**SECTION 28 23 29**

**VIDEO SURVEILLANCE REMOTE DEVICES AND SENSORS**

**Advanced Technology Video IPLPC2RI IP License Plate Capture 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. IPLPC2RI, 2MP Resolution, IP, License Plate Capture Camera
		2. Performance Requirements
			1. Specifically designed to capture license plate images with exceptional quality
			2. Monochrome (B/W) camera, using 1/2.8” format Sony Starvis CMOS sensor
			3. 2MP, Full HD 1920 x 1080 resolution
			4. Triple Video Streams Simultaneously, up to 60-ips, at 1080p Resolution using H.264 and MJPEG Compression
			5. IR LED lights for night time operation up to 80ft
			6. Remote focus and zoom, motorized 5.1-51mm varifocal lens
			7. Weather resistant, metal enclosure with built-in heater
			8. ONVIF Profile S compliant
			9. Supports a Micro-SD Memory Card Slot for Local, Event Detection Recording
			10. Composite video output for installation or service monitor
			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. 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: IPLPC2RI
		3. Product Description: 2MP Resolution, IP, License Plate Capture Camera
		4. Camera Image Sensor: 1/2.8” format Sony Starvis CMOS.
		5. Lens: Motorized 5.1 – 51mm, varifocal with Remote Focus.
		6. General Characteristics:
			1. The IP LPC camera shall be an extruded aluminum, housing.
			2. The IP LPC camera shall utilize 1/2.8-inch Sony Starvis CMOS sensor capable of producing up to Full HD 1920 x 1080 resolution.
			3. The IP LPC 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 LPC camera shall offer Progressive Scanning for sharper video motion images.
			5. The IP LPC camera shall offer Power over Ethernet (IEEE 802.3af Class 0).
			6. The IP LPC camera shall be ONVIF Profile S compliant.
			7. The user shall be able to view video on a PC using a Web browser, with the ATVision IP Remote Management Software.
			8. The IP LPC camera shall provide sixteen independent, fully programmable privacy mask areas.
			9. The IP LPC camera shall have a Motorized 5.1 – 51mm, varifocal with Remote Focus.
			10. The IP LPC camera shall provide an on-screen display to simplify the camera programming and network configuration settings.
			11. The IP LPC camera shall provide a monochrome (B/W) image.
			12. The IP LPC camera shall provide IR LED lights for 0Lux night time operation up to 80 feet.
			13. The IP LPC 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.
			14. The IP LPC camera shall provide support for two-way audio capability.
			15. The IP LPC camera shall provide micro-SD memory card slot for local continuous and event recording.
		7. Installation Requirements
			1. Shall contain a full-featured camera and integral varifocal, motorized zoom and focus, lens.
			2. Shall be capable of being mounted to a wall surface.
			3. Shall provide power, video, and control via an Ethernet connection.
			4. Shall provide secondary power connection on a barrel connector.
			5. Shall provide audio terminal block connectors
			6. Shall provide a multi-language on-screen display.
		8. IP Connectivity
			1. The IP LPC camera shall allow full camera control and configuration capabilities over the network.
			2. The IP LPC camera shall offer Power over Ethernet (IEEE 802.3af Class 0).
			3. The IP LPC camera 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 LPC camera shall deliver DVD-quality, 1920 x 1080, full high definition resolution video at rates up to 60 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 LPC camera shall generate independent H.264 and MJPEG streams simultaneously.
			6. The IP LPC camera shall be ONVIF Profile S compliant.
		9. Alarm Handling Features:
			1. The camera shall provide an alarm input / output (Terminal Block) that may be signal the camera to react on events. The input can be activated from an external alarm to the camera, manual activation from the browser, upon video motion detection, or video loss. The output can activate external devices such as buzzers or lights.
		10. Sensor
			1. Type: 1/2.8-inch Sony Starvis CMOS
			2. Active Pixels:
				1. NTSC: 1945(H) x 1097(V)
		11. IP Video
			1. Video Compression: H.264, MJPEG
			2. H.264 Profile: Baseline, Main, High
			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. 60-ips at all resolutions
			5. Resolution:
				1. 320 x 240 up to 1920 x 1080
		12. Video
			1. Shutter: 1/50,000 to 8 secs
			2. Min. Illumination: Monochrome (B/W) 0Lux
			3. 2D & 3D-DNR
			4. 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 may cause the video image to be blurry.
			5. Privacy Masking: 16 windows
			6. Motion Detection: 16 windows
			7. Digital Zoom
		13. Video Content Analysis (VCA): Analytics
			1. Line Detector
			2. Field Detector
			3. Face Detector
			4. Tampering
		14. Audio
			1. Standard G.711
			2. Streaming: 2-way
		15. 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
		16. 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 0
		17. Optical
			1. Varifocal Lens: IR-corrected, remote motorized zoom and focus adjustment
			2. Iris Control: DC Iris control
			3. Angle of View: 5.1mm - 54° (H) x 51.0mm – 4.9° (H)
		18. Electrical:
			1. Input Power: 12VDC or Power over Ethernet (PoE), IEEE 802.3af Class 0
			2. Power Consumption (with heater on): PoE: 23W, 0.47A; 12VDC: 20W, 1.6A
		19. Mechanical:
			1. Pre-packaged, cast-aluminum bullet housing
			2. Complete bullet housing to be IP66 rated
			3. Secondary Power Input: Barrel Connector
			4. Audio: 1 / 1, Terminal Block
			5. Alarm: 1 / 1, Terminal Block
			6. Composite Video Output: 3.5pi Stereo Jack
			7. Dimensions (W x H x D): 10.7 x 3.3 x 3.9in (272 x 85 x 100mm)
			8. Weight: 2.6lbs (1.2kg)
			9. Operating Temperature: -22ºF ~ 122ºF (-30ºC ~ +50ºC)
			10. Operating Humidity: 0 to 90% RH (non-condensing)
		20. Conformity Certifications:
			1. Federal Communications Commission (FCC)
			2. European Conformity (CE)
			3. Underwriters Laboratories (UL)
			4. NEMA-4X (IP66)
		21. Remote Management Software
			1. ATVision IP 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