**SECTION 28 23 29**

**VIDEO SURVEILLANCE REMOTE DEVICES AND SENSORS**

**Advanced Technology Video IPE1CH Single Channel IP Video Encoder**

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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. IPE1CH Single Channel, Dual Stream, D1 Resolution, IP Video Encoder
		2. Performance Requirements
			1. Encoder shall be capable of converting 1 channel of analog video into network, IP video
			2. 704 x 576 resolution
			3. Dual Video Streams Simultaneously, up to 30-ips, at D1 Resolution using H.264 and MJPEG Compression
			4. RS-485control capability for connection to PTZ camera
			5. ONVIF compliant.
			6. Supports alarm in/out and two-way audio.
			7. The encoder shall be of manufacturer’s official product line, designed for commercial/industrial continuous 24/7 use.
			8. The encoder shall be based upon standard components and proven technology.
	3. DEFINITIONS
		1. H.264 is a video encoding and compression standard that uses block-oriented motion-compensation-based codec standard to significantly reduce the size of the video stream being transmitted. This often provides substantial compression because in many motion sequences, only a small percentage of the pixels are actually different from one frame to another
		2. Dual Streaming is a feature that allows users to adjust frame rate, compression standard, and video resolution for different purposes simultaneously.
	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: IPE1CH
		3. Product Description: Single Channel, Dual Stream, D1 Resolution, IP Video Encoder
		4. General Characteristics:
			1. A single-channel, high-performance IP video encoder designed for use in CCTV systems and whose primary function is to encode one (1) channel of video and control data for transmission over an IP network to remote CCTV monitors and PCs.
			2. Capable of producing two (2) video streams (dual streaming) at the rate of 30 images per second with DVD-quality D1 resolution, using H.264 and MJPEG compression. (Dual streaming is dependent on the encoder settings, picture content, the amount of motion within the video, and the available computational power.)
			3. Accepts analog video input from one (1) fixed or PTZ camera and then provides H.264 IP video to the network.
			4. Receives control data from the network for control of PTZ cameras.
			5. Supports NTSC, PAL, EIA, and CCIR camera sources.
			6. As the application requires, the single-channel video encoder specified shall be capable of functioning on data networks, such as Ethernet LANs and over the Internet.
			7. The encoder shall function as a server to provide H.264 video via the network to a PC workstation using a standard Web browser (such as Microsoft Internet Explorer Version 7.0 or later) as the receiver.
			8. The video encoder specified shall be capable of transmitting video that can be viewed over an IP network using ATV’s ATVision IP Remote Management software running on a network workstation.
			9. The video encoder shall be capable of sending both video streams to a centrally-managed recording device via a video recording manager.
			10. The single-channel video encoder shall allow selection of the following resolutions (NTSC/PAL):
				1. Maximum: 704 x 480 / 704 x 576
				2. Minimum: 160 x 120
			11. The video encoder shall have time synchronization capability that ensures simultaneously occurring events will display the correct time and date when multiple specified devices are connected to the same network.
			12. The video encoder shall offer Power over Ethernet (IEEE 802.3af Class 2/3).
			13. The video encoder shall be ONVIF compliant.
		5. Alarm Handling Features:
			1. The video encoder shall provide a TTL input / relay output that may be selected for normally opened or normally closed operation. The input can be activated from an external alarm to the encoder, manual activation from the browser, upon video motion detection, or video loss.
		6. Video
			1. Video Compression: H.264, M‑JPEG, MPEG-4 Part 2
			2. H.264 Profile: MPEG-4 Part 10; Main Profile and Baseline Profile
			3. Streaming: Multiple, individually configurable streams in H.264 and JPEG, simultaneously in controllable frame rate and bandwidth VBR/CBR H.264 and MPEG-4
			4. Frame rate:
				1. 30-ips at all resolutions
			5. Resolution:
				1. 160 x 120 up to 704 x 480
			6. Video In/Out: BNC, Composite video 1 Vpp, 75 Ohm
			7. Privacy Masking: 8 windows
			8. Motion Detection: 8 windows
		7. Audio
			1. Standard G.711 ADPCM 40kbps to 16kbps
			2. Streaming: 2-way
			3. In/Out: RCA
		8. Auxiliary
			1. RS-485, for connection to a PTZ camera.
		9. 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
		10. 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
		11. Electrical:
			1. Input Power: 12V DC / 24V AC (+/- 10%), 60Hz.
			2. Power Consumption: 5 Watts
		12. Mechanical:
			1. Metal casing
			2. Dimensions (W x H x L): 6.1 x 1.57 x 4.03in (155 x 40 x 102.4mm)
			3. Weight: 1.0lbs (.45kg)
			4. Operating Temperature: 32ºF ~ 122ºF (0ºC ~ +50ºC)
			5. Operating Humidity: 0 to 90% RH (non-condensing)
		13. Conformity Certifications:
			1. Federal Communications Commission (FCC)
			2. European Conformity (CE)
		14. Remote Management Software
			1. ATVision IP Remote Management Software shall be provided with video encoder
3. EXECUTION
	1. 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.
	2. PREPARATION
		1. Protect devices from damage during construction.
	3. 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.
	4. FIELD QUALITY CONTROL
		1. Test proper operation of all video system devices.
			1. Communication between recorder and cameras.
			2. Independent operation of alarms, and cameras.
		2. Test proper operation of software programs.
		3. Determine and report all problems to the manufacturer's customer service department.
		4. Determine and report all problems to the manufacturer’s customer service department.
	5. 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.
	6. 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.
	7. DEMONSTRATION AND TRAINING
		1. Demonstrate at final inspection that video management system and devices function properly.
		2. Demonstrate at final inspection video encoder’s functionality and capabilities.

END OF SECTION