

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, visit <https://www.hanwhavision.com>, https://hanwhavisionamerica.com

1. **PRODUCTS**
   1. **EQUIPMENT**
      1. Manufacturer: Hanwha Vision
      2. Model: TNV-C8011RW
      3. Alternates: None
   2. **GENERAL DESCRIPTION**
      1. Video Compression and Transmission – The camera shall have the following properties relating to the video signals it produces.
         1. H.265, H.264 and MJPEG compression, each derived from a dedicated encoder and capable of being streamed independently and simultaneously.
            1. H.265 and H.264 – Max. 30fps/25fps(60Hz/50Hz)
            2. MJPEG – Max. 30fps(@5MP Max. 5fps)
         2. The camera shall be able to configure various resolution selections.
            1. 2592x1944, 2560x1440, 1920x1080, 1280x960, 1280x720, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
         3. The camera shall support multiple video streaming up to 5 profiles.
         4. The camera shall support unicast video streaming up to 20 users.
         5. The camera shall support multicast video streaming.
         6. The camera shall be able to configure Dynamic DNS (DDNS). DDNS shall be provided with no additional cost by the manufacturer.
         7. The camera shall provide WiseStreamⅢ based on AI engine, Dynamic GOV and FPS to efficiently manage bit rate of the video stream and reduce storage.
         8. The camera shall provide WiseNRⅡ that working based on AI engine for reduce noise and blur on image.
      2. Camera – The camera device shall have the following physical and performance properties:
         1. IP66, IK10 rated for protection against impacts
         2. Auto day/night operation with removable IR cut filter
         3. 2D and 3D digital noise reduction
         4. Integral IR illumination, providing effective visibility of 15m(49.21ft) at 0 Lux when activated in Black & White mode
         5. 32 privacy masking regions utilizing 4 points quadrangle
      3. Intelligence and Analytics – The camera shall have a suite of integral intelligent operations and analytic functions to include:
         1. Analytics
            1. Defocus detection, Tampering, Shock detection, Virtual area(Appear/Disappear)
         2. Analytics based on AI engine
            1. Object detection: Person / Face / Vehicle (car/bus/truck/motorcycle/bicycle)
            2. IVA: Virtual line (Crossing / Direction), Virtual area (Loitering / Intrusion / Enter / Exit)
            3. Motion detection with 8 definable detection areas with 8 point polygonal zones, and minimum/maximum object size.
            4. Support Detection Shot
         3. Business Intelligence
            1. Based on AI engine: People counting, Vehicle counting, Queue management, Heatmap
      4. Interoperability – The camera shall be ONVIF Profile S / G / T / M compliant.
      5. The camera shall possess the following further characteristics:
         1. Built-in web server, accessed via standard browsers including MS Edge, Firefox, Chrome and Safari
         2. Micro SD/SDHC/SDXC memory card and NAS recording options, with configurable pre-alarm and post-alarm recording intervals
         3. Alarms and notifications
            1. Alarm notification triggers: Analytics, Network disconnect
            2. Available notification means upon trigger: File upload via FTP and e-mail, Notification via e-mail, SD/SDHC/SDXC or NAS recording, Handover
         4. Pixel Counter available in the plug-in web viewer
         5. POE capable
   3. **DETAILED SPECIFICATIONS**
      1. Video
         1. Image Sensor: 1/2.8" CMOS
         2. Scanning: progressive
         3. Minimum illumination
            1. Color mode: 0.038Lux(F1.6, 1/30sec, 30IRE)
            2. Black & white mode (IR LED off): 0.0038Lux(F1.6, 1/30sec, 30IRE)
            3. Black & white mode (IR LED on): 0Lux
         4. Video Out
            1. USB: Micro USB Type B, 1280x720 for installation
      2. Lens
         1. Focal length: 1.6mm fixed focal
         2. Max. Aperture Ratio: F1.6
         3. FoV: H: 175˚ / V: 125˚ / D: 175˚
         4. Min. Object Distance: 0.3m (0.98ft)
         5. Focus Control: Manual
         6. Lens Type: Fixed
      3. Pan /Tilt / Rotate
         1. Range: - / -25°~+25° / -
      4. Operational Functions
         1. Camera Title
            1. Off / On (Displayed up to 85 characters)
            2. English / Numeric / Special characters
         2. Day/night: Auto (ICR)
         3. IR Viewable Length: 15m (49.21ft), 850nm
         4. Backlight compensation: BLC, WDR, SSDR
         5. WDR: extremeWDR (120dB)
         6. Digital Noise Reduction (DNR): WiseNRⅡ(Based on AI engine), SSNRⅤ
         7. Motion Detection: Off / On (8ea, 8 points polygonal zones)
         8. Privacy Masking: Off / On (32ea, 4 points quadrangle zones)
         9. Gain Control: Off / Low / Middle / High
         10. White Balance: ATW / AWC / Manual / Indoor / Outdoor
         11. Lens Distortion Compensation: Support
         12. Electronic shutter speed
             1. Minimum / Maximum / Anti flicker (1/5 ~ 1/12,000sec)
         13. Digital PTZ: Support (Preset, Group)
         14. Video Rotation: Flip, Mirror, Hallway view (90° / 270°)
         15. Analytics
             1. Defocus detection, Tampering, Shock detection, Virtual area(Appear/Disappear)
         16. Analytics based on AI engine
             1. Object detection: Person / Face / Vehicle (car/bus/truck/motorcycle/bicycle)
             2. IVA: Virtual line (Crossing / Direction), Virtual area (Loitering / Intrusion / Enter / Exit)
             3. Motion detection with 8 definable detection areas with 8 point polygonal zones, and minimum/maximum object size.
             4. Support DetectionShot
         17. Business Intelligence
             1. Based on AI engine: People counting, Vehicle counting, Queue management, Heatmap
         18. Alarm Triggers
             1. Analytics
             2. Network disconnect
         19. Alarm Events
             1. File upload via FTP and e-mail
             2. Notification via e-mail
             3. SD/SDHC/SDXC or NAS recording at Event Triggers
             4. Handover: PTZ preset, send message by HTTP / HTTPS / TCP
         20. Memory: 2GB RAM, 1GB Flash
      5. Video Streams
         1. Video compression
            1. H.265/H.264: Main/High
            2. MJPEG
         2. Resolution: 2592x1944, 2560x1440, 1920x1080, 1280x960, 1280x720, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
         3. Frame rate
            1. H.265 and H.264: Max. 30fps/25fps(60Hz/50Hz)
            2. MJPEG: Max. 30fps(@5MP Max. 5fps)
         4. Smart Codec: Manual(5ea area), WiseStreamⅢ(Based on AI engine)
         5. Video Quality Adjustment
            1. H.264/H.265: Target bitrate level control
            2. MJPEG: Quality Level control
         6. Bit rate control
            1. H.265 and H.264: CBR or VBR
            2. MJPEG: VBR
         7. Streaming
            1. Streaming method: Unicast / Multicast
            2. Simultaneous users: Max. 20 users (unicast)
            3. Capability: Multiple streaming (Up to 5 profiles)
         8. Storage and Recording
            1. The camera shall have onboard SD card storage.

Card type: Micro SD/SDHC/SDXC

Capacity: Up to 256GTB (1 slot)

* + - * 1. NAS
      1. Interoperability: ONVIF protocol, profiles S / G / T / M.
    1. Network
       1. Connectivity: RJ-45(10/100BASE-T)
       2. Protocols supported:
          1. IPv4 / IPv6, TCP, UDP
          2. Configuration: DHCP, LLDP
          3. Web service: HTTP, HTTPS
          4. Network Service: ARP, Bonjour, DNS, ICMP, NTP, SNMP v1/v2c/v3(MIB-2), UPnP
          5. Media: RTP, RTCP, RTSP
          6. Unicast: SRTP
          7. Multicast: IGMP
          8. Notifications: FTP, SMTP
          9. SSL/TLS
          10. CDP
          11. MQTT
       3. DDNS - The camera shall support DDNS services offered by the Manufacturer and other publicly available service offerings.
       4. QoS - Layer 3 DSCP
       5. Security features
          1. OS / Firmware Protect: Secure boot, Signed firmware, Firmware encryption
          2. User authentication: Digest Authentication, Prevent brute-force attack
          3. Network authentication: 802.1X Authentication (EAP-TLS, EAP-LEAP, EAP-PEAP MSCHAPv2)
          4. Secure Communication: HTTPS, SRTP, WSS(Websocket secure)
          5. Access Control: Access control based on IP address
          6. Data Protect: Authentication information encryption, ZIP compression encryption
          7. Audit: User Access/System/Event log management
          8. Device ID: Device Certificate (Hanwha Private Root CA)
          9. Secure Storage: SD card partition encrypt
       6. Discovery – The manufacturer shall offer a discovery program to identify all devices of them on the network.
       7. Configuration – The manufacturer shall offer a configuration program that remotely allows users to change settings on multiple cameras simultaneously.
       8. Firmware upgrade – The manufacturer shall offer a program capable of upgrading multiple cameras at the same time (not requiring access to individual cameras).
       9. Camera backup setting – The manufacturer shall provide a program that provides the ability to save multiple camera settings to a file and restore these camera settings if needed.
       10. Reporting – The manufacturer shall provide a tool that can generate a report including thumbnail view, MAC address, IP address, serial number and other camera settings.
    2. Audio
       1. Audio In
          1. built-in MIC only
       2. Audio Out
          1. None
       3. Audio Compression
          1. G.711 u-law /G.726 Selectable
          2. G.726(ADPCM) 8KHz, G.711 8KHz
          3. G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps
          4. AAC-LC: 48Kbps at 16KHz
    3. Electrical
       1. Input Voltage: PoE(IEEE802.3af, Class3)
       2. Power consumption
          1. PoE: Max 11.5W, Typical 4.8W
    4. Mechanical And Environmental
       1. Color / Material: White / Aluminum, Hard-coated dome bubble
       2. RAL Code: RAL9003
       3. Dimensions: 80(W)x167(H)x57(D)mm(31.5x65.6x22.4")
       4. Weight: 600g(1.32 lb)
       5. Gangbox: Single
       6. Tilt Mount: SBV-140TBW
       7. Temperature And Humidity
          1. Operating: -10°C ~ +55°C(+14°F ~ +131°F) / Less than 90% RH (Non-condensing)
          2. Storage: -50°C ~ +60°C(-58°F ~ +140°F) / Less than 90% RH (Non-condensing)
       8. Environmental Rating: IP66, IK10
    5. DORI (EN62676-4 standard)
       1. Detect (25PPM/ 8PPF): 30.05m (98.59ft)
       2. Observe (63PPM/ 19PPF): 12.02m (39.44ft)
       3. Recognize (125PPM/ 38PPF): 6.01m (19.72ft)
       4. Identify (250PPM/ 76PPF): 3.00m (9.84ft)
    6. EMC & Safety
       1. EMC
          1. EN 55032:2015/A11:2020
          2. EN 50130-4:2011/A1:2014
          3. FCC 47 CFR Part 15, Subpart B Class A
          4. IC Regulation ICES-003 Issue 7 Class A
          5. KS C 9832:2023
          6. KS C 9835:2019
          7. AS/NZS CISPR 32 Class A
          8. VCCI CISPR 32 Class A
       2. Safety
          1. UL 62368-1, CSA C22.2 NO. 62368-1
          2. KC 62368-1
       3. Environment
          1. IEC EN 60529: 1989+A1:1999+A2:2013
          2. IEC EN 62262:2005
          3. IEC EN 63000:2018

END OF SECTION