

## 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

#### Thermal Network Bullet 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. HD standards
  - 1. 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 and 30 frames/s

## 1.3 SYSTEM DESCRIPTION

### A. Section Includes

1. Video Surveillance – Surveillance Cameras – IP Cameras

### B. Performance Requirements

1. The Thermal Network Bullet Camera shall be 400 x 300 VOx uncooled thermal sensor.
2. The Thermal Network Bullet Camera shall have a pixel size of 17um.
3. The Thermal Network Bullet Camera shall have a thermal sensitivity of <40mK@f/1.0.
4. The Thermal Network Bullet Camera shall have a spectral range of 7~14um.
5. The Thermal Network Bullet Camera shall support temperature measurement.
6. The Thermal Network Bullet Camera shall have a fixed focal length of [7.5mm], [13mm], [19mm], [25mm], [35mm].
7. The Thermal Network Bullet Camera shall support 14 color palettes of Whitehot/Blackhot/Ironrow/Icefire/Fusion/Rainbow/Globow/Iconbow1/Iconbow2 etc.
8. The Thermal Network Bullet Camera shall support privacy masking up to 4 areas.
9. The Thermal Network Bullet Camera shall support 24 VAC/12 VDC power supply.  
The following dual, redundant power options:
  - a. 24 VAC/12 VDC.
  - b. PoE (IEEE 802.3af).
  - c. The Thermal Network Bullet Camera shall default to use power from PoE power supply, if connected.
  - d. The Thermal Network Bullet Camera shall switch to the 24 VAC/12 VDC power supply if power from the PoE supply is lost.
10. The Thermal Network Bullet Camera shall provide direct network connection using H.264 High profile, H.264 Main profile, H.264 Basic profile and M-JPEG compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
11. The Thermal Network Bullet Camera shall conform to the ONVIF profile S&G and CGI standards to provide interoperability with other conformant systems.
12. The Thermal Network Bullet Camera shall offer two (2) separate and configurable streams with one (1) individually configurable 1.3MP stream at 1 to 25/30 fps.
13. The Thermal Network Bullet Camera shall offer:
  - a. IP67 environmental protection.
  - b. 6 KV lightning rating.
14. The Thermal Network Bullet Camera housing shall be a durable, rugged design with a metal housing.

#### 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 (except quick-wear parts, quick-wear parts cover 1 year warranty). Warranty varies from 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 Thermal Network Bullet Camera – [DH-TPC-BF5400P/N-TC7], [DH-TPC-BF5400P/N-TC13], [DH-TPC-BF5400P/N-TC19], [DH-TPC-BF5400P/N-TC25], [DH-TPC-BF5400P/N-TC35]

- A. General Characteristics:
1. The Thermal Network Bullet Camera shall be 400 x 300 VOx uncooled thermal sensor technology.
  2. The Thermal Network Bullet Camera shall have a pixel size of 17um.
  3. The Thermal Network Bullet Camera shall have a thermal sensitivity of <40mK@ f/1.0.
  4. The Thermal Network Bullet Camera shall have a spectral range of 7~14um.
  5. The Thermal Network Bullet Camera shall support temperature measurement.
  6. The Thermal Network Bullet Camera shall have a fixed focal length of [7.5mm], [9mm], [13mm], [19mm], [25mm], [35mm].
  7. The Thermal Network Bullet Camera shall support 14 color palettes of Whitehot/Blackhot/Ironrow/Icefire/Fusion/Rainbow/Globow/Iconbow1/Iconbow2 etc.
  8. The Thermal Network Bullet Camera shall support 24 VAC/12 VDC power supply.  
The following dual, redundant power options:
    - a. 24 VAC/12 VDC.
    - b. PoE (IEEE 802.3af).
    - c. The Thermal Network Bullet Camera shall default to use power from PoE power supply, if connected.
    - d. The Thermal Network Bullet Camera shall switch to the 24 VAC/12 VDC power supply if power from the PoE supply is lost.
  9. The Thermal Network Bullet Camera shall provide direct network connection using H.264 High profile, H.264 Main profile, H.264 Basic profile and M-JPEG compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
  10. The Thermal Network Bullet Camera shall conform to the ONVIF profile S&G and CGI standards to provide interoperability with other conformant systems.

11. The Thermal Network Bullet Camera shall offer two (2) separate and configurable streams with one (1) individually configurable 1.3MP stream at 1 to 25/30 fps.
12. The Thermal Network Bullet Camera shall offer:
  - a. IP67 environmental protection.
  - b. 6 KV lightning rating.
13. The Thermal Network Bullet Camera housing shall be a durable, rugged design with a metal housing.

#### B. Temperature Measurement

1. The Thermal Network Bullet Camera shall be used for remote temperature monitoring.
2. The Thermal Network Bullet Camera shall measure the objects' temperature whatever daytime or night.
3. The Thermal Network Bullet Camera shall have a temperature range of -40 °C to 550 °C (-40 °F to 1022 °F).

#### C. Imaging

1. Thermal Camera:
  - a. The Thermal Network Bullet Camera shall offer a long life uncooled VOx microbolometer sensor.
  - b. The Thermal Network Bullet Camera shall offer an effective number of pixels of 400 x 300 effective picture elements.
  - c. The Thermal Network Bullet Camera shall offer a pixel size of 17um.
  - d. The Thermal Network Bullet Camera shall have a thermal sensitivity of <40mK@ f/1.0.
  - e. The Thermal Network Bullet Camera shall have a spectral range of 7~14um.
  - f. The Thermal Network Bullet Camera shall offer a fixed focal length of [7.5mm], [13mm], [19mm], [25mm], [35mm].
  - g. The Thermal Network Bullet Camera shall have a [52°], [29.7°], [20.4°], [15.5°], [911.1°] field of view
  - h. The Thermal Network Bullet Camera shall offer 14 color palettes of Whitehot/Blackhot/Ironrow/Icefire/Fusion/Rainbow/Globow/Iconbow1/Iconbow2 etc.

#### D. Video Characteristics

1. The Thermal Network Bullet Camera shall offer 14 color palettes of Whitehot/Blackhot/Ironrow/Icefire/Fusion/Rainbow/Globow/Iconbow1/Iconbow2 etc.
2. The Thermal Network Bullet Camera shall offer CBR/VBR bit rate control.
3. The Thermal Network Bullet Camera shall offer the following video compression protocols:
  - a. H.264 High profile
  - b. H.264 Main profile
  - c. H.264 Basic profile
  - d. M-JPEG
4. The Thermal Network Bullet Camera shall offer motion detection (four zones) and region of interest (four zones) controls.
5. The Thermal Network Bullet Camera shall offer 4 privacy masking areas.
6. The Thermal Network Bullet Camera shall offer 19x digital zoom.

#### E. Streaming Capability

1. The Thermal Network Bullet Camera shall generate 1.3MP resolution using H.264 compression.
2. The Thermal Network Bullet Camera shall offer Unicast and Multicast streaming methods.
3. The Thermal Network Bullet Camera shall offer the following resolution streams:
  - 1.3M (1280 × 1024 pixels)
  - 720P (1280 x 720 pixels)
4. The Thermal Network Bullet Camera shall generate two (2) streams at the following maximum resolutions:
  - Main Stream: 1.3M at 25/30 fps
  - Sub Stream: 640 x 512 at 25/30 fps

#### F. IP Connectivity

1. The Thermal Network Bullet Camera shall allow full camera control and configuration capabilities via a TCP/IP network.
2. The Thermal Network Bullet Camera shall deliver 1.3MP video, at rates up to 25/30 frames per second via TCP/IP over an RJ-45 (10/100 Base-T) connection.
3. The Thermal Network Bullet Camera shall conform to the ONVIF Profile S&G and the CGI standard.
4. The Thermal Network Bullet Camera shall offer Quality of Service (QoS) configuration options.
5. The Thermal Network Bullet Camera shall support the IPv6 internet-layer protocol for packet switched internetworking across multiple IP networks.
6. The Thermal Network Bullet Camera shall support the following protocols: IPv4/IPv6, HTTP, HTTPS, 802.1x, Qos, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPoE, ONVIF.
7. The Thermal Network Bullet Camera shall support the Smart PSS and DSS management software.
8. The Thermal Network Bullet Camera shall support the Android and the IOS mobile operating systems.



#### G. Installation Requirements

1. The Thermal Network Bullet Camera shall be capable of operating in an outdoor environment within a temperature range of  $-40^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$  to  $+140^{\circ}\text{F}$ ).
2. The Thermal Network Bullet Camera shall accept power, transmit video, and accept control via a TCP/IP connection.
3. The Thermal Network Bullet Camera shall support 24 VAC/12 VDC power supply.

The following dual, redundant power options:

- a. 24 VAC/12 VDC.
- b. PoE (IEEE 802.3af).
- c. The Thermal Network Bullet Camera shall default to use power from PoE power supply, if connected.
- d. The Thermal Network Bullet Camera shall reboot and switch to the 24 VAC/12 VDC power supply if power from the PoE supply is lost.

#### H. Housing Options

1. The Thermal Network Bullet Camera shall be offered in a metal housing.
2. The Thermal Network Bullet Camera housing shall conform to the IP67 standard for a weather-resistant package.

### 2.3 ACCESSORIES

#### A. The Thermal Network Bullet Camera shall offer the following optional accessories:

1. Optional mounting hardware:
  - a. [Junction box]
  - b. [Wall mount bracket]
  - c. [Corner 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**