AUGUST 2021

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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 00 00: Electronic Safety and Security**

**Section 28 05 00: Common Work Results For Electronic Safety and Security**

**Section 28 05 19.15: Network Video Recorders**

**4-CHANNEL 4K NETWORK VIDEO RECORDER**

1. **– GENERAL**
   1. SUMMARY
      1. Section Includes
         1. Section 28 05 23: Storage Area Network Electronic Safety and Security
         2. Section 28 05 25: Cloud Based Storage for Electronic Safety and Security
         3. Section 28 05 29: Storage Management Software for Electronic Safety and Security
         4. Section 28 05 31: Communications Equipment for Electronic Safety and Security
      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. Electromagnetic Compatibility
        1. Federal Communications Commission (FCC) ([www.fcc.gov](http://www.fcc.gov))
           1. CFR 47 FCC Part 15 Subpart B
        2. European Norms
           1. EN55032
           2. EN55024
           3. EN55035
           4. EN61000-3-2
           5. EN61000-3-3
           6. EN50130-4
     2. Safety
        1. Underwriters Laboratories, Inc. (UL) (www.ul.com)
           1. UL 62368-1
        2. CAN/CSA
           1. CAN/CSA C22.2 No.62368-1-14
        3. European Norm
           1. EN62368-1
  2. SYSTEM DESCRIPTION
     1. Section Includes
        1. Network Video Recorders
     2. Performance Requirements
        1. The 4-channel NVR shall use an embedded industrial-grade processer with embedded Linux operating system to record video from four (4) IP camera inputs.
        2. The 4-channel NVR shall be capable of storing up to 10 TB of data from four (4) IP camera inputs.
        3. The 4-channel NVR shall use the Smart H.265+, Smart H.264+, and MJPEG Video compression protocols.
        4. The 4-channel NVR shall be capable of recording Analytics+ data from edge cameras.
        5. The 4-channel NVR shall offer 4K resolution for display and up to 8 MP resolution for recording.
        6. The 4-channel NVR shall have a maximum recording bandwidth of 80 Mbps.
        7. The 4-channel NVR shall offer a selection of built-in recording options and schedules.
        8. The 4-channel NVR shall come in a Smart 1U casing.
  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.

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. 4-CHANNEL SMART 1U 4K SATA NETWORK VIDEO RECORDER   
     [N41C1P]  
     1. General Characteristics:
        1. The 4-channel NVR shall use an embedded industrial-grade processer with embedded Linux operating system to record video from four (4) IP camera inputs.
        2. The 4-channel NVR shall be capable of storing up to 10 TB of data from four (4) IP camera inputs.
        3. The 4-channel NVR shall use the Smart H.265+, Smart H.264+, and MJPEG Video compression protocols.
        4. The 4-channel NVR shall be capable of recording Analytics+ data from edge cameras.
        5. The 4-channel NVR shall offer 4K resolution for display and up to 8 MP resolution for recording.
        6. The 4-channel NVR shall have a maximum recording bandwidth of 80 Mbps.
        7. The 4-channel NVR shall offer a selection of built-in recording options and schedules.
        8. The 4-channel NVR shall come in a Smart 1U casing.
        9. The 4-channel NVR shall be powered by a 48 VDC, 1.25 A power supply and consume less than 10 W of power.
     2. Display
        1. The 4-channel NVR shall offer one (1) HDMI and one (1) VGA output port.
        2. The 4-channel NVR shall offer native output resolutions of 3840 x 2160, 1920 x 1080, 1280 x 1024, 1280 x 720.
        3. The 4-channel NVR shall offer 1/4 multi-screen display.
        4. The 4-channel NVR shall offer an on-screen display that lists the camera title, time, video loss indication, camera lock indication, motion detection, and recording indicator.
     3. Video Detection and Alarm
        1. The 4-channel NVR shall offer trigger events for:
           1. General Alarms: Motion detection, privacy masking, video loss, scene changing, PIR alarm, IPC external alarm
           2. Anomaly Alarms: Camera disconnection, storage error, disk full, IP conflict, MAC conflict, login locked, and cybersecurity exception
           3. Analytics+ Alarms: Face detection, perimeter protection (intrusion and tripwire), IVS, people counting, heat map, and SMD alarms
           4. Alarm Actions: Recording, snapshot, audio, buzzer, log, preset, and email
     4. Interface
        1. The 4-channel NVR shall support four (4) IP camera inputs.
        2. The 4-channel NVR shall offer two (2) USB 2.0 auxiliary ports.
        3. The 4-channel NVR shall offer one (1) RCA audio input channel and one (1) RCA audio output channel.
     5. Storage
        1. The 4-channel NVR shall come with one (1) SATA III port that can support a 10 TB HDD, single-mode.
     6. Playback and Backup
        1. The 4-channel NVR shall support synchronous output to 1/4 playback devices.
        2. The 4-channel NVR shall allow recorded video searches by time/date, alarm, motion detection event, Smart Search, and Exact Search.
        3. The 4-channel NVR shall offer the following playback functions: Play, Pause, Stop, Rewind, Fast Play, Slow Play, Next File, Previous File, Next Camera, Previous Camera, Full Screen, Repeat, Shuffle, Backup Selection, and Digital Zoom.
        4. The 4-channel NVR shall allow data backup via a USB device or another network.
     7. Recording
        1. The 4-channel NVR shall employ the Smart H.265+, H.265, Smart H.264+, H.264, and MJPEG video compression protocols.
        2. The 4-channel NVR shall support video recording resolutions of 8 MP, 6 MP, 5 MP, 4 MP, 3 MP, 1080p, 720p, D1.
        3. The 4-channel NVR shall offer a maximum recording bandwidth of 80 Mbps.
        4. The 4-channel NVR shall offer the following built-in recording modes:
           1. Manual
           2. Alarm
           3. SMD
           4. Smart
        5. The 4-channel NVR shall be capable of recording from third-party devices, including: Dahua, Arecont Vision, AXIS, Bosch, Brickcom, Canon, CP Plus, Dynacolor, Honeywell, Panasonic, Pelco, Samsung, Sanyo, Sony, Videotec, and Vivotek.
     8. IP Connectivity
        1. The 4-channel NVR shall allow full control and configuration capabilities via a TCP/IP network.
        2. The 4-channel NVR shall offer one RJ-45 port (10/100 Mbps).
        3. The 4-channel NVR shall offer four (4) PoE ports (IEEE802.3af/at). Each PoE port shall provide a maximum of 25.5 W of power, with a total PoE power consumption of 36 W.
        4. The 4-channel NVR shall support a maximum of 128 user access points.
        5. The 4-channel NVR shall conform to the ONVIF S, T, and G standards and support CGI and SDK integration.
        6. The 4-channel NVR shall support the IPv6 internet-layer protocol for packet switched internetworking across multiple IP networks.
        7. The 4-channel NVR shall support the 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-channel NVR shall support the IOS and the Android mobile operating systems.
     9. Analytics+ Recording
        1. The 4-channel NVR shall offer recording capabilities for Perimeter Protection and then search by channel, time, and event type.
        2. The 4-channel NVR shall offer recording capabilities for Smart Motion Detection Plus and then search by target classification.
     10. Installation Requirements
         1. The 4-channel NVR shall be capable of operating in temperatures between   
            -10°C to +50°C (+14°F to +122°F).
         2. The 4-channel NVR shall receive power from a 48 VDC, 1.25 A power source and consume less than 10 W of power.

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