

## 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 BOX – 2 MP INDOOR NETWORK CAMERA

#### 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](http://www.fcc.gov))
  - 1. (SEFD1509190-B)
- B. Underwriters Laboratories, Inc. (UL) ([www.ul.com](http://www.ul.com))
  - 1. E234884-A60-UL
- C. CONFORMITE EUROPEENNE
  - 1. EN60950:2000
- D. Bureauveritas([www.bureauveritas.com](http://www.bureauveritas.com))
  - 1. EN50155:2007
- E. E-mark([www.tuv.com](http://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 Box camera shall be a full-featured 2MP unit designed for discrete video surveillance applications in indoor environments.
2. The Box 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.
3. The Box camera shall be a high performance 1/2.8-in. progressive-scan day/night CMOS sensor with 2MP resolution.
4. The Box camera shall support 12V DC,24V AC power supply.
5. The Box camera shall offer Wide Dynamic Range for clear images in extreme high-contrast environments.
6. The Box camera shall provide direct network connection using smart H.265, H.265, smart H.264 and H.264 compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
7. The Box camera shall conform to the ONVIF profile S&G and CGI standards to provide interoperability with other conformant systems.
8. The Box camera shall offer three (3) separate and configurable streams with one (1) individually configurable 2MP stream at 1 to 50/60 fps .
9. The Box camera shall offer:
  - a. 4 KV lightning rating
10. The Box camera shall offer 2ch alarm in & 1ch alarm out.
11. The Box camera shall offer 1ch line-in audio & 1ch line-out & 1ch built-in mic with G.711 AAC audio codec.
12. The Box camera shall offer micro SD slot maximum 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 BOX - 2MP INDOOR NETWORK CAMERA – [DH-IPC-HF5231EP] [DH-IPC-HF5231EN]**

- A. General Characteristics:
  - 1. The Box camera shall be a full-featured 2MP unit designed for discrete video surveillance applications in indoor environments.
  - 2. The Box 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.
  - 3. The Box camera shall be a high performance 1/2.8-in. progressive-scan day/night CMOS sensor with an effective pixel rating of 1920 x 1080.
  - 4. The Box camera shall support 12V DC,24V AC power supply.
  - 5. The Box camera shall offer Digital Wide Dynamic Range for clear images in high-contrast environments.
  - 6. The Box camera shall provide direct network connection using smart H.265 ,H.265,smart H.264 and H.264 compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
  - 7. The Box camera shall conform to the ONVIF Profile S&G and CGI standards to provide interoperability with other conformant systems.

8. The Box camera shall offer three (3) separate and configurable streams with one (1) individually configurable 2MP stream at 1 to 50/60 fps.
9. The Box camera shall offer:
  - a. 4KV lightning rating
10. The Box camera shall offer 2ch alarm in & 1ch alarm out.
11. The Box camera shall offer 1ch line-in audio & 1ch line-out & 1ch built-in mic with G.711 AAC audio codec.
12. The Box camera shall offer micro SD slot maximum support 128GB storage capability.

B. Imaging

1. The Box camera shall offer a 1/2.8-inch type CMOS progressive-scan imager.
2. The Box camera shall offer an effective number of pixels of 1920 x 1080 effective picture elements.
3. The Box camera shall offer a 3:2 aspect ratio or 16:9 aspect ratio.
4. The Box camera shall produce a color image with a minimum scene illumination of 0.004 lux at F1.2 (Color, 1/3s, 30IRE) , 0.04 lux at F1.2 (Color, 1/30s, 30IRE) and a monochrome image, when in the night mode, with a minimum illumination of 0.002 lux at F1.2 (B/W, 1/3s, 30IRE) , 0.02 lux at F1.2 (B/W, 1/30s, 30IRE).

- C. Video Characteristics
  - 1. The Box camera shall offer CBR/VBR bit rate control.
  - 2. The Box camera shall offer the following video compression protocols
    - a. Smart H.265
    - b. H.265
    - c. Smart H.264
    - d. H.264
  - 3. The Box camera shall offer BLC, HLC, and WDR modes of backlight compensation.
  - 4. The Box camera shall offer Auto, Sunny, Night, Outdoor, and Customized white balance modes.
  - 5. The Box camera shall offer 3D DNR noise reduction.
  - 6. The Box camera shall offer 4 privacy masking areas.
  - 7. The Box camera shall offer motion detection (four zones) and region of interest (four zones) controls.
  - 8. The Box camera shall offer 16x digital zoom.
- D. Streaming Capability
  - 1. The Box camera shall generate 2MP resolution using H.265 compression.
  - 2. The Box camera shall offer Unicast and Multicast streaming methods.
  - 3. The Box camera shall offer the following resolution streams:
    - a. FHD (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 Box camera shall generate three (3) streams at the following maximum resolutions:
    - a. Main Stream: 1080P at 50/60 fps
    - b. Sub Stream 1: D1 at 50/60 fps
    - c. Sub Stream 2: 1080P at 25/30 fps
- E. IP Connectivity
  - 1. The Box camera shall allow full camera control and configuration capabilities via a TCP/IP network.
  - 2. The Box camera shall deliver 2MP video, at rates up to 50/60 frames per second via TCP/IP over an RJ-45 (10/100 Base-T) connection.
  - 3. The Box camera shall conform to the ONVIF Profile S&G and the CGI standard.
  - 4. The Box camera shall offer Quality of Service (QoS) configuration options.
  - 5. The Box camera shall support the IPv6 internet-layer protocol for packet switched internetworking across multiple IP networks.
  - 6. The Box camera 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 Box camera shall support the Smart PSS and DSS management software.
  - 8. The Box camera shall support the Android and the IOS mobile operating systems.

- F. Installation Requirements
  - 1. The Box camera shall be capable of operating in an outdoor environment within a temperature range of  $-30^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  ( $-22^{\circ}\text{F}$  to  $140^{\circ}\text{F}$ ).
  - 2. The Box camera shall accept power, transmit video, and accept control via a TCP/IP connection.
  - 3. The Box camera shall support 12V DC,24V AC power supply.
- G. Housing Options
  - 1. The Box camera shall be offered in a metal housing.

## 2.3 ACCESSORIES

- A. The IR Box camera shall offer the following optional accessories:
  - 1. Optional mounting hardware:
    - a. [Wall mount bracket]
    - b. [Ceiling mount bracket]

## **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**