OCTOBER 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 ePoE NETWORK BULLET CAMERA WITH ANALYTICS+**

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. Safety
        1. Underwriters Laboratories, Inc. (UL) (www.ul.com)
           1. UL60950-1
        2. CSA Group
           1. CAN/CSA C22.2 No.60950-1-07
        3. CE
           1. EN 60950:2000
     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 Surveillance – Surveillance Cameras – IP Cameras
     2. Performance Requirements
        1. The 4MP Analytics+ Network Bullet camera shall be a full-featured Bullet camera designed for discrete video surveillance applications in indoor and outdoor environments.
        2. The 4MP Analytics+ Network Bullet camera shall offer Analytics+ at the edge – performing complex real-time facial recognition, People Counting, Perimeter Protection, and Image Attribute Attraction without the need for an external database.
        3. The 4MP Analytics+ Network Bullet shall support an on-board database that stores up to 200,000 face images.
        4. The 4MP Analytics+ Network Bullet camera shall support Enhanced Power over Ethernet (ePoE) technology to transmit power and data via Ethernet cabling up to 800 m (2624 ft).
        5. The 4MP Analytics+ Network Bullet shall offer four (4) IR LEDs with a maximum IR distance of 50.0 m (164.04 ft).
        6. The 4MP Analytics+ Network Bullet shall provide direct network connection using Smart H.265+ and Smart H.264+ compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
        7. The 4MP Analytics+ Network Bullet shall be a high performance 1/1.8-in. progressive-scan CMOS sensor with 4 MP resolution.
        8. The 4MP Analytics+ Network Bullet shall offer Ultra Wide Dynamic Range   
           (140 dB) for clear images in extreme high-contrast environments.
        9. The 4MP Analytics+ Network Bullet shall offer the Intelligent Video System to detect and analyze moving objects for improved video surveillance.
        10. The 4MP Analytics+ Network Bullet shall offer abandoned/missing object detection and motion detection analytics.
        11. The 4MP Analytics+ Network Bullet shall conform to the ONVIF standard to provide interoperability with other conformant systems.
        12. The 4MP Analytics+ Network Bullet shall offer five (5) separate and configurable streams with individually configurable streams.
        13. The 4MP Analytics+ Network Bullet shall housing shall conform to the IP67 Ingress Protection standard.
        14. The 4MP Analytics+ Network Bullet shall housing shall conform to the IK10 Vandal Resistance 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 [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 ePoE NETWORK BULLET CAMERA WITH ANALYTICS+   
     DH-IPC-HFW7442HN-ZFR  
     1. General Characteristics:
        1. The 4MP Analytics+ Network Bullet camera shall be a full-featured Bullet camera designed for discrete video surveillance applications in indoor and outdoor environments.
        2. The 4MP Analytics+ Network Bullet camera shall offer Analytics+ at the edge – performing complex real-time facial recognition, People Counting, Perimeter Protection, and Image Attribute Attraction without the need for an external database.
        3. The 4MP Analytics+ Network Bullet shall support an on-board database that stores up to 200,000 face images.
        4. The 4MP Analytics+ Network Bullet camera shall support Enhanced Power over Ethernet (ePoE) technology to transmit power and data via Ethernet cabling up to 800 m (2624 ft).
        5. The 4MP Analytics+ Network Bullet shall provide direct network connection using Smart H.265+ and Smart H.264+ compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
        6. The 4MP Analytics+ Network Bullet shall be a high performance 1/1.8-in. progressive-scan CMOS sensor with 4 MP resolution.
        7. The 4MP Analytics+ Network Bullet shall offer Ultra Wide Dynamic Range   
           (140 dB) for clear images in extreme high-contrast environments.
        8. The 4MP Analytics+ Network Bullet shall offer four (4) IR LEDs with a maximum IR distance of 50.0 m (164.04 ft).
        9. The 4MP Analytics+ Network Bullet shall offer the Intelligent Video System to detect and analyze moving objects for improved video surveillance.
        10. The 4MP Analytics+ Network Bullet shall offer abandoned/missing object detection and motion detection analytics.
        11. The 4MP Analytics+ Network Bullet shall conform to the ONVIF standard to provide interoperability with other conformant systems.
        12. The 4MP Analytics+ Network Bullet shall offer five (5) separate and configurable streams with individually configurable streams.
        13. The 4MP Analytics+ Network Bullet shall housing shall conform to the IP67 Ingress Protection standard.
        14. The 4MP Analytics+ Network Bullet shall housing shall conform to the IK10 Vandal Resistance standard.
     2. Imaging
        1. The 4MP Analytics+ Network Bullet shall offer a 1/1.8-inch progressive-scan CMOS imager.
        2. The 4MP Analytics+ Network Bullet shall offer an effective number of pixels of 2688 x 1520 (4 MP) effective picture elements.
        3. The 4MP Analytics+ Network Bullet shall produce a color image with a minimum scene illumination of 0.001 lux at F1.2 and a monochrome image with a minimum illumination of 0 lux at F1.2 with IR on.
     3. Video Characteristics
        1. The 4MP Analytics+ Network Bullet shall offer CBR/VBR bit rate control.
        2. The 4MP Analytics+ Network Bullet shall offer the Smart H.265+, H.265, Smart H.264+, H.264, H.264B, H.264H, MJPEG (sub stream only) video compression protocols
        3. The 4MP Analytics+ Network Bullet shall offer BLC, HLC, and Ultra WDR   
           (140 dB), and SSA modes of backlight compensation.
        4. The 4MP Analytics+ Network Bullet shall offer Auto, Natural, Street Lamp, Outdoor, Manual, and Regional modes.
        5. The 4MP Analytics+ Network Bullet shall offer 3D DNR noise reduction.
        6. The 4MP Analytics+ Network Bullet shall offer motion detection (four zones) and region of interest (four zones) controls.
        7. The 4MP Analytics+ Network Bullet shall offer four (4) privacy masking areas.
     4. Streaming Capability
        1. The 4MP Analytics+ Network Bullet shall generate 2688 x 1520 pixels at 60 fps resolution using Smart H.265+ compression.
        2. The 4MP Analytics+ Network Bullet shall offer Unicast and Multicast streaming methods.
        3. The 4MP Analytics+ Network Bullet shall offer the following resolutions:
           1. 4 MP (2688 x 1520)
           2. 3 MP (2304 x 1296)
           3. 1080p (1920 x 1080)
           4. 1.3 MP (1280 x 960)
           5. 720p (1280 x 720)
           6. D1 (704 x 480)
           7. VGA (640 x 480)
           8. CIF (352 x 240)
        4. The 4MP Analytics+ Network Bullet shall generate three streams at the following maximum resolutions:
           1. Main Stream: 4 MP at 60 fps
           2. Sub Stream 1: 704 x 576 at 30 fps
           3. Sub Stream 2: 1080p at 30 fps
           4. Sub Stream 3: 1080p at 30 fps
           5. Sub Stream 4: 704 x 576 at 30 fps
     5. IP Connectivity
        1. The 4MP Analytics+ Network Bullet shall allow full camera control and configuration capabilities via a TCP/IP network.
        2. The 4MP Analytics+ Network Bullet shall deliver 4 MP video at rates up to 60 frames per second via TCP/IP over an RJ-45 (100/1000 Base-T) connection.
        3. The 4MP Analytics+ Network Bullet shall conform to the ONVIF, CGI, P2P, and the RTMP standard.
        4. The 4MP Analytics+ Network Bullet shall offer Quality of Service (QoS) configuration options.
        5. The 4MP Analytics+ Network Bullet shall support the IPv6 internet-layer protocol for packet switched internetworking across multiple IP networks.
        6. The 4MP Analytics+ Network Bullet shall offer local and network storage options that include: MicroSD (up to 256 GB), Network Attached Storage (NAS), and recording to a local PC for instant recording.
        7. The 4MP Analytics+ Network Bullet shall support the following protocols: HTTP, TCP, ARP, RTSP, RTP, UDP, RTCP, SMTP, FTP, DHCP, DNS, DDNS, PPPOE, IPv4/v6, SNMP, QoS, UPnP, NTP.
        8. The 4MP Analytics+ Network Bullet shall support the Smart PSS and DSS Pro, and the IVSS management software.
        9. The 4MP Analytics+ Network Bullet shall support the Android and the IOS mobile operating systems.
     6. Interface
        1. The 4MP Analytics+ Network Bullet shall offer one (1) BNC video output port.
        2. The 4MP Analytics+ Network Bullet shall offer one (1) RS485 port.
        3. The 4MP Analytics+ Network Bullet shall offer one (1) audio input channel, and one (1) audio output channel.
        4. The 4MP Analytics+ Network Bullet shall offer three (3) alarm input channels and two (2) alarm (relay) output channels.
     7. Analytics+
        1. Face Recognition shall:
           1. Support five group libraries that store up to 200,000 faces on the camera.
           2. Capture faces, compares to stored images, and produces match statistics.
           3. Extract six attributes and eight expressions from a face capture.
           4. Offer face enhancement, face exposure, and a face angle filter for clear facial images.
        2. People Counting shall:
           1. Deliver accurate flow statistics from the following methods:

Line Crossing: counts a person as they cross a threshold in a defined direction.

Region: counts the number of people in a defined area.

* + - * 1. Produce daily, monthly, and annual reports for both methods.
      1. Perimeter Protection shall:
         1. Detect human or vehicle violations using the following methods:

Tripwire: a target crosses a defined line.

Intrusion: a target enters or exits a defined perimeter.

* + - 1. Image Attribute Extraction shall:
         1. Distinguishes between motor vehicle, non-motor vehicle, and human targets.
         2. Optimizes images and takes a snapshot of each target.
         3. Extracts attributes specific to a target:

Vehicles: make, color, type

Human: gender, face attributes, clothing colors

* + 1. Intelligent Video System
       1. The 4MP Analytics+ Network Bullet 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 4MP Analytics+ Network Bullet.
       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.

Abandoned/Missing Object: a target leaves an object in a designated area, or a target removes and object from the same designated area.

* + 1. Installation Requirements
       1. The 4MP Analytics+ Network Bullet shall be capable of operating in an outdoor environment within a temperature range of –40° C to +60° C (–60° F to 140° F).
       2. The 4MP Analytics+ Network Bullet shall accept power, transmit video, and accept control via a TCP/IP connection.
       3. The 4MP Analytics+ Network Bullet shall accept power from one of the following sources:
          1. 12 VDC
          2. 24 VAC
          3. PoE (802.3af, class 0)
    2. Housing Options
       1. The 4MP Analytics+ Network Bullet shall be offered in a metal housing.
       2. The 4MP Analytics+ Network Bullet shall housing shall conform to the IP67 Ingress Protection standard.
       3. The 4MP Analytics+ Network Bullet shall housing shall conform to the IK10 Vandal Resistance standard.
  1. ACCESSORIES
     1. The 4MP Analytics+ Network Bullet shall offer the following optional accessories:
        1. [Pole mount.]
        2. [Power adapter.]
        3. [EoC Passive Converter]
        4. [Single-port EoC Receiver]

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