**SECTION 28 23 29**

**VIDEO SURVEILLANCE REMOTE DEVICES AND SENSORS**

**Advanced Technology Video IPSDV20X2 IP PTZ Dome 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. IPSDV20X2, 2MP, TRUE Day/Night, WDR, 20x PTZ Dome, IP Camera
		2. Performance Requirements
			1. 1/2.8” Sony Starvis CMOS sensor
			2. 2MP, 1920 x 1080 resolution
			3. Triple Video Streams Simultaneously up to 60-ips at 1080p Resolution, using H.264 and MJPEG Compression
			4. TRUE Day/Night functionality
			5. Wide Dynamic Range
			6. High speed PTZ dome with privacy masking, two-way audio and video motion detection
			7. 20x, 4.7 – 94mm, auto-focus, optical zoom lens with 16x digital zoom function
			8. ONVIF Profile S compliant.
			9. Supports a Micro-SD Memory Card Slot for Local, Event Detection Recording
			10. IP66 Weather Resistant and IK10 impact resistant vandal housing with built-in heater.
			11. The camera shall be of manufacturer’s official product line, designed for commercial/industrial continuous 24/7 use.
			12. 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: IPSDV20X2
		3. Product Description: 2MP, TRUE Day/Night, WDR, 20x PTZ Dome, IP Camera
		4. Camera Image Sensor: 1/2.8” Sony Starvis CMOS
		5. Lens: 20x, 4.7 – 94.0mm, auto-focus, optical zoom lens with 16x digital zoom function
		6. General Characteristics:
			1. The IP PTZ dome shall be a high-impact, vandal-resistant, cast-aluminum housing, with a 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 PTZ dome shall utilize 1/2.8-inch Sony Starvis CMOS sensor capable of producing up to 1920 x 1080 resolution.
			3. The IP PTZ dome shall offer a 20x, 4.7 – 94.0mm, auto-focus, optical zoom lens with 16x digital zoom function.
			4. The IP PTZ dome 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.
			5. The IP PTZ dome shall offer Power over Ethernet (IEEE 802.3af Class 0).
			6. The IP PTZ dome shall be ONVIF Profile S compliant.
			7. The IP PTZ dome shall offer wide dynamic range technology that allows for the capture of clear images from both light and dark areas in the same scene.
			8. The user shall be able to view video on a PC using a Web browser, or with the ATVision IP Remote Management Software.
			9. The IP PTZ dome shall offer progressive scan technology that allows for the capture of clear images from a moving camera.
			10. The IP PTZ dome shall support the following tour modes:
				1. 256 user-defined pre-set camera views
				2. Eight (8) tours, each consisting of up to 100 presets
				3. Eight (8) patterns, consisting of pre-programmed pan, tilt and zoom movements
				4. Endless auto-pan capability
			11. The IP PTZ dome shall provide a color image with a minimum scene illumination of 0.35Lux and a monochrome image, when in the night mode, with a minimum illumination of 0.13 Lux.
			12. The IP PTZ dome 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.
			13. The IP PTZ dome shall provide pan and tilt preset repeatability accurate to within ±0.1 degrees.
			14. The IP PTZ dome shall provide support for two-way audio capability.
			15. The IP PTZ dome shall provide variable speed from 0.1º/sec to 380º/sec:
			16. The IP PTZ dome shall provide a pan range of 360 degrees of continuous rotation.
			17. The IP PTZ dome shall be able to be mounted to a wall, mounted to a surface, mounted to a pipe, or recessed into an indoor ceiling.
			18. The IP PTZ dome shall offer IK10 rated, impact resistant protection
			19. The IP PTZ dome shall provide micro-SD memory card slot for local, event recording.
			20. The IP PTZ dome shall support English, French, German, Spanish and Italian languages.
		7. Installation Requirements
			1. Shall contain a full-featured PTZ camera dome 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 3-pin Phoenix connector.
			5. Shall provide a multi-language on-screen display.
		8. IP Connectivity
			1. The IP PTZ dome shall allow full camera control and configuration capabilities over the network.
			2. The IP PTZ dome shall offer Power over Ethernet (IEEE 802.3af Class 0).
			3. The IP PTZ dome shall be capable of capturing and storing images using H.264 and MJPEG encoding and compression at following resolution levels: 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 PTZ dome shall deliver high-quality, 1920 x 1080 video at rates up to 60 images per second, via TCP/IP over Cat5/Cat6 UTP cable. Leverages bandwidth throttling and multicasting capabilities to manage bandwidth and storage requirements efficiently while delivering the best possible image quality and resolution.
			5. The IP PTZ dome shall generate independent H.264 streams and a MJPEG stream simultaneously.
			6. The IP PTZ dome shall be ONVIF Profile S compliant.
		9. Alarm Handling Features:
			1. The IP PTZ dome 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. IP Video
			1. Video Compression: H.264 (BP/MP/HP), MJPEG
			2. Streaming: Multiple, individually configurable streams in H.264 and MJPEG, simultaneously in controllable frame rate and bandwidth VBR/CBR H.264; 2 streams H.264 and 1 stream MJPEG
			3. Frame rate:
				1. Up to 60-ips maximum at all resolutions
			4. Resolution:
				1. 1920 x 1080
		11. Video
			1. Min. Illumination: Color, 0.35Lux; B/W, 0.13Lux
			2. TRUE Day / Night (ICR)
			3. Backlight Compensation
			4. Digital Noise Reduction (DNR): 3DNR
			5. Image Effect:
				1. Flip: the video image is flipped horizontally
				2. Defog: electronically compensates for weather conditions such as fog, smoke, drizzle, etc. to provide clearer image
				3. Digital Image Stabilization (DIS): an electronic process that compensates for vibration or movement of the camera due to machinery or wind, which causes the video image to be blurry.
			6. Wide Dynamic Range (WDR): 120dB
			7. Motion Zones: 16
			8. Privacy (Masks) Zones: 16
			9. Video Content Analysis (VCA): Video Analytics

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| * + - * 1. Line Detector
				2. Field Detector
				3. Face Detector
				4. Tampering
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* + 1. Audio
			1. Standard G.711 ADPCM 40kbps to 16kbps
			2. Streaming: 2-way
		2. 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
		3. Network
			1. Protocols: IPv4/IPv6, Manual, TCP/IP, UDP, HTTP, RTP, RTSP, NTP, DHCP, SMTP, DDNS, HTTPS, RTCP, FTP, 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 0
		4. Electrical:
			1. Input Power: 12V DC or 24VAC (+/- 10%), Power over Ethernet (IEEE 802.3af Class 0).
			2. Power Consumption: 12.0 Watts (250mA), PoE; 12.0Watts (1.0A) 12VDC & 24VAC (without heater)
				1. With heater, 24VAC must be used: 22.0 Watts (1.5A)
		5. Mechanical:
			1. Vandal Resistant, pre-packaged, cast-aluminum housing
			2. Complete dome to be IP66 rated
			3. Clear, polycarbonate dome bubble
			4. Pan Range: 360º continuous
			5. Tilt Angle: 0° ~ 180° (Digital Flip)
			6. Variable Speed: 0.1º/sec to 380º/sec
			7. Dimensions (Dia x H): 6.0 x 5.9in (154 x 150mm)
			8. Weight: 3.5lbs (1.6kg)
			9. Operating Temperature:

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| * + - * 1. Without heater: 14ºF ~ 122ºF (-10ºC ~ 50ºC)
				2. With heater: -22ºF ~ 122ºF (-30ºC ~ +50ºC)
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* + - 1. Operating Humidity: 0 to 90% RH (non-condensing)
		1. 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)
			6. IEC (IK-10)

* + 1. Accessories
			1. A-CM150: Corner Mount Adapter for the VDMWC
			2. A-CM151: Pole Mount Adapter for the VDMWC
			3. DB243W2: Wall Mount
			4. A-PEXM: Ceiling Mount Bracket
			5. A-PPDM: Ceiling Pipe Mount Adapter
			6. VDMWC2: Wall and Ceiling Mount
			7. A-PFM: Flush Mount
			8. KB5000N: Keyboard Controller
		2. Remote Management Software
			1. ATVision IP Remote Management Software shall be provided with camera
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. 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