**SECTION 28 23 19**

**DIGITAL VIDEO RECORDERS AND ANALOG RECORDING DEVICES**

**Advanced Technology Video VLD916 Digital Video Recorder**

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*This guide specification is intended for use by the design/construction professional and any user of Advanced Technology Video (ATV) products to assist in developing project specifications for security and video surveillance systems.*

*Notes in Italics, such as this one, are explanatory and intended to guide the design professional/specifier and user in the proper selection and use of materials. This specification should be modified where necessary to accommodate individual project conditions.*

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1. **GENERAL**
	1. SUMMARY
		1. Section includes Digital Video Recorders and Analog Recording Devices.
		2. Related Sections:
			1. Section 28 23 13 – Video Surveillance Control and Management Systems
			2. Section 28 23 16 – Video Surveillance Monitoring and Supervisory Interfaces
			3. Section 28 23 26 – Video Surveillance Remote Positioning Equipment
	2. SYSTEM DESCRIPTION
		1. Description: Digital Video Recorders and Analog Recording Devices.
			1. VLD916: Real Time 960H, Full HD, 16 channel Digital Video Recorder
		2. Performance Requirements
			1. Fully integrated, stand-alone video recording management solution in a compact design.
			2. 16 composite, non-looping, video connectors
			3. 4-Channel Audio Recording / 1-Channel Audio Playback
			4. H.264 Compression with Real Time 30-ips (Images per Second) / channel at 960H resolution
			5. Selectable (CIF, 2CIF, D1, 960H) Record Resolution
			6. Concurrent Full HD, 1920 x 1080 HDMI and VGA Outputs with Multiple Display Formats (1, 2x2, PIP)
			7. Intuitive Graphical User Interface (GUI) Menu System
			8. Multiple Recording Modes: Continuous, Manual, Event, Schedule, Sensor, Alarm
			9. Programmable video motion detection, alarm in and video loss alarm inputs by camera
			10. PTZ camera control via RS-485 connection
			11. Mobile remote monitoring app for Android, iPhone
			12. Time synchronization via the internet or network time servers
	3. DEFINITIONS
		1. H.264 (also known as MPEG4 Part 10): a powerful encoding format that compresses video much more effectively than older (MPEG4) standards. Recording video in H.264 format requires approximately 30% less storage than traditional MPEG-4.
		2. PTZ: refers to a movable camera that has the ability to pan left and right, tilt up and down, and zoom or magnify a scene.
		3. CIF: stands for Common Intermediate Format which is a standard size for images produced by digital cameras and video cameras. CIF images are 352 pixels wide and 240 pixels tall (352 x 240).
		4. D1 (or 4CIF) resolution is four (4) times greater than that of CIF images, or 704 pixels wide and 480 pixels tall (704 x 480).
		5. 960H resolution is 960 pixels wide and 480 pixels tall (960 x 480).
	4. SUBMITTALS
		1. Submit under provisions of Section 01 33 00 - Submittal procedures.
		2. Shop Drawings: Indicate electrical characteristics and connection requirements, including system wiring diagram.
		3. Product Data: Submit catalog data showing electrical characteristics and connection requirements for each component.
	5. CLOSEOUT SUBMITTALS
		1. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.
		2. Project Record Documents: Record actual locations of cameras and routing of cabling.
		3. Operation and Maintenance Data: Submit instructions for operating system and performing routine trouble shooting procedures.
	6. QUALIFICATIONS
		1. Manufacturer: Company specializing in manufacturing products specified in this section with minimum ten years documented experience.
		2. Supplier: Authorized distributor of specified manufacturer with minimum 5 years documented experience.
		3. Installer: Authorized installer of specified manufacturer with 5 years documented experience and with service
	7. ENVIRONMENTAL REQUIREMENTS
		1. Section 01 60 00 - Product Requirements.
		2. Deliver materials in manufacturer’s original, unopened, undamaged packaging; 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 for installation, environmental, mechanical or electrical requirements and within thermal stress limits.
		5. Ensure conformance with operating limitations according to applicable data sheet.
	8. FIELD MEASUREMENTS
		1. Verify field measurements prior to fabrication.
	9. WARRANTY
		1. Provide manufacturer’s warranty covering [3] years for CCTV products to repair or replace defective equipment.
		2. Exchanges available for product failures.
	10. MAINTENANCE SERVICE
		1. Section 01 70 00 - Execution and Closeout Requirements: Maintenance service.
		2. Make ordering of new equipment for expansions, replacements, and spare parts available to dealers and end users.
		3. Provide factory direct technical support via phone or e-mail, or any time via Web.
			1. Provide toll-free numbers to contact customer support.
		4. Provide on-site training and on-line training via web.
2. PRODUCTS
	1. DIGITAL VIDEO RECORDERS
		1. Manufacturers:
			1. Advanced Technology Video
			2. Substitutions: Section 01 60 00 - Product Requirements: Not Permitted.
		2. Model: VLD916
		3. Product Description: Real Time 960H, Full HD, 16 channel Digital Video Recorder
		4. General Requirements:
			1. The Video Recorder shall provide these features:
				1. Fully integrated, stand-alone video recording management solution in a compact design.
				2. Record up to sixteen auto-terminating camera inputs using high resolution H.264 video compression.
				3. View recorded video in CIF, 2CIF, D1 and 960H resolution.
				4. Provide system wide recording, monitoring, and management for ATV and third-party PTZ cameras.
				5. Built-in web viewer for remote viewing, playback, control and configuration.
				6. Multiple control options via USB mouse, front panel and remote control.
				7. Remote configuration and management of devices on surveillance system.
				8. Capable of delivering live video to mobile devices.
				9. NTSC and PAL selectable video format.
				10. 10/100 Base-T Ethernet port for local or wide area network connection.
				11. Stable embedded operating system.
		5. The Video Recorder shall feature H.264 video compression to reduce bandwidth and storage requirements.
		6. The Video Recorder shall record automatically in the background.
		7. The Video Recorder shall have P2P (Point to Point) network connectivity for easy and fact connection to mobile devices
		8. The Video Recorder shall record at up to 25 (PAL) / 30 (NTSC) images per second, per channel at 960H resolution.
		9. The Video Recorder shall display Full High Definition (FHD), 1920 x 1080 resolution on both HDMI and VGA video monitors in full-screen, quad, and PIP that can be frozen or zoomed on main monitors.
		10. The Video Recorder shall control pan/tilt/zoom (PTZ) equipment via RS485 communications and shall support Pelco P and D protocols.
		11. The Video Recorder shall be operated and programmed via the onscreen display menu system using the front panel control keys, the mouse or the infrared, handheld remote control.
		12. The Video Recorder shall provide remote management software, ATV SkyVision, for remote live viewing and playback via a network connection for PC and Mac computers
		13. The Video Recorder shall allow local archiving via a USB device.
		14. The Video Recorder shall offer email notifications generated by programmed alarm activity.
		15. The Video Recorder shall deliver live video over the Internet to an appropriate mobile device. (The video recorder has been tested and works with the following mobile devices: iPhone, iPad and Android.)
		16. Specifications:
			1. Electrical:
				1. Input Power: 12VDC via 100 – 240 VAC power adapter
				2. Power Consumption: 60 Watts (5A)
			2. Video
				1. 16-BNC, Auto Terminating
				2. Main Monitor Output: BNC Composite,1 Output; VGA: 1 Output; HDMI: 1 Output
				3. Display Mode (Main): 1, 2x2, Sequence, PIP, and Digital 2X Zoom
				4. Display Resolution: 1920 x 1080 NTSC
				5. Record Resolution CIF, 2CIF, D1, 960H
				6. Playback/Record Rate:

480-Images/Second (CIF)

480-Images/Second (2CIF)

480-Images/Second (D1)

480-Images/Second (960H)

* + - * 1. Compression: H.264
				2. Operating System (OS): Embedded Linux
				3. Storage: 2 HDD (Max 4TB x 2 = 8TB)
				4. Data Export Medium: USB (HDD, CD-RW, Flash-Drive)
				5. Alarm Inputs: 4 TTL, NC or NO, Push Terminal
				6. Alarm Outputs: 1 Relay Out, Push Terminal
				7. Serial Interface

RS485 Serial Port I/O Control

* + - * 1. Network Interface: RJ-45 Network Interface Card 10/100 Base T Ethernet
				2. Network Protocols: DHCP, PPPoE, Static IP, DDNS, P2P
				3. Remote Connections: 3
				4. Remote Software: ATV SkyVision
				5. PTZ Control: 1-RS485 Serial Connection (Two Wire Half Duplex), Push Terminal
				6. Audio Inputs/Outputs 4/1 – Line Level (RCA Connectors)
				7. Dimensions (W x D x H) 13.4” x 9.1” x 2.7” (340mm x 231.5mm x 69mm)
				8. Weight 7.3lbs (1.7kg)
				9. Operating Temp 14°F ~ 122°F (-10°C ~ 50°C)
				10. Operating Humidity 0% - 90% (Non-Condensing)
		1. Conformity Certifications:
			1. Federal Communications Commission (FCC)
			2. European Conformity (CE)
			3. Underwriters Laboratories (UL): Power supply only
		2. Accessories
			1. XDLBB2: Recorder Lock Box (Black)
1. EXECUTION
	1. EXISTING WORK
		1. Disconnect and remove abandoned video surveillance equipment.
		2. Extend existing video surveillance installations using materials and methods compatible with existing installations as specified.
		3. Clean and repair existing video surveillance equipment remaining or to be reinstalled.
	2. 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
		3. Non-compliance with security instructions may result in loss of data.
		4. Ensure environmental, mechanical and electrical requirements are met.
	3. PREPARATION
		1. Protect devices from damage during construction.
	4. 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.
			1. Ground and bond video surveillance equipment in accordance with Section 26 05 26.
		5. Location must provide reasonable temperature and humidity conditions, free from sources of electrical and electromagnetic interference.
	5. FIELD QUALITY CONTROL
		1. Test snugness of mounting screws of all installed equipment.
		2. Test proper operation of all video system devices.
			1. Communication between recorder and cameras.
			2. Independent operation of alarms, and cameras.
		3. Test proper operation of software programs.
		4. Determine and report all problems to the manufacturer’s customer service department.
	6. MANUFACTURER'S FIELD SERVICES
		1. Section 01 40 00 - Quality Requirements: Manufacturer's field services.
		2. Furnish manufacturer’s field representative to supervise final wiring connections and system adjustments.
	7. ADJUSTING
		1. Section 01 70 00 - Execution and Closeout Requirements: Requirements for starting and adjusting.
		2. Make proper adjustment to video system devices for correct operation in accordance with manufacturer’s instructions.
		3. Make any adjustment of camera settings to comply with specific customer’s need.
		4. Adjust manual lens irises to meet lighting conditions.
	8. DEMONSTRATION AND TRAINING
		1. Demonstrate at final inspection that video management system and devices function properly.
		2. Demonstrate at final inspection camera’s functionality and video recording capabilities.

END OF SECTION