

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: LNO-6012R
      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.264 and MJPEG compression, each derived from a dedicated encoder and capable of being streamed independently and simultaneously.
            1. H.264 – maximum of 30fps at all resolution
            2. MJPEG – maximum of 2fps at 1920x1080, maximum of 3fps at 1280x960, 1280x720,

Maximum of 10fps at other resolution

* + - 1. 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.
      2. The camera shall be able to configure various resolution selections.
         1. 16:9 aspect ratio: 1920 x 1080, 1280 x 720, 800 x 448, 640 x 360
         2. 4:3 aspect ratio: 1280 x 960, 800 x 600, 640 x 480
         3. 5:4 aspect ratio: 720 x 576
         4. 3:2 aspect ratio: 720 x 480
      3. The camera shall support unicast video streaming up to 6 users.
      4. The camera shall support multicast video streaming.
      5. The camera shall be able to configure Dynamic DNS (DDNS). DDNS shall be provided with no additional cost by the manufacturer.
      6. The camera shall provide WiseStream Ⅱ, Dynamic GOV and Dynamic fps to efficiently manage bit rate of the video stream and reduce storage.
    1. Camera – The camera device shall have the following physical and performance properties:
       1. True day/night operation with removable IR cut filter
          1. Low light level operation to 0.1 lux at F2.0 in color mode and 0 lux in black and white mode with IR LED.
       2. The camera shall be able to produce clear images in highly contrast scenes with multi-exposure wide dynamic range up to 120dB.
       3. The camera shall support digital noise reduction using both 2D and 3D noise reduction technology.
       4. The camera shall be able to configure 6 privacy masking areas with polygons.
       5. Hallway view mode which rotates the images to 90 o 270 degrees so that the view is more suitable for hallways
    2. Intelligence and Analytics – The camera shall have a suite of intelligent analytic functions.
       1. Motion detection with 4 definable detection areas with polygonal zones, and minimum/maximum object size.
       2. Detection of logical events of specified conditions from the camera’s video.
          1. Tampering
          2. Motion Detection
    3. Interoperability – The camera shall be ONVIF Profile S, G and T compliant.
    4. The camera shall possess the following further characteristics.
       1. Built-in web server, accessed via non-plugin browsers including Google Chrome, IE11, MS Edge, Mozilla Firefox and Apple Safari
       2. Micro SD/SDHC memory card with configurable pre-alarm and post-alarm recording intervals
       3. Alarms and notifications
          1. alarm notification triggers

Motion detection

Tampering detection

* + - * 1. available notification means upon trigger

File Upload via FTP and E-mail

Notification via E-mail

Local storage (SD / SDHC) recording at event triggers

* + - 1. Pixel Counter available in the web viewer
      2. PoE capable
  1. **CAMERA SOFTWARE**
     1. The camera shall have a built in web server which supports non-plugin browsers including Google Chrome, IE11, MS Edge, Mozilla Firefox and Apple Safari from a PC or Mac.
     2. The web viewer shall provide a monitoring screen which displays live camera video and simultaneously provides same-screen access to the following functions.
        1. Live view window size
        2. Resolution setting
        3. Image (snapshot) capture
        4. Manual recording to SD
        5. Access recorded data playback and camera configuration menus
     3. The web viewer shall provide a playback screen which provides access to the following functions.
        1. Recorded data search using date and time range
        2. Recorded data search using event type
        3. Play a recorded video by event triggering
        4. Set resolution
        5. Generate a backup copy of saved video data
     4. The web viewer shall provide a setup screen which provides access to the following configuration settings and functions in the camera.
        1. Digital video profile to include compression type, maximum or target bit rate, frame rate and multicast parameters
        2. User profile to include password, access level, authentication
        3. Date and time
        4. Network settings and IP version
           1. DDNS
           2. IP filtering
           3. SSL, including certificate management
           4. 802.1x authentication
           5. Quality of Service settings
           6. SNMP to include version selection and settings
           7. Auto IP configuration
        5. Video setup
           1. Flip / mirror mode
           2. Video output type
           3. Privacy zone
        6. Camera settings to configure image preset, sensor frame capture, dynamic range, white balance, back light, exposure, day/night operation, on-screen display, sharpness, contrast, color level and lens distortion correction.
        7. Event detection setup to configure notification parameters, recording rules, time schedule, tamper protection, motion detection and event triggers
        8. System function to control reboot, upgrade, check system and event logs and application (SDK) management
        9. View profile information
     5. Client requirements
        1. Acceptable Operating Systems: Windows 7 / 8. / 10, MAC OS X 10.12, 10.13, 10.14
        2. Acceptable browsers Non-plugin WebViewer: Google Chrome, IE11, MS Edge,Mozilla Firefox (Window 64bit only), Safari (Mac OS X only)
  2. **DETAILED SPECIFICATIONS**
     1. Video
        1. Imaging device: 1/2.8" 2MP CMOS
        2. Image Pixels: Effective 1,945(H) x 1,097(V)
        3. Scanning: Progressive
        4. Minimum Illumination: Color 0.03Lux (F2.0, 1/30sec), B/W 0Lux (IR LED on)
     2. Lens
        1. Focal length: 2.0mm fixed
        2. Max. Aperture Ratio: F2.0
        3. Field of View: H 113.74°/ V 61.5°/ D 134.45°
        4. Focus Control: Fixed
     3. Pan / Tilt / Rotate
        1. Pan / Tilt / Rotate Range: 0˚~350˚ / 0˚~67˚ / 0˚~355˚
     4. DORI Distance
        1. Detect: 25.1m (82.22ft)
        2. Observe: 10.0m (32.89ft)
        3. Recognize: 5.0m (16.44ft)
        4. Identify: 2.5m (8.22ft)
     5. Operational Functions
        1. IR Viewable Length: 30m (98.43ft)
        2. Camera Title: Off / On (Displayed up to 15 characters)
        3. Day/Night Setting: Auto (ICR)
        4. Backlight Compensation: SSDR / BLC / WDR
        5. WDR: 120dB
        6. Digital Noise Reduction: Off / On (SSNR)
        7. Motion Detection: Off / On (4 zones, rectangular)
        8. Privacy Masking: Off / On (6 zones, rectangular)
        9. Gain Control: Support
        10. White Balance: ATW / AWC / Manual / Indoor / Outdoor
        11. Electronic Shutter Speed: Minimum / Maximum / Anti flicker
        12. Image Rotation: Flip, Mirror, Hallway view(0˚ / 90˚ / 270˚)
        13. Alarm Triggers: Analytics
        14. Alarm Events: File upload via FTP and e-mail, Notification via e-mail, SD/SDHC recording at event triggers
        15. Pixel Counter: Support
        16. Storage: Micro SD/SDHC 32GB
        17. Internal Memory: 512MB RAM, 256MB Flash
        18. Intelligent Analytics: Motion detection, Tampering
     6. Video Streams
        1. Video compression: 264, MJPEG
        2. Resolution: 1920x1080, 1280x960, 1280x720, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360
        3. Maximum Framerate
           1. H.264: Max. 30fps/25fps(60Hz/50Hz) at all resolutions
           2. MJPEG: Max. 2fps @1920x1080, Max. 3fps @1280x960, 1280x720,Max 10fps @ other resolution
        4. WiseStream Ⅱ: Support
        5. Bitrate Control Method
           1. H.264: CBR or VBR
           2. MJPEG: VBR
        6. Streaming Capability: Multiple streaming (Up to 3 profiles)
        7. Streaming method: Unicast / Multicast
        8. Simultaneous Users: 6 maximum (Unicast)
        9. Profile set: Max. 10 ea
        10. Interoperability: ONVIF Profile S / G / T, SUNAPI
     7. Network
        1. Connectivity – 10/100 Base-T Ethernet via RJ-45 connector
        2. Protocol
           1. IP v4 / v6, TCP, UDP
           2. Configuration: DHCP, LLDP
           3. Web service: HTTP, HTTPS
           4. Network Service: ARP, Bonjour, DNS, ICMP, NTP, PIM-SM, SNMP v1/2c/3 – MIB-2, UPnP
           5. Media: RTP, RTCP, RTSP
           6. Multicast: IGMP
           7. Notifications: FTP, SMTP
           8. Remote Access: PPPoE
        3. DDNS – The camera shall support DDNS services offered by the manufacturer and others publicly available service offerings
        4. QoS – Layer 3 DSCP
        5. Security Feature
           1. User password protection
           2. The device shall not provide a manufacture default password. Default password change shall be required to access the camera.
           3. A minimal level of password complexity shall be required by the camera.
           4. The camera shall not have a manufacture back-door password.
           5. The manufacturer shall provide a tool that provides the ability to make password changes to multiple cameras at the same time.
           6. IP address filtering – List of allowed or blocked IP addresses
           7. HTTPS(SSL) login authentication
           8. HTTPS(SSL) secured communication
           9. Digest login authentication
           10. User access log
           11. 802.1x authentication
        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.
     8. Electrical
        1. Power Input Voltage / Current: PoE (IEEE 802.3af, Class2)
        2. Power Consumption: PoE Max 6.4W, typical 5.0W
     9. Mechanical And Environmental
        1. Color/Material: Dark Grey / Plastic
        2. RAL Code: None
        3. Dimensions (W x H): Ø78.0x262.0mm(Ø3.07x10.31")
        4. Weight: 390 g (0.86 lb)
        5. Temperature
           1. Operating: -30°C ~ +55°C (-22°F ~ +131°F) \* Start-up should be done at above -20°C(-4°F)
           2. Storage: -30°C ~ +55°C (-22°F ~ +131°F)
        6. Humidity: Less than 90% RH
        7. Certification: IP66
     10. EMC & Safety
         1. FCC 47 CFR Part 15 Subpart B
            1. ANSI C63.4-2014 Class A
         2. IC Regulation ICES-003:2016
            1. ANSI C63.4-2014 Class A
         3. CE EMC-Directive 2014/30/EU
            1. EN 55032:2015 Class A
            2. EN 50130-4:2011+A1:2014
         4. VCCI-CISPR 32: Class A
         5. AS/NZS CISPR32:2015 Class A
         6. UL listed
         7. CE EN 50581:2012 (hazardous substances)

END OF SECTION