

Hanwha Vision is a leading supplier of advanced video surveillance solutions for IP-video, analog and hybrid systems. 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-efficiency. Hanwha Vision is committed to the continued development of innovative systems products for professional security applications.

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

1. **PRODUCTS**
   1. **EQUIPMENT**
      1. Manufacturer: Hanwha Vision (https://www.hanwhavision.com)
      2. Model: PNM-C32084RQZ
      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. 20 fps
            2. MJPEG – Max. 20 fps (@8MP Max. 5fps)
         2. The camera shall be able to configure up to 10 independent video stream profiles with differing encoding, quality, frame rate, resolution, and bit rate settings.
         3. Resolution selections
            1. 3840x2160, 1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360
         4. Simultaneous unicast access by up to 10 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 WiseStream Ⅱ, WiseStreamⅢ on AI engine 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. The camera shall be able to produce clear images in highly contrast scenes with multi-exposure wide dynamic range.
         2. IP66, IK10, NEMA4X rated for protection against impacts.
         3. Auto day/night operation with removable IR cut filter
            1. Low light level operation to 0.07 lux (F1.3, 1/30sec, 30IRE) in color mode and 0 lux in black and white mode
         4. The camera shall support digital noise reduction using both 2D and 3D noise reduction technology.
         5. The camera shall be able to configure 6 privacy masking areas with rectangle zones.
         6. The camera shall provide video display on smart phone (iPhone, Android) to adjust viewing angle, rotation and focus.
      3. Intelligence and Analytics – The camera shall have a suite of intelligent analytic functions.
         1. Analytics events: Defocus detection, Motion detection, Tampering, Audio detection, Sound classification
            1. Motion detection with 8 definable detection areas with polygonal zones, and minimum/maximum object size.
            2. Audio Detection and classification of the following sound: Scream, Gunshot, Explosion, Crashing glass
      4. Interoperability – The camera shall be ONVIF Profile S/T/M compliant.
      5. The camera shall possess the following further characteristics:
         1. Micro SD/SDHC/SDXC memory card with configurable pre-alarm and post-alarm recording intervals
         2. NAS recording option with configurable pre-alarm and post-alarm recording intervals
         3. Alarm triggers and notifications
         4. HPoE capable including heater
         5. Impact protection, Water & Dust protection
         6. This device has been verified using STP cable. The use of appropriate GND grounding and STP cable is recommended to effectively protect your product and property from transient voltage, thunder stroke, communication interruption.
         7. NDAA Compliant
   3. **DETAILED SPECIFICATIONS**
      1. Video
         1. Image device: 1/1.8" CMOS x 4CH
         2. Resolution: 3840x2160, 1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360
         3. Minimum illumination
            1. Color: 0.07Lux (F1.3, 1/30sec, 30IRE)
            2. BW: 0.007Lux (F1.3, 1/30sec, 30IRE, IR LED off), 0Lux (IR LED on)
      2. Lens
         1. Focal length: 4.38~9.33mm (2.13x) motorized varifocal
         2. Max. Aperture Ratio: F1.3 (Wide) ~ F2.15 (Tele)
         3. Angle of view
            1. H: 113° (Wide) ~ 47° (Tele)
            2. V: 58° (Wide) ~ 26° (Tele)
            3. D: 138° (Wide) ~ 54° (Tele)
         4. Min. Object Distance: 1.3m (4.27ft)
         5. Focus Control: Simple focus
         6. Lens Type: P-Iris
      3. Pan / Tilt / Rotate
         1. Remote adjustment Max. 200cycles
         2. Pan / Tilt / Rotate Range: 0 ~ 360° / 30° ~ 90° / 0° ~ 90°
      4. Operational Functions
         1. Camera Title: Displayed up to 85 characters
         2. Day and Night: Auto(ICR)
         3. Backlight Compensation: BLC / WDR / SSDR
         4. WDR: 120dB
         5. Digital Noise Reduction: SSNRⅤ, WiseNRⅡ(Based on AI engine)
         6. Defog: support
         7. Motion Detection: 8ea, 8 points polygonal zones
         8. Privacy Masking: 6ea, 4 points quadrangle zones (Color: Gray / Black / White)
         9. Gain Control: Off / Low / Middle / High
         10. White Balance: ATW / AWC / Manual / Indoor / Outdoor
         11. Lens Distortion Correction: support
         12. Electronic Shutter Speed: Minimum / Maximum / Anti-flicker (2 ~ 1/12,000sec)
         13. Rotation: Flip, Mirror, Hallway view (90°/270°) - each channel separately
         14. Analytics: Defocus detection, Motion detection, Tampering, Audio detection, Sound classification
         15. Alarm I/O: 2 configurable I/O ports \* Support Alarm via optional SPM-4210 I/O box
         16. Alarm Triggers: Analytics, Network disconnect, Alarm input, App event, Time schedule, MQTT subscription, Tampering
         17. Alarm Events
             1. File Upload(image): E-mail and FTP
             2. Notification via E-mail
             3. Local storage (SD / SDHC / SDXC) or NAS recording at event triggers
             4. Alarm output
             5. Handover: PTZ preset, send message by HTTP/HTTPS/TCP
             6. MQTT: publication
         18. Audio In: \* Support Audio via optional SPM-4210 I/O box
         19. Audio Out: \* Support Audio via optional SPM-4210 I/O box
         20. Light Viewable Length: WiseIR 25m(82.02ft)
         21. Edge storage: Micro SD / SDHC / SDXC 2 slot Max. 1TB (512GB x 2)
         22. Memory: 8GB RAM, 64GB eMMC
      5. Video Streams
         1. The camera shall be able to produce 10 video profiles, each of which may have the following properties:
         2. Encoding type: H.265, H.264, MJPEG
         3. Maximum frame rate
            1. H.265 and H.264 – Max. 20 fps
            2. MJPEG – Max. 20 fps (@8MP Max. 5fps)
         4. Smart Codec: Manual(5ea area), WiseStreamⅡ
         5. Bitrate control
            1. H.265 and H.264: CBR / VBR
            2. MJPEG: VBR
         6. Number of multi-streaming profiles: Up to 3 profiles per CH
         7. Simultaneous users (total): Max. 10 (unicast)
         8. Application Programming Interface
            1. ONVIF Profile S / T / M
            2. SUNAPI (HTTP API)
            3. Hanwha vision open platform
      6. Network
         1. Connectivity: Metal shielded RJ-45 10/100/1000 Base-T Ethernet
         2. Protocols: IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP, CDP, SRTP(TCP, UDP Unicast), MQTT
         3. DDNS – The camera shall support DDNS services offered by the Manufacturer and other publicly available service offerings.
         4. Quality of Service (QoS) – Layer 3 DSCP
         5. Security features:
            1. OS / Firmware Protect: Encrypted Firmware, Secure boot, Signed Firmware
            2. User authentication: Digest Authentication
            3. Network authentication: IEEE 802.1X (EAP-TLS, EAP-LEAP, EAP-PEAP, MSCHAPv2)
            4. Secure Communication: HTTPS, WSS (WebSocket Secure)
            5. Access Control: IP-based access control
            6. Data Protect: Encryption Credentials, Encrypt compress for live recording file
            7. Audit: Access / System / Event Log management
            8. Device ID: Device certificate (Hanwha Techwin Root CA)
            9. Secure Storage: TPM, SD card partition encrypt
            10. Security Certificate: TPM with FIPS 140-2 level 2
         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.
      7. Environment and Electrical
         1. Operating Temperature & Humidity: -40°C ~ +55°C(-40°F ~ +131°F) / 0~100% RH(condensing) \* Start up should be done at above -20°C, Humidity control /w AIR vent
         2. Storage Temperature & Humidity: -50°C ~ +60°C(-58°F ~ +140°F) / 0~90% RH
         3. Certification: IP66, NEMA4X, IK10
         4. Input Voltage: HPoE (IEEE802.3bt Type4, Class8)
         5. Power Consumption
            1. Max 66.0W, typical 40.0W (Orin NX 8GB)
            2. Max 71.0W, typical 40.0W (Orin NX 16GB)
      8. Mechanical
         1. Color/Material: White / Aluminum + PC, Bubble with hard-coated dome
         2. RAL Code: RAL9003
         3. Dimensions (W x H): ø315 x 180mm (ø12.40 x 7.09")
         4. Weight: 6.10Kg(13.45lb)
         5. Compatible Conduit Hole: 19.1mm (3/4”) (M25)
         6. Gangbox: Single, double, 4" octagon, 4" square
      9. Certifications
         1. EMC
            1. FCC 47 CFR 15 Subpart B Class A
            2. ICES-3(A)/NMB-3(A)
            3. CE/UKCA: EN 55032 Class A, EN 50130-4, EN 61000-3-2, EN 61000-3-3
            4. VCCI CISPR 32 Class A
            5. RCM AS/NZS CISPR 32 Class A
            6. KS C 9832 Class A, KS C 9835
         2. Safety
            1. UL 62368-1, CAN/CSA C22.2 NO. 62368-1
            2. IEC/EN 62471
         3. Environmental
            1. IEC/EN 63000
            2. IEC 60529 IP66, IEC/EN 62262 IK10
            3. NEMA 250 type 4X
      10. Compatible Models
          1. Hanging Adaptor: SBP-315HMW, SBP-317HMWP
          2. Ceiling Mount (Assy): SBP-150CMI/300CMI, SBP-300CMW1/900CMW, SBP-300CMTW, SBP-300CMTS
          3. Ceiling Mount (Single Unit): SBP-180CMB/140CMB, SBP-180CMS, SBP-900CMP/300CMP/150CMP, SBP-C15P, SBP-C15H
          4. Wall Mount: SBP-400WMW/250WMW, SBP-300WMW
          5. Wall Mount Adaptor: SBP-300BW1, SBP-115PFA
          6. Pole Mount: SBP-300PMW2
          7. Corner Mount: SBP-300KMW1, SBP-156KMW
          8. Parapet Mount: SBP-300LMW, SBP-156LMW1
          9. Cabinet: SBP-300NBW, SBP-150NBW
          10. Interface Box: SPM-4210
          11. Other Compatible Models: SBP-315C, SPO-8315
      11. DORI Distance
          1. Detect (25PPM / 8PPF): Wide: 50.8m(166.77ft) / Tele: 176.6m(579.49ft)
          2. Observe (63PPM / 19PPF): Wide: 20.3m(60.71ft) / Tele: 70.7m(231.80ft)
          3. Recognize (125PPM / 38PPF): Wide: 10.2m(33.35ft) / Tele: 35.3m(115.90ft)
          4. Identify (250PPM / 76PPF): Wide: 5.1m(16.68ft) / Tele: 17.7m(57.95ft)

END OF SECTION