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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 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.

For additional information, contact:

 Digital Watchdog®
 16220 Bloomfield Avenue,

Cerritos, California 90703 USA

 Phone: +1 888 446-3593

 Web: www.digital-watchdog.com

 E-mail: dw-tech@digital-watchdog.com

**VMAX A1 PLUS™ H.264 EMBEDDED UNIVERSAL HD OVER COAX® DVR**

**DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**

**28 20 00 Video Surveillance**

**28 23 00 Video Management System**

**28 23 29 Video Surveillance Remote Devices and Sensors**

**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. Include related sections as appropriate if embedded digital video recorder system is integrated to other systems

4. 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

**VMAX A1 PLUS™ H.264 EMBEDDED UNIVERSAL HD OVER COAX® DVR**

1. **GENERAL**
	1. **SECTION INCLUDES**
		1. Product - an H.264 embedded digital video recording system for video surveillance, including design, supply, installation, and commissioning.

## Related Requirements

* + - 1. Section 26 05 00: Common Work Results for Electrical, for interface and coordination with building electrical systems and distribution.
			2. Section 28 05 13: Conductors and Cables for Electronic Safety and Security, for cabling between system servers, panels, and remote devices.
			3. Section 28 05 28: Pathways for Electronic Safety and Security, for conduit and raceway requirements.
			4. Section 28 23 13: Video Surveillance Control and Management Systems.
			5. Section 28 23 16: Video Surveillance Monitoring and Supervisory Interfaces.
			6. Section 28 23 23: Video Surveillance Systems Infrastructure.
			7. Section 28 23 29: Video Surveillance Remote Devices and Sensors.
	1. **REFERENCES**
		1. Reference Standards: Provide systems that meet or exceed the requirements of the following publications and organizations as applicable to the work of this Section.
			1. Conformity for Europe (CE).
			2. Electronic Industry Association (EIA).
			3. Federal Communications Commission (FCC).
			4. Restriction of the Use of Certain Hazardous Substances (RoHS).
			5. Underwriters Laboratories Inc. (UL)
	2. **SYSTEM DESCRIPTION**
		1. The digital video recording system shall provide an entry-level digital recording and transmission system offering storage and playback of video from 1 to 16 traditional analog or 960H cameras, HD-Analog and HD-TVI cameras up to 5MP, recording at up to 5MP resolution, simultaneous True HD/VGA and CVBS outputs, and pot monitor out, with two USB ports and an internal 10/100/1000 Gbps network adapter as standard equipment.
		2. The digital video recording system shall use H.264 compression, include from 2 TB to 32 TB of hard disk drive internal storage.
	3. **SUBMITTALS**
		1. General: Submittals shall be made in accordance with the conditions of the contract and submittal procedure section.
		2. Manufacturer’s product data: Submit manufacturer’s data sheets indicating systems and components proposed for use, including instruction manuals.
		3. Shop drawings: Submit installation drawings, including connection diagrams for interfacing equipment, a list of connected equipment, and locations for major equipment components. Shop drawings shall indicate surrounding construction as provided for the project.
		4. Project record drawings: Indicate the location of equipment and wiring on project record drawings. Submit an electronic version of the project record drawings not later than the substantial completion of the project.
		5. Operation and maintenance data: Submit manufacturer’s operation and maintenance data customized to the system installed. Include operator manuals.
	4. **QUALITY ASSURANCE**
		1. Qualifications: Manufacturers shall have a minimum of 10 years of full-time experience in manufacturing and maintaining digital video recorder systems. The manufacturer shall provide toll-free technical assistance and support available Monday through Friday, 8:00AM to 8:00PM EST. Installers shall have a minimum of 2 years of experience installing similar systems and shall be acceptable to the manufacturer of the digital video recorder system.
		2. Regulatory Requirements:
			1. Emissions: FCC, Part 15, Class A; CE (EN 55022).
			2. Immunity: CE (EN 50130-4).
			3. Safety: UL/CSA 60950-1; CE (EN 60950-1).
		3. Power Requirements: Input voltage shall be 12 V DC, 9 A.
	5. **DELIVERY, STORAGE, AND HANDLING**
		1. Packing and Shipping: Deliver products in the manufacturer’s labeled packages.
		2. Storage and Protection: Store and handle products in accordance with manufacturer’s requirements in a facility where environmental conditions are within recommended limits.
	6. **PROJECT CONDITIONS**
		1. Environmental Requirements: Comply with environmental requirements and recommendations of the manufacturer for the proper installation of products.
		2. Temperature Criteria: Do not install digital video recorder system unless the temperature is between 14° 41° F (5° C) to 104° F (40° C).
	7. **WARRANTY**
		1. Manufacturer’s Guarantee: two years for parts and labor from the manufacture date code under normal use and service for the digital video recorder system, 5 years for hard drives.

END OF SECTION

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

 16220 Bloomfield Avenue. Cerritos,

California USA 90703 USA

 Phone: (866) 446-3595

 Web: www.digital-watchdog.com

 E-mail: dw-tech@digital-watchdog.com

* + 1. Models:DW-VA1P16xT
		2. Alternates:

DW- VA1P16 16-channel, no local HDD for recording digital video recorder

DW-VA1P162T 16-channel, 2TB digital video recorder

DW-VA1P163T 16-channel, 3TB digital video recorder

DW-VA1P164T 16-channel, 4TB digital video recorder

DW-VA1P166T 16-channel, 6TB digital video recorder

DW-VA1P168T 16-channel, 8TB digital video recorder

DW- VA1P1610T 16-channel, 10TB digital video recorder

DW- VA1P1612T 16-channel, 12TB digital video recorder

DW- VA1P1616T 16-channel, 16TB digital video recorder

DW- VA1P1620T 16-channel, 20TB digital video recorder

DW- VA1P1632T 16-channel, 32TB digital video recorder

* 1. **SYSTEM COMPONENTS**
		1. Specified Product: Universal HD over Coax® series embedded digital video recording system.
		2. Cabling.
	2. **OPERATIONAL REQUIREMENTS**
		1. The digital video recorder (DVR) shall meet or exceed the following design and performance specifications:
			1. The DVR shall provide up to sixteen (16) BNC camera inputs.
			2. The DVR shall provide True HD/VGA output at up to 3840 x 2160 resolution.
			3. The DVR shall provide 1920 x 1080 (1080p) real-time recording resolution.
			4. The DVR shall use H.264 image compression.
			5. The DVR shall offer the following recording resolutions (NTSC):
				1. 960x480 (960H): 480fps
				2. 1280x720 (HD): 480fps
				3. 1920x1080 (HD): 480fps
				4. 2560x1600 (4MP): 240fps
				5. 2560x1944 (5MP): 160fps
			6. The DVR shall offer the following internal hard disk drive (HDD) storage options:
				1. 2TB, 3TB, 4TB, 6TB, 8TB, 10TB, 12TB, 16TB, 20TB, 32TB.
			7. The DVR shall provide as standard equipment 2 USB ports and an internal 10/100/1000 Gbps network adapter.
			8. The DVR shall support operation using the front panel, IR remote control, or a USB mouse.
			9. The DVR front panel shall include the following items:
				1. A USB port for saving video clips to external storage devices.
				2. LED status indicators, including indicators for power, hard disk drive activity, and network activity.
			10. The DVR rear panel shall include the following items:
				1. BNC video inputs and looping video outputs.
				2. RCA audio inputs and audio output.
				3. RS-485 PTZ control interface.
				4. Alarm inputs and relay outputs, NO/NC.
				5. BNC monitor output.
				6. True HD monitor output.
				7. VGA monitor output.
				8. A USB port for connecting a mouse.
				9. RJ-45 10/100/1000 Base-T Ethernet port.
				10. Low voltage DC power supply jack.
			11. The DVR shall be preconfigured with a DHCP-enabled IP address and subnet mask for quick integration within existing IT structures.
			12. The DVR shall support DDNS via dwddns.
			13. The DVR shall include a bandwidth throttle to ensure that images and system messages are delivered as quickly as possible within network bandwidth limits.
			14. The DVR shall display video in full screen or multi-screen format, with the camera number, a user-definable camera name, and the camera’s recording/alarm status displayed for each camera.
			15. The DVR shall support continuous, event, and combined continuous/event recording that is user-configurable by channel, and shall support manual recording overrides of the recording schedule.
			16. The DVR shall include playback controls that allow the user to playback recorded video forward or backward at multiple speeds.
			17. The DVR shall include backup viewer software that allows the user to playback exported video in its proprietary format on a PC.
			18. The DVR shall allow the user to perform index-based searches of recorded video.
			19. The DVR shall support adjustments to the picture resolution, brightness, contrast, color, motion sensitivity, and images per second during recording, and these settings shall be user-configurable by channel.
			20. The DVR shall provide remote operation and configuration through remote viewing software, a web client, and mobile device applications (Apple and Android).
			21. The DVR’s remote viewing software shall include, at a minimum, the following functions:
				1. Viewing live video.
				2. Searching recorded video.
				3. Exporting still images (in JPEG format) and video clips (in PSF format).
				4. Controlling PTZ cameras.
			22. The DVR shall provide PTZ dome control—including multiple pan, tilt, zoom, and focus speeds, iris control (including return to auto-focus), programming presets, and viewing presets—through the RS-485 port.
			23. The DVR shall support alarm sensor in and relay out functions, motion detection, and video loss detection, and shall include alarm monitoring software.
			24. The DVR shall include the option of displaying a sensor status bar on the main display screen.
			25. When an alarm event is detected, the DVR shall have the capability of automatically displaying video full screen, initiating recording for a set time, recording at a higher frame rate during the event, streaming video to a client PC, sending email and popup notifications, and activating an alarm beep notification.
			26. The DVR shall include a system log that records and displays information relating to alarm events, reboots, and other system information. The user shall have the ability to export the log information.
			27. The DVR shall be equipped with self-diagnostic functions, including S.M.A.R.T. disk health check.
			28. The DVR shall adjust for Daylight Saving Time changes, with no loss of video when the clock advances forward one hour. When the clock is adjusted backward when Daylight Saving Time ends, the DVR shall record both hours, allowing the user to select which hour to playback.
			29. The DVR shall include a user management console that allows the administrator to create, edit, and delete user accounts.
	3. **SYSTEM HARDWARE**
		1. The digital video recorder shall have the following mechanical specifications:
			1. Unit Dimensions (D × W × H):
				1. 15.15” x 12.4” x 1.88” (385 × 315 × 48 mm).
			2. Unit Weight:
				1. 2.64lbs (1.2kg).
			3. Construction:
				1. Housing: Steel chassis.
				2. Finish: Black matte finish.
		2. The digital video recorder shall have the following electrical specifications:
			1. Voltage: 12 V DC.
			2. Power Consumption:

60W, 5A

* + 1. The digital video recorder shall be designed to meet the following environmental conditions:
			1. Operating Temperature: 41° F (5° C) to 104° F (40° C).
			2. Relative Humidity: less than80%, non-condensing.
	1. **MANUFACTURER SUPPORT**
		1. The manufacturer shall provide customer service, pre-sales application assistance, after-sales technical assistance, access to online technical support, and online training using Web conferencing.
		2. The manufacturer shall provide technical assistance and support by means of a toll-free telephone number at no extra charge Monday through Friday, 8:00AM to 8:00PM EST.

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 prior to 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 H.264 embedded digital video recorder system shall be stored in an environment where temperature and humidity are in the range specified by the Manufacturer.

END OF SECTION