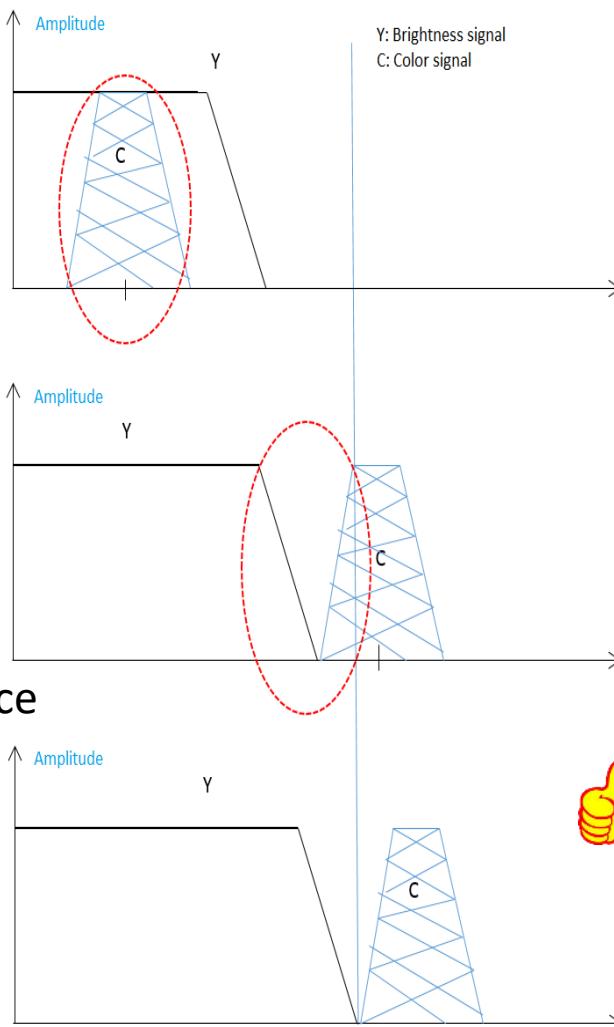
HDTVI Principle -- YUV



An image along with its Y, U, and V components respectively

Luminance

Chrominance



AHD

Brightness\color not separated,
Narrow bandwidth

CVI

Brightness\color separated,
Narrow bandwidth



TVI

Brightness\color separated,
wider bandwidth
better definition

1080P/4M Lite Technology



1080P Lite



1080P

	Resolution	Visual Effect	Bitrates
720P	1280*720	700 TVL	2Mb
1080P Lite	960*1080	900 TVL	2Mb
1080P	1920*1080	1000 TVL	4Mb

Ultra HD 4K

Offering more details and better visual experience for users.



1080p



5 MP



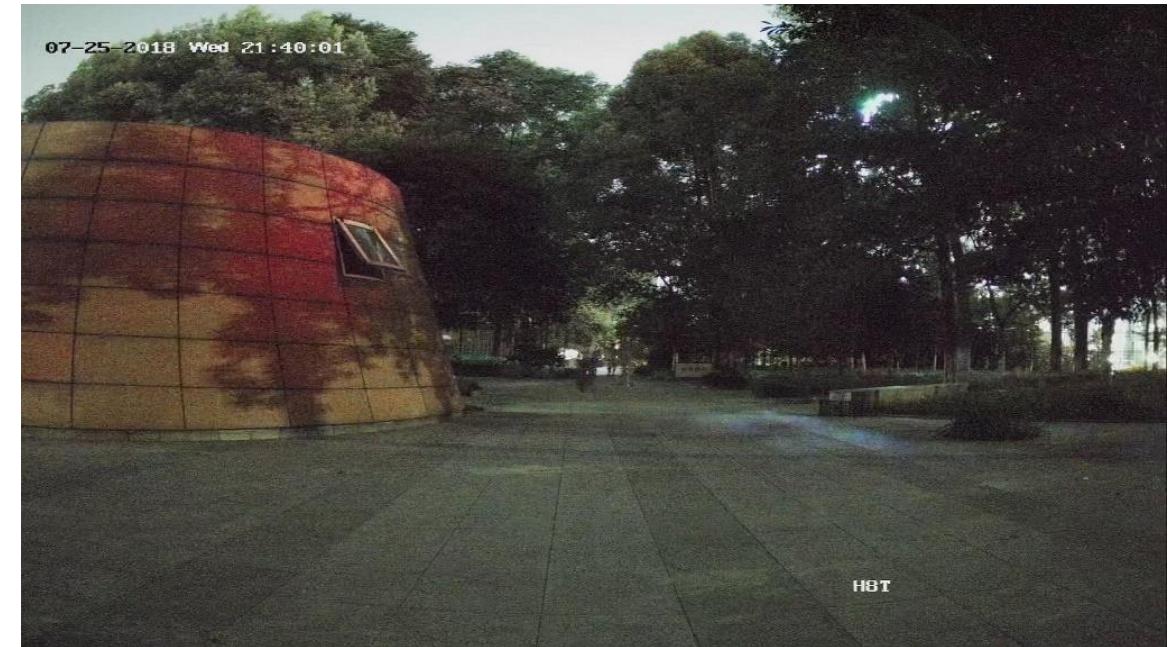
4K

Ultra-low Light

Guaranteeing colorful images even in dim light environment.



Conventional camera



Camera with ultra-low light technology
(0.003 lux)

130 dB True WDR

Benefits from true WDR, environments with strong backlight won't be troubles.



Sensor Data	10 bit
Gamma Adjustment	8 bit
Sampling Rate	4:1 or 8:1



12 bit	✓ Higher greyscale
16 bit	✓ Less data loss
1:1	✓ Minute contrast

Available in Pro series cameras.

Better imaging performance

PoC Technology

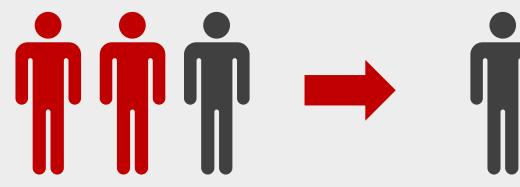
- ★ Transmits both HD video and power over the same coaxial cable
- ★ Unique built-in design
- ★ Patented Hikvision technology



★ One cable solution
Saving wiring costs



★ Simple installation
Saving labor costs

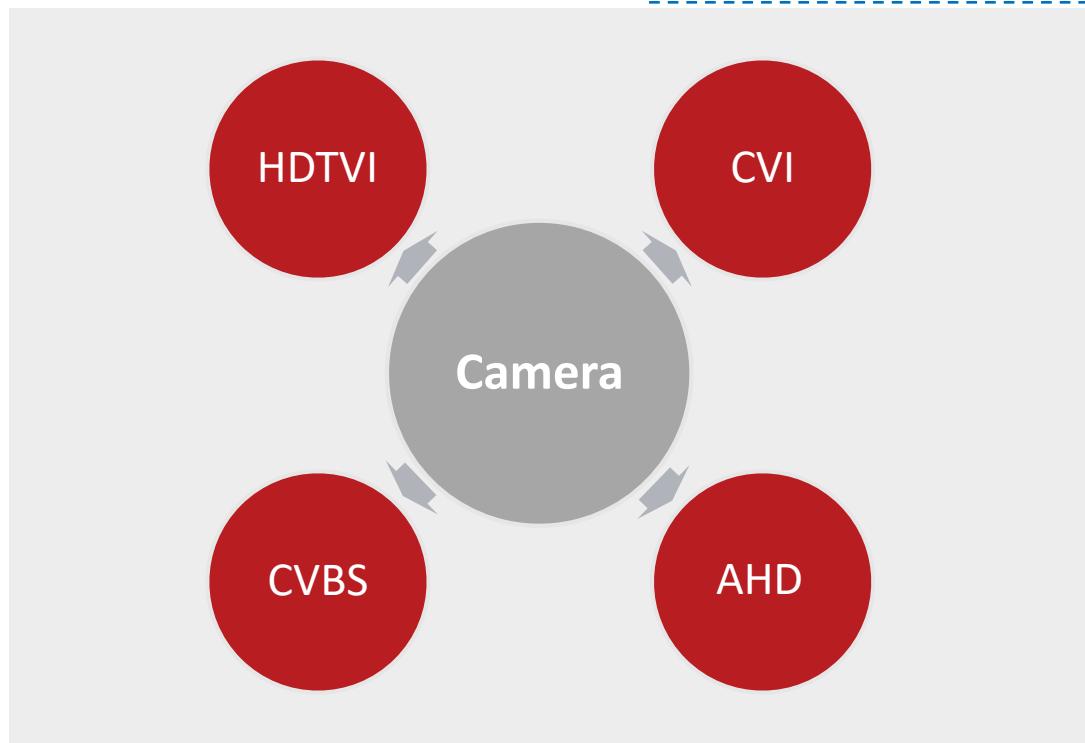


★ Simple maintenance
Saving maintenance time and costs



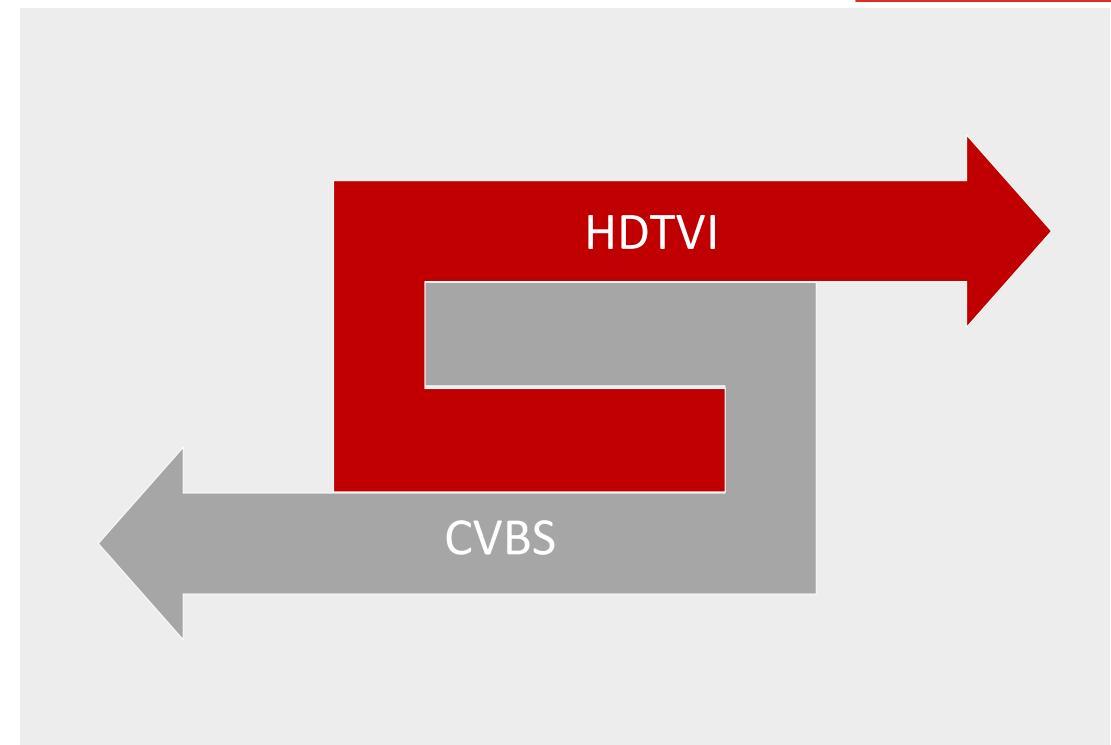
Multi-signal Output

4 in 1



Signal output **switchable**

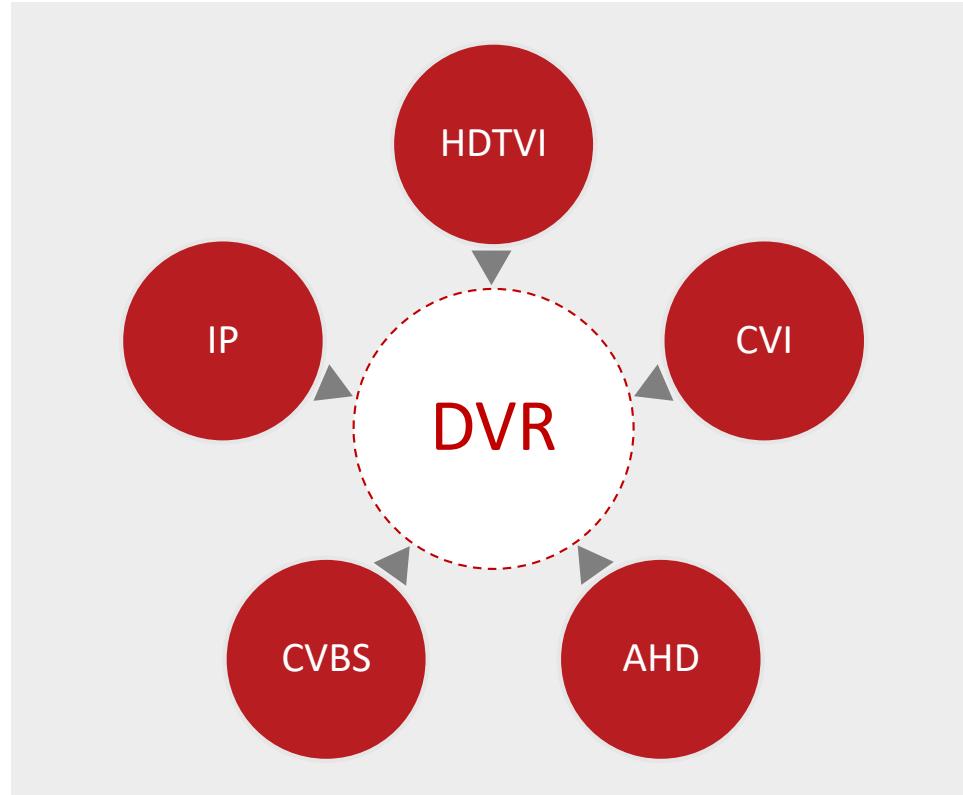
Dual-output



HD/SD output simultaneously

Hybrid Ability

5 in 1 Self-adaptive signal input



IP camera access capability

- ☆ Enhanced default IP camera access capability
- ☆ Increase IP camera channels by disabling analog channels

IP cameras input resolution

HQHI-K up to **6** MP

HUHI-K up to **8/12** MP

HTHI-K up to **8/12** MP

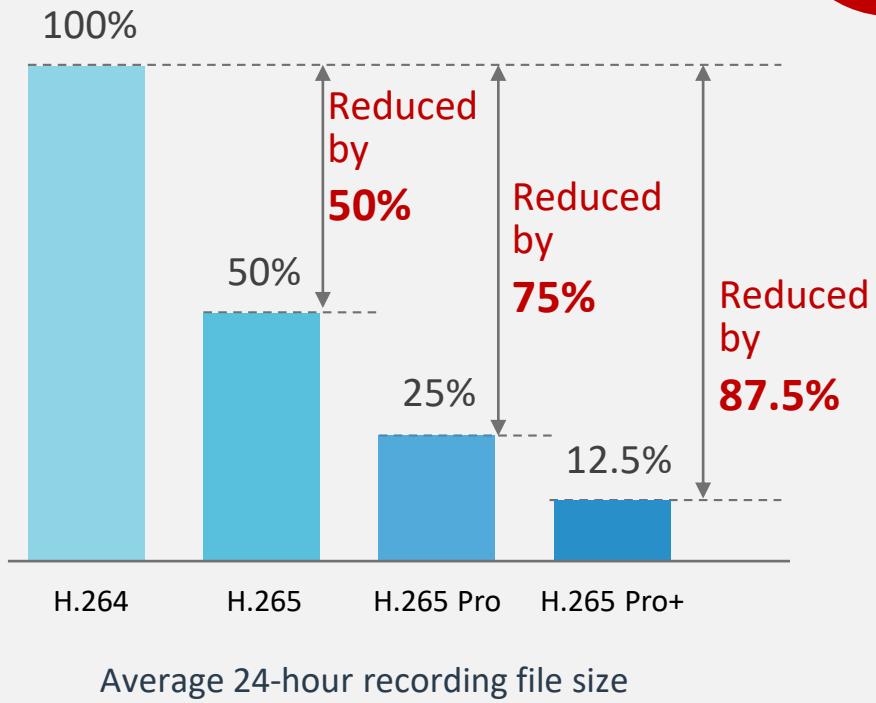


Super compression

H.265 Pro+/H.265 Pro/H.265

Under the same storage capacity, time of video recording is much longer.

◆ Video file size comparison



8 Times

◆ Storage Saving

Storage needed for ten 1080p cameras for 1 month:

H.264	13 TB
H.265	6.5 TB
H.265 Pro	3.25 TB
H.265 Pro+	1.6 TB

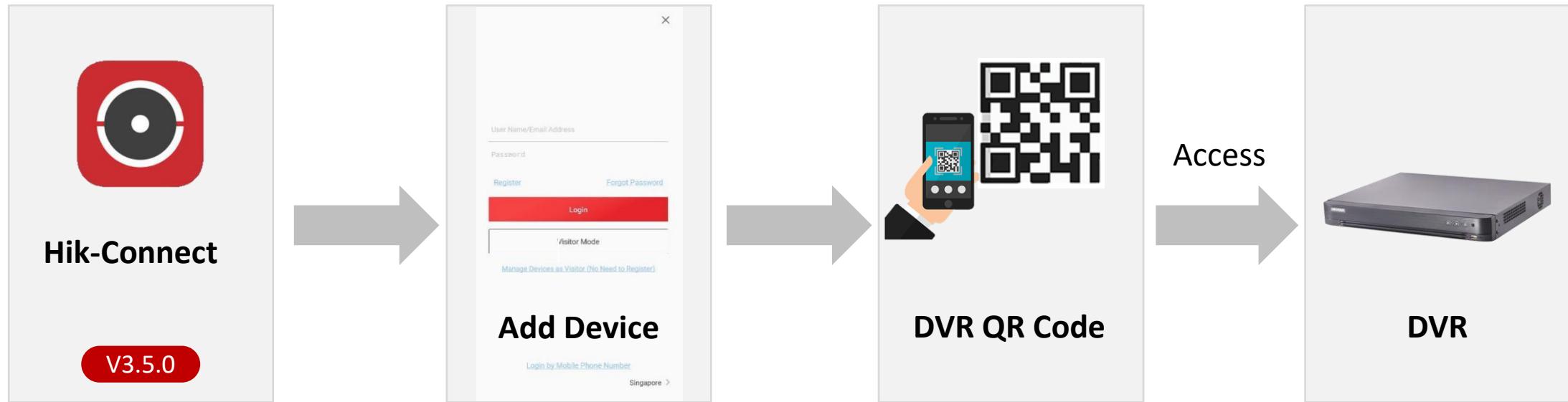
◆ Extremely light bandwidth

Number of 1080p cameras connected at 20 Mb bandwidth:

H.264	...	5-ch
H.265	...	10-ch
H.265 Pro	...	20-ch
H.265 Pro+	40-ch	

Hik-Connect Access

Available models: K Series V3.5.37 / HGHI-F V3.4.89

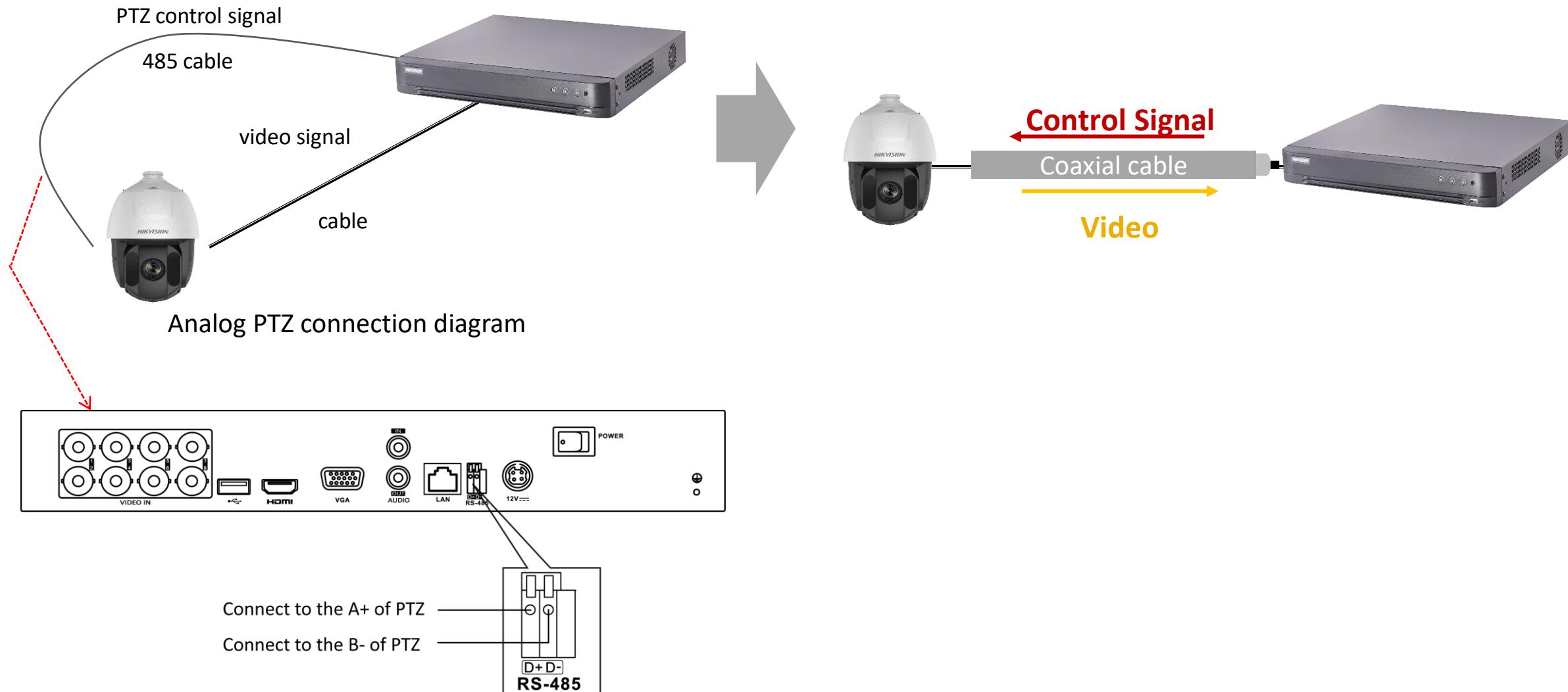


By scanning the DVR QR code with Hik-Connect, you can access and operate the DVR.

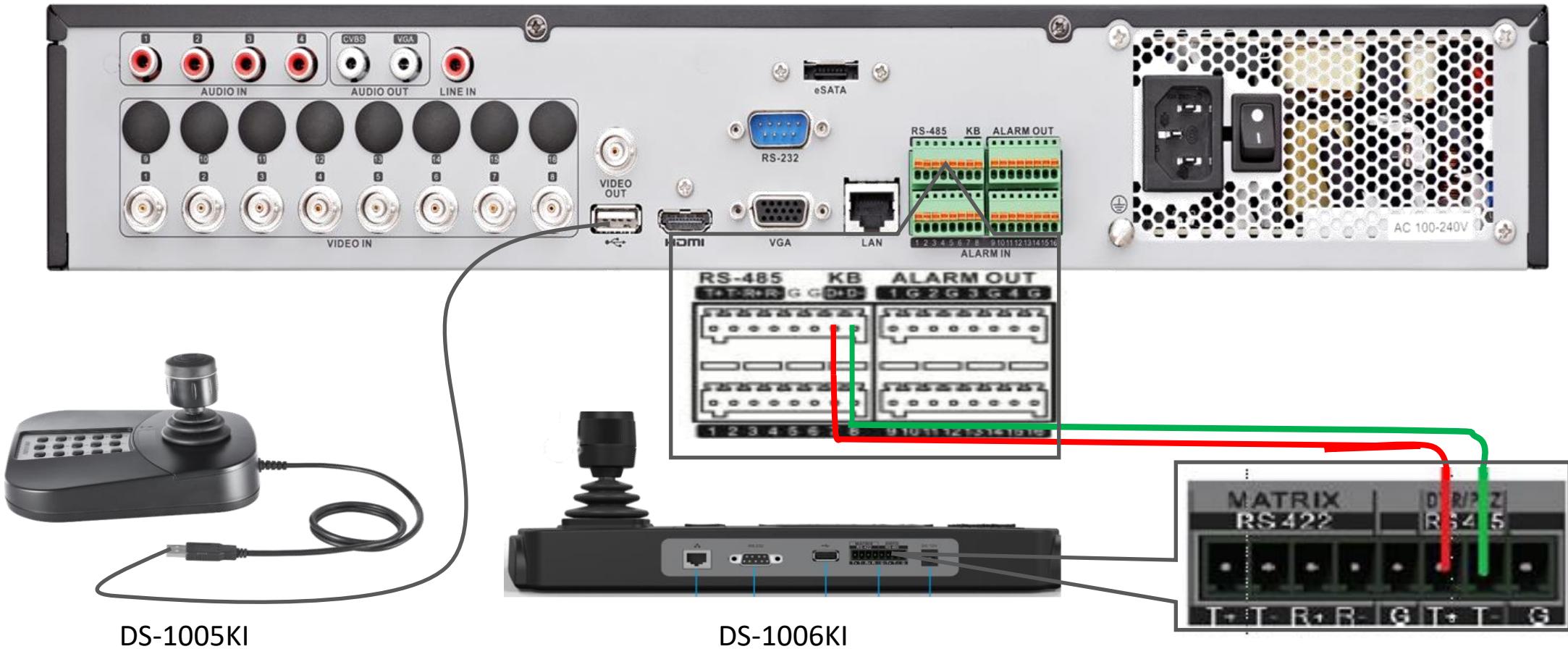
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PTZ Control Solution



Add Keyboard to Turbo DVR to Control PTZ



Smart Event - VCA

Analog Channel



Line crossing detection



Intrusion detection

IP Channel



Line crossing detection



Intrusion detection

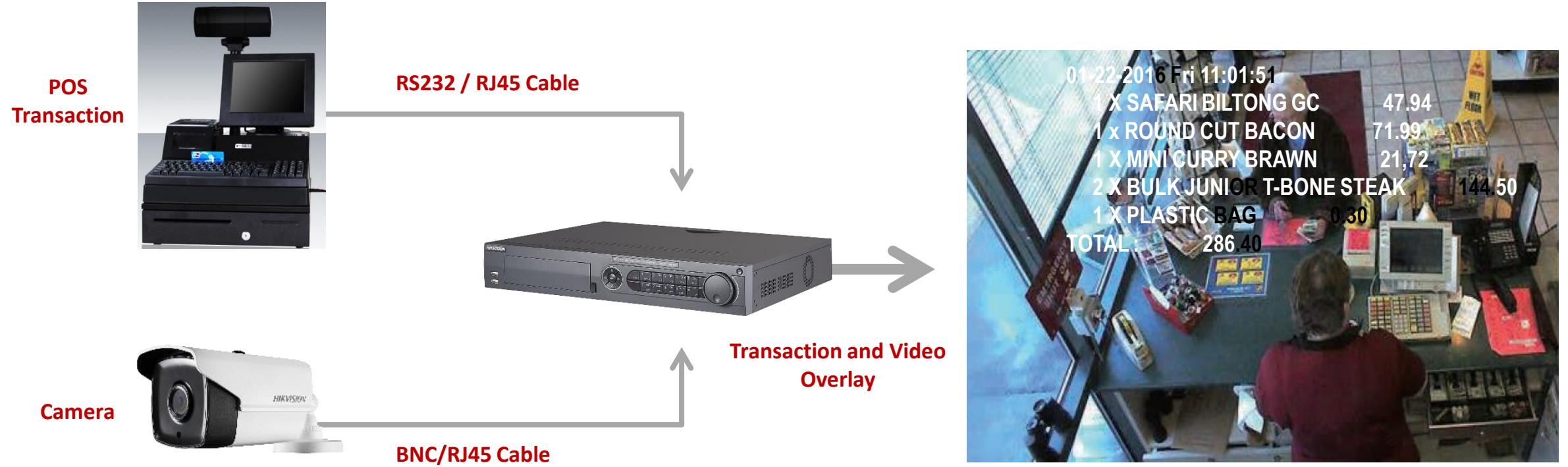


Unattended Baggage/Object Removal



Region Exiting/Entrance

POS Solution



POS Solution - Configuration



4K Solution



8MP
Turbo HD Cameras

8MP = 4K Resolution



Turbo HD 4.0 DVRs

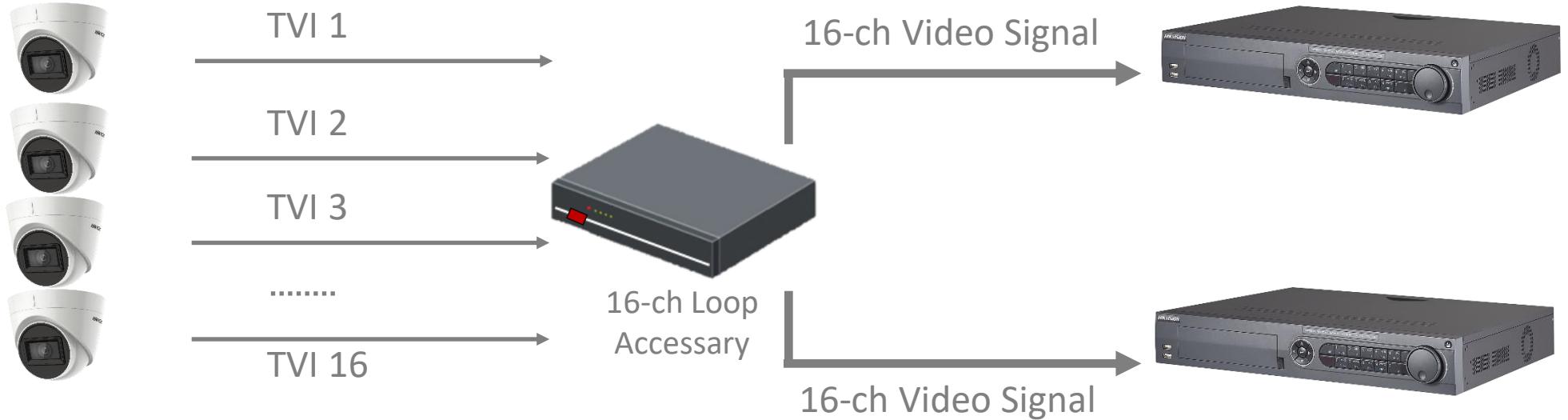


HDMI

4K Monitor

Images in brilliant HD

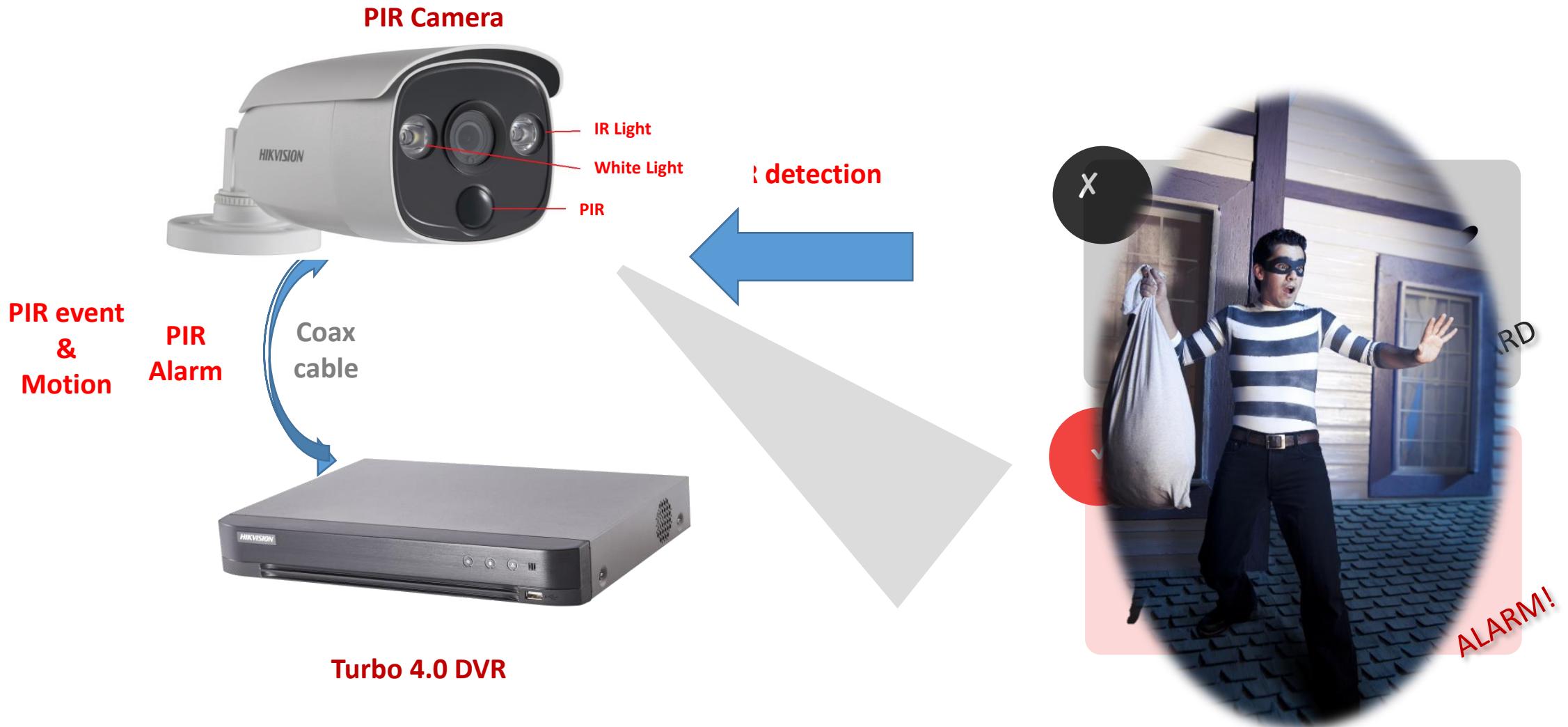
Loop Solution



**16-ch Loop Accessory
DS-1LP16I**

16-ch loop accessory, video signal distribution

PIR Solution



PIR Solution - Demonstration



White Light Warning

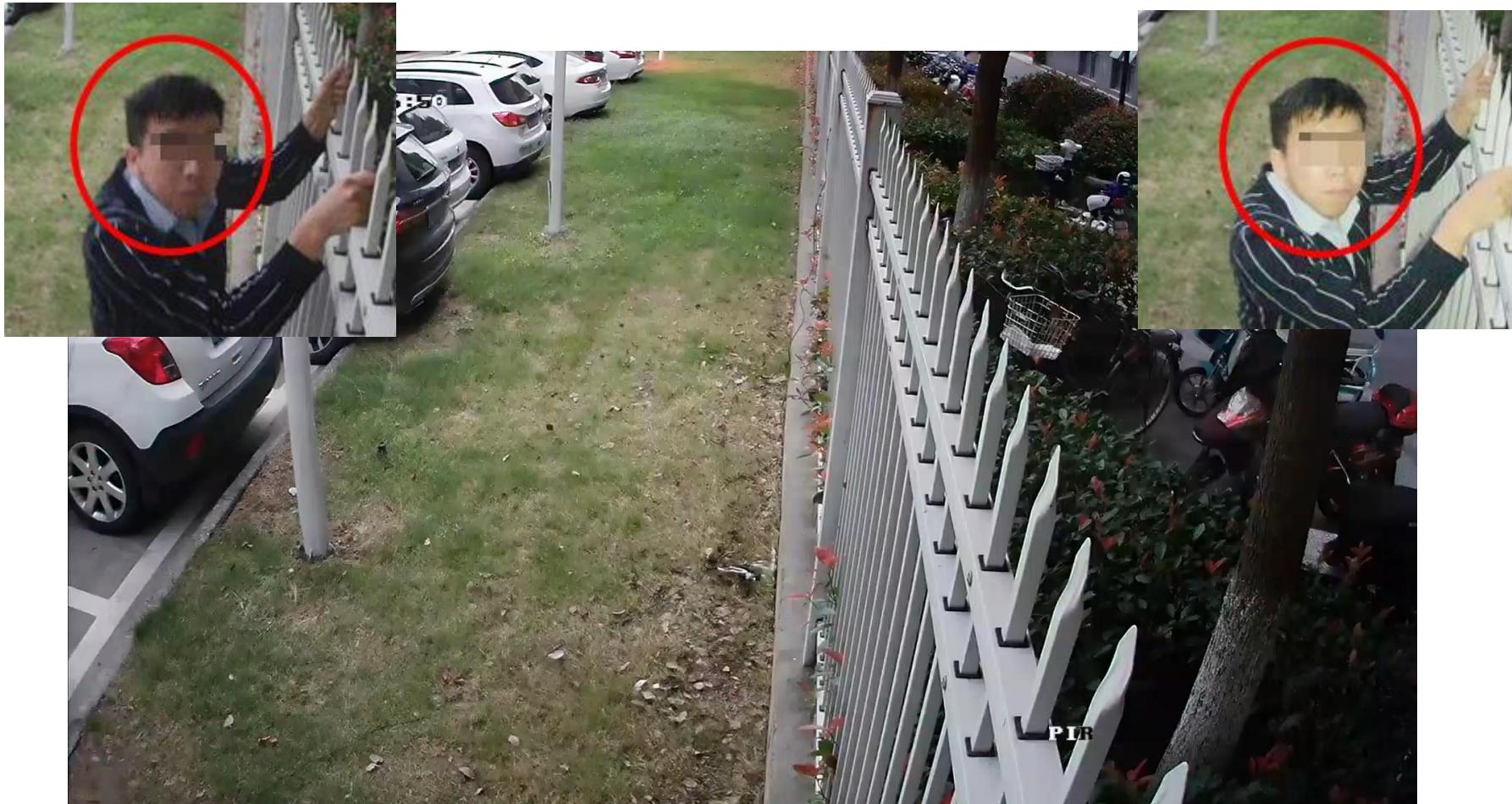


Intrusion Stop



Crime Prevention

PIR Solutions - Demonstration



White Light Warning

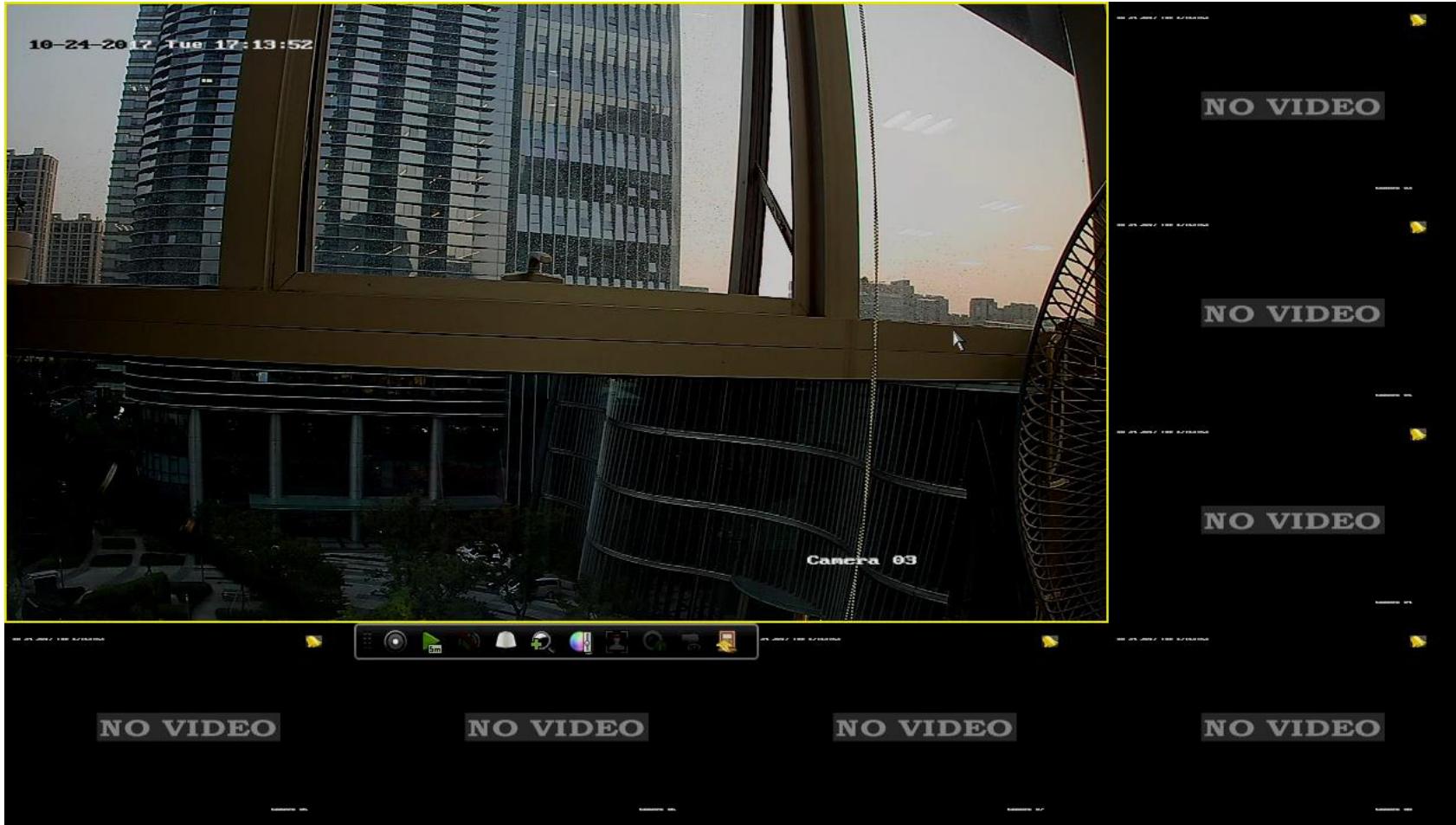


Unconscious Glance



Facial Information

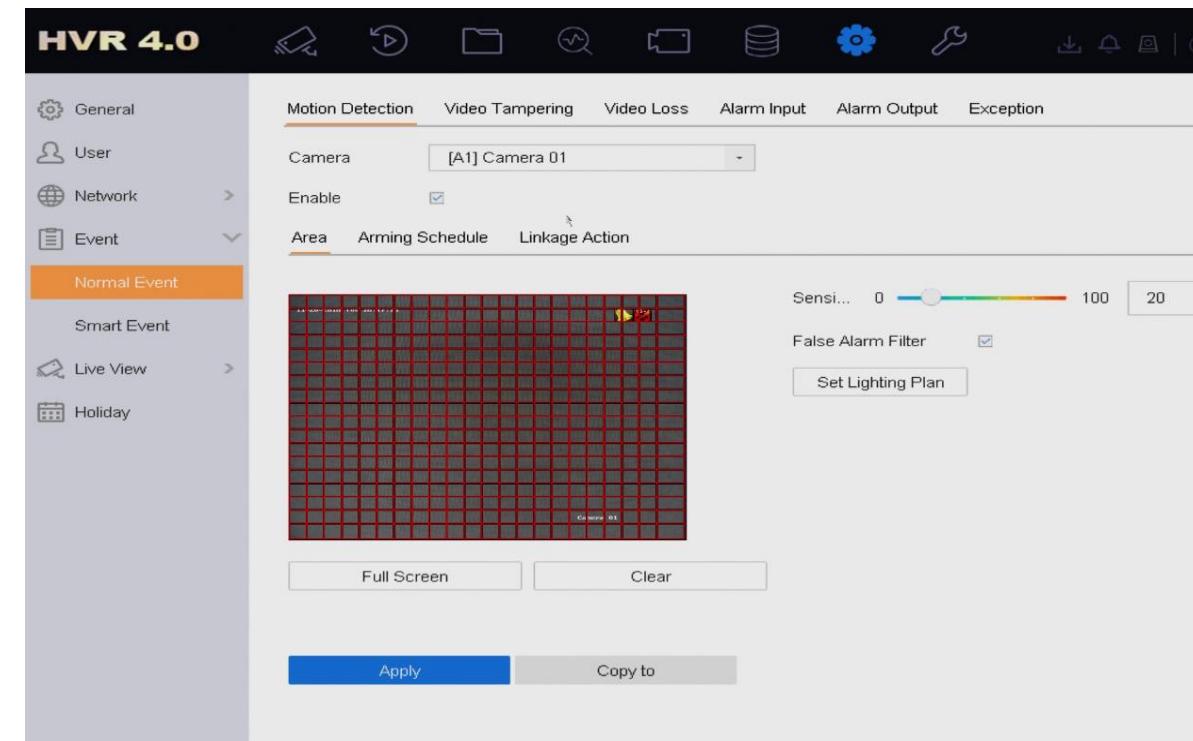
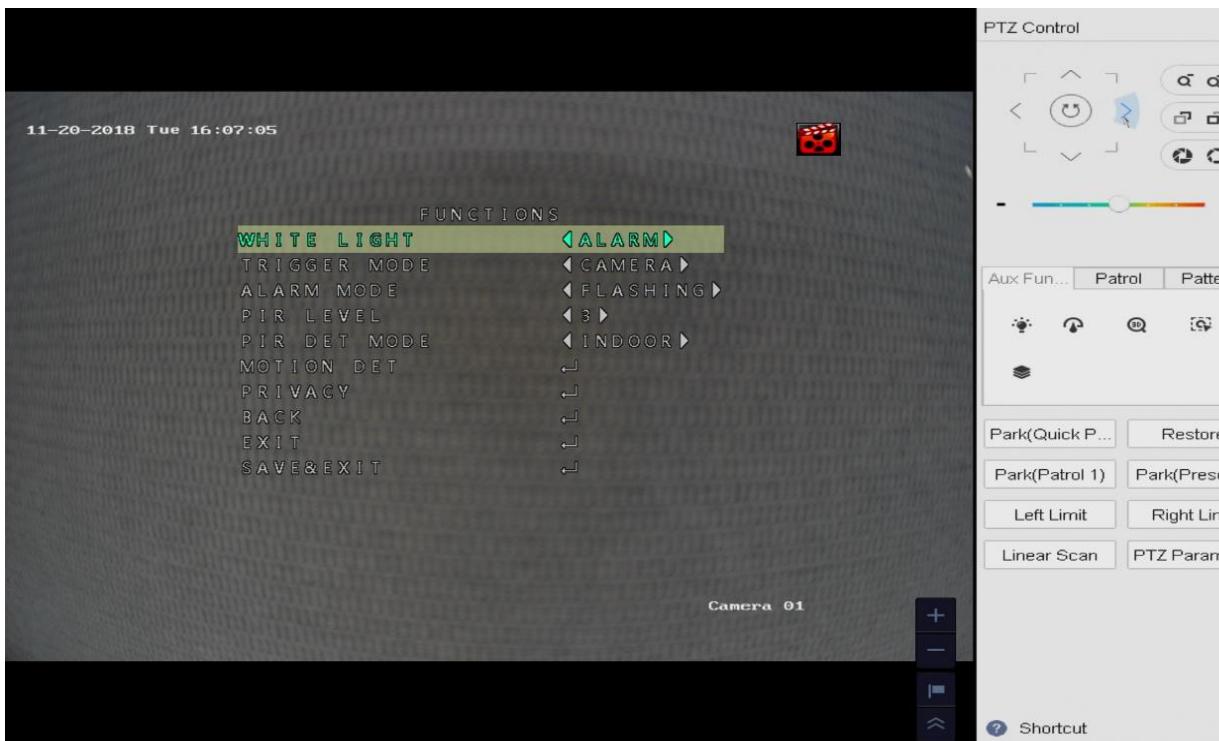
PIR Solution - Demonstration



**Object Moving:
No alarm triggered**

**Human body moving:
Motion alarm triggered**

PIR Solution - Configuration



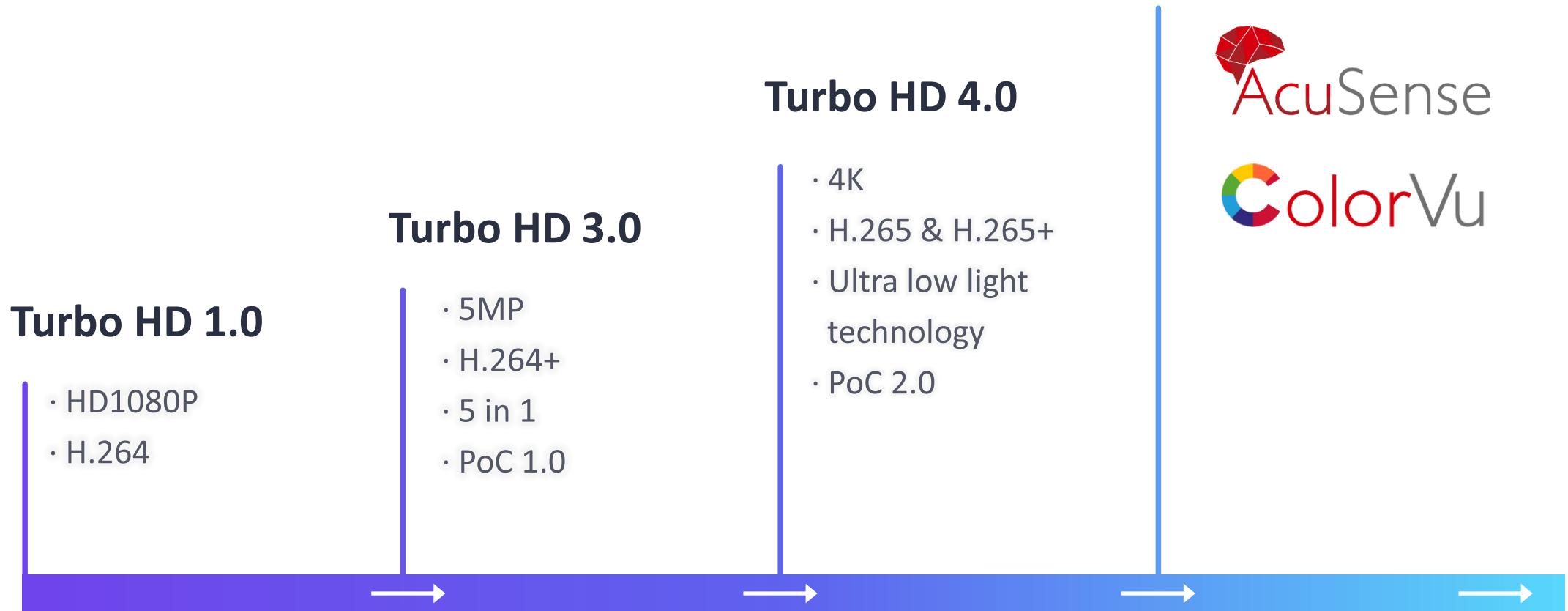
- > IRIS Button> OSD MENU
- > WHITE LIGHT> ALARM
- > TRIGGER MODE> DVR

- Enable Motion Detection

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Turbo HD Development





Accurate Sense, the intelligent analyze technology based on deep learning algorithm improves VCA accuracy.



AcuSense Turbo DVR



Colorful view, the 24/7 chromatic imaging technology improves video surveillance quality.



ColorVu Turbo Camera

ColorVu Camera

Advanced lens

More light, brighter images, and balanced exposure.



High-sensitivity

Excellent performance and clear imaging in ultra low-light environment.

Friendly lighting

With no light environment, the camera has supplemental light to guarantee colorful image.

ColorVu Camera

The 24/7 chromatic imaging technology improves video surveillance quality.



Conventional camera

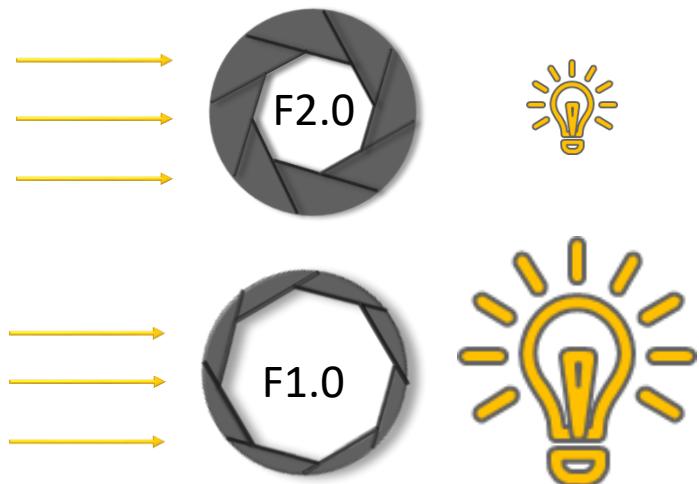


Hikvision ColorVu camera

Advanced lens

F1.0 super aperture

lets more light into the lens
so that image can be more brighter.



The amount of light entering aperture **increased 4X**

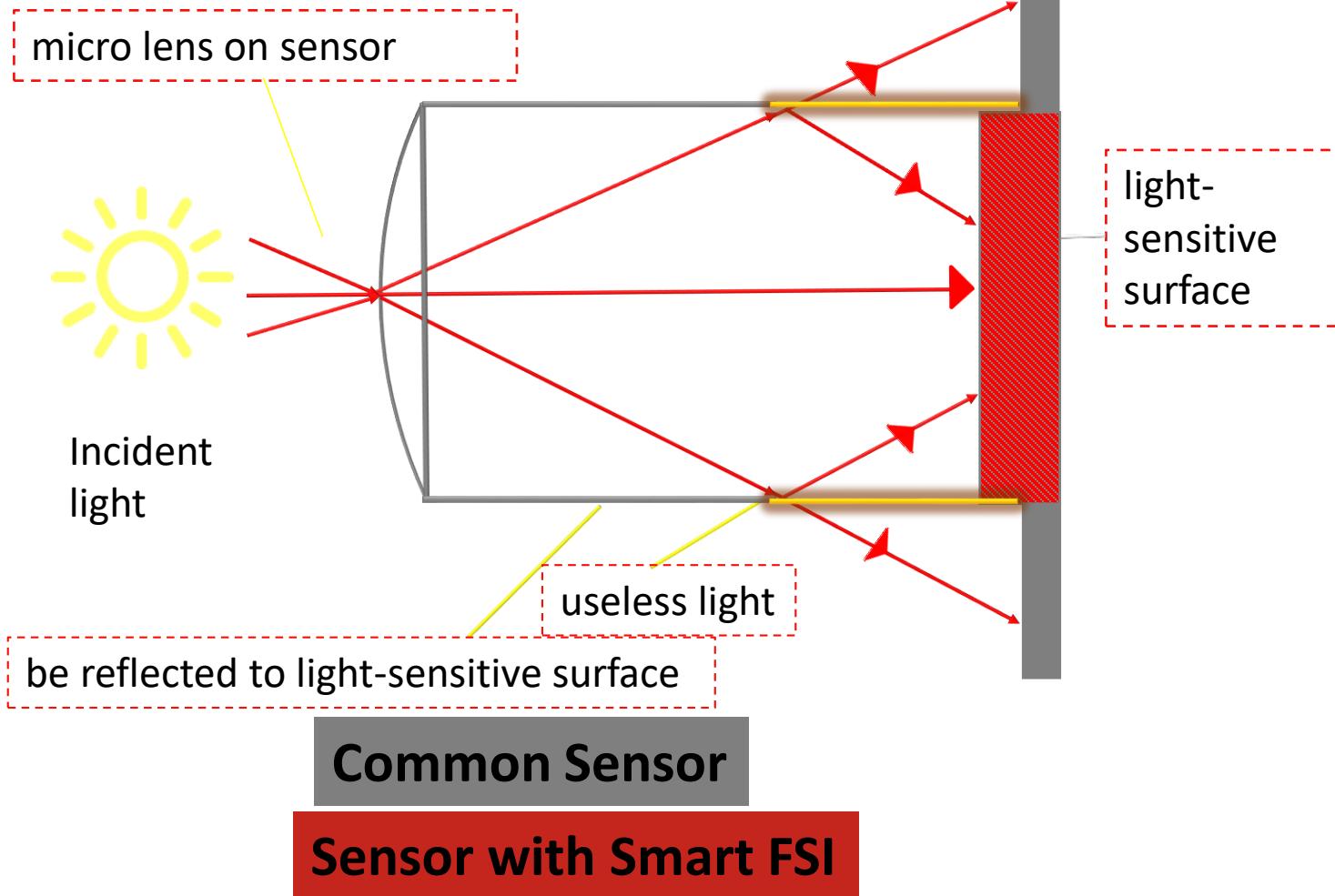
BBAR coating & ED Optical glass

- The Broad-Band Anti-Reflection coating helps to reduce ghost image.
- The Extra-Low Dispersion optical glass can efficiently keep image's sharpness and color saturation.



ColorVu Camera

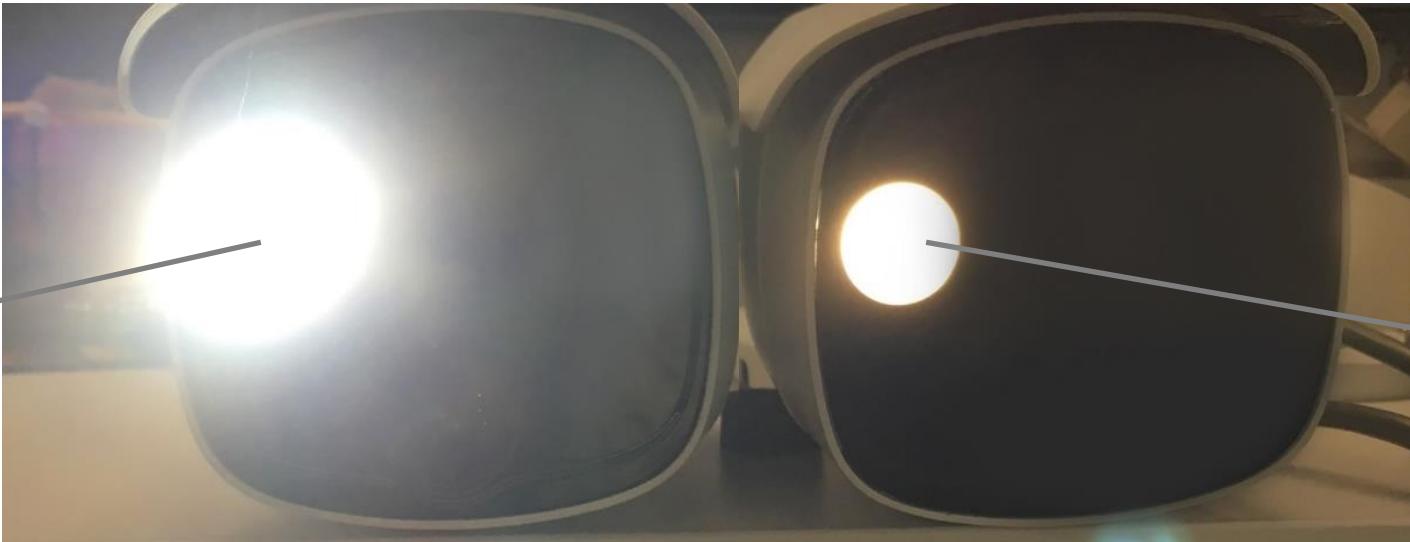
High-sensitivity



Sensor has extraordinary photovoltaic conversion efficiency. It adopts **Smart FSI technique**-new light collection structure that can greatly improve the utilization of light.

Further more, **self-adaptive 3D DNR algorithm** on ISP guarantees imaging quality.

Friendly Lighting



Common
supplemental
lighting

Warm
supplement
light with anti-
glare diffusion
lens

Environmental-friendly, **soft** and warm supplemental lighting

ColorVu Cameras

Comparison test in a darkroom (0 lux) , with supplement light opening



Conventional HD1080p
Camera



Ultra low light HD1080p
Camera



ColorVu Turbo Camera

- ✓ soft and warm supplemental lighting



24/7 colorful imaging

1080p / 5 MP

Ultra-low light

0.0005 lux

Warm light

True WDR

130 dB

3D DNR

IP67, 4 in 1



DS-2CE72DFT-F
DS-2CE72HFT-F

Turret: WL 20 m



DS-2CE10DFT-(P)F
DS-2CE10HFT-F

Mini Bullet: WL 20 m



DS-2CE12DFT-F
DS-2CE12HFT-F

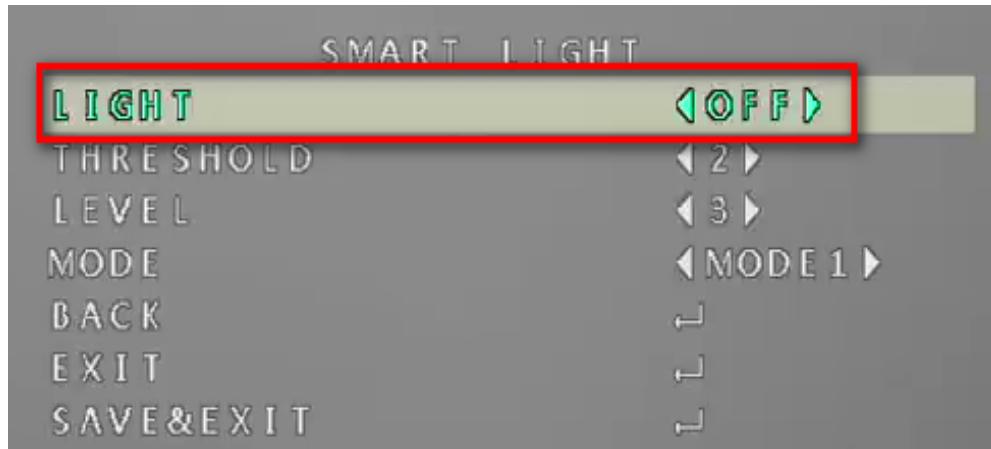
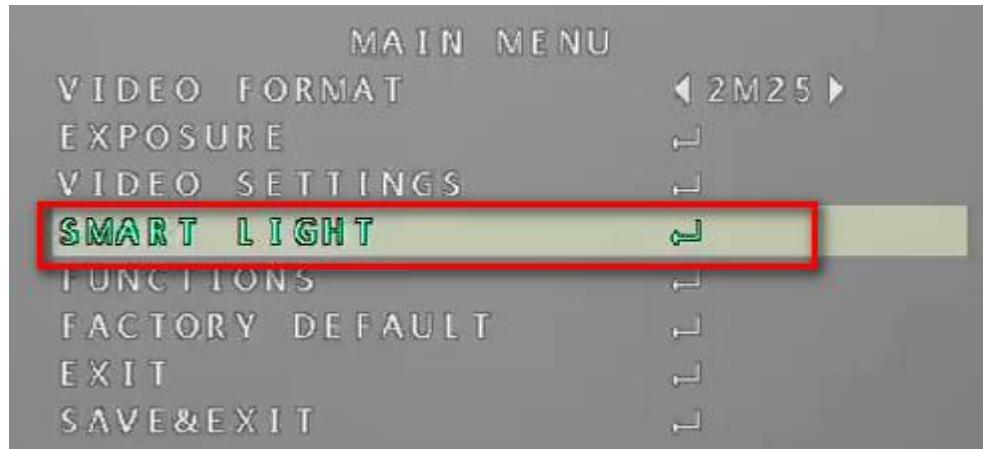
Bullet: WL 40 m

Fixed Lens



Configuration

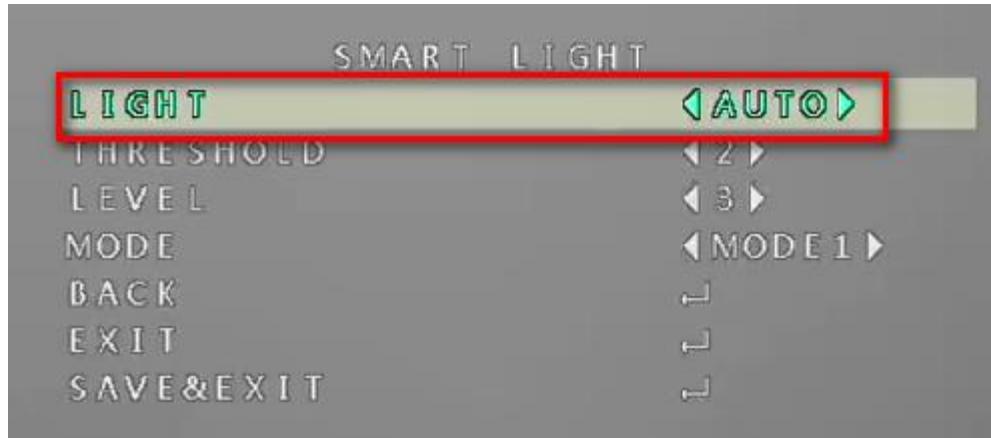
DFT ColorVu camera



PART 1: Smart Light Configuration

Go to Main Menu- Smart Light to turn on/off the supplement light.

The supplement light is set to OFF as default. You can set it to AUTO





Configuration DFT ColorVu camera



The screenshot shows the DVR local configuration interface for a ColorVu camera. The main window has tabs for 'Area Settings', 'Arming Schedule', and 'Linkage Action'. The 'Linkage Action' tab is selected, indicated by a red box around its title.

In the 'Linkage Action' tab, there are several sections:

- Normal Linkage:** Contains checkboxes for 'Normal Linkage', 'Trigger Alarm Output' (which is checked and highlighted with a red box), 'Trigger Channel' (unchecked), and 'PTZ Linkage' (unchecked).
- Full Screen Monitor:** Contains checkboxes for 'Full Screen Monitor' (checked) and 'Local->1' (checked and highlighted with a red box).
- Audible Warning:** Contains a checkbox for 'Audible Warning' (checked).
- Notify Surveillance:** Contains a checkbox for 'Notify Surveillance' (checked).
- Send Email:** Contains a checkbox for 'Send Email' (checked).
- Upload Captured P...** Contains a checkbox for 'Upload Captured P...' (checked).

Trigger Alarm Output: A sub-menu is open, showing 'CAM1->1(Light)' and 'Local->1'. The 'Local->1' option is checked and highlighted with a red box. A gear icon is also present in this menu.

Arming Schedule: A detailed schedule grid for 'Local->1' is shown, spanning from hour 0 to 24 across days Mon-Sun. The grid is filled with blue, indicating active timeslots. The 'Continuous' button is selected.

Bottom Buttons: 'Copy to', 'Clear', and 'Apply' buttons are located at the bottom right of the configuration window.

*Notice: please confirm the event output in "Live View" settings menu is the same with the real event output.

PART 2: Linkage Action Configuration

In DVR local configuration interface configuration-Event-Smart Event, you will find there is a new option in the linkage action of all the events, which is the flashing light alarm.

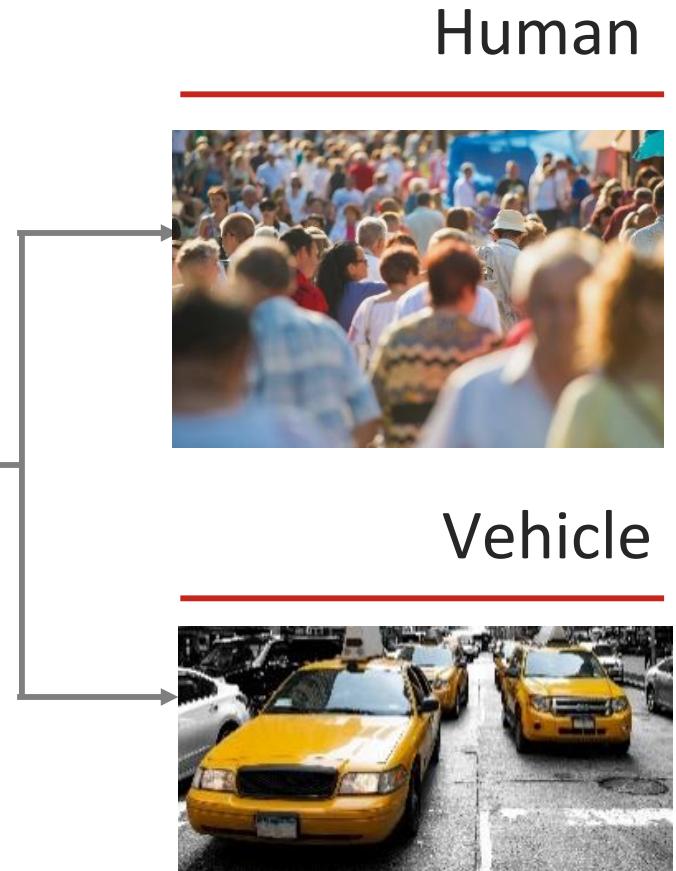


— Accurate smart analysis based on deep learning technology.



Smart Analysis

AcuSense
Technology



False Alarm Reduction

Quick Target Search



AcuSense False Alarm Filter



Images &
alarm
messages



**Conventional
DVR**
AcuSense
Turbo DVR

Alarm
Triggered



False alarms



AcuSense False Alarm Filter



-  **Human Target Detects** Triggered!
-  **Vehicle Target Detects**
-  **Shaking Leaves Detects** Filtered!
-  **Non-human(Vehicle) Target**



AcuSense False Alarm Filter

Configuration

The screenshot shows the HVR 4.0 software interface under the 'Smart Event' tab. In the top navigation bar, the 'Event' section is expanded, and 'Smart Event' is selected. Under 'Event', there are three sub-options: 'Area Settings', 'Arming Schedule', and 'Linkage Action'. The 'Area Settings' tab is active, displaying a live video feed from camera D1. A blue line crossing the frame is labeled 'Line Crossing' with points 'A' and 'B' at its ends. Below the video, there are settings for 'Arming Area' (set to 1), 'Direction' (set to 'A↔B'), and 'Sensitivity' (set to 50). At the top of the screen, several detection types are listed: Face Detection, Vehicle Detection, Human Body, Line Crossing (which is highlighted in blue), Intrusion, Region Enter, Region Exit, Unattended, and Object Recognition. To the right of these buttons are checkboxes for 'Save VCA Picture' and 'Enable Smart Analysis', both of which are checked and highlighted with red boxes. A large blue arrow points from the 'Event Type' section of the search interface on the right towards the 'Line Crossing' settings here.

You can choose between 3 modes:
Human, Vehicle or Human& Vehicle.

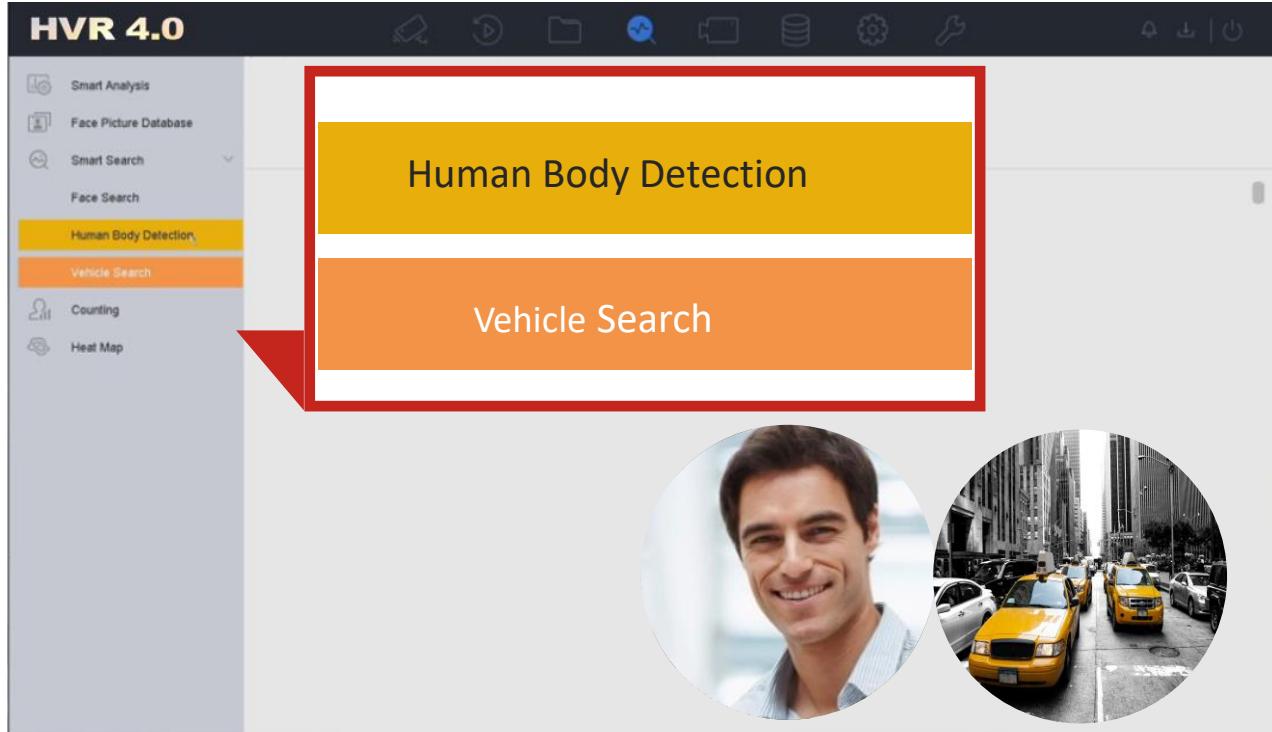
The screenshot shows the HVR 4.0 software interface under the 'File Management' tab. In the top navigation bar, the 'Event' section is expanded, and 'File Management' is selected. Under 'Event', there are four sub-options: 'All Files', 'Human Files', 'Vehicle Files', and 'File Status'. The 'All Files' tab is active. On the right side of the screen, there is a search bar with the following fields: 'Time' (set to 'Custom' with dates '2018-05-23 00:00:00' to '2018-05-23 23:59:59'), 'Camera' (set to '[All] Camera'), 'Tag' (empty), and 'Event Type' (highlighted with a red box and set to 'False Alarm'). Below the search bar, there is a 'Search Condition' button. At the bottom of the screen, there are buttons for 'Empty Conditions', 'Search', and 'Save'.

Go to DVR local GUI → System—>Event—>Smart Event
→ Enable Smart Analysis

Search the filtered false alarms:
Go to File Management —>Event Type—>False Alarm



AcuSense Quick Target Search



Smart

Human/Vehicle recognition
Efficient and valuable data searching

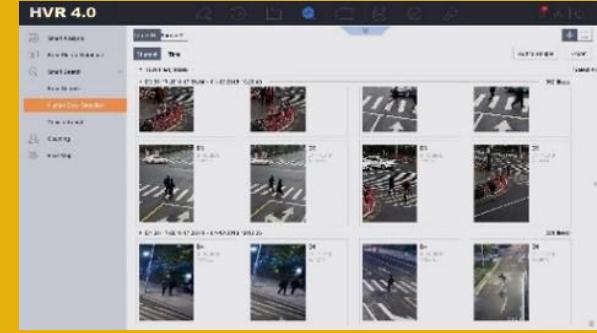
AcuSense Turbo DVRs, which are integrated with deep-learning technology, fast extract interested Human/Vehicles from massive video data in a certain time.



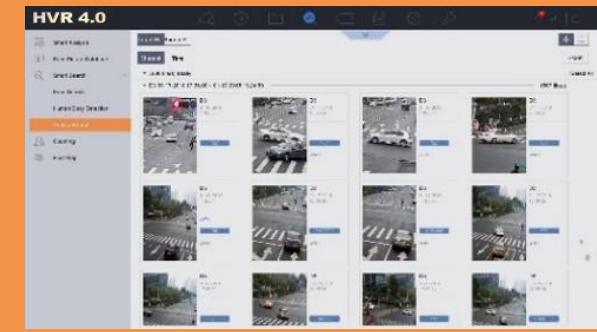
AcuSense Quick Target Search



Human Files Search



Vehicle Files Search





AcuSense Face Detection

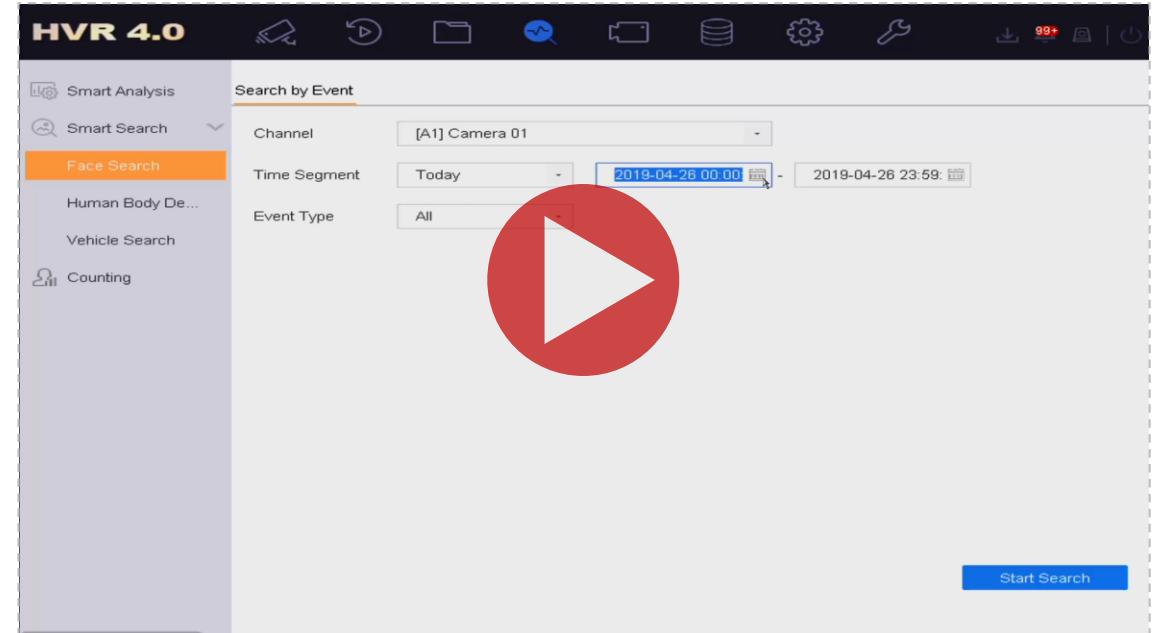
(available for 2nd generation AcuSense DVR)

— Accurate smart analysis based on deep learning technology.

Face Detection



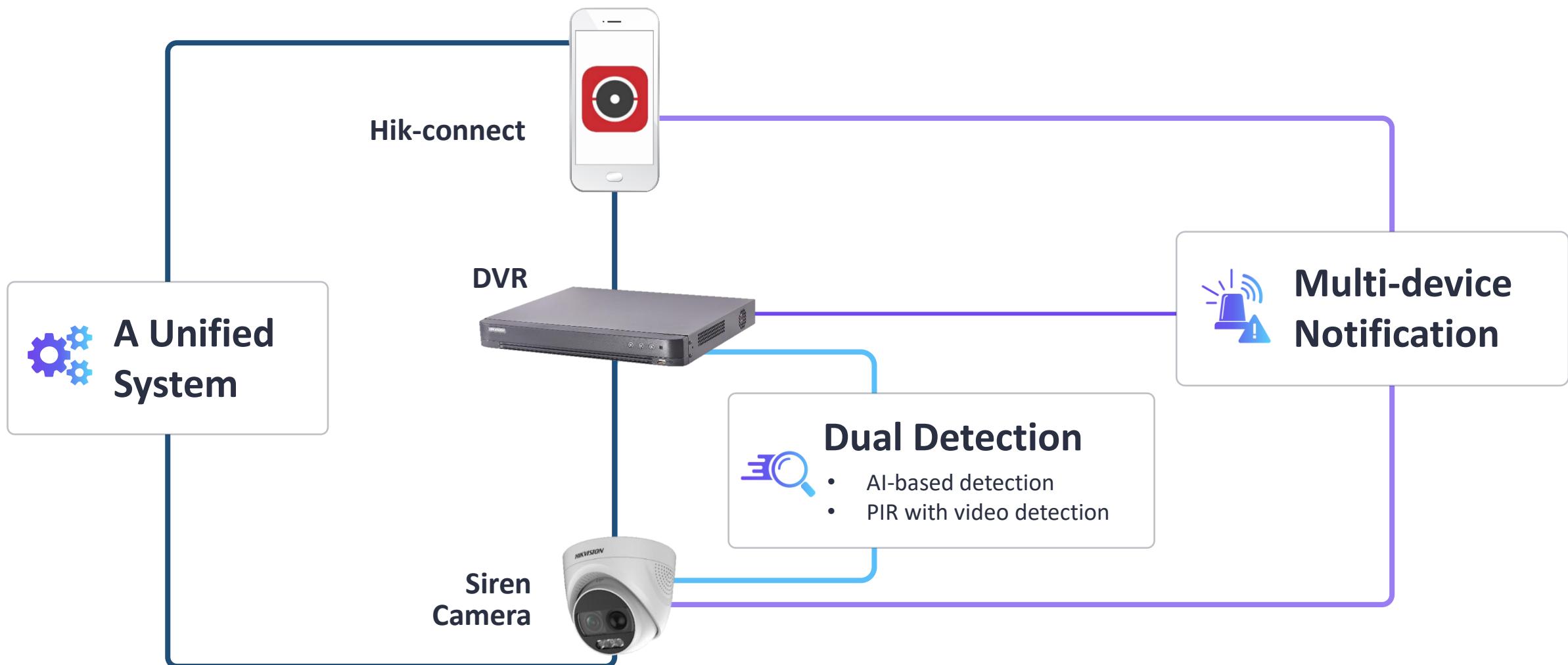
Face Search



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What is Turbo HD X ?





Intrusion Scene



When an intrusion occurs...

Camera Alarm



Built-in
Siren



Red and Blue
Flashlight



Monitoring Center



When an intrusion occurs...

DVR Alarm



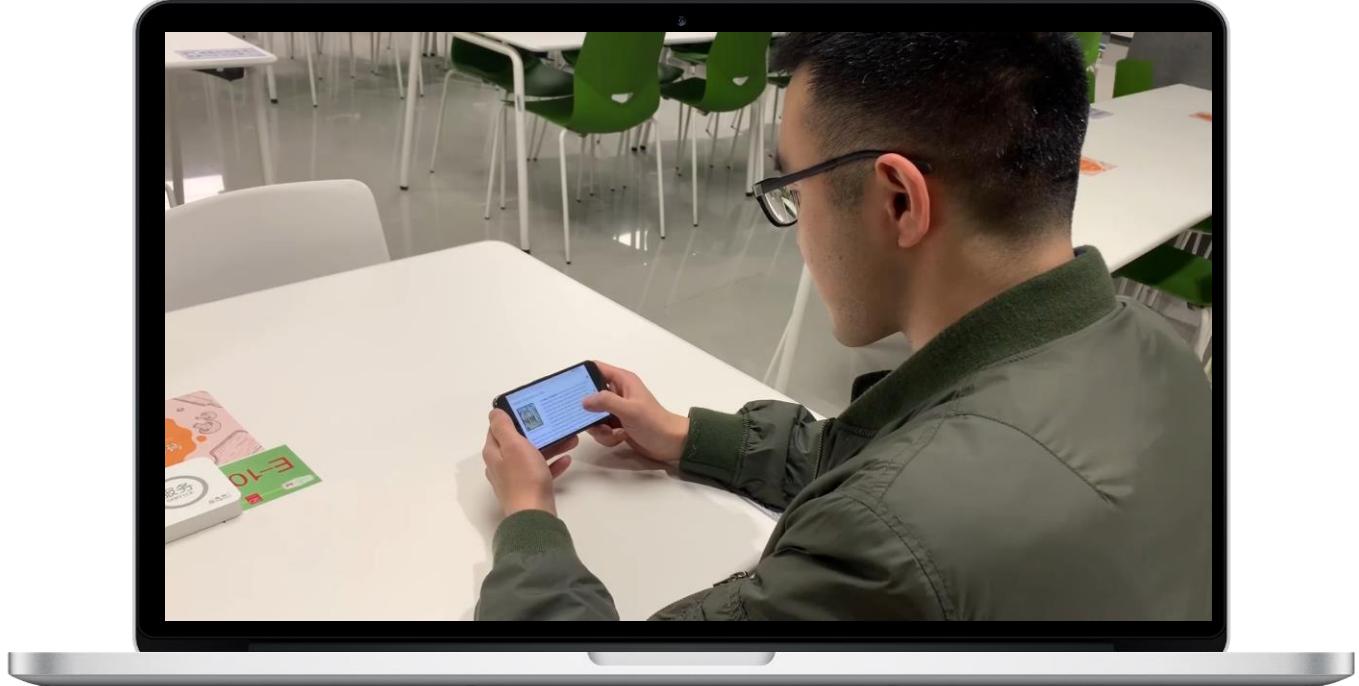
DVR triggers the alarm lamp to notify the security



DVR captures the event evidence



End-user



When an intrusion occurs...

Hik-Connect Alarm



Remote
surveillance



Informing the
end-user in
real-time

Active & Real-time



Active Prevention



Strong light & sound warnings
drive offender away.



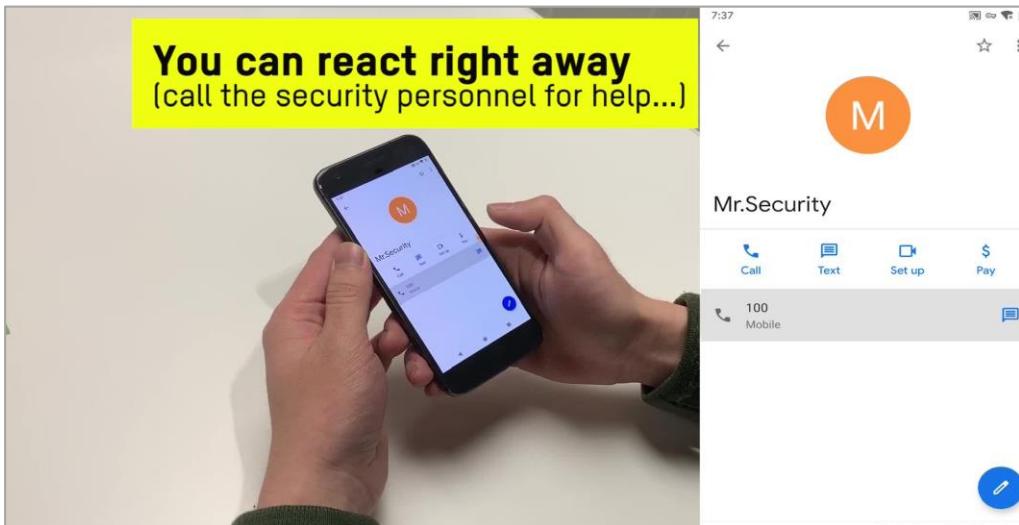
Deterring criminals from
continuing the crime

Active & Real-time

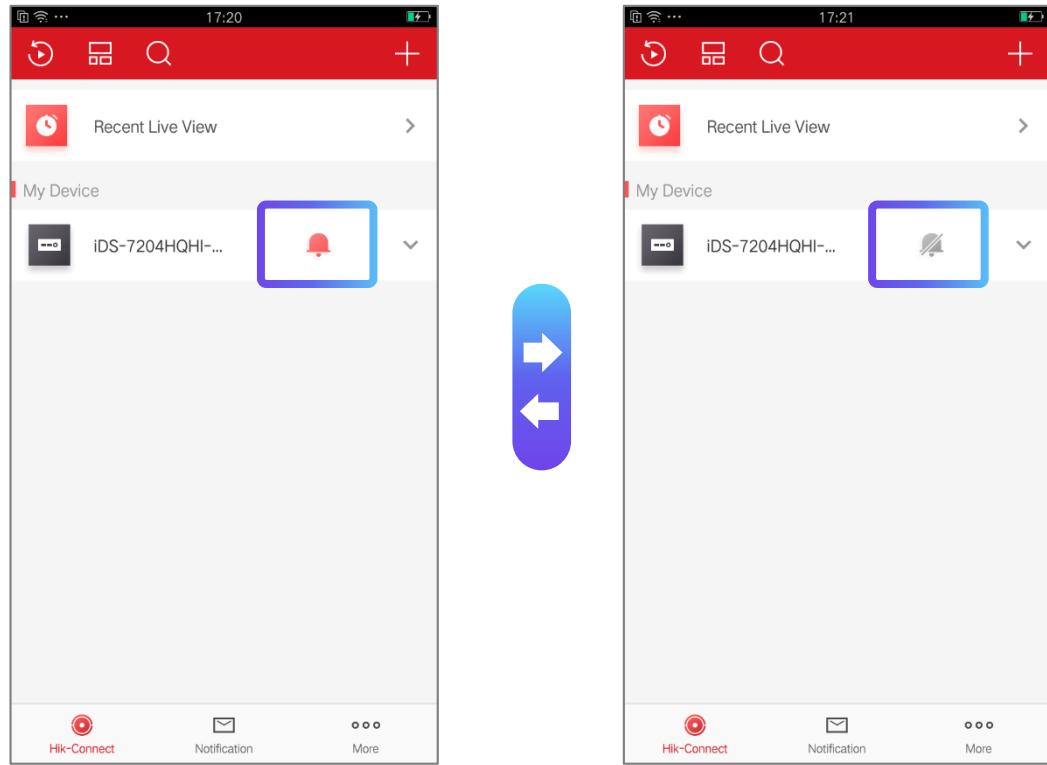


Real-time Alert

DVR & Hik-Connect **notify security, end-users, or other** related roles in real-time, helping them act in a timely manner.



Active & Real-time



Real-time and Easy Control



Hik-Connect is able to **turn on and turn off alarms** whenever you want.

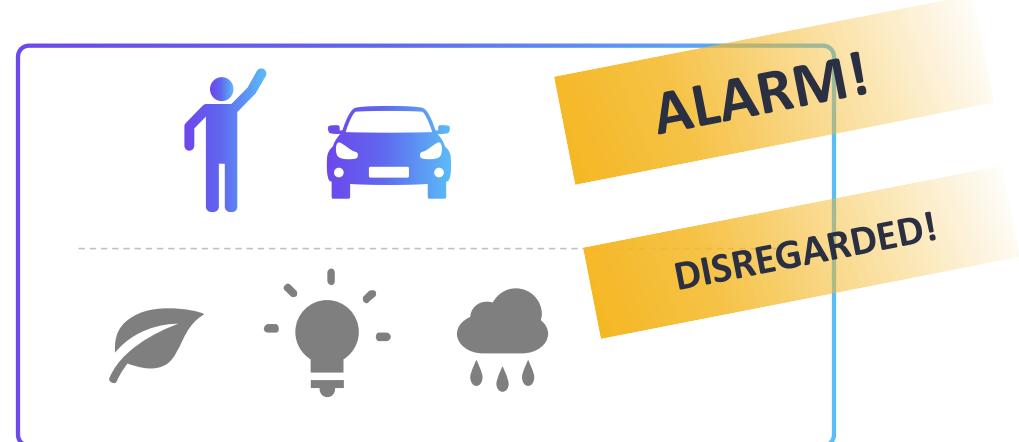
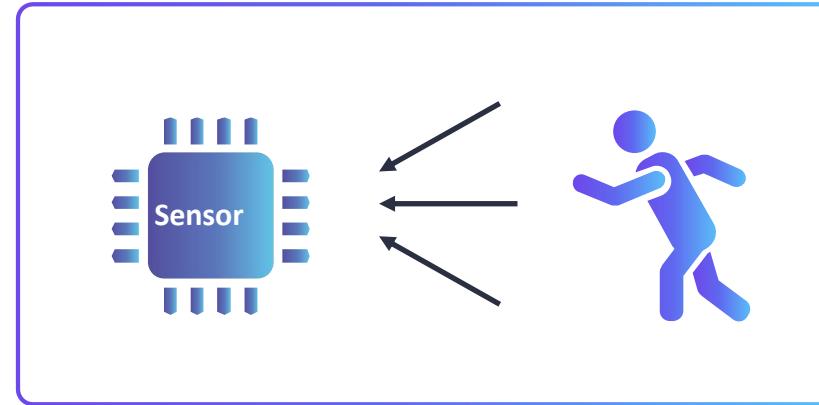


No more sound/light/message/... after turning off alarm.

Active & Real-time

Accurate

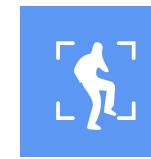
With **AI-based analysis** and **video and non-video** integrated analysis, this system gives accurate alarms, helps security focus on real threats and improves the work efficiency.



Turbo HD X System



Premium Solution
AI-based



Basic Solution
PIR & video integrated

► Premium Solution



Siren Camera

AI DVR

Hik-Connect



Deep Learning Technology



Human & Vehicle Detection



Up to **30 m** Long-distance Detection



Light & Sound Alarm



Remote Control

► Basic Solution



PIR Camera

DVR

Hik-Connect



PIR Detection (sensitive to human body)



11 m PIR Detection



Higher accuracy when PIR signal is linked with video analysis



Light & Sound Alarm



Remote Control

Turbo X Product - DVR

Accurate alarm

Detection and search: human body and vehicle

Detection and search: human face

**iDS-7204/08/16HQHI-M1/S
iDS-7208/16HQHI-M2/S**

**iDS-7204/08HUHI-M1/S
iDS-7204/08HUHI-M2/S**



Turbo X Product - APP



Hik-Connect (From V3.7.8)



Remote view & playback



Timely alarm notifies the end-user



Alarm/Silent mode optional
(silent mode: turn off perceptible alarm)

Turbo X Product - Camera

Deterring criminals from continuing the crime



24-hour
colorful video



PIR detects
human body (11 m)



Siren alarm
(sound & light)



Alarm output



DS-2CE12DFT-PIRXOF



DS-2CE72DFT-PIRXOF

Turbo X Product - Camera

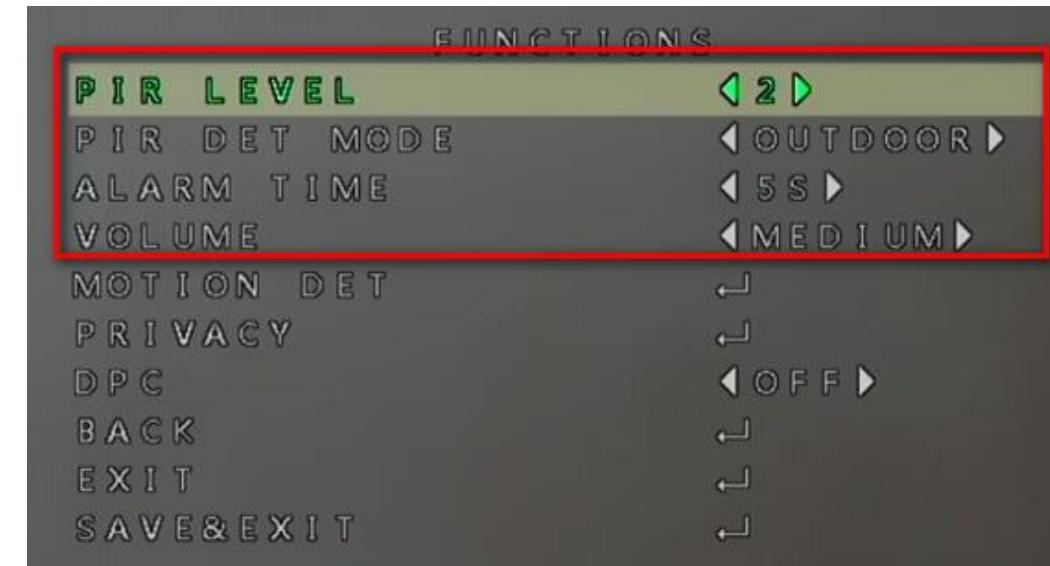
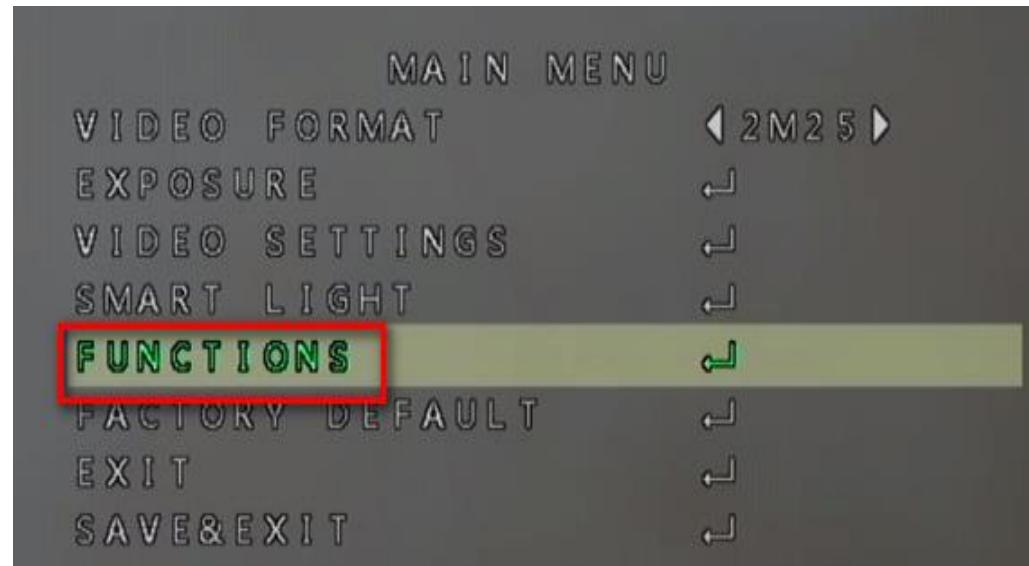
Configuration DFT-PIRXO ColorVu camera



DS-2CE12DFT-PIRXOF



DS-2CE72DFT-PIRXOF



PART 1: PIR Function Configuration

Turbo X Product - Camera

Configuration DFT-PIRXO ColorVu camera



Enable Intrusion Detection

Target Detect... Human Body Vehicle

Area Settings Arming Schedule Linkage Action

Normal Linkage Trigger Alarm Output  Trigger Channel PTZ Linkage

Full Screen Monitor... CAM1->1(Light)
 Audible Warning CAM1->2(Alarm Out)
 Notify Surveillance ... CAM1->3(Sound)
 Send Email
 Upload Captured P... Local->1

PTZ Linkage [A1] Carr
A1
A2
A3
A4

Preset No. 1
Patrol No. 1
Pattern No. 1

*Notice: please confirm the event output in "Live View" settings menu is the same with the real event output.

Set arming schedule

Edit

Alarm Out... **CAM1->1(Light)** Dwell Time:
Alarm Name: **CAM1->1(Light)** Alarm Status: Close

Arming Schedule: Continual

	0	10	12	14	16	18	20	22	24
Mon									1
Tue									2
Wed									3
Thu									4
Fri									5
Sat									6
Sun									7

Copy to Trigger Apply

PART 2: Linkage Action Configuration

Contents

- ◆ Turbo HD Analog Principle and key features
- ◆ Turbo HD Analog Solutions
- ◆ Turbo HD **5.0** System
 - ColorVu Camera
 - AcuSense DVR
- ◆ Turbo HD **X** System
- ◆ Turbo HD Products

Product System - Turbo HD Camera



	Value	Pro	Ultra	IoT
4K	U1T <small>Auto focus</small>	U7T	U8T	
5 MP	HOT <small>0.005 lux 120 dB Auto focus 3D DNR</small>	H8T <small>HFT</small>		HOT-PIR
1080p	DOT D3T	D8T DFT	D9T	D8T-PIR DFT-PIR DOT-PIR
720p	COT C2T	C5T <small>0.001 lux HD video output / CVBS output (switchable)</small>		
	0.01 lux DWDR 2D DNR 4 in 1 (C2T excluded)	0.003 lux 130 dB WDR 3D DNR Auto-focus 4 in 1 (C5T excluded)	0.003 lux 120 dB WDR 3D DNR Auto-focus Dual output	

Product System - Turbo HD PIR Camera

5 MP		1080p	
HOT-PIRL		HOT-PIRLO	
D8T-PIRL		D8T-PIRLO	
DOT-PIRL		DOT-PIRLO	
PIR detection Strobe light alarm		PIR detection Strobe light alarm Alarm output	
			DOT-PIRX
			DFT-PIRXOF 
			PIR detection ColorVu Siren alarm (red and blue flashlight alarm / audio alarm)
			PIR detection ColorVu Siren alarm (red and blue flashlight alarm / audio alarm) Alarm output

Product System - DVR

 <p>4K</p>		73HT-K	90HT-K		<ul style="list-style-type: none"> • H.265 Pro+ • 8 MP @ 12 fps / 5 MP @ 20 fps • IP video input: n + n, $2 + n + n$ (90HT) • Up to 10 TB capacity for each disk
		72HT-K	81HT-K		
<p>5 MP</p> 		73HU-K	90HU-K	iDS-90HU	<ul style="list-style-type: none"> • H.265 Pro+ • 8 MP @ 8 fps (1st channel for 4-ch) / 5 MP @ 12 fps • IP video input: n + n, $16 + n$ (72/73/81HU 24/32-ch) $2 + n + n$ (90HU 08/16-ch:) • Up to 10 TB capacity for each disk
	71HU-K	72HU-K	81HU-K	iDS-73HU iDS-72HU	
<p>1080p</p> 		73HQ-K		<ul style="list-style-type: none"> • H.265 Pro+ • 4 MP lite @ 15 fps / 3 MP / 1080p @ 15 fps • IP video input: n/2 + n, $8 + n$ (72HQ 24/32-ch), $16 + n$ (73/81HQ 24/32-ch) • Up to 10 TB capacity for each disk 	
	71HQ-K	72HQ-K	81HQ-K	iDS-72HQ	
<p>1080p lite</p>  <p>720p</p> 		72HG-K	<p>H.265 Pro+ 1080p lite @ 15 fps (-F/N) IP video input: $2 + n$ Up to 10 TB capacity for each disk</p>	<ul style="list-style-type: none"> • H.264+ / H.264 • 1080p lite @ 25/30 fps (-F), 1080p lite @ 12 fps (-F/N) • IP video input: $1 + n$ (4-ch), $2 + n$ (8/16-ch) • Up to 6 TB capacity for each disk 	
	71HG-F	72HG-F			
	Value	Pro	Ultra	AcuSense	

THANKS!