

Hanwha Vision is a global leading supplier of solutions for IP and analog video surveillance. Building on the company's history of innovation, Hanwha Vision is dedicated to providing systems solutions with the highest levels of performance, reliability and cost-effectiveness. Hanwha Vision is committed to the continued development of innovative systems products for professional security applications.

For additional information, https://www.hanwhavision.com/en/, https://hanwhavisionamerica.com

1. **PRODUCTS**
   1. **EQUIPMENT**
      1. Manufacturer: Hanwha Vision (https://www.hanwhavision.com/en/, https://hanwhavisionamerica.com)
      2. Model: XRN-1610
      3. Alternates: None
   2. **GENERAL DESCRIPTION**
      1. The 16 channel Network Video Recorder (“NVR”) shall record video and audio from up to 16 network video cameras to a hard disk array of 1 -8 HDD’s and enable playback of video and audio from the hard disk array.
      2. The NVR shall provide a remote monitoring environment for video and audio over the network using a remote computer.
      3. The NVR shall have the following further general properties.
         1. Camera search and discovery: The NVR shall have the capability to search the network for connected compatible cameras.
            1. If 16 or fewer cameras are searched or discovered, each camera will be automatically registered and current camera information (fps, days of recording) will be displayed.
            2. If more than 16 cameras are searched or discovered, the NVR shall provide the ability to selectively register up to 16 cameras.
         2. The NVR shall support WiseStream and Dynamic GOV, a smart codec used by WiseNet IP cameras.
         3. The NVR shall support dual monitor out.
         4. The NVR shall support ARB.
         5. Recording and playback functions
            1. Support recording from 352 x 288 (CIF) up to 4000 X 3000 (12 MP) per channel
            2. 180 Mbps network camera recording throughput
            3. Simultaneous playback capability up to 16 video channels
            4. H.265, H.264, and MJPEG compression support
            5. View status of internal connected storage hardware
            6. Set recording schedules
            7. Set up triggered recording based on

sensor (input) detection

camera event

video loss detection

* + - * 1. Available recording settings by channel for standard and event-based recording types

compression type

resolution

images per second

quality

data transfer limit

pre-event and post-event record duration

I-frame and full frame recording

* + - * 1. Available actions upon reaching full HDD storage capacity

stop recording

overwrite

* + - * 1. Search recorded data by time, event, or heat map
      1. Storage
         1. Up to 8, 6TB HDDs in JBOD configuration.
         2. Support for Network Attached Storage (iSCSI)
         3. USB connection for memory/storage device for video clip backup and settings export
      2. Live view
         1. Live, remote monitoring using Windows Network Viewer or Manufacturer supplied viewer
         2. Configure and exercise functions for connected PTZ cameras, including functionality with compatible USB joystick
         3. Capture and save snapshot images
         4. Record current video in AVI format
      3. Remote access
         1. Multicast or unicast

Simultaneous unicast access by up to 10 users

Simultaneous multicast access by up to 20 users

* + - * 1. Mobile device

Supported platforms: Android, IOS

Supported remote users

Live unicast: 10

Live multicast: 20

Playback: 3

* + - * 1. Dynamic DNS (DDNS) support
      1. VGA and High Definition (HDMI) local monitor outputs for live viewing, playback, & backup functions
      2. ONVIF Profile S compliance
      3. Alarm connections: 8 inputs; 4 outputs
  1. **NVR SOFTWARE**
     1. The NVR shall have a built in server which provides access for authorized users to live view of connected cameras, NVR recording and playback functions, and NVR configuration settings.
     2. The NVR software shall provide a monitoring screen which displays live camera video and simultaneously provides same-screen access to the following functions.
        1. Screen mode, allowing set up and display of up to 16 live video channels in 1, 2, 3, 4, 6, 8, 9, 13, 16, or sequence configurations.
        2. Status displays
           1. camera live status

model

connection status

IP address

compression

resolution

frame rate

quality

* + - * 1. camera record status

bit rate

record bit rate

input bit rate

bit rate limits

configured video profile

input/record frames per second

* + - 1. Start/stop recording
      2. Search recorded video
      3. Play recorded video
      4. Freeze live video
      5. Audio on, off, and mute
      6. Event monitoring
      7. Digital zoom
      8. Camera PTZ controls
      9. Manual recording
      10. Image (snapshot) capture
    1. The NVR software shall provide setup screens which provide access to the following configuration settings and functions.
       1. System
          1. date and time
          2. user passwords and permissions
          3. system information
          4. software upgrade
          5. system logs
          6. event logs
          7. backup logs
       2. Cameras
          1. image preview of video
          2. profile information
          3. compression information
          4. protocol information
          5. model information
          6. IP address
          7. connection status
          8. total amount of data received by channel
          9. auto or manual search and register
          10. select and setup ONVIF protocol operation
          11. add, delete, and edit camera profile
          12. adjust settings

camera name

resolution

frame rate

quality

bit rate

brightness

backlight

exposure

day/night

defog

focus

mirror and flip

motion detection

* + - * 1. apply settings to groups of cameras
        2. live streaming settings
      1. Recording
         1. setup recording schedule by day and time per channel
         2. record settings per channel

all frames, key frames, or no record

data limit per channel

pre and post event recording times

include audio

* + - * 1. set recording profile per channel

compression

resolution

frame rate

quality

* + - * 1. HDD full capacity options – stop, overwrite
        2. Event configuration

sensor operation

Camera events, including motion detection and video analytics

video loss detection

alarm output parameters

* + - 1. Storage media and devices
         1. display working status, including current rate of recording, recording loss rate, and cumulative losses
         2. storage use and capacity information
         3. HDD temperature information
         4. connect/disconnect iSCSI device
         5. HDD alarm notifications
         6. RAID mode settings and status
         7. recover RAID array
      2. Monitor
         1. select VGA or HDMI video output
         2. configure display parameters
      3. Text device (including PoS devices and number plate recognition)
         1. channel allocation
         2. encoding type and delimiting characters
         3. network port
         4. event configuration

keyword entry

dollar value trigger

* + - 1. Network
         1. address settings per physical port
         2. bandwidth limits
         3. software ports and protocol
         4. multicast parameters
         5. DDNS
         6. UPnP
         7. security:

IP filtering

SSL encryption and certificates

802.1x parameters

* + - * 1. NTP server
        2. SMTP e-mail settings
        3. SNMP settings
        4. live stream selection
        5. DHCP server settings
      1. Notifications
         1. event types
         2. intervals
         3. recipients
      2. Output relay settings
    1. The NVR software shall provide Search and Playback functions as follows.
       1. Search by
          1. time
          2. event
          3. text (including PoS and number plate recognition)
          4. backup device
       2. Playback
          1. play forward and reverse at normal or accelerated speeds, frame by frame, and next record
          2. go to first and go to last functions
          3. color-coded timeline with play head scrub bar
          4. set audio on or off
          5. initiate backup
    2. The NVR shall have a built in web server which supports browser-based configuration from a PC.
       1. Acceptable browsers: Internet Explorer, Google Chrome, Mozilla Firefox, and Apple Safari
       2. The web viewer shall provide a monitoring screen which displays video from registered cameras and simultaneously provides same-screen access to the following functions.
          1. display layout configuration: 1, 4, 9, 16, sequence
          2. additional display functions as available with direct connection to the NVR server
       3. The web viewer shall provide the same functionality as available when directly connecting to the NVR server with respect to the following.
          1. system settings
          2. backup and restoration of configuration settings to a file
          3. camera configuration settings and functions
          4. recording
          5. storage media and devices
          6. monitor
          7. text device (including PoS devices and number plate recognition)
          8. network
          9. events and notifications
          10. output relay settings
          11. search and playback
       4. Minimum client requirements
          1. Acceptable Operating Systems: Windows XP, Vista, 7, 8, 10, Mac OS X (10.7 or above)
          2. Acceptable browsers: Microsoft Internet Explorer, Microsoft Edge, Mozilla Firefox, Google Chrome, Apple Safari
  1. **DETAILED SPECIFICATIONS**
     1. Video
        1. Compression: H.265, H.264, MJPEG, WiseStream for H.265 and H.264
     2. Recording
        1. Channel capability: 16 channels
        2. Bit Rate: Up to 180 Mbps
        3. Resolution range: 352 x 288 - 4000 X 3000
     3. Events and Response Actions
        1. Triggers
           1. alarm (NO or NC contact) input
           2. video loss
           3. event defined by camera
           4. VA event
        2. Response Actions
           1. record
           2. e-mail
           3. activate PTZ preset
           4. alarm (NO or NC contact) output
           5. beep output
           6. monitor out
     4. Playback
        1. Number of simultaneous channels: 16
        2. Bandwidth: 32 Mbps
     5. Storage
        1. Internal
           1. Number of HDD’s: 1 – 8
           2. Capacity per HDD: 1 – 6 TB
        2. External
           1. Acceptable types

NAS iSCSI up to 384 TB for extended storage

USB HDD/Flash drive for backup of video clips, firmware update, settings backup/restore, log export

* + 1. Network
       1. Connectivity: 1000 Base-T Ethernet, 4 x RJ-45 connectors
       2. Protocols supported
          1. Transmission Control Protocol (TCP), Internet Protocol (IP) v4 and v6, User Datagram Protocol (UDP)
          2. Configuration: Dynamic Host Configuration Protocol (DHCP)
          3. Web services: Hypertext Transfer Protocol (HTTP), Secure HTTP (HTTPS)
          4. Network services: Address Resolution Protocol (ARP), Domain Name System (DNS), Internet Control Message Protocol (ICMP), Network Time Protocol (NTP), Simple Network Management Protocol (SNMP v1/2c/3 – MIB-2), Universal Plug and Play (UPnP)
          5. Media: Real-Time Transport Protocol (RTP), Real-Time Control Protocol, Real-Time Streaming Protocol (RTSP)
          6. Multicast: Internet Group Management Protocol (IGMP)
          7. Notifications: Simple Mail Transfer Protocol (SMTP)
          8. Remote Access: Point-to-Point Protocol over Ethernet (PPPoE)
       3. DDNS – The NVR shall support DDNS services offered by the Manufacturer and other publicly available service offerings.
       4. Security features
          1. user password protection with group restrictions
          2. IP address filtering - list of allowed or blocked IP addresses
          3. HTTPS(SSL) login authentication
          4. User access log
          5. 802.1x authentication
          6. Restriction of all network access/web viewer access
       5. Discovery - Manufacturer shall offer a discovery program to identify all devices of his manufacture on the network, as well as ONVIF Profile S conformant devices.
    2. Alarm/sensor interface
       1. Input (8): NO or NC, selectable
       2. Output (4): NO or NC, selectable
    3. Audio
       1. Direction: Bi-directional
       2. Channel capability: 32 channels
       3. Compression: AAC (16/48KHz), G.711 u-law, G.726 selectable
       4. Output: Line level (RCA)
    4. Electrical
       1. Power: 100 – 240 VAC
       2. Power Consumption: 76.3 W maximum (8 HDDs)
    5. Mechanical And Environmental
       1. Dimensions (W x H x D): 17.32 in. x 3.46 in. x 15.15 in. (440.0 mm x 88.0 mm x 384.8 mm)
       2. Temperature
          1. Operating and storage: 0° C to 40° C (32° F to 104° F)
       3. Humidity: 20 - 85%, non-condensing

END OF SECTION