AUGUST 2020

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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 13: IP Cameras**

**640 x 512 THERMAL NETWORK 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 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. FCC Part 15 Subpart B
		2. Safety Certification
			1. Underwriters Laboratories, Inc. (UL) (www.ul.com)
				1. UL60950-1
			2. CSA Group
				1. CAN/CSA C22.2 No. 60950-1-07
		3. CE
			1. EN 60950:2000
	2. SYSTEM DESCRIPTION
		1. Section Includes
			1. Video Surveillance – Surveillance Cameras – IP Cameras
		2. Performance Requirements
			1. The Thermal Bullet camera shall be a full-featured 640 x 512 Thermal network camera designed for discrete video surveillance applications in indoor and outdoor environments.
			2. The Thermal Bullet camera shall provide remote temperature monitoring that has the ability to trigger an alarm for a temperature that exceeds a set threshold.
			3. The Thermal Bullet camera shall simultaneously transmit and receive video, audio, and control signals over a TCP/IP connection.
			4. The Thermal Bullet camera shall contain a 640 x 512 VOx uncooled thermal sensor.
			5. The Thermal Bullet camera shall offer < 40 mK thermal sensitivity.
			6. The Thermal Bullet camera shall achieve an operational temperature down to
			–40° C (–40° F).
			7. The Thermal Bullet camera shall support Enhanced Power over Ethernet (ePoE) technology to transmit power and data via Ethernet cabling up to 800 m (2624 ft).
			8. The Thermal Bullet camera shall accept two (2) incoming alarm channels and offer two (2) outgoing alarm channels.
			9. The Thermal Bullet camera shall offer an Intelligent Video System with Rapid Temperature Rise Detection, Cold/Hot Spot Trace, and can distinguish between human and vehicular targets.
			10. The Thermal Bullet camera housing shall conform to the IP67 Ingress Protection standard.
	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]

* + 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. 640 x 512 THERMAL NETWORK BULLET CAMERA – DH-TPC-BF5601N-TB

		1. General Characteristics:
			1. The Thermal Bullet camera shall be a full-featured 640 x 512 Thermal network camera designed for discrete video surveillance applications in indoor and outdoor environments.
			2. The Thermal Bullet camera shall provide remote temperature monitoring that has the ability to trigger an alarm for a temperature that exceeds a set threshold.
			3. The Thermal Bullet camera shall simultaneously transmit and receive video, audio, and control signals over a TCP/IP connection.
			4. The Thermal Bullet camera shall contain a 640 x 512 VOx uncooled thermal sensor.
			5. The Thermal Bullet camera shall offer < 40 mK thermal sensitivity.
			6. The Thermal Bullet camera shall achieve an operational temperature down to
			–40° C (–40° F).
			7. The Thermal Bullet camera shall support Enhanced Power over Ethernet (ePoE) technology to transmit power and data via Ethernet cabling up to 800 m (2624 ft).
			8. The Thermal Bullet camera shall accept two (2) incoming alarm channels and offer two (2) outgoing alarm channels.
			9. The Thermal Bullet camera shall offer an Intelligent Video System with Rapid Temperature Rise Detection, Cold/Hot Spot Trace, and can distinguish between human and vehicular targets.
			10. The Thermal Bullet camera housing shall conform to the IP67 Ingress Protection standard.
		2. Thermal Imaging
			1. The Thermal Bullet camera shall offer a 640 x 512 uncooled VOx Microbolometer thermal imaging sensor.
			2. The Thermal Bullet camera shall have a pixel size of 17 $µ$m.
			3. The Thermal Bullet camera shall offer a thermal sensitivity (NETD) of < 40 mK.
			4. The Thermal Bullet camera shall offer a spectral range of 8 $µ$m to 14 $µ$m.
			5. The Thermal Bullet camera shall offer 18 color palettes.
			6. The Thermal Bullet camera shall offer a fixed [7.5 mm] [13 mm]
			[25 mm] athermalized, focus-free lens.
			7. The Thermal Bullet camera shall support a maximum detection distance (human) of [221 m (725 ft)] [382 m (1253 ft)] [735 m (2411 ft)]
		3. Temperature Measurement
			1. The Thermal Bullet camera shall offer two temperature measurement ranges:
				1. Low: –20° C to 150° C (–4° F to 302° F)
				2. High: 0° C to 550° C (32° F to 1022° F)
			2. The Thermal Bullet camera shall be accurate to within ±2.0° C (±3.6° F), when operating temperature is between –20° C to 60° C (–4° F to 140° F).
			3. The Thermal Bullet camera shall offer Spot, Line, and Area detection modes and support 12 simultaneous rules.
		4. Video Characteristics
			1. The Thermal Bullet camera shall offer CBR/VBR bit rate control.
			2. The Thermal Bullet camera shall offer the H.265, H.264 and the MJPEG video compression protocols.
			3. The Thermal Bullet camera shall offer four (4) privacy masking areas.
			4. The Thermal Bullet camera shall offer four (4) motion detection zones.
		5. Streaming Capability
			1. The Thermal Bullet camera shall generate a maximum resolution of
			1280 x 1024 at 30 fps.
		6. IP Connectivity
			1. The Thermal Bullet camera shall allow full camera control and configuration capabilities via a TCP/IP network.
			2. The Thermal Bullet camera shall deliver video, at rates up to 30 frames per second via TCP/IP over an RJ-45 (10/100 Base-T) connection.
			3. The Thermal Bullet camera shall conform to the ONVIF standard.
			4. The Thermal Bullet camera shall offer Quality of Service (QoS) configuration options.
			5. The Thermal Bullet camera shall support the IPv6 internet-layer protocol for packet switched internetworking across multiple IP networks.
			6. The Thermal Bullet camera shall offer local storage on a MicroSD card (maximum 128 GB).
			7. The Thermal Bullet camera shall support the following protocols: 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, 802.1x
			8. The Thermal Bullet camera shall support the DSS management software.
			9. The Thermal Bullet camera shall support the Android and the IOS mobile operating systems.
		7. Interfaces
			1. The Thermal Bullet camera shall support the following audio compression technologies: G.711a, G.711Mu, PCM, and AAC.
			2. The Thermal Bullet camera shall offer an audio interface with one (1) channel in (3.5 mm jack) and one (1) channel out (3.5 mm jack).
			3. The Thermal Bullet camera shall offer one RS485 connection.
			4. The Thermal Bullet camera shall offer an alarm interface with two (2) channels in and two (2) channels out.
			5. The Thermal Bullet camera shall offer one (1) SD video output with a BNC connector.
		8. Intelligent Video System
			1. The Intelligent Video System shall offer intelligent video analytics built-in to Thermal Bullet camera.
			2. The Intelligent Video System shall be capable of processing and analyzing video within the camera itself, with no extra hardware required.
			3. The Intelligent Video System shall trigger an alarm and take a defined action for the following events:
				1. Standard Features

Tampering with the camera.

Error writing to an onboard Micro SD Card.

Error sending or receiving data over the network.

Unauthorized access to the camera.

* + - 1. The Intelligent Video System shall support Tripwire and Intrusion analytics to detect when an object has crossed a pre-determined line on the video image.
			2. The Intelligent Video System shall offer Rapid Temperature Rise to detect a rapid rise in temperature over a short time and issue an alarm for a potential fire.
			3. The Intelligent Video System shall offer Cold/Hot Spot Trace to indicate the coldest and the hottest spot of the scene.
			4. The Intelligent Video System shall be capable of detecting human or vehicle violations in conjunction with the Tripwire and Intrusion detection methods.
		1. Installation Requirements
			1. The Thermal Bullet camera shall be capable of operating in an outdoor environment within a temperature range of –40° C to +70° C
			(–40° F to 158° F).
			2. The Thermal Bullet camera shall support a 12 VAC, 1 A, PoE, or an ePoE power supply.
		2. Housing Options
			1. The Thermal Bullet camera shall be offered in a metal housing.
			2. The Thermal Bullet camera housing shall conform to the IP67 Ingress Protection standard.

2.3 ACCESSORIES

* + 1. The Thermal Bullet camera shall offer the following accessories:
			1. Optional mounting hardware:
				1. [Junction box.]
				2. [Pole mount.]
				3. [Corner mount.]
				4. [12 VDC, 1 A Power Supply.]
				5. [EoC Passive Converter]
				6. [Single-port EoC Receiver]

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