**SECTION 28 23 29**

**VIDEO SURVEILLANCE REMOTE DEVICES AND SENSORS**

**Advanced Technology Video IPVD3TRWI Vandal Dome IP Camera**

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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 Video Surveillance Remote Devices and Sensors.
		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 19 – Digital Video Recorders and Analog Recording Devices
			4. Section 28 23 23 – Video Surveillance Systems Infrastructure
	2. SYSTEM DESCRIPTION
		1. Description: Video surveillance and monitoring at points as indicated on Drawings.
			1. IPVD3TRWI Triple Stream, 3MP Resolution, TRUE Day/Night, WDR, Motorized Lens, IR, IP Vandal Dome Camera
		2. Performance Requirements
			1. 1/2.8” format progressive scan RGB CMOS image sensor
			2. 3MP, 2048 x 1536 resolution
			3. Triple Video Streams Simultaneously up to 20-ips at 1536p and 30-ips at 1080p resolution, using H.264 and MJPEG Compression
			4. TRUE Day/Night functionality
			5. Digital Wide Dynamic Range
			6. ONVIF Profile S compliant
			7. Smart IR Technology
			8. High-impact, vandal-resistant enclosure with built-in heater.
			9. Supports a Micro-SD Memory Card Slot for Local, Event Detection Recording
			10. The camera shall be of manufacturer’s official product line, designed for commercial/industrial continuous 24/7 use.
			11. The camera shall be based upon standard components and proven technology.
	3. DEFINITIONS
		1. TRUE Day/Night (infrared sensitive): A camera that has normal color operation in situations where there is sufficient illumination (day conditions), but where the sensitivity can be increased when there is little light available (night conditions). This is achieved by removing the infrared cut filter required for good color rendition. The sensitivity can be further enhanced by integrating a number of fields to improve the signal-to-noise ratio of the camera (this may introduce motion blur).
		2. Privacy Masking: The ability to mask out a specific area to prevent it from being viewed in order to comply with privacy laws and particular site requirements.
	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 service
	7. ENVIRONMENTAL REQUIREMENTS
		1. Section 01 60 00 - Product Requirements.
		2. Conform to manufacturer’s standard service conditions during and after installation of components.
	8. FIELD MEASUREMENTS
		1. Verify field measurements prior to fabrication.
	9. 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.
	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 and e-mail.
		4. Furnish service and maintenance of video surveillance system for one year from Date of Substantial Completion.
2. PRODUCTS
	1. CAMERAS
		1. Manufacturers:
			1. Advanced Technology Video
			2. Substitutions: Section 01 60 00 - Product Requirements: Not Permitted.
		2. Model: IPVD3TRWI
		3. Product Description: Triple Stream, 3MP Resolution, TRUE Day/Night, WDR, Motorized Lens, IR, IP Vandal Dome Camera
		4. Camera Image Sensor: 1/2.8” format progressive scan RGB CMOS.
		5. Lens: Motorized 3.0 – 9.0mm, F1.2 DC Auto-Iris, with Remote Focus.
		6. General Characteristics:
			1. The IP vandal dome camera shall be a high-impact, vandal-resistant, cast-aluminum housing, polycarbonate dome and hardened inner liner able to withstand the equivalent of 55 kg (120 lbs) of force; and shall provide protection against water and dust ingress up to IP 66 (NEMA 4X) standards.
			2. The IP vandal dome camera shall utilize 1/2.8-inch Progressive Scan RGB CMOS image sensor capable of producing up to 3MP, 2048 x 1536 resolution.
			3. The IP vandal dome camera shall provide direct network connection using H.264 and MJPEG compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
			4. The IP vandal dome camera shall offer Power over Ethernet (IEEE 802.3af Class 2/3).
			5. The IP vandal dome camera shall be ONVIF Profile S compliant.
			6. The IP vandal dome camera shall offer electronic (digital) wide dynamic range technology that allows for the capture of clear images from both light and dark areas in the same scene.
			7. The user shall be able to view video on a PC using a Web browser, with the ATVision IP Remote Management Software, or on an analog monitor with an ATV video encoder.
			8. The IP vandal dome camera shall provide eight independent, fully programmable privacy mask areas.
			9. The IP vandal dome camera shall provide an on-screen display to simplify the camera/lens back focus and network configuration settings.
			10. The IP vandal dome camera shall have a motorized, 3-9mm Varifocal, auto-iris lens, with remote focus functionality.
			11. The IP vandal dome camera shall provide Smart IR Technology with IR LED lights that automatically adjust the intensity to the surrounding scene for 0Lux night time operation up to 60 feet.
			12. The IP vandal dome camera shall provide a color image with a minimum scene illumination of 0.2 Lux and a monochrome image, when in the night mode and the IR LED’s on, with a minimum illumination of 0.0 Lux.
			13. The IP vandal dome camera shall provide enhanced night viewing through the increase of IR sensitivity by automatically switching a motorized IR filter from color to monochrome operation in low-light or IR illuminated applications. Allow the IR filter to be preprogrammed in a camera mode or profile.
			14. The IP vandal dome camera shall utilize pixel-by-pixel analysis to automatically compensate for bright areas of a high contrast scene (Back light) without having to define a window or area.
			15. The IP vandal dome camera shall provide angle adjustment of 355° Pan; 70° Tilt; 355° Rotation.
			16. The IP vandal dome camera shall provide micro-SD memory card slot for local, event recording.
			17. The IP vandal dome camera shall provide support for two-way audio capability.
			18. The IP vandal dome camera shall have a built-in heater allowing the camera to operate in cold weather applications down to -40°F (-40°C).
			19. The IP vandal dome camera shall provide a test monitor cable for use during installation and setup.
		7. Installation Requirements
			1. Shall contain a full-featured camera and integral, motorized varifocal lens.
			2. Shall be capable of being mounted to a surface, wall, corner, and suspended ceiling.
			3. Shall provide power, video, and control via an Ethernet connection.
			4. Shall provide secondary power connection on 2-pin Phoenix connector.
			5. Shall provide stereo jack audio connectors.
			6. Shall provide a multi-language on-screen display.
		8. IP Connectivity
			1. The IP dome camera shall allow full camera control and configuration capabilities over the network.
			2. The IP dome camera shall offer Power over Ethernet (IEEE 802.3af Class 2/3).
			3. The IP dome camera shall be capable of capturing and storing images using H.264 and MJPEG encoding and compression at following resolution levels: 2048 x 1536, 1920 x 1080, 1280 x 1024, 1280 x 720, 704 x 480, 640 x 480, 352 x 240 and 320 x 240.
			4. The IP dome camera shall deliver high quality 2048 x 1536 video at 20 images per second, and 1920 x 1080 full high definition video at rates up to 30 images per second, via TCP/IP over Cat5/Cat6 UTP cable; and leverage bandwidth throttling and multicasting capabilities to manage bandwidth and storage requirements efficiently while delivering the best possible image quality and resolution.
			5. The IP dome camera shall generate independent H.264 and MJPEG streams simultaneously.
			6. The IP dome camera shall be ONVIF Profile S compliant.
		9. Alarm Handling Features:
			1. The IP dome camera shall provide a TTL input / output that may be selected for normally opened or normally closed operation. The input can be activated from an external alarm to the camera, manual activation from the browser, upon video motion detection, or video loss.
		10. Sensor
			1. Type: 1/2.8-inch Progressive Scan RGB CMOS
			2. Active Pixels:
				1. NTSC: 2048(H) x 1536(V)
		11. IP Video
			1. Video Compression: H.264, Motion‑JPEG, MPEG-4 Part 10
			2. H.264 Profile: MPEG-4 Part 10; Main Profile and Baseline Profile
			3. Streaming: Multiple, individually configurable streams in H.264 and MJPEG, simultaneously in controllable frame rate and bandwidth VBR/CBR H.264 and MPEG-4
			4. Frame rate:
				1. 20-ips at 2048 x 1536 and 30-ips at all other resolutions
			5. Resolution:
				1. 320 x 240 up to 2048 x 1536
		12. Video
			1. Video Output: Composite video 1 Vpp, 75 Ohm
			2. Shutter: 1/20,000 to 1/4
			3. Min. Illumination: Color, 0.2Lux; B/W, 0.0Lux (F1.2, 50IRE, with IR LED’s On)
			4. TRUE Day / Night (ICR)
			5. Backlight Compensation
			6. 2D-DNR
			7. Electronic (digital) Wide Dynamic Range (WDR)
			8. Privacy Masking: 8 windows
			9. Motion Detection: 8 windows
			10. Auto White Balance
		13. Audio
			1. Standard G.711 ADPCM 40kbps to 16kbps
			2. Streaming: 2-way
		14. Software Control
			1. Unit Configuration: SmartManager Utility tool or ATVision IP Remote Management Software
			2. Software Update: Web browser, SmartManager Utility tool or ATVision IP Remote Management Software
		15. Network
			1. Protocols: TCP/IP, UDP, IPv4/v6, HTTP, HTTPS, QoS, FTP, SNMP, uPnP, RTP, RTSP, RTCP, DHCP, ARP. Zeroconf, Bonjour
			2. Security: Multi-user authority, HTTPS, IP Filtering, Privacy Zone
			3. Ethernet: 10Base-T/100 Base-TX, RJ45
			4. Power over Ethernet: IEEE 802.3af Class 2/3
		16. Optical
			1. Varifocal Lens: IR-corrected, remote motorized zoom and focus adjustment
			2. Iris Control: Automatic Iris control
			3. Angle of View: 3.0mm – 99 ° (H) / 9.0mm – 35° (H)
		17. Electrical:
			1. Input Power: 12V DC / 24V AC (+/- 10%), 60Hz.
			2. Power Consumption(with IR LED On): maximum 7.5 Watts: PoE, 12VDC & 24VAC, without heater
				1. With heater, 24VAC must be used: 27 Watts
		18. Mechanical:
			1. Vandal Resistant, pre-packaged, cast-aluminum housing
			2. Complete dome to be IP66 rated
			3. Clear, polycarbonate dome bubble
			4. Adjustment range:
				1. Pan: 355°
				2. Tilt: 70°
				3. Rotation: 355°
			5. IR LED’s: 24LED lights, 60ft (20M) maximum range
			6. Secondary Power Input: 2-Pin Phoenix connector
			7. Video Output: BNC connector
			8. Connector for optional heater kit
			9. Dimensions (Dia x H): 6.0 x 4.9in (152 x 120mm)
			10. Weight: 2.1lbs (0.98kg)
			11. Operating Temperature: 32ºF ~ 122ºF (-10ºC ~ +50ºC), without heater; with heater: -40 ºF (-40 ºC)
			12. Operating Humidity: 0 to 90% RH (non-condensing)
		19. Conformity Certifications:
			1. Federal Communications Commission (FCC)
			2. Underwriters Laboratories (UL)
			3. European Conformity (CE)
			4. Ministry of Internal Affairs and Communications (MIC)
			5. NEMA-4X (IP66)
		20. Accessories
			1. A-CM150: Corner Mount Adapter for the VDMWC2
			2. A-CM151: Pole Mount Adapter for the VDMWC2
			3. DB243W2: Wall Mount
			4. A-PEXM: Ceiling Mount Bracket
			5. A-PPDM: Ceiling Pipe Mount Adapter
			6. VDMWC2: Wall and Ceiling Mount
			7. PFMS7: Flush Mount
		21. Remote Management Software
			1. ATVision IP Remote Management Software shall be provided with camera
3. 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. 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.
		3. 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