JUNE 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**

**4 MP 4X IR STARLIGHT MINI PTZ NETWORK 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. Electromagnetic Compatibility
			1. FCC Part 15 Subpart B
			2. ANSI C63.4-2014
		2. European Standards
			1. EN 55032
			2. EN 55024
			3. EN 50130-4
		3. HD standards
			1. Complies with the SMPTE 274M-2008 Standard in:
				1. Resolution: 1920x1080
				2. Scan: Progressive
				3. Color representation: complies with ITU-R BT.709
				4. Aspect ratio: 16:9
				5. Frame rate: 25 and 30 frames/s
			2. Complies with the 296M-2001 Standard in:
				1. Resolution: 1280x720
				2. Scan: Progressive
				3. Color representation: complies with ITU-R BT.709
				4. Aspect ratio: 16:9
				5. Frame rate: 25, 30, 50 and 60 frames/s
				6. Interference-Causing Equipment Standards
	2. SYSTEM DESCRIPTION
		1. Section Includes
			1. Video Surveillance – Surveillance Cameras – IP Cameras
		2. Performance Requirements
			1. The 4 MP Network Mini-PTZ camera shall be a full-featured 4 MP network camera designed for discrete video surveillance applications in indoor environments.
			2. The 4 MP H.265 PTZ camera shall provide direct network connection using H.265 andH.264 compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
			3. The 4 MP Network Mini-PTZ camera shall produce a color image with a minimum scene illumination of 0.005 lux at F1.8.
			4. The 4 MP Network Mini-PTZ camera shall offer advanced analytics that offers tripwire and intrusion alarms, people counting, and the ability to distinguish human and vehicular objects.
			5. The 4 MP Network Mini-PTZ camera shall offer a maximum IR distance of
			15 m (49 ft).
			6. The 4 MP Network Mini-PTZ camera shall achieve an operational temperature down to –30 °C (–22 °F).
			7. The 4 MP Network Mini-PTZ camera shall offer a 1/2.8 in. STARVIS™ CMOS sensor with an effective pixel density of 2560(H) x 1440(V) at 30 fps.
			8. The 4 MP Network Mini-PTZ camera shall have a motorized lens with a focal length between 2.8 mm to 12 mm and an autofocus lens with 4x optical zoom.
			9. The 4 MP Network Mini-PTZ camera shall offer True Wide Dynamic Range (120 dB) for clear images in extreme high-contrast environments.
			10. The 4 MP Network Mini-PTZ camera shall support the following dual, redundant power options:
				1. 12 VDC, 1.5 A
				2. PoE (IEEE 802.3af, class 0)
				3. The 4 MP H.265 Network camera shall default to use power from the PoE power supply, if connected.
				4. The 4 MP H.265 Network camera shall reboot and switch to the 12 VDC power supply if power from the PoE power supply is lost.
			11. The 4 MP Network Mini-PTZ camera housing shall conform to the IP66 Ingress Protection rating and to the IK08 Vandal Resistance rating.
	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. 4 MP 4X IR STARLIGHT MINI PTZ NETWORK CAMERA 1A404XBNR

		1. General Characteristics:
			1. The 4 MP Network Mini-PTZ camera shall be a full-featured 4 MP network camera designed for discrete video surveillance applications in indoor environments.
			2. The 4 MP H.265 PTZ camera shall provide direct network connection using H.265 andH.264 compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
			3. The 4 MP Network Mini-PTZ camera shall produce a color image with a minimum scene illumination of 0.005 lux at F1.8.
			4. The 4 MP Network Mini-PTZ camera shall offer advanced analytics that offers tripwire and intrusion alarms, people counting, and the ability to distinguish human and vehicular objects.
			5. The 4 MP Network Mini-PTZ camera shall offer a maximum IR distance of
			15 m (49 ft).
			6. The 4 MP Network Mini-PTZ camera shall achieve an operational temperature down to –30 °C (–22 °F).
			7. The 4 MP Network Mini-PTZ camera shall offer a 1/2.8 in. STARVIS™ CMOS sensor with an effective pixel density of 2560(H) x 1440(V) at 30 fps.
			8. The 4 MP Network Mini-PTZ camera shall have a motorized lens with a focal length between 2.8 mm to 12 mm and an autofocus lens with 4x optical zoom.
			9. The 4 MP Network Mini-PTZ camera shall offer True Wide Dynamic Range (120 dB) for clear images in extreme high-contrast environments.
			10. The 4 MP Network Mini-PTZ camera shall support the following dual, redundant power options:
				1. 12 VDC, 1.5 A
				2. PoE (IEEE 802.3af, class 0)
				3. The 4 MP H.265 Network camera shall default to use power from the PoE power supply, if connected.
				4. The 4 MP H.265 Network camera shall reboot and switch to the 12 VDC power supply if power from the PoE power supply is lost.
			11. The 4 MP Network Mini-PTZ camera housing shall conform to the IP66 Ingress Protection rating and to the IK08 Vandal Resistance rating.
		2. Imaging
			1. The 4 MP Network Mini-PTZ camera shall offer a 1/2.8-inch type STARVIS™ CMOS Sensor.
			2. The 4 MP Network Mini-PTZ camera shall offer an effective number of pixels of 1920(H) x 1080(V), 4 MP effective picture elements.
			3. The 4 MP Network Mini-PTZ camera shall offer a 4x optical zoom lens (2.8 mm to 12 mm) with a further 16x digital zoom.
			4. The 4 MP Network Mini-PTZ camera shall have a horizontal angle of view of between 105.6° to 35.2°.
			5. The 4 MP Network Mini-PTZ camera shall offer an aperture of F1.8.
			6. The 4 MP Network Mini-PTZ camera shall produce a color image with a minimum scene illumination of 0.005 lux at F1.8.
			7. The 4 MP Network Mini-PTZ camera shall offer automatic focus and iris control with manual override.
			8. The 4 MP Network Mini-PTZ camera shall offer a dynamic range of 120 dB.
		3. PTZ Features
			1. The 4 MP Network Mini-PTZ camera shall provide a pan range of 355°.
			2. The 4 MP Network Mini-PTZ camera shall provide a tilt angle of 5° to 90° relative to the horizon.
			3. The 4 MP Network Mini-PTZ camera shall provide the following modes for variable pan/tilt speeds:
				1. Manual Control:

Pan: 0.1°/s to 70°/s

Tilt: 0.1°/s to 30°/s

* + - * 1. Preset Mode:

Pan: 80°/s

Tilt: 40°/s

* + - 1. The 4 MP Network Mini-PTZ camera shall support 300 presets.
			2. The 4 MP Network Mini-PTZ camera shall support Eight (8) PTZ tour modes.
			3. The 4 MP Network Mini-PTZ camera shall automatically activate a preset or a tour if the camera does not receive a command during a specified period.
			4. The 4 MP Network Mini-PTZ camera shall automatically restore the previous PTZ and lens status after the camera powers up after a power failure.
		1. DORI Distance
			1. The 4 MP Network Mini-PTZ camera shall to conform to EN 62676-4, the standard that defines the criteria for the Detect, Observe, Recognize and Identify classifications.
			2. The 4 MP Network Mini-PTZ camera shall offer the following detect, observe, recognize, and identify distances:
				1. Detect (8 ppf): 147.0 m (482.28 ft)
				2. Observe (19 ppf): 58.80 m (192.91 ft)
				3. Recognize (38 ppf): 29.40 m (96.46 ft)
				4. Identify (76 ppf): 14.70 m (48.23 ft)
		2. Video Characteristics
			1. The 4 MP Network Mini-PTZ camera shall offer CBR/VBR bit rate control.
			2. The 4 MP Network Mini-PTZ camera shall offer the following video compression protocols
				1. H.265/H.264: 3 Kbps to 20480 Kbps
			3. The 4 MP H.265 PTZ camera shall offer BLC, HLC, and True WDR modes of backlight compensation.
			4. The 4 MP H.265 PTZ camera shall offer Auto, Indoor, Outdoor, Track, Manual,
			5. Sodium Lamp, Natural Light, Street Light white balance modes.
			6. The 4 MP H.265 PTZ camera shall offer 2D/3D noise reduction.
			7. The 4 MP H.265 PTZ camera shall offer 24 privacy masking areas.
		3. Streaming Capability
			1. The 4 MP H.265 PTZ camera shall generate full 4 MP (2560 x 1440 pixels) at 30 fps resolution using H.265 compression.
			2. The 4 MP H.265 PTZ camera shall offer Unicast and Multicast streaming methods.
			3. The 4 MP H.265 PTZ camera shall offer the following resolutions:
				1. 4 MP (2560 x 1440)
				2. 3 MP (2048 x 1536)
				3. 1080p (1920 x 1080)
				4. 720p (1280 x 720)
				5. D1 (704 x 480)
				6. CIF (352 x 240)
			4. The 4 MP H.265 PTZ camera shall generate three streams at the following maximum resolutions:
				1. Main Stream: 4 MP at 30 fps
				2. Sub Stream 1: D1 or CIF at 30 fps
				3. Sub Stream 2: 720p, D1, or CIF at 30 fps
		4. IP Connectivity
			1. The 4 MP H.265 PTZ camera shall allow full camera control and configuration capabilities via a TCP/IP network.
			2. The 4 MP H.265 PTZ camera shall deliver 4 MP video, at rates up to 30 frames per second via TCP/IP over an RJ-45 (10/100 Base-T) connection.
			3. The 4 MP H.265 PTZ camera shall conform to the ONVIF, PSIA, and the CGI standard.
			4. The 4 MP H.265 PTZ camera shall offer Quality of Service (QoS) configuration options.
			5. The 4 MP H.265 PTZ camera shall support the IPv6 internet-layer protocol for packet switched internetworking across multiple IP networks.
			6. The 4 MP H.265 PTZ camera shall offer local and network storage options that include: MicroSD, Network Attached Storage (NAS), and recording to a local PC for instant recording.
			7. The 4 MP H.265 PTZ 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 4 MP H.265 PTZ camera shall support the Smart PSS and DSS management software.
			9. The 4 MP H.265 PTZ camera shall support the Android and the IOS mobile operating systems.
		5. Interfaces
			1. The 4 MP H.265PTZ camera shall support the following audio compression technologies: G.711a, G.711Mu, G.726, AAC, G.722.1, G.729, G.723,
			MPEG2-L2.
			2. The 4 MP H.265 PTZ camera shall offer an audio interface with one (1) channel IN and one (1) channel OUT.
		6. Intelligent Video System
			1. The Intelligent Video System shall offer intelligent video analytics built-in to the 4 MP H.265 PTZ 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 detect multiple object behaviors such as abandoned or missing objects.
			4. The Intelligent Video System shall support Tripwire analytics to detect when an object has crossed a pre-determined line on the video image.
			5. The Intelligent Video System shall offer Facial Detection to search and identify individuals.
		7. Analytics+
			1. The 4 MP Laser PTZ camera shall offer the following built-in Analytics+ functions to provide advanced analytics for any scene:
				1. Detect human or vehicle violations using the following methods:

Tripwire: a target crosses a defined line.

Intrusion: a target enters or exits a defined perimeter.

* + - * 1. Monitor a combination of ten (10) detection methods.
				2. Search and retrieve video based on target type.
				3. Deliver accurate people counting flow statistics from the following methods:

Line Crossing: counts a person as they cross a threshold in a defined direction.

Region: counts the number of people in a defined area.

* + - * 1. Counts people simultaneously from four (4) threshold lines and four (4) defined regions.
		1. Smart Motion Detection
			1. The 4 MP Laser PTZ camera shall offer the following built-in Smart Motion Detection functions to provide advanced motion analytics for any scene:
				1. Differentiate between and classify human and vehicle objects.
				2. Filter false alarms due to leaves, lights, animals, and other inconsequential objects.
				3. Extract human or vehicle objects from recorded video for quick target search and retrieval.
		2. Installation Requirements
			1. The 4 MP Network Mini-PTZ camera shall be capable of operating in an outdoor environment within a temperature range of –30 °C to +60 °C
			(–22 °F to 140 °F).
			2. The 4 MP Network Mini-PTZ camera shall support the following dual, redundant power options:
				1. 12 VDC, 1.5 A
				2. PoE (IEEE 802.3af, class 0)
				3. The 4 MP H.265 Network camera shall default to use power from the PoE power supply, if connected.
				4. The 4 MP H.265 Network camera shall reboot and switch to the 12 VDC power supply if power from the PoE power supply is lost.
		3. Housing Options
			1. The 4 MP Network Mini-PTZ camera shall be offered in a metal housing.
			2. The 4 MP Network Mini-PTZ camera shall conform to the IP66 Ingress Protection standard.
			3. The 4 MP Network Mini-PTZ camera housing shall conform to the IK08 Vandal Resistance standard.

2.3 ACCESSORIES

* + 1. The 4 MP Network Mini-PTZ camera shall offer the following accessories:
			1. Optional:
				1. [Mount Adapter]
				2. [Ceiling Mount]
				3. [Wall Mount]
				4. [Power Adapter]

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