November 2016

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**Product Guide Specification**

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, based on *MasterFormat 2016* and *The Project Resource Manual—CSI Manual of Practice. The Manufacturer is responsible for technical accuracy.*

The section must be carefully reviewed and edited by the Architect or Engineer to meet the requirements of the project and local building code. Words and sentences within brackets [ ] are choices to include or exclude a particular item or statement. Coordinate this section with other specification sections and the Drawings. Delete all “Specifier Notes” after editing this section.

**Section 28 21 00: Video Surveillance**

**Section 28 21 13: IP Cameras**

**4K / 8 MP EYEBALL CAMERA - IR EYEBALL NETWORK CAMERA**

1. **– GENERAL**
   1. SUMMARY
      1. Section Includes
         1. Section 28 21 17: Video Surveillance – Surveillance Cameras – Camera Housings
         2. Section 28 21 19: Video Surveillance – Surveillance Cameras – Camera Mounts
         3. Section 28 21 21: Video Surveillance – Surveillance Cameras – Illuminators
         4. Section 28 27 00: Video Surveillance – Video Surveillance Sensors
      2. Related Sections
         1. [Section 28 33 15: Security Detection, Alarm and Monitoring – Security Monitoring and Control – Security Monitoring and Control Software].

\*\*\*\*\*\*\*\*\*\*Specifier’s note: Include those standards referenced elsewhere in this SECTION.

* 1. REFERENCES
     1. Federal Communications Commission (FCC) ([www.fcc.gov](http://www.fcc.gov))
        1. FCC Part 15 Subpart B
     2. Underwriters Laboratories, Inc. (UL) (www.ul.com)
        1. UL60950-1
     3. HD standards
        1. Complies with the SMPTE 274M-2008 Standard in:
           1. Resolution: 1920x1080
           2. Scan: Progressive
           3. Color representation: complies with ITU-R BT.709
           4. Aspect ratio: 16:9
           5. Frame rate: 25 and 30 frames/s
        2. Complies with the 296M-2001 Standard in:
           1. Resolution: 1280x720
           2. Scan: Progressive
           3. Color representation: complies with ITU-R BT.709
           4. Aspect ratio: 16:9
           5. Frame rate: 25, 30, 50 and 60 frames/s
           6. Interference-Causing Equipment Standards
        3. Complies with SMPTE ST 2036-1:2013 Standard in:
           1. Resolution: 3840 x 2160
           2. Scan: Progressive
           3. Color representation: complies with ITU-R BT.2020 (2012)
           4. Aspect ratio: 16:9
           5. Frame rate: 25 and 30 frames/s
  2. SYSTEM DESCRIPTION
     1. Section Includes
        1. Video Surveillance – Surveillance Cameras – IP Cameras
     2. Performance Requirements
        1. The 4K/8 MP Eyeball camera shall be a full-featured 4K camera designed for discrete video surveillance applications in indoor and outdoor environments.
        2. The 4K/8 MP Eyeball camera shall provide direct network connection using Smart H.265+ andH.264 compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
        3. The 4K/8 MP Eyeball camera shall offer a mechanical day/night IR cut filter that delivers color images during daylight and automatically switches to a monochrome image as the scene darkens.
        4. The 4K/8 MP Eyeball camera shall be a high performance 1/2.5-in. progressive scan day/night CMOS sensor with 4K/8 MP resolution.
        5. The 4K/8 MP Eyeball camera shall support the following dual, redundant power options:
           1. 12 VDC
           2. PoE (IEEE 802.3af, class 0)
           3. The 4K/8 MP Eyeball camera shall default to use power from the PoE power supply, if connected.
           4. The 4K/8 MP Eyeball camera shall reboot and switch to the 12 VDC power supply if power from the PoE power supply is lost.
        6. The 4K/8 MP Eyeball camera shall offer Digital Wide Dynamic Range for clear images in extreme high-contrast environments.
        7. The 4K/8 MP Eyeball camera shall incorporate a built-in white balance mode that automatically corrects for the yellowish tint when shooting under a sodium vapor lamp.
        8. The 4K/8 MP Eyeball camera shall offer the optional Intelligent Video System to detect and analyze moving objects for improved video surveillance.
        9. The 4K/8 MP Eyeball camera shall conform to the ONVIF standard to provide interoperability with other conformant systems.
        10. The 4K/8 MP Eyeball camera shall offer three separate and configurable streams with individually configurable 4K and HD streams.
        11. The 4K/8 MP Eyeball camera shall have a fixed lens with a focal length of   
            4 mm.
        12. The 4K/8 MP Eyeball camera housing shall conform to the IP67 Ingress Protection standard.
  3. SUBMITTALS

* + 1. Submit under provisions of Section [01 33 00.]
    2. Product Data:
       1. Manufacturer’s data, user and installation manuals for all equipment and software programs including computer equipment and other equipment required for complete video management system.
    3. Dimensional Drawings; include
       1. Overall device dimensions.
       2. Dimensions specific for installation.
    4. Closeout Submittals
       1. User manual.
       2. Parts list.
       3. Maintenance requirements.
  1. QUALITY ASSURANCE
     1. Manufacturer:
        1. Minimum of [10] years of experience in manufacture and design Video Surveillance Devices.
     2. Video Surveillance System:
        1. List certifying bodies (UL, CSA, etc.)
        2. Provide evidence of compliance upon request.
     3. Installer:
        1. Minimum of [5] years of experience installing Video Surveillance System.
  2. DELIVERY, STORAGE AND HANDLING
     1. Comply with requirements of Section 01 60 00.
     2. Deliver materials in manufacture’s original, unopened, undamaged containers; and unharmed original identification labels.
     3. Protect store materials from environmental and temperature conditions following manufacturer’s instructions.
     4. Handle and operate products and systems according to manufacturer’s instructions.
  3. WARRANTY
     1. Provide manufacturer’s warranty covering [2] years for replacement and repair of defective equipment. Warranty varies country to country.
  4. MAINTENANCE
     1. Make ordering of new equipment for expansions, replacements, and spare parts available to dealers and end users.
     2. Provide factory direct technical support via phone and e-mail.

1. **– PRODUCTS**
   1. MANUFACTURERS
      1. [Acceptable Manufacturer:

Dahua Technology USA Inc.

23 Hubble, Irvine, CA 92618

Tel: (949) 679-7777

Fax: (949) 679-5760

Email: [sales.usa@global.dahuatech.com](mailto:sales.usa@global.dahuatech.com)]

* + 1. Substitutions: [Not permitted.] [Under provisions of Division 1.]
       1. [All proposed substitutions must be approved by the Architect or Engineer professional.]
       2. [Proposed substitutions must provide a line-by-line compliance documentation.]
  1. 4K / 8 MP EYEBALL CAMERA - IR EYEBALL NETWORK CAMERA   
     [N84BG44] [N84BG44I]  
     1. General Characteristics:
        1. The 4K/8 MP Eyeball camera shall be a full-featured 4K camera designed for discrete video surveillance applications in indoor and outdoor environments.
        2. The 4K/8 MP Eyeball camera shall provide direct network connection using Smart H.265+ andH.264 compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
        3. The 4K/8 MP Eyeball camera shall offer a mechanical day/night IR cut filter that delivers color images during daylight and automatically switches to a monochrome image as the scene darkens.
        4. The 4K/8 MP Eyeball camera shall be a high performance 1/2.5-in. progressive scan day/night CMOS sensor with 4K/8 MP resolution.
        5. The 4K/8 MP Eyeball camera shall support the following dual, redundant power options:
           1. 12 VDC
           2. PoE (IEEE 802.3af, class 0)
           3. The 4K/8 MP Eyeball camera shall default to use power from the PoE power supply, if connected.
           4. The 4K/8 MP Eyeball camera shall reboot and switch to the 12 VDC power supply if power from the PoE power supply is lost.
        6. The 4K/8 MP Eyeball camera shall offer Digital Wide Dynamic Range for clear images in extreme high-contrast environments.
        7. The 4K/8 MP Eyeball camera shall incorporate a built-in white balance mode that automatically corrects for the yellowish tint when shooting under a sodium vapor lamp.
        8. The 4K/8 MP Eyeball camera shall offer the optional Intelligent Video System to detect and analyze moving objects for improved video surveillance.
        9. The 4K/8 MP Eyeball camera shall conform to the ONVIF standard to provide interoperability with other conformant systems.
        10. The 4K/8 MP Eyeball camera shall offer three separate and configurable streams with individually configurable 4K and HD streams.
        11. The 4K/8 MP Eyeball camera shall have a fixed lens with a focal length of   
            4 mm.
        12. The 4K/8 MP Eyeball camera housing shall conform to the IP67 Ingress Protection standard.
     2. Imaging
        1. The 4K/8 MP Eyeball camera shall offer a 1/2.5-inch type CMOS progressive-scan imager.
        2. The 4K/8 MP Eyeball camera shall offer an effective number of pixels of   
           3840 x 2160 (8.0 MP) effective picture elements.
        3. The 4K/8 MP Eyeball camera shall offer a 16:9 aspect ratio.
        4. The 4K/8 MP Eyeball camera shall offer a fixed lens with a focal length of 4 mm and 16x digital zoom.
        5. The 4K/8 MP Eyeball camera shall have a horizontal angle of view of 87° and a vertical angle of view of 48°.
        6. The 4K/8 MP Eyeball camera shall offer a maximum aperture of F1.6.
        7. The 4K/8 MP Eyeball camera shall produce a color image with a minimum scene illumination of 0.05 lux at F1.6 and a monochrome image, when in the night mode, with a minimum illumination of 0 lux at F1.6 when in IR mode.
     3. Illumination
        1. The 4K/8 MP Eyeball camera shall have one (1) integrated LED.
        2. The 4K/8 MP Eyeball camera shall offer an IR distance of up to 50.0 m   
           (164.04 ft).
     4. Video Characteristics
        1. The 4K/8 MP Eyeball camera shall offer CBR/VBR bit rate control.
        2. The HD Mini PTZ camera shall offer the following video compression protocols
           1. Smart H.265+
           2. H.265 (14 to 9984 Kbps)
           3. Smart H.264+
           4. H.264 (24 to 10240 Kbps)
        3. The 4K/8 MP Eyeball camera shall offer BLC, HLC, and Digital WDR modes of backlight compensation.
        4. The 4K/8 MP Eyeball camera shall offer Auto, Natural, Street Lamp, Outdoor, and Manual modes.
        5. The 4K/8 MP Eyeball camera shall offer 3D DNR noise reduction.
        6. The 4K/8 MP Eyeball camera shall offer motion detection (four zones) and region of interest (four zones) controls.
        7. The 4K/8 MP Eyeball camera shall offer four (4) privacy masking areas.
     5. Streaming Capability
        1. The 4K/8 MP Eyeball camera shall generate full 4K/8 MP (3840 x 2160 pixels) at 15 fps resolution using Smart H.265+ compression.
        2. The 4K/8 MP Eyeball camera shall offer Unicast and Multicast streaming methods.
        3. The 4K/8 MP Eyeball camera shall offer the following resolutions:
           1. 4K/8 MP (3840 x 2160)
           2. 6 MP (3072 x 2048)
           3. 5 MP (2560 x 1920)
           4. 3 MP (2048 x 1536)
           5. 3 MP (2304 x 1296)
           6. 1080p (1920 x 1080)
           7. 1.3 MP (1280 x 960)
           8. 720p (1280 x 720)
           9. D1 (704 x 480)
           10. VGA (640 x 480)
           11. CIF (352 x 240)
        4. The HD Mini PTZ camera shall generate three streams at the following maximum resolutions:
           1. Main Stream: 4K/8 MP at 15 fps or 3 MP at 30 fps
           2. Sub Stream 1: D1 at 30 fps
           3. Sub Stream 2: 720p at 30 fps
     6. IP Connectivity
        1. The 4K/8 MP Eyeball camera shall allow full camera control and configuration capabilities via a TCP/IP network.
        2. The 4K/8 MP Eyeball camera shall deliver 4K/8 MP video, at rates up to 15 frames per second via TCP/IP over an RJ-45 (10/100 Base-T) connection.
        3. The 4K/8 MP Eyeball camera shall conform to the ONVIF, PSIA, and the CGI standard.
        4. The 4K/8 MP Eyeball camera shall offer Quality of Service (QoS) configuration options.
        5. The 4K/8 MP Eyeball camera shall support the IPv6 internet-layer protocol for packet switched internetworking across multiple IP networks.
        6. The 4K/8 MP Eyeball camera shall offer local and network storage options that include: MicroSD, Network Attached Storage (NAS), and recording to a local PC for instant recording.
        7. The 4K/8 MP Eyeball camera shall support the following protocols: IPv4/ IPv6, HTTP, HTTPS, SSL, TCP/IP, UDP, UPnP, ICMP, IGMP, SNMP, RTSP, RTP, SMTP, NTP, DHCP, DNS, PPPOE, DDNS, FTP, IP Filter, QoS, Bonjour, and 802.1x.
        8. The 4K/8 MP Eyeball camera shall support the Smart PSS and DSS management software.
        9. The 4K/8 MP Eyeball camera shall support the Android and the IOS mobile operating systems.
     7. Interfaces
        1. The 4 MP Dome camera shall support the following audio compression technologies: G.711a, G.711Mu, AAC, and G.726.
        2. The 4 MP Dome camera shall offer a built-in microphone.
     8. [Intelligent Video System
        1. The Intelligent Video System shall offer intelligent video analytics built-in to the 4K/8 MP Eyeball camera.
        2. The Intelligent Video System shall be capable of processing and analyzing video within the camera itself, with no extra hardware required.
        3. The Intelligent Video System shall detect multiple object behaviors such as abandoned or missing objects.
        4. The Intelligent Video System shall support Tripwire analytics to detect when an object has crossed a pre-determined line on the video image.
        5. The Intelligent Video System shall offer Facial Detection to search and identify individuals.]
     9. Installation Requirements
        1. The 4K/8 MP Eyeball camera shall be capable of operating in an outdoor environment within a temperature range of –30° C to +60° C (–22° F to 140° F).
        2. The 4K/8 MP Eyeball camera shall accept power, transmit video, and accept control via a TCP/IP connection.
        3. The 4K/8 MP Eyeball camera shall support the following dual, redundant power options:
           1. 12 VDC ± 30%.
           2. PoE (IEEE 802.3af, class 0).
           3. The 2 MP Dome camera shall default to use power from the PoE power supply, if connected.
           4. The 2 MP Dome camera shall reboot and switch to the 12 VDC power supply if power from the PoE power supply is lost.
     10. Housing Options
         1. The 4K/8 MP Eyeball camera shall be offered in a metal housing.
         2. The 4K/8 MP Eyeball camera housing shall conform to the IP67 Ingress Protection standard.
  2. ACCESSORIES
     1. The 4K/8 MP Eyeball camera shall offer the following optional accessories:
        1. [Pole mount.]
        2. [Wall mount.]
        3. [Junction box.]

1. **– EXECUTION**
   1. EXAMINATION
      1. Examine areas to receive devices and notify adverse conditions affecting installation or subsequent operation.
      2. Do not begin installation until unacceptable conditions are corrected.
   2. PREPARATION
      1. Protect devices from damage during construction.
   3. INSTALLATION
      1. Install devices in accordance with manufacturer’s instruction at locations indicated on the floor drawings plans.
      2. Perform installation with qualified service personnel.
      3. Install devices in accordance with the National Electrical Code or applicable local codes.
      4. Ensure selected location is secure and offers protection from accidental damage.
      5. Location must provide reasonable temperature and humidity conditions, free from sources of electrical and electromagnetic interference.
   4. FIELD QUALITY CONTROL
      1. Test snugness of mounting screws of all installed equipment.
      2. Test proper operation of all video system devices.
      3. Determine and report all problems to the manufacturer’s customer service department.
   5. ADJUSTING
      1. Make proper adjustment to video system devices for correct operation in accordance with manufacturer’s instructions.
      2. Make any adjustment of camera settings to comply with specific customer’s need.
   6. DEMOSTRATION
      1. Demonstrate at final inspection that video management system and devices functions properly.

END OF SECTION