December 2019

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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**

**4 MP IR FIXED LENS CORNER NETWORK DOME 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 theUHD-1 Standard in:
           1. Resolution: 3840 x 2160
           2. Scan: Progressive
           3. Color representation: complies with ITU-R BT.2020-2
           4. Aspect ratio: 16:9
           5. Frame rate: 25 and 30 frames/s
        2. 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
        3. 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
        4. 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 4 MP Corner Dome camera shall be a full-featured network corner camera designed for discrete video surveillance applications in indoor and outdoor environments.
        2. The 4 MP Corner Dome camera shall use a high performance 1/1.8-in. 4 MP Corner Progressive-scan CMOS sensor.
        3. The 4 MP Corner Dome camera shall utilize Starlight+ technology to produce color images in illumination down to 0.004 lux at F2.0 (1/3 s, 30 IRE).
        4. The 4 MP Corner Dome camera shall offer 940 nm wavelength IR illumination for covert illumination at a maximum distance of 10 m (32.81 ft).
        5. The 4 MP Corner Dome camera shall offer Analytics+ functionality, including Perimeter Protection and People Counting.
        6. Th 4 MP Corner Dome camera shall offer on-device lens distortion correction that digitally corrects optical distortion common with ultra-wide angle lenses.
        7. The 4 MP Corner 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.
        8. The 4 MP Corner 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.
        9. The 4 MP Corner Dome camera shall support the following dual, redundant power options:
           1. 12 VDC
           2. PoE (IEEE 802.3af, class 0)
           3. The 4 MP Corner Dome camera shall default to use power from the PoE power supply, if connected.
           4. The 4 MP Corner Dome camera shall reboot and switch to the 12 VDC power supply if power from the PoE power supply is lost.
        10. The 4 MP Corner Dome camera shall offer Ultra-Wide Dynamic Range   
            (140 dB) for clear images in extreme high-contrast environments.
        11. The 4 MP Corner Dome camera shall conform to the ONVIF standard to provide interoperability with other conformant systems.
        12. The 4 MP Corner Dome camera shall offer three separate and configurable streams with individually configurable 4 MP and D1 streams.
        13. The 4 MP Corner Dome camera shall have a 2.5 mm fixed lens.
        14. The 4 MP Corner Dome camera housing shall conform to the IP67 Ingress Protection standard.
        15. The 4 MP Corner Dome camera housing shall conform to the IK10+50J 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 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 [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.

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. 4 MP STARLIGHT CORNER NETWORK DOME CAMERA DH-IPC-HCBW8442N  
     1. General Characteristics:
        1. The 4 MP Corner Dome camera shall be a full-featured network corner camera designed for discrete video surveillance applications in indoor and outdoor environments.
        2. The 4 MP Corner Dome camera shall use a high performance 1/1.8-in. 4 MP Corner Progressive-scan CMOS sensor.
        3. The 4 MP Corner Dome camera shall utilize Starlight+ technology to produce color images in illumination down to 0.004 lux at F2.0 (1/3 s, 30 IRE).
        4. The 4 MP Corner Dome camera shall offer 940 nm wavelength IR illumination for covert illumination at a maximum distance of 10 m (32.81 ft).
        5. The 4 MP Corner Dome camera shall offer Analytics+ functionality, including Perimeter Protection and People Counting.
        6. Th 4 MP Corner Dome camera shall offer on-device lens distortion correction that digitally corrects optical distortion common with ultra-wide angle lenses.
        7. The 4 MP Corner 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.
        8. The 4 MP Corner 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.
        9. The 4 MP Corner Dome camera shall support the following dual, redundant power options:
           1. 12 VDC
           2. PoE (IEEE 802.3af, class 0)
           3. The 4 MP Corner Dome camera shall default to use power from the PoE power supply, if connected.
           4. The 4 MP Corner Dome camera shall reboot and switch to the 12 VDC power supply if power from the PoE power supply is lost.
        10. The 4 MP Corner Dome camera shall offer Ultra-Wide Dynamic Range   
            (140 dB) for clear images in extreme high-contrast environments.
        11. The 4 MP Corner Dome camera shall conform to the ONVIF standard to provide interoperability with other conformant systems.
        12. The 4 MP Corner Dome camera shall offer three separate and configurable streams with individually configurable 4 MP and D1 streams.
        13. The 4 MP Corner Dome camera shall have a 2.5 mm fixed lens.
        14. The 4 MP Corner Dome camera housing shall conform to the IP67 Ingress Protection standard.
        15. The 4 MP Corner Dome camera housing shall conform to the IK10+50J Vandal Resistance standard.
        16. The 4 MP Corner 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 4 MP Corner Dome camera shall offer a 1/1.8-in. 4 MP Progressive-scan CMOS imager.
        2. The 4 MP Corner Dome camera shall offer an effective number of pixels of 2688 x 1520 (4.0 MP) effective picture elements.
        3. The 4 MP Corner Dome camera shall offer a fixed lens with 2.5 mm focal length.
        4. The 4 MP Corner Dome camera shall have a horizontal angle of 135° and a vertical angle of 90°.
        5. The 4 MP Corner Dome camera shall offer a maximum aperture of F2.0.
        6. The 4 MP Corner Dome camera shall produce a color image with a minimum scene illumination of 0.004 lux at F2.0 and a monochrome image, when in the night mode, with a minimum illumination of 0 lux at F2.0 when in IR mode.
     3. Illumination
        1. The 4 MP Corner Dome camera shall have two integrated LEDs with a 940 nm wavelength for covert illumination.
        2. The 4 MP Corner Dome camera shall offer an IR distance of up to 10.0 m   
           (32.81 ft).
     4. Video Characteristics
        1. The 4 MP Corner Dome camera shall offer CBR/VBR bit rate control.
        2. The 4 MP Corner Dome camera shall offer the following video compression protocols
           1. H.265 (19 to 8192 Kbps)
           2. H.264 (32 to 8192 Kbps)
        3. The 4 MP Corner Dome camera shall offer Smart H.265+ and Smart H.264+ video compression protocols.
        4. The 4 MP Corner Dome camera shall offer BLC, HLC, and Ultra-wide dynamic range (140 dB) modes of backlight compensation.
        5. The 4 MP Corner Dome camera shall offer Auto, Natural, Street Lamp, Outdoor, Manual, Regional Custom white balance modes.
        6. The 4 MP Corner Dome camera shall offer 3D DNR noise reduction.
        7. The 4 MP Corner Dome camera shall offer motion detection (four zones) and region of interest (four zones) controls.
        8. The 4 MP Corner Dome camera shall offer four (4) privacy masking areas.
        9. The 4 MP Corner Dome camera shall offer a Flip mode at 0°, 90°, 180°, and 270°.
     5. Streaming Capability
        1. The 4 MP Corner Dome camera shall generate full 4 MP   
           (2688 x 1520 pixels) at 30 fps resolution using Smart H.265+ compression.
        2. The 4 MP Corner Dome camera shall offer Unicast and Multicast streaming methods.
        3. The 4 MP Corner Dome camera shall offer the following resolutions:
           1. 2688 x 1520
           2. 2560 x 1440
           3. 2304 x 1296
           4. 1080p (1920 x 1080)
           5. SXGA (1280 x 1024)
           6. 1.3 MP (1280 x 960)
           7. 720p (1280 x 720)
           8. D1 (704 x 480)
           9. VGA (640 x 480)
           10. CIF (352 x 240)
        4. The 4 MP Corner Dome camera shall generate three streams at the following maximum resolutions:
           1. Main Stream: 5 MP Corner at 30 fps
           2. Sub Stream 1: D1 at 30 fps
           3. Sub Stream 2: D1 at 12 fps
     6. IP Connectivity
        1. The 4 MP Corner Dome camera shall allow full camera control and configuration capabilities via a TCP/IP network.
        2. The 4 MP Corner Dome camera shall deliver 4 MP Corner video, at rates up to 20 frames per second via TCP/IP over an RJ-45 (10/100 Base-T) connection.
        3. The 4 MP Corner Dome camera shall conform to the ONVIF and the CGI standard.
        4. The 4 MP Corner Dome camera shall offer Quality of Service (QoS) configuration options.
        5. The 4 MP Corner Dome camera shall support the IPv6 internet-layer protocol for packet switched internetworking across multiple IP networks.
        6. The 4 MP Corner 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 4 MP Corner 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 4 MP Corner Dome camera shall support the Android and the IOS mobile operating systems.
     7. Analytics+
        1. The 4 MP Corner Dome camera offer a built-in Analytics+ functionality to provide advanced analytics for any scene.
        2. The Perimeter Protection function detects human or vehicle violations using an advanced tripwire or intrusion algorithm and can monitor a combination of 10 detection methods.
        3. The People Counting function delivers accurate flow statistics from the line crossing or the region algorithm.
     8. Intelligent Video System
        1. The 4 MP Corner 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 4 MP Corner 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

Motion: object moves through any part of the scene.

Scene Change: A person or object moves the camera to change the scene or covers the camera to obscure the scene.

* + 1. Installation Requirements
       1. The 4 MP Corner 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 4 MP Corner Dome camera shall accept power, transmit video, and accept control via an Ethernet connection.
       3. The 4 MP Corner Dome camera shall support the following dual, redundant power options:
          1. 12 VDC
          2. PoE (IEEE 802.3af, class 0)
          3. The 4 MP Corner Dome camera shall default to use power from the PoE power supply, if connected.
          4. The 4 MP Corner 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 4 MP Corner Dome camera shall be offered in a metal housing.
       2. The 4 MP Corner Dome camera housing shall conform to the IP67 Ingress Protection standard.
       3. The 4 MP Corner Dome camera housing shall conform to the IK10+50J Vandal Resistance standard which is capable of withstanding twice the impact   
          (50 joules) of the standard IK10 rating
  1. ACCESSORIES
     1. The 4 MP Corner Dome camera shall offer the following optional accessories:
        1. [12 VDC, 1 A Power Adapter.]
        2. [12 VDC, 2 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