

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

MEGAPIXEL PINHOLE – 2x2MP INDOOR NETWORK CAMERA MAIN BOX

PART 1 – GENERAL

1.1 SUMMARY

A. 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 27 00: Video Surveillance – Video Surveillance Sensors

B. 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.

1.2 REFERENCES

- A. Federal Communications Commission (FCC) (www.fcc.gov)
 - 1. (SEFD1509190-B
- B. Underwriters Laboratories, Inc. (UL) (www.ul.com)
 - 1. E234884-A60-UL
- C. CONFORMITE EUROPEENNE
 - 1. EN60950:2000
- D. Bureauveritas(www.bureauveritas.com)
 - 1. EN50155:2007
- E. E-mark(www.tuv.com)
 - 1. ECE-Regulation NO.10
- F. HD standards
 - 1. Complies with the SMPTE 274M-2008 Standard in:
 - a. Resolution: 1920x1080
 - b. Scan: Progressive
 - c. Color representation: complies with ITU-R BT.709
 - d. Aspect ratio: 16:9
 - e. Frame rate: 25 and 30 frames/s
 - 2. Complies with the 296M-2001 Standard in:
 - a. Resolution: 1280x720
 - b. Scan: Progressive
 - c. Color representation: complies with ITU-R BT.709
 - d. Aspect ratio: 16:9
 - e. Frame rate: 25, 30, 50 and 60 frames/s
 - f. Interference-Causing Equipment Standards

1.3 SYSTEM DESCRIPTION

A. Section Includes

1. Video Surveillance – Surveillance Cameras – IP Cameras

B. Performance Requirements

1. The Pinhole camera main box shall be a modular unit of a full-featured 2x2MP camera designed for discrete video surveillance applications in indoor environments.
2. The Pinhole camera main box shall offer an electronic day/night function that delivers color images during daylight and automatically switches to a monochrome image as the scene darkens.
3. The Pinhole camera main box shall support 12V DC power supply.
4. The Pinhole camera main box shall offer Wide Dynamic Range for clear images in high-contrast environments.
5. The Pinhole camera main box shall provide direct network connection using H.265 and H.264 compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
6. The Pinhole camera main box shall conform to the ONVIF profile S&G and CGI standards to provide interoperability with other conformant systems.
7. The Pinhole camera main box shall offer two (2) channels, each channel offers two (2) separate and configurable streams with one (1) individually configurable 2MP stream at 1 to 30 fps.
8. The Pinhole camera main box shall offer RS232 com for debug.
9. The Pinhole camera main box shall offer 2 alarm in, 2 alarm out.
10. The Pinhole camera main box shall offer bidirectional voice with 1 line-in audio and 1 line-out audio which support G.711, AAC audio codec.
11. The Pinhole camera main box shall offer micro SD slot support 128GB storage capability.

1.4 SUBMITTALS

- A. Submit under provisions of Section [01 33 00.]
- B. 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.
- C. Dimensional Drawings; include
 - 1. Overall device dimensions.
 - 2. Dimensions specific for installation.
- D. Closeout Submittals
 - 1. User manual.
 - 2. Parts list.
 - 3. Maintenance requirements.

1.5 QUALITY ASSURANCE

- A. Manufacturer:
 - 1. Minimum of [10] years of experience in manufacture and design Video Surveillance Devices.
- B. Video Surveillance System:
 - 1. List certifying bodies (UL, etc.)
 - 2. Provide evidence of compliance upon request.
- C. Installer:
 - 1. Minimum of [5] years of experience installing Video Surveillance System.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Comply with requirements of Section 01 60 00.
- B. Deliver materials in manufacturer's original, unopened, undamaged containers; and unharmed original identification labels.
- C. Protect store materials from environmental and temperature conditions following manufacturer's instructions.
- D. Handle and operate products and systems according to manufacturer's instructions.

1.7 WARRANTY

- A. Provide manufacturer's warranty covering [3] years for replacement and repair of defective equipment. Warranty varies country to country.

1.8 MAINTENANCE

- A. Make ordering of new equipment for expansions, replacements, and spare parts available to dealers and end users.
- B. Provide factory direct technical support via phone and e-mail.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. [Acceptable Manufacturer:
Zhejiang Dahua Technology Co., Ltd
No.1199, Bin'an Road, Binjiang District, Hangzhou
Tel: +86 571 8768-8883
Fax: +86 571 8768-8815
Email: overseas@dahuatech.com
- B. 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.]

2.2 MEGAPIXEL PINHOLE – 2x2MP INDOOR NETWORK CAMERA MAIN BOX – [DH-IPC-HUM8231P-E1] [DH-IPC-HUM8231N-E1]

- A. General Characteristics:
 - 1. The Pinhole camera main box shall be a modular unit of a full-featured 2x2MP camera designed for discrete video surveillance applications in indoor environments.
 - 2. The Pinhole camera main box shall offer an electronic day/night function that delivers color images during daylight and automatically switches to a monochrome image as the scene darkens.
 - 3. The Pinhole camera main box shall support 12V DC power supply.
 - 4. The Pinhole camera main box shall offer Wide Dynamic Range for clear images in extreme high-contrast environments.
 - 5. The Pinhole camera main box shall provide direct network connection using H.265, and H.264 compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
 - 6. The Pinhole camera main box shall conform to the ONVIF Profile S&G and CGI standards to provide interoperability with other conformant systems.
 - 7. The Pinhole camera main box shall offer two (2) channels, each channel offers two (2) separate and configurable streams with one (1) individually configurable 2MP stream at 1 to 30 fps.

B. Video Characteristics

1. The Pinhole camera main box shall offer CBR/VBR bit rate control.
2. The Pinhole camera main box shall offer the following video compression protocols:
 - a. H.265
 - b. H.264
3. The Pinhole camera main box shall offer BLC, HLC, and WDR modes of backlight compensation.
4. The Pinhole camera main box shall offer Auto, Natural, Street Lamp, Outdoor, Manual and Customized white balance modes.
5. The Pinhole camera main box shall offer 3D DNR noise reduction.
6. The Pinhole camera main box shall offer 4 privacy masking areas.
7. The Pinhole camera main box shall offer motion detection (four zones) and region of interest (four zones) controls.
8. The Pinhole camera main box shall offer 16x digital zoom.

C. Streaming Capability

1. The Pinhole camera main box shall generate 2MP resolution using H.265 compression.
2. The Pinhole camera main box shall offer Unicast and Multicast streaming methods.
3. The Pinhole camera main box shall offer the following resolution streams:
 - a. FHD 1080P (1920 x 1080 pixels)
 - b. 1.3MP (1280 x 960 pixels)
 - c. 720P (1280 x 720 pixels)
 - d. D1 (704 x 576 pixels/704 x 480 pixels)
 - e. VGA (640 x 480 pixels)
 - f. CIF (352 x 288 pixels/352 x 240 pixels)
4. The Pinhole camera main box shall offer two (2) channels, each channel shall generate two (2) streams at the following maximum resolutions:
 - a. Main Stream: 2MP at 30 fps
 - b. Sub Stream: CIF/ at 30 fps

D. IP Connectivity

1. The Pinhole camera main box shall allow full camera control and configuration capabilities via a TCP/IP network.
2. The Pinhole camera main box shall deliver 2MP video, at rates up to 30 frames per second via TCP/IP over an RJ-45 (10/100Base-T) connection.
3. The Pinhole camera main box shall conform to the ONVIF Profile S&G and the CGI standard.
4. The Pinhole camera main box shall offer Quality of Service (QoS) configuration options.
5. The Pinhole camera main box shall support the IPv6 internet-layer protocol for packet switched internetworking across multiple IP networks.
6. The Pinhole camera main box shall support the following protocols: IPv4/IPv6, HTTP, HTTPS, SSL, TCP/IP, ARP, RTSP, UDP, UPnP, ICMP, IGMP, SNMP, RTP, SMTP, NTP, DHCP, DNS, PPPOE, DDNS, FTP, IP Filter, QoS, Bonjour, and 802.1x.
7. The Pinhole camera main box shall support the Smart PSS and DSS management software (for one (1) lens unit only).

8. The Pinhole camera main box shall support the Android and the IOS mobile operating systems.
- E. Installation Requirements
1. The Pinhole camera main box shall be capable of operating in an indoor environment within a temperature range of -30°C to $+60^{\circ}\text{C}$ (-22°F to 140°F).
 2. The Pinhole camera main box shall accept power, transmit video, and accept control via a TCP/IP connection.
 3. The Pinhole camera main box shall support 12V DC power supply.
 4. The Pinhole camera main box shall support POE 802.3af (class 0) power supply.

2.3 ACCESSORIES

- A. The Pinhole camera main box shall require the following accessories:
1. Required lens unit:
 - a. [Pinhole camera lens unit]

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive devices and notify adverse conditions affecting installation or subsequent operation.
- B. Do not begin installation until unacceptable conditions are corrected.

3.2 PREPARATION

- A. Protect devices from damage during construction.

3.3 INSTALLATION

- A. Install devices in accordance with manufacturer's instruction at locations indicated on the floor drawings plans.
- B. Perform installation with qualified service personnel.
- C. Install devices in accordance with the National Electrical Code or applicable local codes.
- D. Ensure selected location is secure and offers protection from accidental damage.
- E. Location must provide reasonable temperature and humidity conditions, free from sources of electrical and electromagnetic interference.

3.4 FIELD QUALITY CONTROL

- A. Test snugness of mounting screws of all installed equipment.
- B. Test proper operation of all video system devices.
- C. Determine and report all problems to the manufacturer's customer service department.

3.5 ADJUSTING

- A. Make proper adjustment to video system devices for correct operation in accordance with manufacturer's instructions.
- B. Make any adjustment of camera settings to comply with specific customer's need.

3.6 DEMONSTRATION

- A. Demonstrate at final inspection that video management system and devices functions properly.

END OF SECTION