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Digital Watchdog® is a leading manufacturer of security and surveillance solutions, offering stunning image quality, advanced hardware capabilities, reliable customer support and the lowest total cost of deployment to the analog & IP megapixel surveillance markets. Located in Cerritos, CA, with manufacturing facilities in Seoul, Korea, Digital Watchdog® is committed to delivering powerful security solutions to its customers worldwide.

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**MEGApix® Ai™ 4K WALL MOUNTED IP CAMERA**

**DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**

**28 20 00 Video Surveillance**

**28 21 00 Surveillance Cameras**

**28 21 13 IP Cameras**

**Notes to Specifier:**

1. Where several alternative parameters or specifications exist or where the specifier has the option of inserting text, such choices are presented in **<bold text>.**

2. Explanatory notes and comments are presented in **colored** text.

3. CSI MasterFormat 2016 incorporates numerous significant changes affecting electronic safety and security. This document is written to provide flexibility in using either format, although the adoption of MasterFormat 2016 is encouraged. The following is a guide to the MasterFormat numbers relevant to the product referenced in this specification.

4. MasterFormat 2014 Specification Category:

28 23 29 - Video Surveillance Remote Devices and Sensors

**4K wall mount camera with AI engine**

1. **GENERAL**
	1. **SUMMARY**
		1. The section features a 4K high-definition IP video camera with a vandal-resistant, IP-67 rated, and IK10 impact-resistant wall mount housing.
		2. Product - A high-definition IP wall mount camera, based on H.265, H.264, and MJPEG compression, capable of dual streaming 30fps at resolutions up to 3856(H) X 2200(V), with Star-Light Plus™ color in near-total darkness technology, a 2.3mm wide-angle fixed lens, and built-in microphone.
		3. The MEGApix Ai cameras feature an edge-based AI engine with real-time object classification, enabling intelligent video solutions.
		4. Related Requirements
			1. 27 15 01.13 – Video Surveillance Communications Conductors and Cables
			2. 28 05 03 – Safety and Security Network Communications Equipment
			3. 28 05 19 – Storage Appliances for Electronic Safety and Security
			4. 28 06 20 – Schedules for Video Surveillance
			5. 28 23 00 – Video Management System
	2. **REFERENCES**
		1. Abbreviations
			1. AGC - Automatic Gain Control
			2. ARP – Address Resolution Protocol
			3. AWB - Automatic White Balance
			4. BLC – Backlight compression
			5. DHCP - Dynamic Host Configuration Protocol
			6. DNR – Digital Noise Reduction
			7. DNS - Domain Name Server
			8. DDNS – Dynamic Domain Name Server
			9. fps - frames per second
			10. FTP - File Transfer Protocol
			11. GUI – Graphical User Interface
			12. HLC – Highlight Compensation
			13. HTTP - Hypertext Transfer Protocol
			14. ICMP – Internet Control Message Protocol
			15. IGMP - Internet Group Management Protocol
			16. IP - Internet Protocol
			17. JPEG - Joint Photographic Experts Group
			18. MJPEG - Motion JPEG
			19. NTP - Network Time Protocol
			20. PoE - Power over Ethernet
			21. QoS – Quality of Service
			22. RARP – Reverse Address Resolution Protocol
			23. RTP - Real-Time Transport Protocol
			24. RTSP - Real-Time Streaming Protocol
			25. SMTP - Simple Mail Transfer Protocol
			26. TCP - Transmission Control Protocol
			27. UDP - User Datagram Protocol
			28. VMS - Video Management System
			29. WDR – Wide Dynamic Range
		2. Reference Standards
			1. Network
				1. IEEE - 802.3 Ethernet Standards
			2. Video
				1. ISO / IEC 14496 – MPEG-4

ISO / IEC 14496–10, MPEG-4 Part 10 (ITU H.264)

* + - * 1. ISO / IEC 10918 – JPEG
				2. ONVIF – Profile S
			1. Emissions
				1. FCC-47 CFR Part 15 Class B
			2. Environmental
				1. ANSI / IEC60529 – Degrees of Protection Provided by Enclosures
				2. International Electrotechnical Commission (IEC) – Ingress Protection Rating IP66
				3. European standard EN 62262 — equivalent to International Electrotechnical Commission (IEC) – Impact Protection Rating IK10
	1. **SUBMITTALS**
		1. Product Data
			1. Manufacturer's printed or electronic datasheets.
			2. Manufacturer's installation and operation manuals.
			3. Warranty documentation.
	2. **QUALIFICATIONS**
		1. The Manufacturer shall have at least five years of experience producing IP video equipment.
		2. Installers shall be trained and authorized by the Manufacturer to install, integrate, test, and commission the system.
	3. **DELIVERY, STORAGE, AND HANDLING**
		1. Deliver the camera in its manufacturer's original, unopened, and undamaged container, with identification labels intact.
		2. Store the camera in an environment with a temperature range of -4°F to 122°F (-20°C to 50°C), protected from mechanical and environmental conditions as designated by the Manufacturer.
	4. **WARRANTY AND SUPPORT**
		1. The Manufacturer shall provide a 5-year warranty for the product, ensuring it is free from defects in material and workmanship.

END OF SECTION

1. **PRODUCTS**
	1. **EQUIPMENT**
		1. Manufacturer: Digital Watchdog, Inc.

 16220 Bloomfield Avenue. Cerritos,

California, USA 90703 USA

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 Web: www.digital-watchdog.com

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* + 1. Models: DWC-XSWA08Bi
		2. Alternates: None
	1. **GENERAL DESCRIPTION**
		1. The high-definition wall-mounted IP camera ("IP camera") shall provide video performance capable of delivering selectable resolutions up to 3856(H) X 2200(V) pixels at 30 frames per second (fps) with color in darkness technology, AI analytics capabilities, contained within an IP-67 rated, IK10 impact-resistant vandal housing.
		2. The camera shall include preinstalled AI deep learning analytics at the edge.
		3. The IP camera shall have a built-in microphone, one selectable audio input line (at a time), and one audio output.
		4. The IP camera shall possess the following characteristics:
			1. H.265, H.264 and MJPEG compression
			2. 4K resolution
			3. Color in darkness technology (0.15 lux)
			4. AI deep Learning object detection and tracking on one channel
			5. Two independent IP video streams (dual streaming)
			6. Day/night operation with an IR cut filter
			7. Integral IR LED illuminator providing a 100-foot distance
			8. Integral motion detection
			9. True Wide Dynamic Range
			10. 3D digital noise reduction
			11. Microphone built-in
			12. PoE capable
			13. Multicast or unicast capable
			14. Local storage via Micro SD, SDXC, or SDHC card
			15. Built-in web server
			16. Dynamic DNS (DDNS) support
			17. IP-67 rated
			18. IK-10 impact resistant
			19. NDAA compliant
			20. TAA-compliant
			21. UL-listed
	2. **VIDEO**
		1. Imager
			1. Sensor: 8.48MP 1/1.8” Star-Light Plus™ sensor
			2. Minimum illumination
				1. Color mode: 0.15 lux (color) (F2.8)
				2. Black & white mode:0 lux (IR LEDs)
			3. Scanning - Progressive
			4. Image Control Settings shall be available for:
				1. Exposure modes: automatic or manual

In manual exposure mode, configurable settings for:

Brightness

Shutter mode: automatic or manual - 1/15 to 1/32000

Digital slow shutter to decrease the shutter speed in low light

Anti-flicker shutter setting to address video flickering issues

Automatic Gain Control (AGC)

Wide Dynamic Range (WDR) level, 120dB

* + - * 1. Frequency
				2. Image sharpness
				3. Image mirror or flip
				4. Digital noise reduction
			1. Lens
				1. Lens type: 2.3mm fixed lens.
				2. Horizontal field of view (HFOV): 175°
				3. Vertical Field of view (VFOV): 80°
				4. IR illumination distance: 100ft range
				5. Double shutter Wide Dynamic Range, 120dB
				6. Shutter speed: 1/15 sec to 1/32000
		1. Video Streams
			1. The IP camera shall support two configurable video streams, selectable from H.265, H.264 and MJPEG.
			2. The IP camera shall support two configurable video streams, each of which may have the following properties:
				1. Compression Type and Resolution:

H.265: 3840x2160, 2560x1440, 1920x1080, 1280x720, 704x576, 704x480, 640x360, 352x288, 352x240

H.264: 3840x2160, 2560x1440, 1920x1080, 1280x720, 704x576, 704x480, 640x360, 352x288, 352x240

MJPEG: 1920x1080, 1280x720, 768x432, 704x576, 704x480, 640x360, 352x288, 352x240.

* + - * 1. Frame rate: 0 – 30 fps
		1. IR LED Distance: 100 feet
		2. Motion Detection – The IP camera shall be able to detect motion within user-defined areas of the video image.
			1. Configuration settings shall be available for sensitivity and dwell time.
		3. Storage and Recording
			1. The IP camera shall have onboard SD card storage.
				1. Card Type: Micro SD/SDHC/SDXC Class 10
				2. Up to 1TB micro SD / FAT32
			2. Local recording on the SD card shall commence upon loss of network connectivity, based on a pre-programmed schedule.
			3. The local SD storage shall be backed up to alternate media without removing the SD card from the camera.
		4. ONVIF – Video streams shall be capable of supporting the ONVIF protocol, profile S.
		5. Other
			1. Single Images - The IP camera shall support the JPG file format for image screenshots and exports.
			2. Discovery - The Manufacturer shall offer a discovery program to identify all devices manufactured by the Manufacturer that are connected to the network.
			3. Emergency Alarm – The IP camera shall enable the transmission of a video clip of configurable duration to up to five server locations.
			4. Access - The IP camera shall permit up to five users to access the camera simultaneously.
	1. **AUDIO**
		1. The IP camera shall provide one built-in microphone.
		2. The IP camera shall have one audio input line (1.0Vrms, 3K ohms).
		3. The IP camera shall provide one audio output
		4. Compression and Sampling Rate: G.711 ulaw.
	2. **NETWORK**
		1. Connectivity: 1000Base-T (1Gbps) Ethernet with RJ-45 connector
		2. Protocols supported
			1. Transmission Control Protocol (TCP), Internet Protocol (IP) v4, User Datagram Protocol (UDP)
			2. Configuration: Dynamic Host Configuration Protocol (DHCP)
			3. Web services: Hypertext Transfer Protocol (HTTP)
			4. Network services: Domain Name System (DNS), Network Time Protocol (NTP), Internet Control Message Protocol (ICMP), Simple Network Management Protocol (SNMP)
			5. Media: Real-Time Transport Protocol (RTP), Real-Time Streaming Protocol (RTSP)
		3. DDNS – The IP camera shall support DDNS services offered by the Manufacturer and other publicly available service offerings.
		4. Security
			1. The IP camera shall support IP address filtering, allowing users to enter a list of allowed or blocked IP addresses for viewing video and configuring camera settings.
			2. The IP camera shall provide digest authentication, as well as ID and password protection.
			3. The IP camera shall provide three user access levels with password protection.
	3. **EMBEDDED ANALYTICS**
		1. Deep Learning object tracking
		2. Zones and lines, tampering, metadata, intrusion, line crossing, counting lines, appearing, disappearing, stopping, entering, exiting, direction, tailgating, dwell time, logical rules.
	4. **ADDITIONAL FEATURES**
		1. Auxiliary Inputs and Outputs
			1. Input: Alarm sensor (contact closure)
			2. Output: Relay
			3. Event trigger: Motion alarm, network loss, temperature anomaly, illegal login, schedule, sensor detection
		2. System Information
			1. The IP camera system settings shall be exported as a separate file.
			2. The IP camera shall maintain an access log of the system and motion-triggered events.
				1. The log shall be exportable to an Excel spreadsheet file.
	5. **CAMERA SOFTWARE**
		1. The IP camera shall have a built-in web server that supports browser-based configuration using Internet Explorer, Google Chrome, Mozilla Firefox, and Apple Safari.
		2. The software GUI shall allow access to camera information and all primary software functions, including:
			1. Camera network address
			2. Configuration
			3. Stream Control
			4. Screen snapshot, print and export
			5. Start and stop recording
		3. The Manufacturer shall offer a video viewer and configuration to implement the following actions:
			1. Camera discovery
			2. Configuration
				1. video parameters
				2. events and notifications

motion-related

emergency

* + - * 1. camera network parameters
				2. SD card storage recording management
				3. image capture, export, and print
			1. Viewer - view video streams through the web browser
			2. Image print and export
			3. Instant recording and playback
			4. Alerts
				1. e-mail setup
				2. define web addresses for notifications
			5. System
				1. firmware upgrade
				2. reset to factory default
				3. set date, time, and NTP server synchronization
				4. user access control
				5. View and export camera settings
				6. View system logs
	1. **ELECTRICAL**
		1. Power
			1. Sources
				1. DC12V
				2. PoE+
			2. Power Consumption
				1. DC12V: max 9.6W, 800mA
				2. PoE: max 11.6W, 42mA
			3. Connectors
				1. Ethernet: RJ-45 connector
				2. External power (DC12V): 2-conductor power to a terminal block
	2. **MECHANICAL AND ENVIRONMENTAL**
		1. Housing Material: Aluminum die-casting
		2. Configuration: Vandal housing
		3. Environmental Rating: IP-67

IK-10

* + 1. Dimensions (D x H): 6.29" x 4.86" x 3.54" (160 x 123.5 x 90mm)
		2. Weight: 2.2 lbs (1 Kg)
		3. Temperature:
			1. Operating: -4° F to 122° F (-20° C to 50° C)
		4. Humidity: 10 - 90%, non-condensing

END OF SECTION

1. **EXECUTION**
	1. **INSTALLERS**
		1. Contractor personnel shall comply with all applicable state and local licensing requirements.
	2. **PREPARATION**
		1. The network design and configuration shall be verified for compatibility and performance with the camera(s).
		2. Network configuration shall be tested and qualified by the Contractor before camera installation.
	3. **INSTALLATION**
		1. The Contractor shall follow all Manufacturer published installation procedures and guidelines.
		2. Before permanent installation of the system, the system shall be factory tested in conditions simulating the final installed environment
			1. A report indicating successful test results shall be produced.
	4. **STORAGE**
		1. The IP camera hardware shall be stored in an environment where temperature and humidity are in the range specified by the Manufacturer.

END OF SECTION