

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: TNO-L4030T
      3. Alternates: TNO-4030T
   2. **GENERAL DESCRIPTION**
      1. This camera is a thermal video camera that uses temperature differences between objects.
      2. 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. frame rates to 8fps
            2. MJPEG: Max. frame rates to 8fps
         2. The camera shall be able to configure up to 10 independent video stream per channel with differing encoding, quality, frame rate, resolution, and bit rate settings.
         3. Resolution selections: 640 x 480, 640 x 360, 320 x 240
         4. Simultaneous unicast access by up to 20 users
         5. Multicast or unicast capable
         6. Dynamic DNS (DDNS) support.
         7. WiseStream Ⅱ, Dynamic GOV to efficiently manage bitrate of the video stream.
      3. Camera – The camera device shall have the following physical and performance properties:
         1. IP66, IK10, NEMA4X rated for protection against impacts
         2. Provide video display on smart phone (iPhone, Android) to adjust viewing angle.
         3. 24 privacy masking regions utilizing polygonal zones.
      4. Intelligence and Analytics – The camera shall have a suite of integral intelligent operations and analytic functions to include
         1. Motion detection with eight definable detection areas, minimum / maximum object size definition.
         2. Detection of logical events of specified conditions from the camera’s video input
      5. Analytics events: Directional detection, Motion detection, Appear/Disappear, Enter/Exit, Loitering, Tampering, Virtual line, Audio detection, Temperature change detection, Sound classification, Shock detection
      6. Interoperability – The camera shall be ONVIF Profile S / G /T compliant.
      7. The camera shall possess the following further characteristics:
         1. 8 different color palettes are supported: Whitehot, Blackhot, Rainbow, Rainbow2, Sepia, Red, Iron, Custom
         2. 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: Alarm input, Analytics events, Network disconnect
            2. Available notification means upon trigger: File upload via FTP and e-mail, Notification via e-mail, Record to local storage (Micro SD/SDHC/SDXC card or NAS), Handover(PTZ Preset, Send message by HTTP/HTTPS/TCP), Alarm output
         4. POE capable
   3. **DETAILED SPECIFICATIONS**
      1. Video
         1. Image Sensor: Uncooled micro bolometer
         2. Resolution: 640 x 480, 640 x 360, 320 x 240
         3. NETD: <50mK
         4. Pixel Size : 17㎛
      2. Lens
         1. Focal Length: 13 mm fixed
         2. Max. Aperture Ratio: F1.0
         3. Field of View: H(48.6˚), V(36.4°), D(61.6°)
         4. Min. Object Distance: 5m (16.40ft)
         5. Lens Type: Board-in Type
         6. Focus Control: Fixed focus
      3. Operational Functions
         1. Camera Title: Displayed up to 85 characters
         2. Digital Image Stabilization: Support (Built-in gyro sensor)
         3. Motion Detection: Off / On (8ea, 8 point polygonal zones)
         4. Privacy Masking: Off / On (32ea, polygonal zones)
         5. Image flip: Off / On
         6. Image mirror: Off / On
         7. Hallway view: 0° / 90° / 270°
         8. Single Images: The camera shall support jpg file image screenshot and export.
         9. Analytics events: Directional detection, Motion detection, Appear/Disappear, Enter/Exit, Loitering, Tampering, Virtual line, Audio detection, Temperature change detection, Sound classification, Shock detection
         10. Alarm I/O: Input 1ea / Output 2ea
         11. Alarm Triggers: Analytics, Network disconnect, Alarm input
         12. Alarm Events
             1. File upload via FTP and e-mail
             2. Notification via e-mail
             3. Micro SD/SDHC/SDXC or NAS recording at Event Triggers
             4. Handover(PTZ Preset, Send message by HTTP/HTTPS/TCP)
             5. Alarm output
         13. Video Out for installation
             1. BNC: CVBS 1.0 Vp-p / 75Ω, 720 x 480(N) / 720 x 576(P)
             2. Micro USB Type B, 1280 x 720
         14. Storage and Recording
             1. The camera shall have onboard SD card storage.

Card type: Micro SD/SDHC/SDXC

Capacity: Up to 256GB (1 slot)

Image content on the card shall have the ability to be downloaded to a selected destination.

* + - * 1. NAS
      1. Interoperability - Video streams shall be capable of supporting ONVIF protocol, profiles S / G / T.
      2. Memory: 1GB RAM, 256MB Flash
      3. Application Programming Interface
         1. ONVIF Profile S / G / T
         2. SUNAPI(HTTP API)
         3. Wisenet open platform
      4. Audio In: Selectable (Microphone IN/Line IN), Supply voltage 2.5VDC(4mA), Input impedance: approx. 2K Ohm
      5. Audio Out: Line out, Max output level 1 Vrms
    1. Video Streams
       1. The camera shall be able to produce 10 video profiles, which may have the following properties:
       2. Encoding type: H.265, H.264, MJPEG
       3. Resolution: 640 x 480, 640 x 360, 320 x 240
       4. Frame rate
          1. H.265 and H.264: Max.8fps
          2. MJPEG: Max. 8fps
       5. Smart Codec: Manual(5ea area), WiseStream Ⅱ
       6. Bit rate control
          1. H.265 and H.264: target bitrate level control, constant bit rate (CBR) or variable bit rate (VBR)
          2. MJPEG: quality level control, variable bit rate (VBR)
       7. Number of multi-streaming profiles: Up to 10 profiles
       8. Streaming method: Unicast / Multicast
       9. Simultaneous users (total): 20 Maximum (unicast)
    2. Network
       1. Connectivity: RJ-45(10/100BASE-T)
       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. Security: Secure Sockets Layer(SSL)/Transport Layer Security(TLS)
          5. Network services: Address Resolution Protocol (ARP), Bonjour, Domain Name System (DNS), Internet Control Message Protocol (ICMP), Link Layer Discovery Protocol(LLDP), Network Time Protocol (NTP), Protocol Independent Multicast-Sparse Mode (PIM-SM), Simple Network Management Protocol (SNMP v1/2c/3 – MIB-2), Universal Plug and Play (UPnP)
          6. Media: Real-Time Transport Protocol (RTP), Real-Time Control Protocol, Real-Time Streaming Protocol (RTSP), Secure Real-Time Transport Protocol(SRTP)
          7. Multicast: Internet Group Management Protocol (IGMP)
          8. Notifications: File Transfer Protocol (FTP), Simple Mail Transfer Protocol (SMTP)
          9. Remote Access: PPPoE
       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. HTTPS(SSL) Login Authentication
          2. Digest Login Authentication
          3. IP Address Filtering
          4. User access log
          5. 802.1X Authentication(EAP-TLS, EAP-LEAP)
          6. Device Certificate(Hanwha Techwin Root CA, pre-installed)
       6. Discovery - Manufacturer shall offer a discovery program to identify all devices of his manufacture on the network.
    3. Electrical
       1. Input Voltage: PoE (IEEE 802.3af, Class3), 24VAC, 12VDC
       2. Power consumption
          1. PoE: Max 10W, typical 8.6W
          2. 12VDC: Max 9W, typical 7.5W
          3. 24VAC: Max 10.5W, typical 8.9W
    4. Mechanical And Environmental
       1. Material: Aluminum
       2. RAL Code: RAL9003
       3. Dimensions (W x H) : Φ101.97x401.8mm(4.01x15.82")
       4. Weight: 3124g(6.89 lb)
       5. Temperature And Humidity
          1. Operating: -40°C ~ +60°C(-40°F ~ +140°F) / Less than 90% RH (Non-condensing)
          2. Storage: -50°C ~ +60°C(-58°F ~ +140°F) / Less than 90% RH (Non-condensing)
       6. Environmental Rating: IP66, IK10, NEMA4X
    5. EMC & Safety
       1. FCC 47 CFR Part 15 Subpart B
          1. ANSI C63.4-2017 Class A
       2. IC Regulation ICES-003 Issue 7
          1. ANSI C63.4-2017 Class A
       3. CE EMC-Directive 2014/30/EU
          1. EN 55032:2015/A11:2020 Class A
          2. EN 50130-4:2011
       4. UK EMC-Regulations 2016/1091
          1. BS EN 55032:2015/A11:2020 Class A
          2. BS EN 50130-4:2011
       5. VCCI-CISPR 32: Class A
       6. AS/NZS CISPR32:2015 Class A
       7. UL listed
       8. CE EN IEC 63000:2018 (hazardous substances)

END OF SECTION