NOVEMBER 2022

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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 Security**

**Section 28 21 13: IP Cameras**

**2MP IR STARLIGHT FIXED DOME NETWORK CAMERA**

1. **– GENERAL**
   1. SUMMARY
      1. Section Includes
         1. Section 28 21 17: Video Security – Security Cameras – Camera Housings
         2. Section 28 21 19: Video Security – Security Cameras – Camera Mounts
         3. Section 28 21 21: Video Security – Security Cameras – Illuminators
         4. Section 28 27 00: Video Security – Video Security 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
  2. SYSTEM DESCRIPTION
     1. Section Includes
        1. Video Security – Security Cameras – IP Cameras
     2. Performance Requirements
        1. The 2MP Dome camera shall be a full-featured network Dome camera designed for discrete video security applications in indoor and outdoor environments.
        2. The 2MP Dome camera shall use a high performance 1/2.7-in. 2MP Progressive-scan CMOS sensor.
        3. The 2MP Dome camera shall utilize Starlight technology to produce color images in illumination down to 0.005 lux at F1.6.
        4. The 2MP Dome camera shall provide direct network connection using Smart H.265+, H.265, Smart H.264+, H.264, or MJPEG compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
        5. The 2MP Dome 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.
        6. The 2MP Dome camera shall support the following dual, redundant power options:
           1. 12 VDC
           2. PoE (IEEE 802.3af, class 0)
           3. The 2MP Dome camera shall default to use power from the PoE power supply, if connected.
           4. The 2MP Dome camera shall reboot and switch to the 12 VDC power supply if power from the PoE power supply is lost.
        7. The 2MP Dome camera shall offer a maximum IR LED distance of 30 m   
           (98.43 ft).
        8. The 2MP Dome camera shall offer Digital Wide Dynamic Range for clear images in extreme high-contrast environments.
        9. The 2MP Dome camera shall offer the Intelligent Video System to detect and analyze moving objects for improved video security.
        10. The 2MP Dome camera shall conform to the ONVIF standard to provide interoperability with other conformant systems.
        11. The 2MP Dome camera shall offer two separate and configurable streams with individually configurable 2MP and 704 x 480 streams.
        12. The 2MP Dome camera shall have a 2.8 mm fixed lens.
        13. The 2MP Dome camera housing shall conform to the IP67 Ingress Protection standard.
        14. The 2MP Dome camera housing shall conform to the IK10 Vandal Resistance standard.
  3. SUBMITTALS

Submit under provisions of Section [01 33 00.]

* + 1. 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.
    2. Dimensional Drawings; include
       1. Overall device dimensions.
       2. Dimensions specific for installation.
    3. 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 Security Devices.
     2. Video Security 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 Security 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 [5] 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.

15245 Alton Pkwy, #100, 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. 2MP IR STARLIGHT FIXED DOME NETWORK CAMERA N22AL12  
     1. General Characteristics:
        1. The 2MP Dome camera shall be a full-featured network Dome camera designed for discrete video security applications in indoor and outdoor environments.
        2. The 2MP Dome camera shall use a high performance 1/2.7-in. 2MP Progressive-scan CMOS sensor.
        3. The 2MP Dome camera shall utilize Starlight technology to produce color images in illumination down to 0.005 lux at F1.6.
        4. The 2MP Dome camera shall provide direct network connection using Smart H.265+, H.265, Smart H.264+, H.264, or MJPEG compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
        5. The 2MP Dome 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.
        6. The 2MP Dome camera shall support the following dual, redundant power options:
           1. 12 VDC
           2. PoE (IEEE 802.3af, class 0)
           3. The 2MP Dome camera shall default to use power from the PoE power supply, if connected.
           4. The 2MP Dome camera shall reboot and switch to the 12 VDC power supply if power from the PoE power supply is lost.
        7. The 2MP Dome camera shall offer a maximum IR LED distance of 30 m   
           (98.43 ft).
        8. The 2MP Dome camera shall offer Digital Wide Dynamic Range for clear images in extreme high-contrast environments.
        9. The 2MP Dome camera shall offer the Intelligent Video System to detect and analyze moving objects for improved video security.
        10. The 2MP Dome camera shall conform to the ONVIF standard to provide interoperability with other conformant systems.
        11. The 2MP Dome camera shall offer two separate and configurable streams with individually configurable 2MP and 704 x 480 streams.
        12. The 2MP Dome camera shall have a 2.8 mm fixed lens.
        13. The 2MP Dome camera housing shall conform to the IP67 Ingress Protection standard.
        14. The 2MP Dome camera housing shall conform to the IK10 Vandal Resistance standard.
        15. The 2MP Dome camera shall come with a built-in heater to extend the operating temperature range to –40° C to +60° C (–40° F to 140° F).
     2. Imaging
        1. The 2MP Dome camera shall offer a 1/2.7-in. 2MP Progressive-scan CMOS imager.
        2. The 2MP Dome camera shall offer an effective number of pixels of 1920(H) x 1080(V) (2.0MP) effective picture elements.
        3. The 2MP Dome camera shall offer a 16:9 aspect ratio.
        4. The 2MP Dome camera shall offer a fixed lens with a focal length of 2.8 mm.
        5. The 2MP Dome camera shall have a horizontal angle of view of 110°and a vertical angle of view of 59°.
        6. The 2MP Dome camera shall offer a maximum aperture of F1.6.
        7. The 2MP Dome camera shall produce a color image with a minimum scene illumination of 0.005 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 2MP Dome camera shall have three (3) integrated LEDs.
        2. The 2MP Dome camera shall offer an IR distance of up to 30.0 m   
           (98.43 ft).
     4. Video Characteristics
        1. The 2MP Dome camera shall offer CBR/VBR bit rate control.
        2. The 2MP Dome camera shall offer the following video compression protocols
           1. H.265 (12 to 6144 Kbps)
           2. H.264 (32 to 6144 Kbps)
        3. The 2MP Dome camera shall offer Smart H.265+ and Smart H.264+ video compression protocols.
        4. The 2MP Dome camera shall offer BLC, HLC, and Digital WDR modes of backlight compensation.
        5. The 2MP Dome camera shall offer Auto, Natural, Street Lamp, Outdoor, and Manual modes.
        6. The 2MP Dome camera shall offer 3D DNR noise reduction.
        7. The 2MP Dome camera shall offer motion detection (four zones) and region of interest (four zones) controls.
        8. The 2MP Dome camera shall offer four (4) privacy masking areas.
        9. The 2MP Dome camera shall offer a Flip mode at 0°, 90°, 180°, and 270°.
     5. Streaming Capability
        1. The 2MP Dome camera shall generate full 2MP   
           (1920 x 1080 pixels) at 30 fps resolution using Smart H.265+ compression.
        2. The 2MP Dome camera shall offer Unicast and Multicast streaming methods.
        3. The 2MP Dome camera shall offer the following resolutions:
           1. 1080p (1920 x 1080)
           2. 1.3MP (1280 x 960)
           3. 720p (1280 x 720)
           4. D1 (704 x 480)
           5. VGA (640 x 480)
           6. CIF (352 x 240)
        4. The 2MP Dome camera shall generate two (2) streams at the following maximum resolutions:
           1. Main Stream: 2MP at 30 fps
           2. Sub Stream 1: 704 x 480 at 30 fps
     6. IP Connectivity
        1. The 2MP Dome camera shall allow full camera control and configuration capabilities via a TCP/IP network.
        2. The 2MP Dome camera shall deliver 2MP video, at rates up to 30 frames per second via TCP/IP over an RJ-45 (10/100 Base-T) connection.
        3. The 2MP Dome camera shall conform to the ONVIF, PSIA, Milestone, Genetec, and the CGI standard.
        4. The 2MP Dome camera shall offer Quality of Service (QoS) configuration options.
        5. The 2MP Dome camera shall support the IPv6 internet-layer protocol for packet switched internetworking across multiple IP networks.
        6. The 2MP Dome 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 2MP Dome 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 2MP Dome camera shall support the Smart PSS and DMSS management software.
        9. The 2MP Dome camera shall support the Android and the IOS mobile operating systems.
     7. Intelligent Video System
        1. The 2MP Dome camera offer a built-in Intelligent Video System to provide advanced analytics for any scene.
        2. The Intelligent Video System shall offer intelligent video analytics built-in to the 2MP Dome camera.
        3. The Intelligent Video System shall be capable of processing and analyzing video within the camera itself, with no extra hardware required.
        4. The Intelligent Video System shall trigger an alarm and take a defined action for the following events:
           1. Standard Features

Tampering with the camera.

Error writing to an onboard Micro SD Card.

Error sending or receiving data over the network.

Unauthorized access to the camera.

* + - * 1. Premium Features

Tripwire: a target crosses a user-defined line.

Intrusion: a target enters or exits a defined perimeter.

* + 1. Installation Requirements
       1. The 2MP Dome camera shall be capable of operating in an outdoor environment within a temperature range of –40° C to +60° C (–40° F to 140° F).
       2. The 2MP Dome camera shall accept power, transmit video, and accept control via an Ethernet connection.
       3. The 2MP Dome camera shall support the following dual, redundant power options:
          1. 12 VDC
          2. PoE (IEEE 802.3af, class 0)
          3. The 2MP Dome camera shall default to use power from the PoE power supply, if connected.
          4. The 2MP Dome camera shall reboot and switch to the 12 VDC power supply if power from the PoE power supply is lost.
    2. Housing Options
       1. The 2MP Dome camera shall be offered in a metal housing.
       2. The 2MP Dome camera housing shall conform to the IP67 Ingress Protection standard.
       3. The 2MP Dome camera housing shall conform to the IK10 Vandal Resistance standard.
  1. ACCESSORIES
     1. The 2MP Dome camera shall offer the following optional accessories:
        1. [Mount adapter.]
        2. [Pole mount.]
        3. [Junction box.]
        4. [Wall mount.]
        5. [Corner mount.]
        6. [Ceiling mount.]
        7. [Rain/Sun shield.]
        8. [12 VDC, 1 A Power Adapter.]

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