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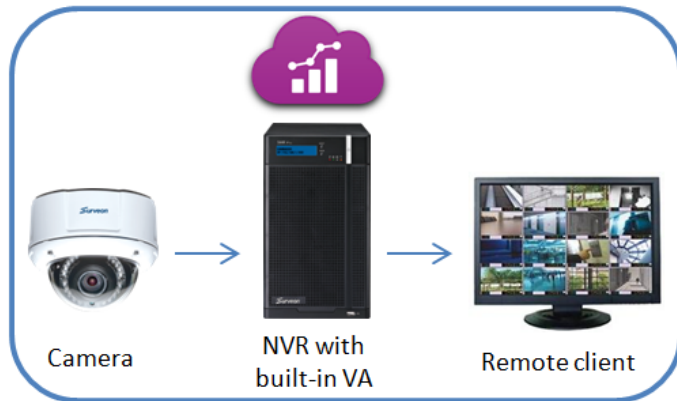**Surveon**
Complete Megapixel Solutions
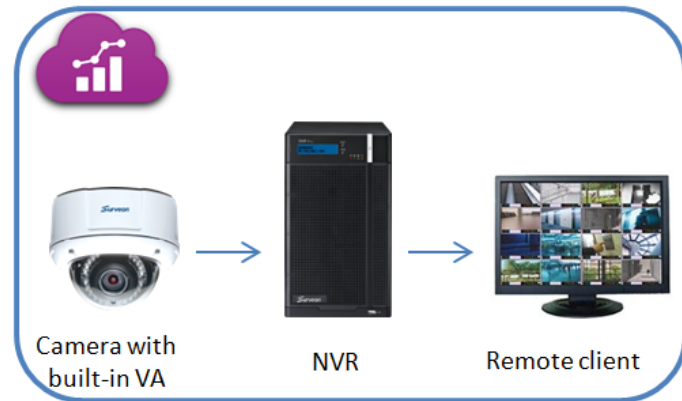
Video Analysis Camera Introduction

The next trend of generation

- Transform raw data into meaningful and useful information directly.
- Upgrade to advanced surveillance and have better services brought to customers.

Video analysis using NVR with built-in analytics

Video analysis using cameras with built-in analytics

Camera → NVR with built-in VA → Remote client

Camera with built-in VA → NVR → Remote client

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Benefits of VA Camera

Enhance manpower efficiency

- Easier and faster to retrieve stored video.

Increase effectiveness of system operation

- A real-time event detection can be performed with alert immediately.

Save cost on bandwidth and storage

- Only video that contains events needs to be recorded.
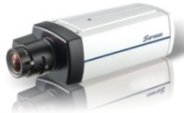
Obtain business intelligence

- The statistical data can be extracted and taken as valuable reference for better business operation.

Surveon VA Camera Series Overview

High Resolution
3MP (2048 x 1536 @ 30fps)

Advanced ISP Functions
HDR, ROI, 2D/3D De-noise, Edge Enhancement

**Local Storage for
Alarm Capture**

CAM2441HI   CAM3471HI   CAM4471HI

Advanced Video Analytics
People/Vehicle Counting, Entering or Leaving Detection, Object Loitering
Detection, Object Motion Direction Detection and Optical Diagnosis

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Product Advantages

Advanced Video Analytics

- 5 major functions:
  - People/Vehicle Counting by Wire or Area
  - Area-Entering or Leaving Detection
  - Object Loitering
  - Object Motion Direction Detection
  - Optical Diagnosis.
- Under general setting, the accuracy of Video Analytics can be 90 ~ 95%.
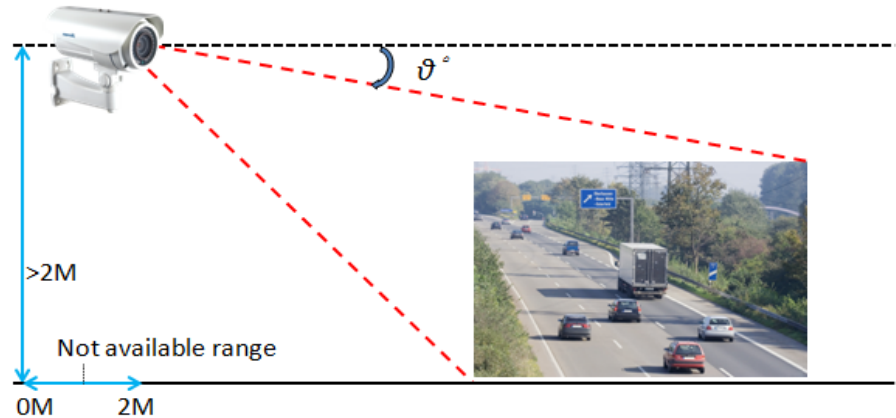
The camera angle should be between 15-60° from the horizon, preferably about 45°. Please see Appendix for more camera installation guidelines.

People/Vehicle Counting

- After setting a line, direction and the object size, Surveon VA will count the numbers when people or things cross the line.

- This can be utilized in places where managing the space and counting the flow are needed, for example shopping malls and public buildings.

Entering or Leaving Detection

- By setting a detection area and in/out way, objects can move around in the set detection area but cannot cross the set boundaries; otherwise it will trigger alarm.

- This can be applied for entrance management.

Object Loitering Detection

- Set a detection area and time, if any objects loiter for longer than the specified time, it will trigger alarm.

- It can be applied for places where perimeter security is required, such as transportation station and public utility.

Object Motion Direction Detection

- This functionality is to detect directions within the limits of the acceptance angle, any wrong direction will trigger alarm.

- It can be employed for places where only one direction is allowed, for example parking lots and one way roads.
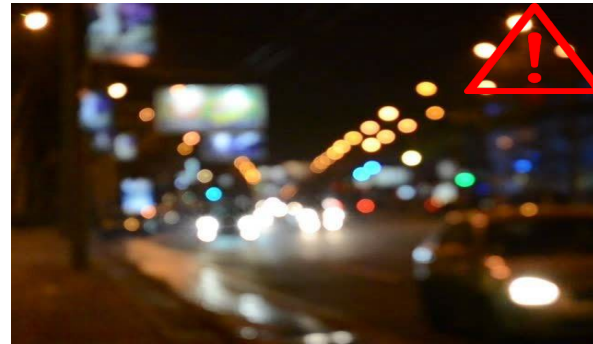
Optical Diagnosis

- The alarm will be triggered when the following events are happened to camera: insufficient/excessive brightness, signal loss, high noise ratio and out of focus.

- This can be applied for advanced out door applications, such as high way and critical infrastructure.
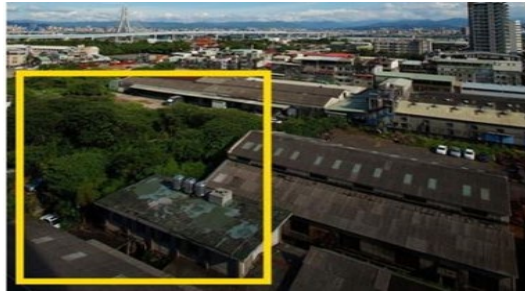

Excessive Brightness

Out of Focus

Smart HDR

- VA camera series can auto detect the lux distributed condition to auto enable or disable the HDR (120 dB) functions.

  ➢ Day time

  Surveon 3MP 30FPS HDR   Other Camera without HDR

  ➢ Night time

  Surveon 3MP 30FPS HDR   Other Camera without HDR

Smart De-noise

- VA camera series can auto detect the lux level to dynamically adjust the de-noise value to fit the day/night changes.

	Low Light	**Normal Light**
Surveon Camera (Smart De-noise Value)	Auto De-noise to higher value	Auto De-noise to lower value
Other Camera (Fixed De-noise Value)	High value – OK Low value – with noise	High value – poor sharpness Low value – OK

Without De-noise

Smart De-noise in Low Light

Smart De-noise in Normal Light

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Region of Interest (ROI) Encoding

- Support Region of Interest (ROI) Encoding to reduce the bit rate for best bandwidth control.

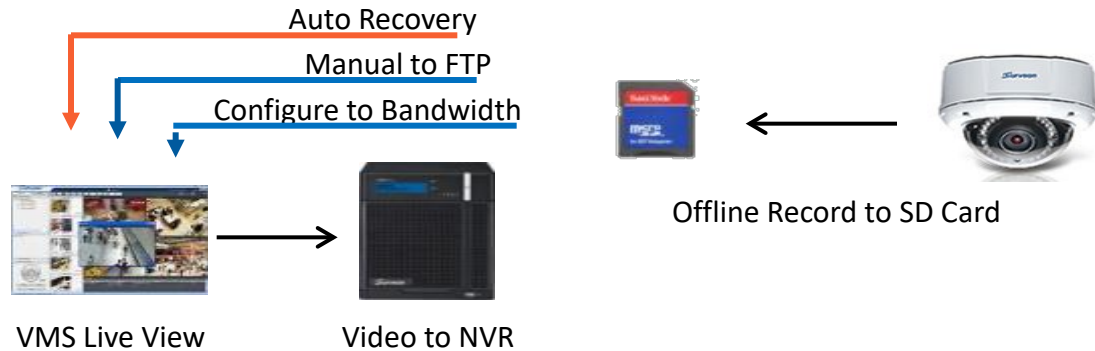- The ROI can support up to 8 different regions with different quality levels.

ROI Mode CBR 4 Mbps @ 2MP 30fps

Non ROI CBR 6 Mbps @ 2MP 30fps

Local Storage for Alarm Capture

- Store data to the microSD/SDHC card when the network loses connections.

- The recorded images will be transferred to NVR automatically once the network is reconnected.

- This recovery bandwidth can be configured to balance the streams of live view and recovery.

Auto Recovery

Manual to FTP

Configure to Bandwidth

Offline Record to SD Card

VMS Live View

Video to NVR

Technical Information

VA Camera Series Models

	CAM2441HI	CAM3471HI	CAM4471HI
Position	Surveon Premium Series Camera		
Form Factor	Box Camera	Bullet Camera	Outdoor Dome Camera
Image Sensor	1/3" Progressive Scan	1/3" Progressive Scan	1/3" Progressive Scan
Lens	Changeable (CS/C Mount)	f3-10.5 mm Autofocus, F1.4	f3-10.5 mm Autofocus, F1.4
WDR	HDR (120dB)	HDR (120dB)	HDR (120dB)
IR LED	N/A	Yes (Max. 30M)	Yes (Max. 30M)
Min Illumination	0.005 Lux @ F1.2 (B/W)	0.01 Lux @ F1.4 (B/W)	0.01 Lux @ F1.4 (B/W)
Iris Control	DC-Iris	P-iris	P-iris
Video Compression	H.264/MPEG-4/MJPEG	H.264/MPEG-4/MJPEG	H.264/MPEG-4/MJPEG
Video FPS	30 fps (2048x1536)	30 fps (2048x1536)	30 fps (2048x1536)
Adv. Video Function	Smart HDR, 2D/3D De-noise, ROI	Smart IR, Smart HDR, 2D/3D De-noise, ROI	Smart IR, Smart HDR, 2D/3D De-noise, ROI
Audio	2 Way Audio	2 Way Audio	2 Way Audio
Alarm DI/DO	1/1	1/1	1/1
Local Storage	microSD/SDHC x 1	microSD/SDHC x 1	microSD/SDHC x 1
Power	12VDC；PoE with Class 3	12VDC；PoE with Class 3	12VDC；PoE with Class 3
Dimension	74.95mm x 59.3mm x 153.5mm	105mm x 218.8mm x 191.41mm	ø144mm x 116mm (H)

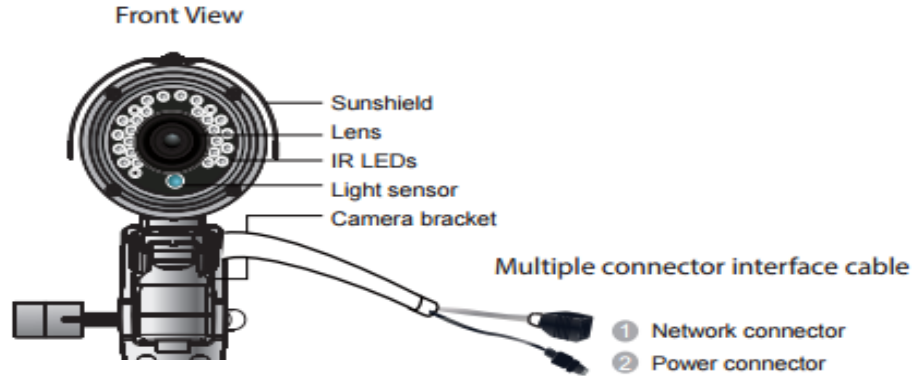# Hardware Overview

CAM2441HI Front Panel
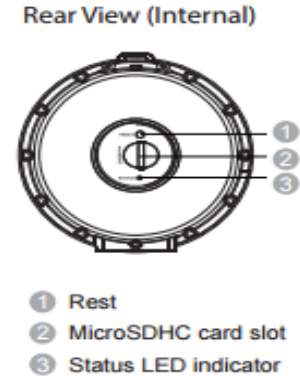
CAM2441HI Rear Panel

Front View
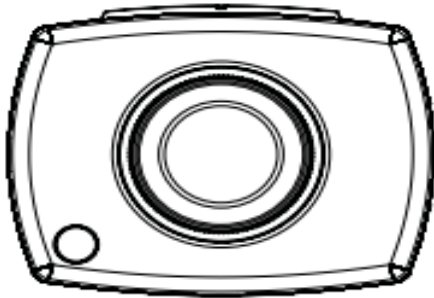
Rear View

1. Video out
2. microSDHC slots
3. Reset button
4. Audio in
5. Power connector
6. DC-Iris connector
7. I/O terminal connectors
8. Network connector
9. Status indicator
10. Audio out

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Hardware Overview

CAM3471HI Front Panel

CAM3471HI Rear Panel

Front View

- Sunshield
- Lens
- IR LEDs
- Light sensor
- Camera bracket

Multiple connector interface cable

1. Network connector
2. Power connector

Rear View (Internal)

1. Rest
2. MicroSDHC card slot
3. Status LED indicator

CAM4471HI Rear Panel

- Reset button
- microSD card slot

Multiple connector interface cable

1. Network connector
2. Power connector

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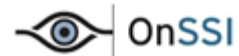Complete Megapixel Solutions
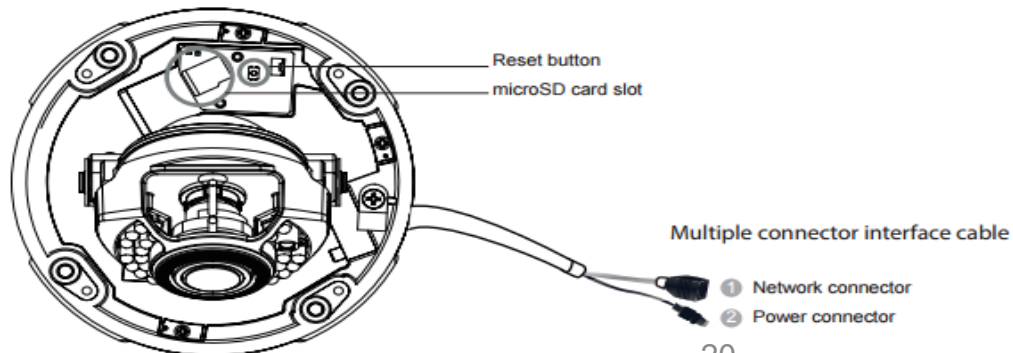
VMS Support Capability

- Surveon camera models have been fully tested for compatibility with following 3rd-party VMS solutions, giving customers a broad range of selections for their projects.

- For more information, please visit here.

Appendix –
Camera Installation Guide

General Guideline

- Some factors to look at in terms of camera placement:

  - Minimum video frame rate shall be bigger than 15fps. It is recommended to have **30fps** frame rate for video analysis.

  - The camera view angle shall be **15-60°** from the horizon, preferably about **45°** and the height of the camera installation shall be above **2M**.

  - The camera shall be focused on the area and object to be monitored. The object shouldn't be so large as to consume most part of the image in the view.

Foreground object area is too big. (> 1/4 display area)

Foreground object area is ok.

General Guideline

- The proper distance of the camera is to ensure the detected object size can be properly seen.

- For the level of illumination, if a person watching a camera can see the object without ambiguity then the object will also be seen by a good intelligent video analysis system.

- The cameras shall be mounted and connected securely.

- Outdoor cameras should be mounted with appropriate housing to protect them from weather damage so that water or other substances do not get onto the lens or housing and block the view of the cameras.

People Counting

- The camera angle shall be placed as vertical based on below guideline to obtain the best accuracy.

  - Camera view angle (θ°) shall be within **±15 °**.☐

  - The height of installed camera shall be around **3M to 5M**.

  - People walk into turnstile/counting line in proper order.

  - Require to maintain certain distance between people and people.

  - Require to maintain certain distance between the counting line and moving turnstile machine.
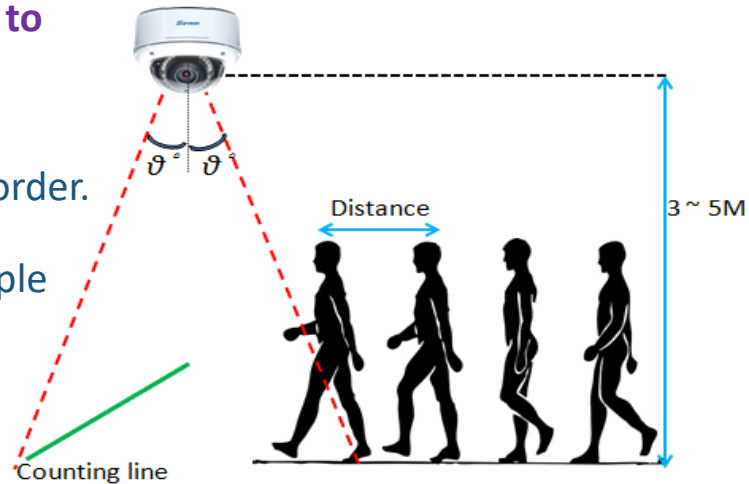
Vehicle Counting

- The camera angle shall be placed as vertical based on below guideline to distinguish vehicles and avoid obscuration to a minimum.

  - The car passing through the counting line must be more than 2 frames, even the car speed is very fast.

  - It is recommended to have at least **9~15 meters** of vertical clearance (from surface to camera) for best performance.

  - Camera view angle ($\theta°$) shall be bigger than 45°, usually **45~75°** from vertical.

Ask Surveon

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Thank You