OCTOBER 2018

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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 11: Analog Cameras**

**2 MP HDCVI FIXED MINI BULLET 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. CFR 47 FCC Part 15 Subpart B
     2. ANSI Standard
        1. ANSI C63.4-2014
     3. CE Standards
        1. EN 50130-4
        2. EN 55024
        3. EN 55032
     4. HD standards
        1. 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. 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 – Analog Cameras
     2. Performance Requirements
        1. The 2 MP HDCVI Mini Bullet camera shall be a full-featured 2 MP HDCVI fixed mini bullet camera unit designed for discrete video surveillance applications in indoor and outdoor environments.
        2. The 2 MP HDCVI Mini Bullet camera shall transmit one (1) BNC HDCVI High-definition Channel, or one (1) BNC CVBS Channel, switchable.
        3. The 2 MP HDCVI Mini Bullet camera shall support the HDCVI, TVI, AHD and CVBS video formats. The camera shall switch between these four formats via the OSD menu or via a UTC controller (PFM820), making the camera compatible with not only HCVRs but also most existing HD/SD DVRs.
        4. The 2 MP HDCVI Mini Bullet camera shall transmit video, power, and data signals over a single coaxial cable.
        5. The 2 MP HDCVI Mini Bullet camera shall be a high performance 1/2.9-in. progressive-scan CMOS sensor with 2 MP resolution.
        6. The 2 MP HDCVI Mini Bullet camera shall transmit 2 MP video up to 700 m (0.43 miles) via an RG-6/U coaxial cable, and up to 500 m (1640.42 ft) via a RG-59/U Coaxial cable.
        7. The 2 MP HDCVI Mini Bullet camera shall offer digital Wide Dynamic Range for clear images in extreme high-contrast environments.
        8. The 2 MP HDCVI Mini Bullet camera shall have a variable focal length of   
           2.8 mm fixed lens.
        9. The 2 MP HDCVI Mini Bullet camera shall come with a built-in heater to allow the camera to operate in temperatures down to -40 °C (-40 °F).
        10. The 2 MP HDCVI Mini Bullet camera shall conform to the IP67 Ingress Protection rating.
  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. 2 MP HDCVI FIXED MINI BULLET CAMERA – DH-HAC-1220GN-USA
     1. General Characteristics:
        1. The 2 MP HDCVI Mini Bullet camera shall be a full-featured 2 MP HDCVI fixed mini bullet camera unit designed for discrete video surveillance applications in indoor and outdoor environments.
        2. The 2 MP HDCVI Mini Bullet camera shall transmit one (1) BNC HDCVI High-definition Channel, or one (1) BNC CVBS Channel, switchable.
        3. The 2 MP HDCVI Mini Bullet camera shall support the HDCVI, TVI, AHD and CVBS video formats. The camera shall switch between these four formats via the OSD menu or via a UTC controller (PFM820), making the camera compatible with not only HCVRs but also most existing HD/SD DVRs.
        4. The 2 MP HDCVI Mini Bullet camera shall transmit video, power, and data signals over a single coaxial cable.
        5. The 2 MP HDCVI Mini Bullet camera shall be a high performance 1/2.9-in. progressive-scan CMOS sensor with 2 MP resolution.
        6. The 2 MP HDCVI Mini Bullet camera shall transmit 2 MP video up to 700 m (0.43 miles) via an RG-6/U coaxial cable, and up to 500 m (1640.42 ft) via a RG-59/U Coaxial cable.
        7. The 2 MP HDCVI Mini Bullet camera shall offer digital Wide Dynamic Range for clear images in extreme high-contrast environments.
        8. The 2 MP HDCVI Mini Bullet camera shall have a variable focal length of   
           2.8 mm fixed lens.
        9. The 2 MP HDCVI Mini Bullet camera shall come with a built-in heater to allow the camera to operate in temperatures down to -40 °C (-40 °F).
        10. The 2 MP HDCVI Mini Bullet camera shall conform to the IP67 Ingress Protection rating.
     2. Imaging
        1. The 2 MP HDCVI Mini Bullet camera shall offer a 1/2.9-inch progressive-scan CMOS sensor.
        2. The 2 MP HDCVI Mini Bullet camera shall offer an effective number of pixels of 1920(H) x 1080(V), 2 MP, effective picture elements.
        3. The 2 MP HDCVI Mini Bullet camera shall offer a 16:9 aspect ratio.
        4. The 2 MP HDCVI Mini Bullet camera shall offer a fixed focal length of 2.8 mm.
        5. The 2 MP HDCVI Mini Bullet camera shall have a close focus distance of   
           400.0 mm (15.75 in.).
        6. The 2 MP HDCVI Mini Bullet camera shall have a 117.8° horizontal angle of view.
        7. The 2 MP HDCVI Mini Bullet camera shall offer a maximum aperture of F2.0.
        8. The 2 MP HDCVI Mini Bullet camera shall produce a color image with a minimum scene illumination of 0.02 lux at F2.0, and a monochrome image with a minimum scene illumination of 0.002 at F.20.
     3. Video Characteristics
        1. The 2 MP HDCVI Mini Bullet camera shall generate:
           1. 1080p resolution at 30 fps
           2. 720p resolution at 60 fps
        2. The 2 MP HDCVI Mini Bullet camera shall offer one (1) BNC Ultra High-definition HDCVI output or one (1) BNC CVBS standard-definition output.
        3. The 2 MP HDCVI Mini Bullet camera shall offer BLC, HLC, and Digital WDR modes of backlight compensation.
        4. The 2 MP HDCVI Mini Bullet camera shall offer 2D noise reduction.
     4. Installation Requirements
        1. The 2 MP HDCVI Mini Bullet 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 2 MP HDCVI Mini Bullet camera shall accept power, transmit video, and accept control via a coaxial cable.
        3. The 2 MP HDCVI Mini Bullet camera shall accept power from a 12 VDC power source within a ±25% voltage fluctuation range.
     5. Housing Options
        1. The 2 MP HDCVI Mini Bullet camera shall be offered in an aluminum housing.
        2. The 2 MP HDCVI Mini Bullet camera housing shall conform to the IK10 Vandal Resistance standard.
  2. ACCESSORIES
     1. The 2 MP HDCVI Mini Bullet camera shall offer the following optional accessories:
        1. [Power adapter]
        2. [Passive HDCVI Balun]
        3. [4 MP Passive Balun]
        4. [4K Passive Balun]
        5. [POC Transceiver]
        6. [UTC Controller]

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.

* + 1. Make any adjustment of camera settings to comply with specific customer’s need.
  1. DEMOSTRATION
     1. Demonstrate at final inspection that video management system and devices functions properly.

END OF SECTION