

Technical Specifications



ST-NVR16DT2I

16-Ch Network Video Recorder with Intelligent Feature

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Key Features

- Up to 5632x4224 IP Channel Resolution for main stream
- Up to 2Mbps@D1, 4Mbps@720P, 8Mbps@1080P
- HDMI and VGA output at up to 1920x1080 resolution
- Support 2 SATA ports with no limited
- Support Max.16ch synchronous playback

Intelligent Feature

- Face Detection DVR includes one or more channel with face detection algorithm. It can analyze video signal and identify faces in images but ignore other information.
- Device can detect and keep track of three faces in the image, and also save the face image of the best quality of the whole tracking process.
- Device can simultaneously capture and store images, and keep record of the activity duration of the face. In the meantime, the device enables alarm triggering, mail, push alarm etc.

Accessories

Technical Specifications

ST-NVR16DT2I *

| NVR | |
|-----------------------|---|
| Chipset | Hi3535 |
| RAM | 512MB DDR3 |
| Access Environment | Android, Apple and Windows |
| Application | VSSmobile |
| Video/ Audio input | |
| Bidirectional Talk | 1 CH,BNC(Line in,2Vpp,1Kohms) |
| IPC Input | 16CH, 128Mbps |
| Video/ Audio Output | |
| CVBS | 1CH,BNC (1.0Vp-p,75ohms) |
| VGA | 1CH, Resolution: 1920x1080, 1280x1024, 1280x720, 1024x768 |
| HDMI | 1CH Standard 1.3a , Resolution 1920x1080, 1280x1024, 1280x720, 1024x768 |
| Audio Output | 1CH,RCA(Line out,2Vpp,300ohms) |
| Compression Standard | |
| Video Coding | MPEG-4/H.264(Up to High Profile@Level4.2) |
| Audio Coding | G.711A |
| Audio Baud Rate | 64Kbps |
| IP Channel Resolution | Main stream: up to 5632x4224 Sub stream:D1 |
| Video Code Rate | Up to 2Mbps@D1, 4Mbps@720P, 8Mbps@1080P |
| Synchronous Playback | Up to 16CH |
| Decoding Ability | Up to 13CH 720P@30 or 6CH 1080P@30 |
| Hard Disk Driver | |
| SATA Ports | 2 |
| Max Capacity | no limited |
| Network | |
| Network Interface | 1 RJ45 10M/100M/1000M adaptive Ethernet interface |
| USB Interface | 2 USB 2.0 Interfaces |
| Alarm Input | 8 ch |
| Alarm Output | 3 ch |
| RS-485 | 1 RS-485 interface |
| PoE | N/A |
| Other Functions | |
| Bidirectional Talk | Two-way voice intercom function |
| Motion Detection | Zones: 396(22x18), Sensitivity: 1~6 (level 6 is highest) |
| Picture Capture | Local Capture & Web Capture |
| General | |
| Operating System | Embedded Linux |
| Power Supply | DC +12V 3.3A |
| Power Consumption | 10W(without HDD, without POE) |
| Operating Temperature | -10°C ~ +55°C |
| Operating Humidity | 10% ~ 90%RH |
| Dimension | 405 x 335 x 120mm |
| Size | 360 x 262 x 48mm |
| Weight | 2Kg(without HDD) |
| Front Panel | LED |

(*) I : Intelligent feature: Face detection algorithm included. It can analyze video signal and identify faces in images

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Intelligent Feature - Face Detection

Face Detection NVR includes one or more channel with face detection algorithm. It can analyze video signal and identify faces in images but ignore other information.

Device can detect and keep track of three faces in the image, and also save the face image of the best quality of the whole tracking process.

Device can simultaneously capture and store images, and keep record of the activity duration of the face. In the meantime, the device enables alarm triggering, mail, push alarm etc.

Note: Face detection is to detect faces in arbitrary image but not to recognize. Face detection relies on position of the camera and quality of images, so it's not absolutely accurate.

Choice of Camera

There is no special requirement over the cameras used for face detection. Any camera suitable in CCTV system can be used.

High resolution, good WDR performance and good low illumination characteristics are helpful for face detection.

Generally, cameras need to meet the following key parameters:

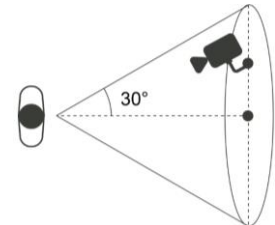
- **SN:** > 50dB
- **Low Illumination:** < 0.05Lux
- **TVL:** >480 lines

Mounting Angle of Camera

Face detection algorithm can tolerate up to 45 degrees angle error. Certainly, clear face images will reduce omissions.

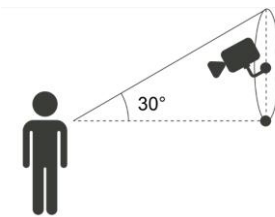
Horizontal Angle :

The horizontal angle means the angle between camera and horizontal direction of positive direction face. The limit should below **45** degrees. It is recommended not to exceed **30** degrees.



Vertical angle :

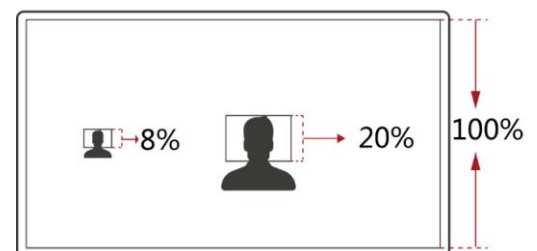
Vertical angle means the angle between camera and vertical direction of positive direction face. The limit should below 45 degrees. It is recommended not to exceed 30 degrees.



Cameras Distance and Lens Focal Length :

The proportion of face in the screen is a critical factor for face detection. The minimum height of face should be more than 8% of the screen and recommended height is 20% of the screen.

Through above requirements, you can figure out how to choose the lens according to the size of cameras' sensor.



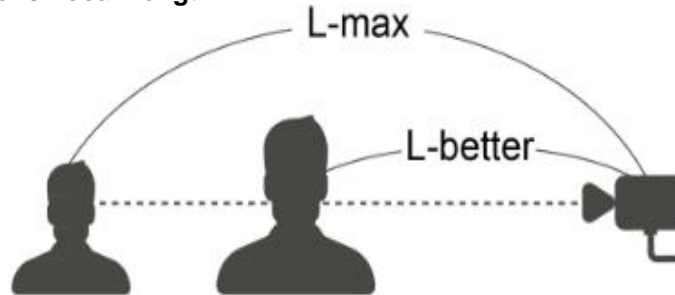
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Intelligent Feature - Face Detection

Cameras Distance and Lens Focal Length :



1/4 Inch Camera

| Camera lens | 2.8mm | 6mm | 8mm | 12mm | 16mm |
|----------------------|-------|------|------|-------|-------|
| Farthest distance | 2.5m | 5.3m | 7.1m | 10.7m | 14.2m |
| Recommended distance | 1m | 2.1m | 2.8m | 4.3m | 5.7m |

1/3 Inch Camera

| Camera lens | 2.8mm | 6mm | 8mm | 12mm | 16mm |
|----------------------|-------|------|------|------|-------|
| Farthest distance | 1.9m | 4m | 5.3m | 8m | 10.7m |
| Recommended distance | 0.7m | 1.6m | 2.1m | 3.2m | 4.3m |

There are several cases in which camera and face distance should be appropriately reduced:

- There is tilt angle in camera and face.
- Camera resolution is poor.
- Light is poor in face.
- Image is black and white.

Several Harmful Scenes

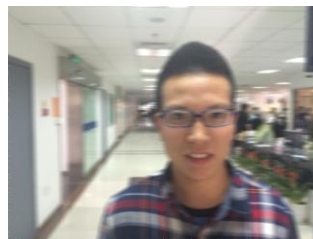
Strong Backlight

In strong backlight scenes, it's better to choose good wide dynamic cameras.



Image Blur

Blurred image will lead to a decline in success rate of detection.



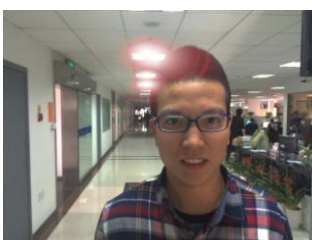
Black and White Image

When color information of the image is lost, the face detection will fail.



Strong Point Light Source

When there is strong point light source in scene, you can turn off automatic electronic shutter in camera to ensure the brightness of face normally.



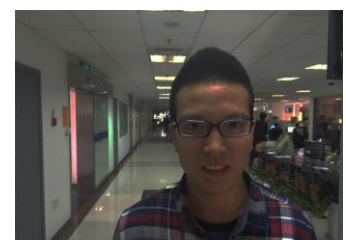
Camera Lens Deformation

When the obvious image deformation caused by the lens will cause a decline in the successful rate.



Low Brightness

When the image brightness is too low, it is recommended to use a camera with infrared supplemental lighting function.





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