SECTION 28 23 00

VIDEO SURVEILLANCE SYSTEM

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\*\* NOTE TO SPECIFIER \*\* Vicon Industries; video management systems, security systems.
This section is based on the products of Vicon Industries, which is located at:135 Fell CourtHauppauge, NY 11788Toll Free Tel: 800-645-9116Tel: 631-952-2288Fax: 631-951-2288Email: [request info (AEC\_Support@vicon-security.com)](https://arcat.com/rfi?action=email&company=Vicon%252BIndustries&message=RE%253A%2520Spec%2520Question%2520(13700vii)%253A%2520&coid=36334&spec=13700vii&rep=&fax=631-951-2288)
Web: <http://www.vicon-security.com>
 [ [Click Here](https://arcat.com/company/vicon-industries-36334) ] for additional information.
Vicon Industries is an industry-leading designer, manufacturer and marketer of video systems and components used for security, surveillance, safety, and control purposes. Celebrating over 50 years in business, the company is unrivalled in experience developing video surveillance technologies. Vicon systems are employed worldwide in high-profile, enterprise-scale installations by a diverse range of customers, including governments, Fortune 500 companies, private and public institutions, and global transit and commerce hubs.
Vicon oversees its worldwide operations from its main headquarters located on New York's Long Island and its European headquarters in the UK. An extensive network of highly trained certified installing dealers, system integrators and distributors is responsible for product sales.
Vicon is a full security systems provider offering:
- Open-platform Valerus and ViconNet Video Management systems.
- A full selection of network cameras, including megapixel models.
- NVRs and video storage solutions.
- HD decoders, virtual matrix display software and HD monitors.
- System design and installation support from our Professional Services team.
- Training.

1. GENERAL
	1. SECTION INCLUDES
		1. Video surveillance and management system including the following as applicable:
			1. Modular Sensor System.
			2. Digital video recording management and network software.
			3. Web/mobile server.
			4. Network video recorders.
			5. Network video recorder workstations.
			6. RAID storage devices.
			7. Video analytics.
			8. Cameras: For VMS.
				1. Pan-Tilt-Zoom (PTZ) cameras.
				2. Box cameras.
				3. Specialty cameras.
				4. Dome cameras.
				5. Bullet cameras.
			9. Electronic access control management system.
	2. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 26 00 00 - Electrical.
	1. REFERENCES
		1. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
		2. Certifications: CE, FCC Class A, IK7, IK10, IP66, ISO, NEMA4, ONVIF, PSIA, RoHS 2, UL, and cUL, NEMA 4.
		3. Institute of Electrical and Electronics Engineers (IEEE): IEEE 1100 Recommended Practice for Powering and Grounding Electronic Equipment.
		4. National Fire Protection Association (NFPA):
			1. NFPA 70 2005 National Electrical Code.
			2. NFPA 72 National Fire Alarm Code.
			3. NFPA 80 Fire Doors and Windows, 2007 Edition.
			4. NFPA 101 Life Safety Code, 2009 Edition.
		5. International Organization for Standardization (ISO): ISO 7816 Smart Card Standard.
	2. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data: Manufacturer's data sheets on each product to be used, including:
			1. Preparation instructions and recommendations.
			2. Storage and handling requirements and recommendations.
			3. Installation methods.
		3. Shop Drawings: Schematic of system components with physical space requirements.
			1. Provide system and sub-system one-line drawings, point-to-point diagrams, bill of materials and simplified operating features and functions.
			2. The drawings are diagrammatic unless detailed dimensions are included. Drawings show close approximate locations of equipment and devices. Exact locations are subject to the approval of Owner and Owner's representative.
			3. Anything mentioned in the specifications and not shown in the drawings or shown in the drawings and not mentioned in the specifications, shall be of like effect as if shown and mentioned in both. In case of differences between the specifications and drawings, the stricter provision, as determined by the project coordinator, shall govern. Omissions from the drawings or specifications, or the incorrect description of details of work which are evidently necessary to carry out the intent of the drawings and specifications, will not relieve the contractor from performing such work.
	3. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Minimum 5 year experience manufacturing similar products.
		2. Installer Qualifications: Minimum 2 year experience installing similar products.
			1. The VMS Installer is to meet all applicable regulations. The Contractor must be a firm normally employed in the VMS or Security industry.
			2. The Contractor must be certified by the manufacturer of the products, adhere to the engineering, installation and testing procedures and utilize the authorized manufacturer components and distribution channels.
			3. The Contractor must be certified by the manufacturing company in all aspects of design, installation and testing of the products described herein. Each Contractor is to furnish with their submittal a letter from the manufacturer indicating they are a dealer in good standing.
			4. The Contractor must be experienced in all aspects of this work and be required to demonstrate direct experience on recent systems of similar type and size. The Contractor must own and maintain tools and equipment necessary for successful installation and testing of the specified systems and have personnel who are adequately trained in the use of such tools and equipment.
			5. A resume of qualifications must be submitted with the Contractor's proposal indicating the following:
				1. A list of three recently completed projects using other PoE products proposed of similar type and size with contact names and telephone numbers for each.
				2. A technical resume of experience for the Contractor's Project Manager and on-site Installation Supervisor who shall be assigned to this project.
				3. A list of technical product training attended by the Contractor's personnel that will install the VMS must be submitted.
		3. Equipment must equal or exceed the minimum requirements of NEMA, ASME, ANSI and Underwriters Laboratories.
		4. Material and equipment furnished must be new, unused, and free from defects. Equipment is to be clean and free of damage or corrosion and of the best quality obtainable for the purpose intended.
		5. Where more than one of any specified items of equipment or material is required, such items must be the product of one manufacturer throughout the facility unless otherwise specified.
		6. Materials used must bear labels attesting to Underwriters Laboratories approval, provided a standard is established for the material in question.
		7. Materials must conform strictly to the standards and specifications set forth in this document. Unless otherwise specified, all products furnished shall be designed, built, and installed in accordance with the latest and best practice of the electrical industry, and shall conform to the standards of the NEMA, ANSI, TIA/EIA, ICEA, IEEE and NEC, and this Specification wherever they apply.
		8. Contractor personnel must be qualified to perform the work and be knowledgeable in the following standards, skills, and activities, as applicable:
			1. TIA/EIA 568B, 569B, 606A and 607A standards.
			2. Bonding and grounding where required.
			3. Testing conductors for electrical continuity.
			4. Testing copper and fiber circuits for performance compliance.
			5. Cable terminations for specified connectors and terminations for copper and fiber cables.
		9. Contractor personnel will be required to provide and use the proper tools in the performance of each activity. The tools must be in good working order. The Owner reserves the right to review the tool lists and tool maintenance procedures of the Contractor.
	4. PRE-INSTALLATION MEETINGS
		1. Convene a minimum of two weeks prior to starting work of this section.
	5. DELIVERY, STORAGE, AND HANDLING
		1. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
		2. Handle materials to avoid damage.
	6. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
	7. SEQUENCING
		1. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.
	8. WARRANTY

\*\* NOTE TO SPECIFIER \*\* NVR rack mounted models. Verify warranty on other components.

* + 1. Manufacturer's limited warranty with 3 year parts and labor warranty period except where noted 5 year (Valerus Elite line of servers and IP cameras). Some VAX Access Control controllers have a lifetime warranty; refer to Vicon's website for details.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Vicon Industries, which is located at:135 Fell CourtHauppauge, NY 11788Toll Free Tel: 800-645-9116Tel: 631-952-2288Fax: 631-951-2288Email: [request info (AEC\_Support@vicon-security.com)](https://arcat.com/rfi?action=email&company=Vicon%252BIndustries&message=RE%253A%2520Spec%2520Question%2520(13700vii)%253A%2520&coid=36334&spec=13700vii&rep=&fax=631-951-2288);Web: <http://www.vicon-security.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with the provisions of Section 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. VIDEO SURVEILLANCE SYSTEM
		1. General: Video Surveillance System.
			1. Includes but is not limited to a modular sensor system.
			2. Integrate with other security components, i.e., access control and intrusion detection.
			3. Manufacturer: Will supply hardware, firmware, and software necessary for proper operation of the sensor system.
				1. Includes: Sensors, fixtures, and mounting accessories.
				2. Equipment and materials used are to be standard components regularly manufactured and used in Manufacturer's system.
				3. Systems and Components: To be thoroughly tested and proven in actual use.

Provide with use of a toll-free 24 hour technical support phone number from the Manufacturer for no charge.

This service is to be available to dealers, installers, and end users.

* + - 1. Contractors: Responsible for the final programming, testing, and commissioning of the system in collaboration with the Owner's personnel, ensuring compliance with specified operational standards.
			2. Installations: Must adhere to industry and safety standards, with proper grounding and surge protection.
		1. System Description:
			1. Ability to digitally record video images and view live and recorded video.
			2. System: IP PoE cameras terminating at rack-mounted switches via CAT5+ cables and patch panels.
			3. Camera System: Features automatic IP address reassignment for replacement cameras, enabling a seamless plug-and-play experience.
				1. Modular Design: Separates the Network Hub from the Sensor Modules.

Allows for in-place upgrades of one to four sensors on the same Network Hub while maintaining a single IP address.

Ensures flexibility and scalability without additional IP addresses or complex configurations.

* + - 1. Cameras: Utilize next-generation intelligence, be a self-contained system, and offer fast installation with a patented "snap and twist install" of the camera to the camera mounting bracket.
				1. Automated Image Enhancements: achieved using an onboard AI Vision processor, which dynamically adjusts video settings such as brightness, contrast, HDR, and de-noising.

The system maintains a full-color, noise-free picture at all times, even in ultra-low light conditions, without additional lighting.

* + - * 1. Power: Power over Ethernet (PoE).
				2. Acceptable Poser Supplies: PoE switch, 24 VAC or 12 VDC power injectors as specified in this specification.
			1. Structured Cabling Contractor (SCC): Responsible for furnishing, installing, terminating, and configuring VMS electronic equipment, including but may not be limited to, the devices listed and specified in this specification.
				1. Coordinating with the IT department on network connectivity.
				2. Will not access the LAN/WAN or make any modifications without written authorization from IT.
				3. Furnish and install VMS low-voltage, control, and communications wiring.

Project will require coordination between the SCC and SCC for low-voltage cabling.

* + - * 1. Provide and pull all CAT5+ cable for cameras.
				2. Coordinate final camera views and operation with Owner personnel.
				3. Provide final programming, testing, and commissioning of the VMS.
				4. Responsible for coordinating with the Owner personnel to ensure system programming is per current standards.
			1. Detailed VMS Operation: To be defined by the Owner.
			2. Final Programming and Testing: Include use of AI inferencing capabilities with advanced computer vision engines to generate premium image quality and advanced video analytics.
			3. Electrical Contractor (EC): Furnish and install conduit, junction boxes, and back-boxes, as required for low-voltage power and video wiring of the VMS.
			4. VMS Components: To be grounded and surge protected through appropriate means that meet or exceed Electrical Code Standards.
		1. Modular Sensor System:
			1. Basis of Design: Vicon NEXT Modular Sensor System (VMS) as manufactured by Vicon Industries. Universal Mounting Bases, Network Hub Modules, Sensor Modules, and Housing Fixtures.
			2. Base: Affixable directly to flat surfaces with standard screws, or to a single gang electrical box.
				1. Adapter Plate: Mounts directly to a 4S, double gang, or octagon electrical box.
			3. Camera System: Feature automatic IP address reassignment for replacement cameras, enabling a seamless plug-and-play experience.
				1. Modular Design: Separates the Network Hub from the Sensor Modules.

Allows for in-place upgrades of one to four sensors on the same Network Hub while maintaining a single IP address.

Ensures flexibility and scalability without additional IP addresses or complex configurations.

* + - * 1. Available Mounting Accessories: Includes a Conduit Back Box, Wall Bracket, Pendant Mount, Pole Mount, Corner Mount and Recessed Ceiling Mount utilizing a patented "snap, twist installation."
			1. Network Hub:
				1. Discoverable as a network device without Sensor Modules installed.
				2. Manage network settings, firmware upgrades, and sensor settings (including automatic backup and restoration) for up to four attached Sensor Modules.
				3. Recess-mount into the Base with a snap fit mechanism. No tools are to be required to install or remove the Network Hub.
				4. Provisioned with a pigtail harness with an IP67 rated RJ-45 connector permitting terminated cables installation into the integral IP67 connector shell.
				5. One alarm input and one alarm output via the pigtail harness.
				6. Powered by 802.3at or 802.3bt PoE and provide power status via an LED without the need for the Sensor Module to be installed.
				7. Support the use of 1 to 4 Sensor Modules to create a variable type of camera cluster with two, three, or four sensors via appropriate Fixture. The Duo, Trio and Quad Fixtures are supported by the same accessory mounts as the Solo Fixture Camera.
			2. Fixture to the Network Hub: To be installed with a recessed snap lock mechanism.
			3. Sensor Module and Fixture: Installed with a patented "snap, twist installation."
			4. Sensor Module:
				1. A 4K 1/1.8 inch Sony Starvis CMOS Sony IMX678 Gen2 starlight image sensor with a P-iris remote zoom and focus lens with a 2.15x optical zoom.
				2. Provides a horizontal FOV of 109.8 degrees (wide) x 57.2 degrees (tele).
				3. Camera Gimbal: Remotely positional providing pan, tilt, roll and zoom (PTRZ) functionality.
				4. Support preset positioning of two presets per day for 7 years.
				5. Provisioned with AI-enabled SoC providing a minimum 20 trillion operations per second (TOPS) of neural network processing.
				6. Provisioned with a 3D accelerometer/gyroscope and automatically change to corridor mode when sensor is rotated to 90-degree orientation.
				7. Fully automatic imaging of shutter, exposure, dynamic range adjustments, gain, white balance, etc., without user configuration.
				8. 120dB WDR images utilizing automatic AI HDR.
				9. A slot for a Micro SD card for local storage with a minimum of 1 TB capacity.
			5. Cameras:
				1. Quad streaming video and support H.264/H.265 and M-JPEG compression.

Smart encoding to improve video encoding and storage capacity.

* + - * 1. Bi-Directional Communication: With a 50 ft (15 m) operational range via two built-in microphones and two built-in speakers.
				2. Four independently controlled 4-segment RGBW LED lightbars to provide visual information from a distance of at least 50 ft (15 m).

RGBW LEDs: Controllable via standard ONVIF messages.

* + - * 1. Support traditional analytics, including Museum Search, Motion, and Tamper/Blur Detection.
				2. Provideadvanced AI analytics includingTripwire (Line) Crossing, Intrusion Detection, Crowding, Loitering, and Tailgating, with classification data for People (lower and upper body clothing color), Animals, and Vehicles (color).
				3. Meet FCC requirements for a Class A device.
				4. Certifications: CE, UL, and RoHS.
				5. Support the industry standard ONVIF S/T/G/M interface.
				6. IP67-rated to withstand rain and dust, and IK10 rated for impact resistance.
				7. Meet the latest regulations required to be NDAA compliant.
			1. Fixtures Construction: High-performance engineered polymer. Finish: Matte black. May be custom painted.
			2. Mounting Brackets Construction: Either cast aluminum magnesium alloy or a high-performance engineered polymer, or combination of both and may be custom painted.
		1. Networking Hub Specifications:
			1. SoC: Dedicated Network Processor.
			2. Memory: 1GB DDR + 4GB eMMC.
			3. Alarm Input/Output: 1 Digital Input and Output.
			4. Ethernet/PoE: 10/100/1000 Ethernet/ 802.3at/bt PoE.
		2. Varifocal Sensor Moule Specifications:
			1. SoC: AI Vision processor.
				1. ISP: De-noise, HDR
				2. Neural Net Processing: 20 TOPS.
			2. Memory: 2GB DDR + 4GB eMMC.
			3. Imaging Device: 1/1.8 inch CMOS Sony IMX678 Gen2 Starlight
			4. Max. Resolution: 4K (8 MP).
			5. Shutter Speed: Auto (full real time).
			6. AGC: Self-tuning using AI ISP.
			7. Sensitivity: Color (low light): 0.02 lux.
			8. Gimbal:
				1. Pan: +/-175 degrees, greater than 10 degrees per sec.
				2. Tilt: 15 to 95 degrees; greater than 10 degrees per sec.
				3. Roll: -5 to 95 degrees; greater than 10 degrees per sec.
			9. Presets: 2
			10. Optical Zoom: 2.15x
			11. Lens Adjustment: Motorized remote zoom/focus.
			12. Focal Length: 4.42 mm - 9.51 mm (wide-tele), f/1.35.
			13. Field-of-View:
				1. Wide: 109.8 degrees, horizontal x 61.8 degrees vertical.
				2. Tele: 57.2 degrees horizontal x 32.2 degrees vertical.
			14. Iris Control: Auto P-Iris.
			15. Focus Control: Auto.
			16. Day/Night Control: 24/7 day mode; full color.
			17. Exposure Control: Automatic, self-tuning with AI ISP.
			18. WDR/HDR: 120dB, AI-based automatic HDR.
			19. Image Setting: Automatic self-tuning with AI ISP
				1. Includes: Gain control, WB, BLC, HLC, defog, EV, gamma correction, 3DNR, sharpness, brightness, contrast, hue, and saturation.
			20. Orientation: Off, flip, mirror, both; automatic
			21. Image Rotation: Corridor mode; automatic orientation.
			22. MicroSD Card: Support up to 1 TB.
			23. LED Lightbar: 4-section RGBW LED bar (16 LEDs total); LED outputs mapped to ONVIF alarm output events.
			24. Gyroscope: 6 axis.
			25. Privacy Zone: 8 zones.
			26. Security: Password protection, IP address filtering, HTTPS, IEEE 802.1X network access control, Digest authentication, Secure boot, and SB-327 support.
		3. Electrical Requirements:
			1. Power Source: 802.3at/bt PoE.
			2. Power-over-Ethernet (PoE):
				1. Solo Sensor/Hub: 802.3at (18.4 W).
				2. Duo Sensor/Hub: 802.3at (27.7 W).
				3. Trio Sensor/Hub: 802.3bt (37.7 W).
				4. Quad Sensor/Hub: 802.3bt (47W).
			3. Connectors/Indicators:
				1. PoE/Video/Data: IP67 rated RJ-45 on pigtail.
				2. Alarm I/O: Terminal block on pigtail.
				3. Slot for MicroSD card; minimum 1 TB.
				4. Reset/Default button.
				5. LED for Power/Data/PoE level detection (via LLDP) status.
				6. RGBW LED lightbars provide visual information.
		4. Environmental Requirements:
			1. Operating Temperature: -40 to 131 degrees F (-40 to 55 degrees C).
			2. Cold Start: -40 degrees F (-40 degrees C).
			3. Humidity: Up to 90 percent relative, non-condensing.
		5. Physical Requirements:
			1. Construction Materials:
				1. Base: Aluminum.
				2. Network Hub: Aluminum, nylon.
				3. Camera Sensor: Aluminum magnesium alloy and polycarbonate; factory sealed.
				4. Fixture: Engineered polymer.
			2. Dimensions (H x D): Solo: 4.4 x 4.45 inches (111.5 x 113 mm).
			3. Weight: Solo (Sensor + Fixture Kit): 1.63 lbs (0.74 kg).
			4. Mounting Accessories:
				1. Base: Single gang mount.
				2. Adapter Plate: 4S, double gang or octagon electrical box.
				3. Conduit Box: Four, 3/4 inch NPT entries.
				4. Wall/Pendant/In-Ceiling: All accessories mount with same twist lock interface.
				5. Corner/Pole Brackets: Compatible with conduit box with wall mount.
		6. Mechanical Requirements:
			1. Camera Mount: Surface mount with single gang box support.
			2. Adjustments:
				1. Pan: 350 degrees (+/-175 degrees).
				2. Tilt: 80 degrees (15 to 95 degrees).
				3. Roll: 100 degrees (-5 to 95 degrees).
		7. Network Audio/Video Requirements:
			1. Communication Platform: Open. Compatible with Valerus Video Management System and other major Video Management Systems via ONVIF or API.
			2. Compression: H.264/H.265; M-JPEG.
			3. LAN Interface: 10/100/1000.
			4. Video Channels: Quad streaming.
			5. Resolution and Frame Rate:
				1. At 30 fps: 3840x2160, 1280x720, 720x408, 384x216.
				2. At 25 fps: 3840x2160, 1920x1080, 1280x720, 720x408.
			6. Maximum Streams: 10 at 8 Mbps per stream; 80 Mbps total.
			7. System Frequency: 60/50 Hz.
			8. Customized Video Profile: VBR/CVBR.
			9. Group of Picture (GOP): 1 to 120.
			10. Data Rate: 500 to 12000 bps.
			11. OSD: Date and time/text; position setting, font color/background color/character size configurable; up to 85 characters per line.
			12. Web Browser: Firefox, Chrome, Microsoft Edge, and Safari.
			13. Users: Live viewing for up to 10 clients.
			14. Audio In: 2 built-in microphones, 360 degree range up to 50 ft (15 m).
			15. Audio Out: 2 built-in speakers provide audible sound up to 50 ft (15 m); a-law/mu-law, and Opus compression.
			16. Audio Message Files: Upload and playback up to 10 custom audio files mapped to ONVIF output events.
			17. Alarm: Input: 1. Output: 1.
			18. Image Settings: Automatic self-tuning: gain control; white balance; BLC, HLC; defog; EV, gamma correction, 3DNR; brightness, contrast, saturation, hue, sharpness; flip and mirror; privacy masks (8 zones).
			19. Traditional Video Analytics: Tamper/Blur, Motion Detection; Museum Search.
			20. Advanced Video Analytics: Tripwire (Line) Crossing, Intrusion Detection, Crowding, Loitering, Tailgating, Classification data for People (lower and upper body clothing color), Animals and Vehicles (color).
			21. Supported Protocols: IPv4/IPv6, TCP, HTTP, HTTPS, RTSP, RTCP, RTP, SMTP, SNMP v1/2c/3, UPnP, TLS, IEEE 802.1X, ICMP, IGMP, LDAP, NTP, DHCP, FTP, DNS, DDNS, UDP, QoS, ARP, and ONVIF S/G/M/T.
			22. On-Board Storage: 1x Micro SD minimum 1TB per sensor.
			23. Account Management: Multiple user groups (1x default admin, 10x admin/operator/user).
			24. Profile Management: User configurations import, export.
			25. Language: English.
		8. Certifications:
			1. FCC: FCC Part 15 Subpart B Class A.
			2. ONVIF: Profiles S/T/G/M.
			3. RoHS: Directive 2011/65/EU and EN 63000-2018; EU Directive 2015/863/EU.
			4. UL: UL 62368-1 and CSA C22.2 No. 62368-1:19.
			5. CE: EN 55032, EN 55035, EN 61000-3-2, EN 61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11, UKCA.
			6. IP67.
			7. IK10.
			8. NDAA compliant.
		9. Warranty:
			1. 5 years, parts, and labor.
		10. Approved Products:
			1. Camera: Vicon Industries NEXT Modular Sensor System.
			2. NEXT Fixtures (Include the Base and Network Hub):
				1. VNX-FX-SOBK-0: NEXT Solo Fixture Kit, including Solo Fixture, Universal Mounting Base and Network Hub, black.

Requires 1 Sensor Module - not included.

* + - * 1. VNX-FX-DUBK-0: NEXT Duo Fixture Kit, including Duo Fixture, Universal Mounting Base and Network Hub, black.

Requires 2 Sensor Modules - not included.

* + - * 1. VNX-FX-TRBK-0: NEXT Trio Fixture Kit, including Trio Fixture, Universal Mounting Bracket and Network Hub, black.

Requires 3 Sensor Modules - not included.

* + - * 1. VNX-FX-QDBK-0: NEXT Quad Fixture Kit, including Quad Fixture, Universal Mounting Base and Network Hub, black.

Requires 4 Sensor Modules- not included.

* + - 1. NEXT Sensor Module:
				1. VNX-SN-VRS1-0: NEXT UltraHD Camera Sensor, PTRZ, 4.42-9.51 mm, PTRZ with Motorized/Autofocus Varifocal lens, LED Lightbars, Bi-directional Communication with two built-in mics and speakers, advanced analytics.

Requires a Fixture Kit- not included.

* + 1. Accessories:
			1. VNX-AC-APBK-0: NEXT Electrical Box Adapter Plate.
			2. VNX-AC-CBBK-0: NEXT Conduit Box.
			3. VNX-AC-ICBK-0: NEXT In-Ceiling Mount, black.
			4. VNX-AC-PCBK-0: NEXT Pendant Cap, 1-1/2" NPT thread, black.
			5. VNX-AC-WBBK-0: NEXT Wall Bracket, black.
			6. VNX-EL-NH4C-0: NEXT Network Hub, spare, supports up to 4 Sensor Modules, black.
			7. VNX-AC-MBBK-0: NEXT Universal Mounting Base, spare, black.
			8. VNX-EL-SD1T-0: NEXT 1TB Vicon Edge Storage MicroSD Card.
			9. VNX-EL-SD5G-0: NEXT 512GB Vicon Edge Storage MicroSD Card.
			10. VNX-AC-CMBK-0: NEXT Corner Mount.
			11. VNX-AC-PMBK-0: NEXT Pole Mount.
			12. VNX-AC-FXSO-0: NEXT Fixture, Solo, supports one sensor module, spare, black.
			13. VNX-AC-FXDU-0: NEXT Fixture, Duo, upgrade, supports two Sensor Modules, black.
			14. VNX-AC-FXTR-0: NEXT Fixture, Trio, upgrade, supports three Sensor Modules, black.
			15. VNX-AC-FXQD-0: NEXT Fixture, Quad, upgrade, supports four Sensor Modules, black.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete basis of design options not required.

* 1. VIDEO MANAGEMENT SYSTEMS
		1. General:
			1. Equipment and materials used shall be standard components, regularly manufactured, regularly utilized in the manufacturer's system.
			2. Systems and Components:
				1. Thoroughly tested and proven in actual use.
				2. Provided with the availability of a toll free 24-hour immediate technical assistance for the dealer/installer at no charge.
				3. Must have an explicit manufacturer warranty.
		2. Basis of Design: Valerus Video Management System as manufactured by Vicon Industries.
			1. Digital Video Recording Management and Network Software - General:
				1. Video Management Software (VMS): Browser-based application meeting requirements of business and government surveillance applications.

Web client with single point of management for the entire system.

Configuration Sections of Application: Add, configure, and operate recording servers, application servers, web servers, as well as IP cameras and encoders (edge devices).

Operation and Maintenance Application: Complete and comprehensive for video surveillance system.

Full live digital video and audio surveillance over a standard 1 Gbps network.

* + - * 1. The VMS shall support recording, playback and archiving of video in standard industry compression formats, including H.265, H.264 and M-JPEG.
				2. True Open Standards (ONVIF) as Basis: Thin client architecture. Centrally licensed. COTS compatible software or available preloaded on a manufacturer certified application/web server or recording server (NVR).

A Desktop Client solution shall be available for those users who prefer not to work in a browser environment.

* + - * 1. Licensing: Licensing shall be based on a per edge device basis.
				2. COTS PCs with a minimum of Intel Core i7 processor, 16 GB of RAM and 5 GB of disk space for installation and a minimum of 75 GB of disk space for a recording device.

Operating System: Microsoft Windows 10 64-bit.

Operating System: Microsoft Windows 2016, 2019 and 2022 64-bit Server.

The Client (web) supports Windows 7 Operating systems (with Web Client Player).

* + - * 1. Software Features: Easy to Use Tabs: Access configuration screen and dashboard monitoring systems health. Monitoring Screen: Video display area with available resources list. Multiple Display Views: Configurable with variety layouts. Multiple Monitors: Supported.
				2. Live Video: Stream through Recording Server (NVR) with auto fail over to cameras. PTZ available from live video. Presets and tours are configurable. Digital zoom provided on video displays.
				3. Web Based Interface:

Access the VMS from any standard web browser enabled device.

Browser compatibility: Microsoft Edge. Chrome shall be able to be used with the Valerus Chrome extension from the Chrome store.

Provide live viewing, playback and PTZ controls.

Mobile App: Apple and Android smart phones and tablets. View live or recorded video. View concurrent multiple video streams; 4 on phones, 9 on tablets. Full control of PTZ, including presets. Quick and simple playback. Pinch to zoom on live and recorded video.

* + - * 1. Export Icon: Easy access on display to save a video clip. Archived in MP4 format and authenticated in the player per the ONVF spec.
				2. Playback: Supported from main screen without leaving live video viewing area. Clicking Playback from time icon will allow selecting the playback to start from a specific date and time using standard calendar tools.
				3. Software Delivery: Provided on manufacturer's website.
				4. Events: Setup in configuration area. Pre-Event Recording: Supported and with event notification.
				5. Access Control System Support: Accessed using a simple tab click. Interface opens in popup window that can be used in conjunction with the VMS.
				6. Enhanced Edge-based Analytics: Show bounding boxes around detected objects in live and playback video.
				7. Authorization roles shall be configurable; these roles shall then be listed in the Resources list on the monitoring display screen. This Resources list can be viewed in a hierarchy view with these groups or as a flat list.
				8. Video Masking: Available centrally through the VMS. Allow users with the correct authority to unmask video as needed using icon on the display screen. Unmask feature available on live and playback video.
				9. Quick Configuration Wizard: Streamlined process for typical and basic system setup with minimal input required.
				10. Search Functions: Six search functions available including museum search, thumbnail search, events framework search, event/alarm search, audit log and Analytics Search; museum search shall support AI classifications for people, vehicles and animals for those cameras that have this advanced analytics feature.
				11. Capability for 360 degree lens dewarp is available for use with cameras with fisheye lenses.
				12. Integration with Active Directory (AD): Allow user management via the AD.
				13. Override Mode: Allows operating in case AD communication is lost.
				14. Import User List: A user list can be prepared in advance in standard Excel sheet saved in .csv format and imported into Valerus VMS.
				15. Auto Archive: Archiving can be set up to occur on a schedule, for either all data or only events-based recording, to local pc network/cloud storage.
				16. Multi-Language Support: All text in the user interface translated to selected language.
				17. Backup and Restore for system settings available. Backup can be to a network drive or cloud storage.
				18. Keypads and PLC controls supported. Numeric IDs for devices configurable for use with controls. These devices must be able to control remote monitors.
				19. Central Software Upgrade Interface: Provides the ability to upgrade the entire system by pushing the upgrade from the Application Server to all devices on the system.
				20. System supports IPv4/IPv6 and HTTPS. There shall be HTTPS support for External Events.
				21. A Gateway module shall be available to bridge migration from a legacy ViconNet Video Management System to this VMS and use the old system resources.
				22. The system is to have built in Log Collection from all system PCs, making it easier to troubleshoot problems. An advanced tool shall be provided.
				23. The system shall accept external text strings from third party systems.
				24. Alarm notification is to be both visual and audible. The display of the alarm tab view can be auto-dismissed after a set time and return to the previous view; the alarm tab view can still be accessed as needed. Live view from up to four cameras shall be able to display in the alarm tab. Multiple alarms (external events only) shall be able to be imported in a single action using an Excel sheet template. A Test Email button shall be provided within the interface.
				25. A Report button shall generate an Excel or HTML report of the devices sorted by their hosting NVRs or a flat list.
				26. Devices shall be able to be replaced or moved, for load balancing purposes.
				27. Storage of video and exports can be mapped to another server, a NAS on the network or to the cloud (AWS/Wasabi).
				28. An NVR Failover unit shall be able to be configured to take over in the event of an NVR failure.
				29. A Mapping function shall be provided that allows the placement of resource devices on any imported map. The map shall be either a static or live map. The device icons on the map shall be adjustable in size.
				30. An Events Database shall exist to store any event that occurs in the system. From the Event Search screen, a query shall be able to be created to search for any event that occurs on the system from any resource in the system.
				31. A video clip, either in live or playback, shall be able to be bookmarked for easy referral.
				32. The ability to use mobile devices as mobile cameras must be available. The mobile device must be able to receive event alerts.
				33. The VMS shall be able to accept partner systems through an integration framework.
				34. A Snapshot function shall be provided to capture video from live or playback; this snapshot shall be able to be saved. It shall be possible to capture snapshots from all resources and update them all at the same time.
				35. An Audit Log shall be available to track every user's actions.
				36. Keypads/PLC shall have the ability to call up other remote monitors.
				37. A thick-client solution shall be available for users who don't want to use a browser.
				38. Shall be operational in a virtual environment.
				39. An integration framework shall be provided to allow partnerships with third party systems such as LPR and Access Control.
				40. An Alarms Management module shall be provided that shall allow events to be defined as alarms and provide tools to review open alarms and close them. Alarms shall have a defined life cycle and procedures shall be created to handle these alarms, if needed.
				41. A Client Performance Indicator shall be provided to indicate system performance as more cameras are added and displayed.
				42. Monitors shall be able to be managed from the Application Server in a central way and a monitor can be defined as an alarm monitor for use by the alarms/rules in the system. Monitor IDs shall be synchronized.
				43. Virtual Matrix Display Controller (VMDC) feature shall be available for user to take control of any client workstation on the same network. User shall be able to view and display video on those remote monitors.
				44. The system shall have an enhanced dashboard that shall present the system's health status and provide health monitoring information and statistics on all connected devices, including Application Server, NVRs, and cameras. It shall provide notifications that provide cyber security and an easy-to-use activity mapping chart.
			1. Setup, Configuration and Security of VMS:
				1. Multi-User Authorization Login Application.

Offer levels of authorization based on functions.

* + - * 1. Setup Utility: Allows Administrator to configure additional users as well as user groups.

User authorization: Configurable for specific system operations. Authorization Permission Setup: Performed using the User screen.

Authorization Roles: Available to configure from the Authorization Roles screen. Permissions: Provide authority to perform all system functions.

Users and groups on AD servers may be imported and become a group in the VMS.

The software shall offer a full multi-user authorization process as follows: Authorization Roles: Created once globally. Authorized and given specific permissions. Users: Created once globally and may be given rights to groups. No virtual limit on the number of groups and users authorized in the software. Authorization Roles to be authorized or denied access to: Monitoring screen for video display. Configuration. Dashboard. Video and audio (media) export. Override masking.

* + - * 1. A user, given appropriate access, may remotely configure components connected to the network.An access list shall be able to be created to add those PCs that are allowed to connect to Valerus, adding another layer of security.
				2. Software permits viewing of live video from any edge device connected to any recording server on the network.
				3. Export Icon: Simplifies process of exporting video, creating archives, and saving video to media, such as: USBs, CD, DVDs, or solid-state drives. An embedded player shall be optional with each exported/archived video clip for playback on any machine if configured to do so.
				4. Event Rules: Create rules triggered by an event occurrence. Define actions executed for a given event. Events are selectable. Rules are configurable after an event is selected.
				5. Event Association: Multiple devices may be associated with an event. Actions Triggered by Event: Configurable as On and Off. Display live video. Display a view. Go to a preset. Operate a relay. Run a PTZ tour. Run a view tour. Start a URL. Delay function.
				6. Scheduled Recordings: Applies to cameras, encoders, and microphones. Scheduling is based on rules configurable for actions the system takes upon an event. Schedules accessible on recording tab in device configuration. Create and Schedule Recordings: By authorized users. How often schedules repeat; weekly, monthly, yearly, or never. Determines how the systems prioritizes schedules if schedule times overlap. Schedules available when configuring recording and rules, saving the need to create multiple and duplicate schedules. Sequencing cameras, including multi-screen displays. Record cameras at different qualities and frame rates from any recorder on the network. Schedule shall allow running preconfigured combinations of camera, sensor and PTZ programmed routines.
				7. System Components: Application/Web Server: Act as main system server; Windows based. Global configuration of the system is stored on this server. Recording Servers (NVRs): Windows based providing communication, live streaming, recording, video playback and audio from cameras and encoders.
				8. Device Configuration: Valid devices to be configurable for system recognition and operation. Cameras fixed or with integrated PTZ. Microphones. Encoders. Sensors. Relays.
				9. Authentication: Video from cameras is enabled to verify the authentication of the video and present an authentication symbol on the displayed video for recorded playback through the player when enabled only on export.
			1. User Interface for VMS:
				1. User Friendly Tabs: Allow monitoring of live and playback video, and configuration of the system.
				2. Login Window: Consists of Username and Password fields. Default Username and Password: Available for initial login. Configurable for increased security; there shall be an option to enforce a complex password.
				3. Serve operators, supervisors, and system administrators.
				4. Monitoring Display Screen:

Selection of number of tiles to display.

Resource list of devices in system. Viewable as flat list or hierarchical list based on user configured groups. Resources include names of devices and icons depicting devices. Video Channels (cameras) connected, differentiating between PTZ and fixed cameras. Audio Channels (microphones). Views. Tours. Web Pages. Relay Outputs.

Display Area: Offers display configurations up to 36 tiles. Full screen View: Available. More views added by clicking the plus sign to create new view tabs while not losing the default view. Controls: Change the layout. Stop all displays. Export. Synchronize playback. Control current selected tab.

Camera Controls: Display at top of a tile when mouse hovers and may be locked in place. Playback. PTZ control. Digital zoom. Unmask. Export. Configuration settings.

Playback controls: Visible when cameras go to playback. Looping a video section. Slow mode. Play from time. Rewind, fast rewind, pause, forward, and fast forward. Back to live video and current time.

Access to all available programming menus.

Viewing live devices is performed by dragging a device to any tile. Audio devices display in a smaller area below the video tiles.

* + - * 1. Dashboard, Search, Alarms and Configuration Menu Access: Clicking a tab at the top of the screen.
			1. Video Quality for VMS: Support any resolution video, jpeg, and H.264 compression.
			2. Add-Ins for VMS:
				1. Access Control Systems: Available for integration.

Meet requirements of business and government access control systems.

Monitor and control facility access as well as video detection, temperature, and communications loss monitoring.

Provide control and access to users on Local Area Networks (LAN), Wide Area Networks (WAN), wireless networks and the Internet.

Video viewing playback and PTZ control from the VMS.

* + - * 1. A method to add partner systems shall be provided through an integration framework. It shall support VAX Access Control, Vicon LPR, Neural Lab LPR and Thermal Radar sensor.

When integrating with the VAX Access Control System, digital inputs, relay outputs and action plans created in VAX shall be automatically added in Valerus to be configured as any other Resource. Doors shall be able to be edited and user information on the cardholder picture shall be updated once updated in VAX.

Rules can be configured based on these partner resources and then alarm event shall be able to be created and then searched for.

The partner icons can also be added to maps.

\*\* NOTE TO SPECIFIER \*\* Delete server systems, servers, recorders, and workstations not required, then delete models and options not required. ' XXX' indicates memory storage in TB.
The Valerus Video Management Systems are open platform, web based system.
The ViconNet Video Management Systems are the legacy server based system.

* + 1. Valerus Shadow Elite Server System as manufactured by Vicon Industries.
			1. Digital Servers: Powered by Dell and Intel technology. Warranty: 5 years.
				1. Application servers, client workstations, recording servers (NVRs) and RAID recording servers.
				2. A variety of available form factors depending on server type required.

Micro small desktop.

Small form factor desktop.

Racks: 1U/2U /rack.

* + - * 1. Next day on site support and 24/7 customer service.
				2. Preloaded with Valerus Video Management System for quick installation, setup, and performance.
				3. Available with a variety of processors, including Intel Core i5, i7 and Xeon.
				4. USB ports and monitor outputs. Some units provide iDRAC connectors.
				5. Number of Cameras Supported, Storage Capacity and Max. Data Rate:

Dependent on model selected. Models are available to support 250 cameras, 800 Mbps data rate and 672 TB storage.

* + - * 1. Housed in a rackmount or desktop type case, with suitable connectors available on the front or rear panel.

Application Server: In 1U rack model.

Client Workstation: In a micro or small form factor desktop or a 1U rack.

NVRs: In a 1U rack or small form factor desktop model.

RAID Recording Servers: In 1U RAID5, 2U RAID5, 2U RAID6 rack models and operated indoors.

* + - 1. Recording Servers: Internal hard-drive storage.
				1. 1U Rack: Up to 32 TB.
				2. Small Form Factor: Up to 16 TB.
				3. RAID Recording Servers:

1U RAID5 Rack: Up to 80 TB.

2U RAID5 Rack: Up to 240 TB.

2U RAID6 Rack: Up to 672 TB.

* + - 1. Application Servers: Provide no storage.

\*\* NOTE TO SPECIFIER \*\* Delete model option not required.

* + - * 1. Model VEAA-1U00N0-00: 1U rack.
				2. Electrical Specifications:

Certifications: FCC Class A.

Power Supply: 600 W, dual redundant.

Typical Power Consumption: 250 W (850 BTU).

Max Power Consumption: 300 W (1000 BTU) max.

CPU: Xeon 16 GB DDR4.

OS Drive: 480 GB SSD.

Display: Single VGA.

Operating System: Microsoft Windows 11 Iot Enterprise; Windows Server.

Networking: 2x 1GbE, 1x RJ-45 iDRAC, 2x 10GbE RJ-45.

Front Panel Controls/Indicators: USBs (1x USB, 1x Micro USB for iDRAC), status LEDs, power button.

Rear Panel I/O and Controls: AC power socket; 1x USB 2.0; 1x USB 3.2, 1x serial.

* + - * 1. Mechanical Specifications:

Application: Indoor.

Construction: Steel and plastic.

Mounting:

Rack Mount: 1U rack.

1U Rack (HxWxD): 1.7 x 19 x 21.9 inches (43 x 483 x 556.2 mm) with bezel.

Weight: 29.17 lbs (13.23 kg).

* + - * 1. Environmental Specifications:

Operating Temperature Range: 50 to 95 degrees F (10 to 35 degrees C).

Operating Humidity Range: 5 to 95 percent, non-condensing.

* + - * 1. Warranty: 5 years, parts, and labor.
			1. Client Workstations: Provide no storage.

\*\* NOTE TO SPECIFIER \*\* Delete model options not required.

* + - * 1. Model VECA-MC00N0-00: Micro form factor.
				2. Model VECA-SF00N0-00: Small form factor.
				3. Model VECA-1U00N0-00: 1U rack.
				4. Electrical Specifications:

Certifications: FCC, Class A.

Power Supply:

Micro: 90 W external PSU.

Small Form Factor: 300 W.

1U Rack: 450 W, dual redundant.

Typical Power Consumption:

Micro: 60 W (200 BTU).

Small Form Factor: 200 (650 BTU).

1U Rack: 250 W (850 BTU).

Max Power Consumption:

Micro: 90 W (400 BTU).

Small Form Factor: 300 (1000 BTU).

1U Rack: 450 W (1000 BTU).

CPU:

Micro: Intel Core i5 14th Gen 16 GB DDR4.

Small Form Factor: Intel Core i5 12th Gen 16 GB DDR4.

1U Rack: Intel Xeon 16 GB DDR4.

OS Drive:

Micro and Small Form Factor: 1x 256 GB SSD.

1U Rack: 480 GB SSD.

Display:

Micro: Intel HD (HDMI + DP); supports dual 4K monitor.

Small Form Factor: Intel HD (3x DP; 1x HDMI; NVIDIA GPU (4x mini DP); supports quad 4K monitor.

1U Rack: Single VGA; NVIDIA GPU (4x mini DP).

Operating System: Microsoft Windows 11 Iot Enterprise.

Networking:

Micro/Small Form Factor: 1x 1GbE RJ-45.

1U Rack: 2x 1GbE, 1x RJ-45 iDRAC.

Front Panel Controls and Indicators:

Micro: USBs (1x USB 3.2, 1x USB3.2-C); 1x Universal Audio Port.

Small Form Factor: USBs (1x USB 3.2 Gen2/1x USB C/2X USB 2); 1x Universal Audio Port.

1U Rack: USBs (1x USB, 1x Micro USB for iDRAC) status LEDs, power button, iDRAC reset button.

Rear Panel I/O and Controls:

Micro: 1x RJ-45; display ports (HDMI + DP); USBs (2x USB 3.2 Gen1; 2x USB 2.0); 1x Kensington lock.

Small Form Factor: AC power socket; USBs (4x USB 3.2, 2x USB 2.0); 1x RJ-45,1x line in/line out; 3x DP/1x HDMI display ports; 1x Kensington lock.

1U Rack: AC power socket; 1x USB 2.0, 1x USB 3.0, 1x serial; 4x mini DP.

* + - * 1. Mechanical Specifications:

Application: Indoor.

Construction: Steel and plastic.

Micro Desktop: (HxWxD): 7.17 x 1.42 x 7.02 inches (182 x 36 x 178.6 mm). Weight: 2.95 lb (1.34 kg).

Small Form Factor Desktop: (HxWxD): 11.42 x 3.65 x 11.53 inches (290.1 x 92.7 x 292.9 mm). Weight: 12.42 lb. (5.63 kg).

1U Rack (HxWxD): 1.7 x 19 x 17.6 inches (43 x 483 x 448.6 mm) (with bezel). Weight: 21.18 lb (9.61 kg).

* + - * 1. Environmental Specifications:

Operating Temperature Range:

Micro/1U: 50 to 95 degrees F (10 to 35 degrees C).

Small Form Factor: 50 to 113 degrees F (10 to 45 degrees C).

Operating Humidity Range:

Micro/Small Form Factor: 20 to 80 percent, non-condensing.

1U Rack: 5 to 95 percent, non-condensing.

* + - * 1. Warranty: 5 years, parts, and labor.
		1. Recording Servers:
			1. NON-RAID Recording Servers:

\*\* NOTE TO SPECIFIER \*\* Delete model option not required. XXX indicates TB storage.

* + - * 1. Model VERA-SFXXN0-XX, Small form factor.
				2. Model VERA-1UXXN0-XX, 1U rack.
				3. Electrical Specifications:

Certifications: FCC, Class A.

Power Supply:

Small Form Factor: 200 W.

1U Rack: 450 W.

Typical Power Consumption:

Small Form Factor: 200 W (650 BTU).

1U Rack: 250 W (850 BTU).

Maximum Power Consumption:

Small Form Factor: 300 W (1000 BTU).

1U Rack: 375 W (1279 BTU).

CPU:

\*\* NOTE TO SPECIFIER \*\* Delete small form factor and 1U rack options not required.

Small Form Factor: Intel Core i5 12th Gen 16 GB DDR4.

1U Rack: Xeon 16 GB DDR4.

OS Drive:

Small Form Factor: 1X 256 GB M.2 NVMe SSD.

1U Rack: 480 GB SSD.

Data Drive Configuration: SATA.

Display:

Small Form Factor: Intel HD. 3x DP/1x HDMI; supports quad 4K monitor.

1U Rack: Single VGA.

Operating System: Microsoft Windows 11 Iot Enterprise.

Networking:

Small Form Factor: 1x 1GbE RJ-45, Intel 82574.

1U Rack: 2x 1GbE, 1x RJ-45 iDRAC.

Front Panel Controls and Indicators:

Small Form Factor: USBs: 1x USB 3.2 C/1x USB 3.2/2x USB 2.0; 1x Headphone.

1U Rack: 1x USB, 1x Micro USB for iDRAC, power button, status LEDs.

Rear Panel I/O and Controls:

Small Form Factor: AC power socket; USBs: 4x USB 3.2, 2x USB 2.0; 1x RJ-45, line in and line out; Display ports: 3x DP/1x HDMI; 1x Kensington lock.

1U Rack: AC power socket; 1x USB 2.0, 1x USB 3.2, 1x serial.

* + - * 1. Mechanical Specifications:

Application: Indoor.

Construction: Steel and plastic.

Mounting:

\*\* NOTE TO SPECIFIER \*\* Delete mounting option not required.

Desktop: Small Form Factor (HxWxD): 11.42 x 3.65 x 11.53 inches (290 x 93 x 293 mm). Weight: 8.44 lb. (3.83 kg).

Rack Mount: 1U Rack (HxWxD): 1.7 x19 x 17.6 inches (42.8 x 483 x 448.6 mm) (with bezel). Weight: 21.18 lbs (9.61 kg).

* + - * 1. Environmental Specifications:

Operating Temperature Range:

Small Form Factor: 50 to 113 degrees F (10 to 45 degrees C).

1U Rack: 50 to 95 degrees F (10 to 35 degrees C).

Operating Humidity Range:

Small Form Factor: 20 to 80 percent, non-condensing.

1U Rack: 5 to 95 percent, non-condensing.

* + - * 1. Warranty: 5 years parts and labor.
			1. RAID Recording Servers (NVRS):

\*\* NOTE TO SPECIFIER \*\* Delete model options not required. XXX indicates TB storage.

* + - * 1. Model VERA-1UXXXR5-XX: 1U RAID5 rack.
				2. Model VERA-2UXXXR5-XX: 2U RAID5 rack.
				3. Model VERA-2UXXXR6-XX: 2U RAID6 rack.
				4. Electrical Specifications:

Certifications: FCC Class A.

Power Supply:

1U RAID5 Rack: 600 W, dual redundant.

2U RAID5 Rack: 800 W dual redundant.

2U RAID6 Rack: 1100 W dual redundant.

Typical Power Consumption:

1U RAID5 Rack: 250 W (850 BTU).

2U RAID5 Rack: 400 W (1365 BTU).

2U RAID6 Rack: 370 W (1300 BTU).

Max Power Consumption:

1U RAID5 Rack: 300 W (1000 BTU).

2U RAID5 Rack: 550 W (1800 BTU).

2U RAID6 Rack: 420 W (1500 BTU).

CPU:

1U RAID5 Rack: Xeon, 16 GB ECC DDR5.

2U RAID5 Rack: Xeon, 16 GB ECC DDR5.

2U RAID6 Rack: Xeon, 32 GB ECC DDR5.

OS Drive:

1U RAID5/2U RAID5 Rack: 480 GB SSD.

2U RAID6 Rack: 2x 480 GB M.2 SSD (RAID-1).

Data Drive Configuration:

1U Rack: RAID5.

2U Rack: RAID5.

2U Rack: RAID6.

Display:

1U RAID5/2U RAID5/2U RAID6 Rack: Single VGA, 1920x1200 (WUXGA) max.

Operating System: Microsoft Windows 11 Iot Enterprise; Windows Server.

Networking:

1U/2U RAID5 Rack: 2x 1GbE; 1x RJ-45 iDRAC.

2U RAID6 Rack: 4x 1GbE Broadcom NetExtreme 5720; 2x 10GbE BaseT; 1x RJ-45 iDRAC.

Front Panel Controls/Indicators:

1U RAID5: 1x USB 2.0; 1x micro USB for iDRAC.

2U RAID5: 1x USB 2.0; 1x micro USB for iDRAC; 1x VGA.

2U RAID6: 1x USB 2.0; 1x micro USB for iDRAC with LED;system health/system ID LEDs.

Rear Panel I/O and Controls:

1U RAID5 Rack: AC power socket; 2x USB 3.0, 1x serial; 1x VGA, 1x RJ-45 iDRAC, 2x RJ-45.

2U RAID5 Rack: AC power socket; 1x USB 2.0, 1x USB 3.0, 1x VGA, 1x RJ-45 iDRAC, 2x RJ-45.

2U RAID6 Rack: AC power socket; 1x USB 2.0; 1x VGA; 1x RJ-45 iDRAC; 4x RJ-45; 2x 10 GbE BaseT.

* + - * 1. Mechanical Specifications:

Application: Indoor.

Construction: Steel and plastic.

Mounting: Rack mount (1U RAID5/2U RAID5/2U RAID6).

Dimensions (HxWxD):

1U Rack: 1.7 x 19 x 21.9 inches (43.2 x 483 x 556.2 mm) with bezel.

2U Rack: 3.5 x 19 x 28.4 inches (89 x 483 x 721.6 mm) with bezel.

2U RAID6 Rack: 3.4 x 19 x 34.4 inches (86.8 x 483 x 872.8 mm).

Weight:

1U RAID5 Rack: 29.17 lbs (13.23 kg).

2U RAID5 Rack: 63.53 lbs (28.82 kg).

2U Rack RAID6: 102.1 lbs (46.3 kg).

Construction: Steel and plastic.

* + - * 1. Environmental Specifications:

Operating Temperature Range:

1U RAID5 Rack: 50 to 95 degrees F (10 to 35 degrees C).

2U RAID5 Rack: 73 to 95 degrees F (23 to 35 degrees C).

2U RAID6 Rack: 41 to 104 degrees F (5 to 40 degrees C).

Operating Humidity Range:

1U RAID5 Rack: 5 to 95 percent, non-condensing.

2U RAID5/2U RAID6 Rack: 5 to 85 percent, non-condensing.

* + - * 1. Warranty: 5 years, parts, and labor.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. CAMERAS FOR VIDEO MANAGEMENT SYSTEMS

\*\* NOTE TO SPECIFIER \*\* Delete PTZ cameras paragraph if not required.

* + 1. Pan-Tilt-Zoom (PTZ) Cameras:

\*\* NOTE TO SPECIFIER \*\* Delete basis of design subparagraphs not required.

* + - 1. Basis of Design: V2008PTZ-IR, Network Outdoor PTZ Dome Camera as manufactured by Vicon Industries.
				1. Certifications: CE, UL (pending), FCC, Class A, and RoHS compliant.

Supports industry standard ONVIF S/T/G/M interface.

IP66-rated to withstand rain, dust, and vandalism.

IK10 rated for impact resistance.

Meets latest regulations required to be NDAA, GSA schedule and TAA approved.

* + - * 1. Equipment and Materials: Standard components regularly manufactured and used in the manufacturer's system.
				2. Systems and Components: Thoroughly tested and proven in actual use.

Provided with the availability of a toll free 24-hour technical support phone number from the manufacturer. This no charge service shall be available to dealers and installers.

* + - * 1. General Features:

Camera, lens, and pan/tilt drive in covert dome enclosure.

Day/night Operation: Built-in IR-cut filter.

Triple Streaming Video and Network Video Transmission: Using either H.264/H.265 and M-JPEG compression.

Smart Encoding: Further improves video encoding and improves storage capacity.

Transmits high quality video across network for remote viewing and recording.

Configurable remotely from network digital video recorders and master workstations.

The dome camera shall have a speed-dry feature that shall remove water droplets from the exterior of the dome.

One Alarm Input: Programmable for functional state (enabled or disabled); set to Normally Open (NO) or Normally Closed (NC).

Alarm Output: Control external equipment and may be set for Normally Open (NO) or Normally Closed (NC).

Two-way audio (line in/line out) capability.

Individual Programmable Preset Positions: 256. Each able to be titled and adjustable tilt speed and manual or auto focus.

Eight Tours (Patrols): Available with 32 presets per tour. Each tour able to be titled and adjustable for pan, tilt, zoom speed, and dwell time. Programmed to repeat.

Pan and Tilt Functions: Programmable.

Maximum Manual Pan and Tilt Speeds: Programmable.

Maximum Pan Speed: 720 degrees per sec.

Maximum Tilt Speed: 540 degrees per sec.

Pan and Tilt Speeds: Scalable to zoom setting.

Pan Range: 360 degree continuous.

Tilt Range: Minus 20 to 90 degrees.

Electronic iris, AGC, TWDR, white balance, defog, flip, mirror, privacy masking, ROI, optical image/lens stabilization (OIS) and motion detection.

Provide a slot for an SD card for local storage.

* + - * 1. Day/Night IP Dome Camera Specifications:

Imaging Device: 1/1.8 inch CMOS progressive scan.

Maximum Resolution: 8 MP.

Shutter Speed: 1/7 to 1/16,000 sec.

Automatic Gain Control: On/Off selectable.

WDR: True WDR (130 dB).

Sensitivity (at 30 IRE): Starlight Low-Light Imaging: Color: 0.04 lux; B and W: 0.01 lux (IR. Off; 0 lux IR On).

Pan/Tilt Range: 360 degree continuous pan; minus 20 to 90 degree.

Lens: Integral varifocal 6.5-230 mm; 35X optical zoom, 8X digital zoom.

Lens Adjustment: Motorized zoom and focus (autofocus) lens, P-iris automatically adjusts to zoom condition (manual mode).

Horizontal Field of View: 60.4-2.0 degrees (wide-tele).

Vertical Field of View: 35.9-2.0 degrees (wide-tele).

IR Distance: 1312 ft (400 m); Adaptive IR.

* + - * 1. Electrical Specifications:

Input Voltage: 24 VAC plus 20 or minus 10 percent, or PoE++(IEEE 802.3bt, Class 8).

Current: 24 VAC: 3.25 A.

Power Consumption: Total 71W.

Connectors: Power: 24 VAC terminal block; PoE: RJ-45.

Video/Data: RJ-45.

Alarm: Terminal block.

Audio: Terminal block.

Slot for SD card (1 TB max customer supplied card).

Reset button.

Green LED indicates activated ethernet.

Radio Frequency Emission Rating: FCC Class A; CE.

* + - * 1. Environmental Specifications:

Operating Temperature: Minus 40 to 149 degrees F (Minus 40 to 65 degrees C).

Humidity: 10 to 90 percent relative, non-condensing.

* + - * 1. Physical Specifications:

Construction: Aluminum sunshield/base; coated glass lens cover.

Dimensions: Height: 14.2 inches (362 mm).

Diameter: 7.5 inches (190 mm).

Weight: 11 lbs (5 kg).

* + - * 1. Mechanical Specifications:

Camera Mount: Mounting accessories available.

Adjustments: Pan 360 degrees continuous. Tilt: Minus 20 to 90 degrees.

* + - * 1. Network Video Specifications:

Communication Platform: Open platform; compatible with Valerus Video Management System.

Compression: Smart Encoding; H.264/H.265; M-JPEG.

LAN Interface: 10/100/1000 Base, Unicast/Multicast.

Video Channels: Triple streaming.

Resolution and Frame Rate: 3840x2160, 2560x1440, 1920x1080, 1280x960/720, 720x408, 640x360. Max 30/25 fps at 4K max resolution.

Web Browser: Safari, Firefox, Chrome, Microsoft Edge.

Users: Live viewing for up to 10 clients.

Image Settings: Digital image effects defog, flip and mirror; configurable brightness, contrast, saturation, hue, sharpness; BLC; 3 DNR; motion detection (5 zones); day/night mode, white balance, AGC; Electronic Shutter, automatic or manual; digital zoom; privacy masks (32); OIS, motorized zoom, and focus (lens); dynamic ROI.

Intelligent Video Analytics: Tampering, Motion, Intrusion, Line Cross, Tailgating, Loitering, and Crowding Detection, Auto-Tracking (people); Museum Search in Valerus VMS.

Supported Protocols: IPv4/IPv6, TCP, HTTP, HTTPS, RTSP, RTCP, RTP, RTMP, SMTP, SNMP v1/2c/3, UPnP, TLS/TTLS, FTP, ICMP, LDAP, NTP, DHCP, DNS, DDNS, UDP, QoS, SSL, Bonjour, Firewall, 802.1x, ONVIF, S/G/M/T.

Warranty: 5 years, parts, and labor.

* + - 1. Basis of Design: V2005D-PTZ, Outdoor IP PTZ Network Compact Dome Camera as manufactured by Vicon Industries.
				1. Certifications: CE, UL, FCC, Class A, IP66, IK07, ONVIF S/T/G/M, RoHS, and NDAA/GSA/TAA compliant.
				2. Equipment and Materials: Standard components regularly manufactured and used in the manufacturer's system.
				3. Systems and Components: Thoroughly tested and proven in actual use.

Provided with the availability of a toll free 24-hour technical support phone number from the manufacturer. This no charge service shall be available to dealers and installers.

Provided with an explicit 5-year manufacturer warranty.

* + - * 1. General Features:

Camera, lens, and pan/tilt drive in covert dome enclosure.

Resolution: 5 MP with true WDR.

Lens: Integral varifocal 5.2-148 mm; 30X optical zoom, 8X digital zoom.

Day/night Operation: Built-in IR-cut filter.

Starlight low-light imaging.

IR Distance: 492 ft (150 m).

Automatic Smart IR/Adaptive IR capability.

Intelligent Video Analysis,tampering/defocus, intelligent motion detection, intrusion detection,line cross, loitering, object left/removed, tailgating, andcrowding. The camera shall also provide AI-based object classification analytics for vehicles, people, and animals. This shall enhance working with Museum Search in Valerus VMS.

Powered By: PoE++, 24 VAC, or 48 VDC.

Heater/Blower System: Maintains proper temperature in camera housing and prevents window fogging.

Triple Streaming Video and Network Video Transmission: using either H.264/H.265 and M-JPEG compression.

Smart Encoding: Further improves video encoding and improves storage capacity.

Transmits high quality video across network for remote viewing and recording.

Configurable remotely from network digital video recorders and master workstations.

Two Alarm Inputs: Programmable for functional state (enabled or disabled); set to Normally Open (NO) or Normally Closed (NC).

Alarm Outputs: Control external equipment and may be set for Normally Open (NO) or Normally Closed (NC).

An audio alert is available.

Individual Programmable Preset Positions: 128. Each able to be titled and adjustable for pan and tilt speed and manual or auto focus.

Four Tours (Patrols): Available with 128 presets per tour. Each tour able to be titled and adjustable for pan, tilt, zoom speed, and dwell time. Programmed to repeat.

Pan and Tilt Functions: Programmable.

Maximum Manual Pan and Tilt Speeds: Programmable.

Maximum Pan Speed: 300 degrees per sec.

Maximum Tilt Speed: 160 degrees per sec.

Pan and Tilt Speeds: Scalable to zoom setting.

Pan Range: 360 degree continuous.

Tilt Range: 195 degrees (minus15 to 90 degrees).

Electronic iris, AGC, TWDR, white balance, defog, flip, mirror, privacy masking, ROI, electronic image stabilization (EIS) and motion detection.

Meets FCC requirements for Class A device.

Supports industry standard ONVIF S/T/G/M interface.

IP66-rated to withstand rain, dust, and vandalism.

IK7 rated for impact resistance.

Meets latest regulations required to be NDAA, GSA schedule and TAA approved.

Provide a slot for an SD card for local storage.

* + - * 1. Day/Night IP Dome Camera Specifications:

Imaging Device: 1/2.8 inch progressive scan.

Maximum Resolution: 5 MP.

Shutter Speed: 1/30 to 1/10,000 sec.

Automatic Gain Control: On/Off selectable.

WDR: True WDR (120 dB).

Sensitivity (at 30 IRE): Starlight. Color: 0.03 lux; B and W: 0.01 lux.

Pan/Tilt Range: 360 degree continuous pan. Tilt: 95 degrees (minus 15 to 90 degree).

Lens: 5.2 to 148 mm, 30X optical zoom.

Digital Zoom: 8X.

Lens Adjustment: Motorized lens, P-iris automatically adjusts to zoom condition (manual mode).

Horizontal Field of View: 58.1 to 2.14 degrees (wide-tele).

Vertical Field of View: 33.8 to 1.2 degrees (wide-tele).

IR Distance: 492 ft (150 m); Smart IR/Adaptive IR automatic IR

Heater/Blower System: For low temperature operation. Heater turns on at 59 degrees F (15 degrees C); blower is always on.

* + - * 1. Electrical Specifications:

Input Voltage: 24 VAC plus 20 or minus 10 percent, 48 VDC plus or minus 10 percent or PoE++.

Current: 24 VAC: 2.5 A; 48 VDC: 1.25 A.

Power Consumption: Total 48 W. PTZ Camera 11 W; Pan/Tilt Function: 12 W; IR: 19 W; Heater: 5.5 W; Blower: 0.9 W.

Connectors: Power: 48 VDC or 24 VAC terminal block; PoE: RJ-45.

Video/Data: RJ-45.

Alarm: Screw terminal.

Audio: Screw terminal.

Slot for SD card; 128 G max customer supplied card.

Reset button.

Default button.

Radio Frequency Emission Rating: FCC Class A; CE.

* + - * 1. Environmental Specifications:

Operating Temperature: Minus 40 to 140 degrees F (Minus 40 to 60 degrees C).

Humidity: Up to 90 percent relative, non-condensing.

* + - * 1. Physical Specifications:

Construction: Aluminum base; polycarbonate clear dome.

Dimensions: Height: 13.2 inches (336 mm).

Diameter: 7.5 inches (190 mm).

Weight: 11.5 lbs (5.2 kg).

* + - * 1. Mechanical Specifications:

Camera Mount: Mounting accessories available.

Adjustments: Pan 360 degrees continuous; tilt: 95 degrees (-15 degrees -90).

* + - * 1. Network Video Specifications:

Communication Platform: Open platform; compatible with Valerus Video Management System.

Compression: Smart Encoding; H.264/H.265; M-JPEG.

LAN Interface: 10 Base-T/100 Base-TX, Unicast/Multicast.

Video Channels: Triple streaming.

Resolution and Frame Rate: 5 MP: 2592x1944/1520, 2560x1440, 2048x1536, 2304x1296, 1920x1080, 1600x1200, 1440x1080,1600x900, 1280x960/720, 800x600, 640x480, 640x360, 320x240.Max 30 fps.

Web Browser: Safari, Firefox, Chrome, Microsoft Edge.

Users: Live viewing for up to 10 clients.

Image Settings: Digital image effects defog, flip and mirror; configurable brightness, contrast, saturation, hue, sharpness; BLC; HLC; gamma correction; 3 DNR; motion detection; white balance, AGC; Electronic Shutter, automatic or manual; digital zoom; motion detection; privacy masks; motorized zoom and focus (lens); dynamic ROI; EIS (Electronic Image Stabilization).

Intelligent Video Analytics: Tampering/Defocus, Intelligent Motion Detection Intrusion Detection; Line Cross, Object Left/Removed, Tailgating, Crowding. The camera shall also provide AI-based object classification analytics for vehicles, people, and animals. This shall enhance working with Museum Search in Valerus VMS.

Supported Protocols: IPv4/IPv6, TCP, HTTP, HTTPS, RTSP, RTCP, RTP, RTMP, SMTP, SNMP v1/2c/3, UPnP, TLS/TTLS, FTP, HLS, ICMP, IGMP, LDAP, NTP, DHCP, DNS, DDNS, UDP, QoS, ARP, PPPoE, Bonjour, ONVIF, S/G/M/T.

Warranty: 5 years, parts, and labor.

\*\* NOTE TO SPECIFIER \*\* Delete box camera paragraph if not required.

* + 1. Box Cameras:
			1. Basis of Design: V2008-W-NL IP Box Camera as manufactured by Vicon Industries:
				1. Certifications: CE, UL, FCC Class A, ONVIF S/T/G/M, RoHS, NDAA/GSA/TAA compliant.
				2. Equipment and Materials: Standard components regularly manufactured and used in the manufacturer's system.
				3. Systems and Components: Thoroughly tested and proven in actual use.

Provided with the availability of a toll free 24-hour technical support phone number from the manufacturer. This no charge service shall be available to dealers and installers.

Provided with an explicit 5-year manufacturer warranty.

* + - * 1. Features:

Mounting: 1/4-20 mounting holes, top and bottom.

\*\* NOTE TO SPECIFIER \*\* Delete types not required.

Lens: DC iris.

Lens: P-iris.

Lens: i-CS.

Day/night Operation: Built-in IR-cut filter.

Wide Dynamic Range (WDR): 8 MP.

Triple streaming video.

Camera features: Electronic iris, AGC, TWDR, white balance, defog, flip, mirror, privacy masking, ROI, and motion detection.

* + - * 1. Camera Parameters:

Imaging Device: 1/1.8 inch progressive scan.

Maximum Resolution: 8 MP.

Shutter Speed: 1/2 - 1/10,000 sec.

Automatic Gain Control: On/Off selectable.

Sensitivity: Color: 0.02 lux. Black and White: 0.01 lux.

Adjustment, Tilt and Horizontal: Dependent on mount.

Digital Zoom: Dynamic ROI.

* + - * 1. Physical Parameters:

Operating Temperature: 14 to 131 degrees F (minus 10 to 55 degrees C).

Construction: Aluminum and plastic.

Dimensions, H x W x L: 2.4 x 2.9 x 4.1 inches (62 x 73 104 mm).

Weight: Approximately 1.3 lbs (0.8 kg).

* + - * 1. Electrical Parameters:

Input Voltage: PoE; 24 VAC plus 20 or minus 10 percent, 12 VDC plus or minus 10 percent.

Current: PoE: 350 mA; 12 VDC: 1 A; 24 VAC: 1 A (50/60 Hz).

Power Consumption: 13.5 W.

Connectors:

Power: 24 VAC/12 VDC terminal block.

PoE: RJ-45.

Video/Data: RJ-45.

Audio Input/Output: terminal block; audio level alarm alert.

Slot for SD card.

Reset button.

Default button.

Radio Frequency Emission Rating: FCC Class A; CE.

* + - * 1. Network Platforms:

Communication Platform: Open platform.

Compression: Smart Encoding; H.264/H.265; M-JPEG.

LAN Interface: 10 Base-T/100 Base-TX, Unicast/Multicast.

Video Channels: Triple streaming.

Resolution: 3840x2160, 3264x1840, 2592x1944, 2688x1520, 2048x1536, 1920x1080, 1280x960/720, 800x600, 640x480, 640x360, 320x240.

Frame Rate: Maximum 30 fps.

Web Browser: Firefox, Chrome, Safari, or Microsoft Edge.

Users: 10 user live viewing.

Image Settings: Digital image effects defog, flip and mirror; configurable brightness, contrast, saturation, hue, sharpness; BLC; HLC; gamma correction; 3 DNR; motion detection; white balance, AGC; Electronic Shutter, automatic or manual; digital zoom; motion detection; privacy masks; dynamic ROI.

Intelligent Video Analytics: Tampering, Intelligent Motion Detection Intrusion Detection; Line Cross, Loitering, Object Left/Removed, Tailgating, Crowding. It shall also provide AI-based object classification analytics for vehicles, people, and animals. This shall enhance working with Museum Search in Valerus VMS.

Supported Protocols: IPv4/IPv6, TCP, HTTP, HTTPS, RTSP, RTCP, RTP, RTMP, SMTP, SNMP v1/2c/3, UPnP, TLS/TTLS, FTP, HLS, ICMP, IGMP, LDAP, NTP, DHCP, DNS, DDNS, UDP, QoS, ARP, PPPoE, Bonjour, ONVIF S/G/M/T.

\*\* NOTE TO SPECIFIER \*\* Delete specialty cameras paragraph if not required.

* + 1. Specialty Cameras:

\*\* NOTE TO SPECIFIER \*\* Delete models not required.

* + - 1. Basis of Design: V2005CNR-W24IR Corner Mounted HD Day/Night Camera as manufactured by Vicon Industries:

\*\* NOTE TO SPECIFIER \*\* UL and cUL certifications apply only if camera is supplied with back cover.

* + - * 1. Certifications: CE, FCC Class A, IK10, IP66, UL, ONVIF S/G/M/T and cUL. NDAA-compliant.
				2. Equipment and Materials: Standard components regularly manufactured and used in the manufacturer's system.
				3. Systems and Components: Thoroughly tested and proven in actual use.

Provided with the availability of a toll free 24-hour technical support phone number from the manufacturer. This no charge service shall be available to dealers and installers.

Provided with an explicit 5-year manufacturer warranty.

* + - * 1. Features:

Ideal for areas that require wall-to-wall and floor to ceiling coverage such as elevators, waiting rooms, lobbies, and observation rooms.

Mounting: Fits into 90 degree corners. Fixed mounting frame and removable front plate; once installed into the corner, the housing shall be ligature proof. Front plate is secured to fixed frame with security screws. The front plate shall have two windows to protect the camera and IR LED illuminators.

Camera Mount: Adjustable allowing for tilting up or down for an exact view.

Alarms and audio.

Privacy masks.

* + - * 1. Camera Parameters:

Imaging Device: 1/2.8 inch CMOS.

Camera Type: True day/night (IR cut filter)

Sensitivity: Color: 0.003 lux. B and W: 0.001 lux (IR Off); 0.0 lux (IR On)

IR Distance: 98 ft (30 m). Programmable intensity.

Lens Focal Length: 2.4 mm, fixed wide angle.

Aperture: f/2.1 maximum.

Horizontal Field of View: 121 degrees.

Vertical Field-of-View: 93 degrees.

* + - * 1. Physical Parameters:

Operating Temperature: -4 to 140 degrees F (-20 to 60 degrees C).

Application: Indoor.

Construction: Enclosure: Aluminum. Windows: polycarbonate. IR: 5 mm thick. Camera: 6 mm thick.

Dimensions: 14.7 x 12.4 x 2.9 inches (372 x 315 x 73 mm).

Weight: 4.4 lbs (2 kg) approximate.

* + - * 1. Electrical Parameters:

Input Voltage: 24 VAC. 12 VDC. PoE+.

Power Consumption: IR On: 12.95 W Max. IR Off: 7.85 W.

Connectors, 24 VAC and 12 VDC: Screw terminal.

Connectors, Ethernet/PoE: RJ-45.

Connectors, Alarms (In/Out) and Audio (mic/spkr): Screw terminal.

Radio Frequency Emission Rating: FCC Class A.

* + - * 1. Network Parameters:

Compression: H.264, MPEG-4 or M-JPEG.

Video Streams: 10 concurrent.

Video Resolution: 2592x1944 (5 MP), 2688x1520, 2048x1536 (3 MP), 1920x1080 (Full HD 1080P), 1280x960/720, 800x600,640x480 (VGA), 640x360, 320x240 (QVGA).

Frame Rate: Up to 30 fps.

Video Bandwidth: 10/100 Mbps.

Streaming: Triple.

Image Settings: Digital image effects defog, flip and mirror; configurable brightness, contrast, saturation, hue, sharpness; BLC; HLC; gamma correction; 3 DNR; motion detection; white balance, AGC; Electronic Shutter, automatic or manual; digital zoom; motion detection; privacy masks; dynamic ROI.

Intelligent Video Analytics: Tampering, Intelligent Motion Detection Intrusion Detection; Line Cross, Loitering, Object Left/Removed, Tailgating, Crowding. It shall also provide AI-based object classification analytics for vehicles, people, and animals. This shall enhance working with Museum Search in Valerus VMS.

Supported Protocols: IPv4/IPv6, TCP, HTTP, HTTPS, RTSP, RTCP, RTP, RTMP, SMTP, SNMP v1/2c/3, UPnP, TLS/TTLS, FTP, HLS, ICMP, IGMP, LDAP, NTP, DHCP, DNS, DDNS, UDP, QoS, ARP, PPPoE, Bonjour, ONVIF S/G/M/T.

* + - 1. Basis of Design: V-CELL-HD-C Corner Mounted HD Day/Night Camera as manufactured by Vicon Industries: Additionally, a camera module, V-CELL-HD-CMOD, shall be available to retrofit any existing V-CELL camera to 5 MP.

\*\* NOTE TO SPECIFIER \*\* UL and cUL certifications apply only if camera is supplied with back cover.

* + - * 1. Certifications: CE, FCC Class A, IK10, IP66, UL, ONVIF S/G/M/T and cUL. NDAA-compliant.
				2. Equipment and Materials: Standard components regularly manufactured and used in the manufacturer's system.
				3. Systems and Components: Thoroughly tested and proven in actual use.

Provided with the availability of a toll free 24-hour technical support phone number from the manufacturer. This no charge service shall be available to dealers and installers.

Provided with an explicit 5-year manufacturer warranty.

* + - * 1. Features:

Ideal for harsh environments, including custodial suites and prison cells.

Mounting: Stainless steel, waterproof housing. Fits into 90 degree corners. Fixed mounting frame and removable front plate. Assembly is permanently sealed to walls and ceiling making housing ligature proof. Front plate is recessed and secured to fixed frame with security screws. Two windows in front plate protect camera and IR LED illuminators.

Camera Mount: Adjustable allowing for tilting up or down for an exact view.

Alarms and audio.

Privacy masks.

* + - * 1. Camera Parameters:

Imaging Device: 1/2.8-inch CMOS.

Camera Type: True day/night (IR cut filter)

Sensitivity: Color: 0.003 lux. B&W: 0.001 lux (IR Off); 0.0 lux (IR On).

IR Distance: 98 ft (30 m). Programmable intensity.

Lens Focal Length: 2.4 mm, fixed wide angle.

Aperture: f/2.1 maximum.

Horizontal Field of View: 121 degrees.

Vertical Field-of-View: 93 degrees.

* + - * 1. Physical Parameters:

Operating Temperature: -4 to 140 degrees F (-20 to 60 degrees C).

Application: Indoor.

Construction: Enclosure: Stainless steel; brushed satin. Mounting Frame: 14 gauge; camera mount: 14 gauge. Windows: polycarbonate. IR: 5 mm thick. Camera: 6 mm thick.

Dimensions: 14.7 in. (372 mm) x 12.4 in. (315 mm) x 2.9 in. (73 mm).

Weight: 3.3 lbs (1.5 kg) approximate.

* + - * 1. Electrical Parameters:

Input Voltage: 24 VAC. 12 VDC. PoE+.

Power Consumption: IR On: 12.95 W Max. IR Off: 7.85 W.

Connectors, 24 VAC and 12 VDC: Screw terminal.

Connectors, Ethernet/PoE: RJ-45.

Connectors, Alarms (In/Out) and Audio (mic/spkr): Screw terminal.

Radio Frequency Emission Rating: FCC Class A.

* + - * 1. Network Parameters:

Compression: H.264, MPEG-4 or M-JPEG.

Video Streams: 10 concurrent.

Video Resolution: 2592x1944 (5 MP), 2688x1520, 2048x1536 (3 MP), 1920x1080 (Full HD 1080P), 1280x960/720, 800x600,640x480 (VGA), 640x360, 320x240 (QVGA).

Frame Rate: Up to 30 fps.

Video Bandwidth: 10/100 Mbps.

Streaming: Triple.

Image Settings: Digital image effects defog, flip and mirror; configurable brightness, contrast, saturation, hue, sharpness; BLC; HLC; gamma correction; 3 DNR; motion detection; white balance, AGC; Electronic Shutter, automatic or manual; digital zoom; motion detection; privacy masks; dynamic ROI.

Intelligent Video Analytics: Tampering, Intelligent Motion Detection Intrusion Detection; Line Cross, Loitering, Object Left/Removed, Tailgating, Crowding. It shall also provide AI-based object classification analytics for vehicles, people, and animals. This shall enhance working with Museum Search in Valerus VMS.

Supported Protocols: IPv4/IPv6, TCP, HTTP, HTTPS, RTSP, RTCP, RTP, RTMP, SMTP, SNMP v1/2c/3, UPnP, TLS/TTLS, FTP, HLS, ICMP, IGMP, LDAP, NTP, DHCP, DNS, DDNS, UDP, QoS, ARP, PPPoE, Bonjour, ONVIF S/G/M/T.

* + 1. Dome Cameras:

\*\* NOTE TO SPECIFIER \*\* Delete models not required.

* + - 1. Basis of Design: V2020-WIR-360 and V2032-WIR-360 Multi-Sensor Cameras as manufactured by Vicon Industries:
				1. Certifications: CE, FCC Class A, IK10, IP66, UL, NDAA/GSA/TAA and ONVIF S/G/M/T.
				2. Equipment and Materials: Standard components regularly manufactured and used in the manufacturer's system.
				3. Systems and Components: Thoroughly tested and proven in actual use.

Provided with the availability of a toll free 24-hour technical support phone number from the manufacturer. This no charge service shall be available to dealers and installers.

Provided with an explicit 5-year manufacturer warranty.

* + - * 1. Features:

Outdoor multi-sensor camera incorporating four camera/lens modules for a 180, 270, or 360 degree panoramic view.

True WDR and IR capability with four integral motorized lenses.

Electronic iris, AGC, white balance, backlight compensation, tampering, flip, mirror, privacy masks and motion detection.

Mounting: Surface mountable. Wall, corner, and pole mounting accessories available.

* + - * 1. Camera Parameters:

Imaging Device:

5 MP: 4x 1/2.8 inch progressive scan CMOS.

8 MP: 4x /1.8 inch progressive scan CMOS.

Maximum Resolution: 4x 2592 x 1944, 5 MP; 4x 3840 x 2160, 8 MP.

Shutter Speed: 1/7 - 1/20,000 sec.

Automatic Gain Control: On/Off selectable.

Sensitivity: 20 MP: Color: 0.03 lux; B and W: 0.01 (IR OFF), 0 lux (IR On) at 30 IRE. 32 MP: Color: 0.02 lux; B and W: 0.01 (IR OFF), 0 lux (IR On) at 30 IRE.

Wide Dynamic Range: True WDR, 120dB.

Lens Focal Length: 20 MP: 4x 3.1-10 mm; 32 MP: 4x 3.6-10 mm.

Horizontal Field of View: 20 MP: 32 to 96 degrees; 32 MP: 46 to 98 degrees.

Vertical Field of View: 20 MP: 24 to 69 degrees; 32 MP: 26 to 54 degrees.

Field of View Depth: 20 MP: 40 to 124 degrees; 32 MP: 54 to 113 degrees.

IR Distance: Up to 131 feet (40 m).

* + - * 1. Physical Parameters:

Operating Temperature: -40 to 131 degrees F (-40 to 55 degrees C).

Operating Humidity: 10 to 90 percent relative, non-condensing.

Application: Indoor or Outdoor.

Construction: Enclosure: Die-cast aluminum housing. Dome: Clear polycarbonate. Dimensions: 5.6 x 9.7 inches (142.3 x 247.5 mm) diameter.

Weight: 5.2 lbs (2.36 kg) approximate.

* + - * 1. Electrical Parameters:

Input Voltage/Current: PoE++ (IEEE802.3bt Class 5), 24 VAC, 24 VDC. 1.7 A.

Power Consumption (IR on): 40 W.

Connectors: Pigtail: Power: terminal block.

Connectors, PoE: RJ-45.

Connectors, Alarms (In/Out): Terminal block.

Connectors, Audio: Phone jack.

Connectors: Slot for SD card.

Radio Frequency Emission Rating: FCC Class A; CE.

* + - * 1. Network Parameters:

Communications: Open platform; compatible with Valerus and ViconNet Video Management Systems.

Compression: H.264/H.265.

LAN Interface: Triple streaming.

Video Resolution: 4x 2592x1944; 4x 3840 x 2160, depending on camera.

Frame Rate: Up to 30 fps.

Web Browser: Firefox, Google Chrome.

Users: Live viewing for up to 10 clients.

Image Settings: Day/night mode; flip and mirror; configurable brightness, contrast, hue, sharpness, saturation; white balance, gain control; DNR; true WDR (120dB); privacy masks (5); motion detection; BLC; Exposure; Audio.

Intelligent Video Analytics: Tampering; Intelligent Motion Detection; Intrusion Detection; Line Cross, Loitering, Object Left/Removed, Tailgating, Crowding. It shall also provide AI-based object classification analytics for vehicles, people, and animals. This shall enhance working with Museum Search in Valerus VMS.

Supported Protocols: IPv4/IPv6, TCP/IP, HTTP, HTTPS, RTSP, RTP, RTCP SMTP, FTP, UDP, uPnP, QoS, ICMP, SNMP v2c/v3, SSL, DNS, NTP, LDAP (client), Zeroconfig, DynDNS, ONVIF S/G/M/T.

* + - 1. Basis of Design: V2005D Outdoor IP Micro Dome Camera with Built-In Mic as manufactured by Vicon Industries:
				1. Certifications: CE, FCC Class A, IK10, IP66, UL, ONVIF S/G/M/T and NDAA/GSA/TAA compliant.
				2. Equipment and Materials: Standard components regularly manufactured and used in the manufacturer's system.
				3. Systems and Components: Thoroughly tested and proven in actual use.

Provided with the availability of a toll free 24 hour technical support phone number from the manufacturer. This no charge service shall be available to dealers and installers.

Provided with an explicit 5 year manufacturer warranty.

* + - * 1. Features:

Outdoor fixed dome camera shall incorporate a fixed camera/lens combination.

True WDR and Smart or Adaptive IR capability.

The camera shall have bi-directional audio, built-in mic and line out.

Intelligent Video Analysis, tampering, intelligent motion detection, intrusion detection, line cross, loitering, object left/removed, tailgating, and crowding. The camera shall provide AI-based object classification analytics for vehicles, people, and animals. This shall enhance working with Museum Search in Valerus VMS.

Mounting: Surface mountable.

* + - * 1. Camera Parameters:

Imaging Device: 1/2.8 inch progressive scan.

Maximum Resolution: 5 MP.

Sensitivity: Color: 0.03 lux; Black and White: 0.01 (IR OFF), 0 lux (IR On).

Horizontal Field of View: 104 degrees.

Vertical Field-of-View: 78 degrees.

Field-of-View Depth: 134 degrees.

Resolution: 2592x1944/1520, 2560x1440, 2048x1536, 2304x1296, 1920x1080, 1600x1200, 1440x1080, 1600x900, 1280x960/720, 800x600, 640x480, 640x360, 320x240, 320x180.

Shutter Speed: 1/2 - 1/10,000 sec.

Automatic Gain Control: On/Off selectable.

Digital Zoom: Yes, ROI.

Lens Adjustment: Fixed.

Lens Focal Length: 2.8 mm.

IR Distance: Smart IR/Adaptive IR; 49 ft (15 m) with 8 IR LEDs.

* + - * 1. Physical Parameters:

Operating Temperature: Minus 22 to 131 degrees F (Minus 30 to 55 degrees C).

Operating Humidity: Up to 90 percent relative, non-condensing.

Application: Indoor or Outdoor.

Construction: Aluminum dome housing; polycarbonate clear dome. Dimensions: 2.2 x 4.3 inches (57 x 110 mm) diameter.

Weight: 1.65 lbs (0.75 kg).

* + - * 1. Electrical Parameters:

Input Voltage/Current: PoE, 0.28A.

Power Consumption, IR on: 9W; IR Off: 6.6 W.

Connectors:

Pigtail cable.

PoE: RJ-45.

Video and Data: RJ-45.

Audio: Built-in Mic/Audio Output: Screw terminal block.

Slot for SD card.

Reset button.

Default button.

Radio Frequency Emission Rating: FCC Class A; CE.

* + - * 1. Network Parameters:

Communications: Open platform; compatible with Valerus Video Management System.

Compression: Smart Encoding; H.264/H.265; M-JPEG.

LAN Interface: 10 Base-T/100 Base-TX, Unicast/Multicast.

Frame Rate: Up to 30 fps.

Web Browser: Safari, Firefox, Google Chrome, Microsoft Edge.

Users: Live viewing for up to 10 clients.

Image Settings: Digital image effects defog, flip and mirror; configurable brightness, contrast, saturation, hue, sharpness; BLC; HLC; gamma correction; 3 DNR; motion detection; white balance, AGC; Electronic Shutter, automatic or manual; digital zoom; motion detection; privacy masks; motorized zoom and focus (lens); dynamic ROI.

Intelligent Video Analytics: Tampering/Defocus, Intelligent Motion Detection, Intrusion Detection; Line Cross, Loitering, Object Left/Removed, Tailgating, Crowding. The camera shall provide AI-based object classification analytics for vehicles, people, and animals. This shall enhance working with Museum Search in Valerus VMS.

Supported Protocols: IPv4/IPv6, TCP, HTTP, HTTPS, RTSP, RTCP, RTP, RTMP, SMTP, SNMP v1/2c/3, UPnP, TLS/TTLS, FTP, HLS, ICMP, IGMP, LDAP, NTP, DHCP, DNS, DDNS, UDP, QoS, ARP, PPPoE, Bonjour, ONVIF S/G/M/T.

* + - 1. Basis of Design: V2005D Outdoor IP Dome Camera as manufactured by Vicon Industries:
				1. Certifications: CE, FCC Class A, IK10, IP67, UL, RoHS, ONVIF S/G/M/T and NDAA/GSA/TAA compliant.
				2. Equipment and Materials: Standard components regularly manufactured and used in the manufacturer's system.
				3. Systems and Components: Thoroughly tested and proven in actual use.

Provided with the availability of a toll free 24-hour technical support phone number from the manufacturer. This no charge service shall be available to dealers and installers.

Provided with an explicit 5 year manufacturer warranty.

* + - * 1. Features:

Outdoor fixed dome camera shall incorporate a fixed camera/lens combination.

True WDR and Smart or Adaptive IR capability.

Intelligent Video Analysis, tampering, intelligent motion detection, intrusion detection, line cross, loitering, object left/removed, tailgating, and crowding. The cameras shall have AI-based object classification analytics for vehicles, people, or animals. This shall enhance working with Museum Search in Valerus VMS.

Mounting: Surface mountable.

* + - * 1. Camera Parameters:

\*\* NOTE TO SPECIFIER \*\* Delete maximum resolution option not required.

Maximum Resolution: 5 MP.

Imaging Device: 1/2.8 inch progressive scan.

Sensitivity: Color: 3.1-10 mm: 0.03 lux; 8-18 mm: 0.02 lux. Black and White: 0.01 (IR OFF), 0 lux (IR On).

Horizontal Field of View: 3.1-10 mm: 96 to 32 degrees; 8-18 mm: 40 to 17 degrees.

Vertical Field-of-View: 3.1-10 mm: 69 to 24 degrees; 8-18 mm: 29 to 13 degrees.

Resolution: 2592x1944/1520, 2560x1440, 2048x1536, 2304x1296, 1920x1080, 1600x1200, 1440x1080, 1600x900, 1280x960/720, 800x600, 640x480, 640x360, 320x240, 320x180.

Lens Focal Length: 3.1 to 10 mm varifocal or 8-18 mm varifocal.

Current: PoE: 0.3 A; 24 VAC: 0.6 A; 12 VDC: 1.2 A.

Power Consumption IR and Heaters On: 16.5 W.

Shutter Speed: 1/2 - 1/10,000 sec.

Automatic Gain Control: On/Off selectable.

Digital Zoom: Yes, ROI.

Tilt and Horizontal: Three-direction adjustment, allowing for adjustment of pan, tilt, and lens rotation.

Lens Adjustment: Motorized lens, P-iris automatically adjusts to zoom condition.

IR Distance: Smart IR/Adaptive IR; 131 ft (40 m) with 22 IR LEDs.

* + - * 1. Physical Parameters:

Operating Temperature: Minus 40 to 140 degrees F (Minus 40 to 60 degrees C).

Operating Humidity: Up to 90 percent relative, non-condensing.

Application: Indoor or Outdoor.

Construction: Aluminum alloy body; polycarbonate clear dome. Dimensions: 4.49 x 5.3 inches (125 x 135 mm) diameter.

Weight: 2.6 (1.2 kg).

* + - * 1. Electrical Parameters:

Input Voltage: 24 VAC plus 20 or minus 10 percent, 12 VDC plus or minus 10 percent or PoE.

Connectors:

Two conduit access holes for internal cable termination.

Power: 12 VDC or 24 VAC terminal block.

PoE: RJ-45.

Video and Data: RJ-45.

Alarm: Screw terminal.

Audio: Screw terminal, audio level alarm alert.

Slot for SD card.

Composite output for installation-2-pin connector.

Reset button.

Default button.

Radio Frequency Emission Rating: FCC Class A; CE.

* + - * 1. Network Parameters:

Communications: Open platform; compatible with Valerus Video Management System.

Compression: Smart Encoding; H.264/H.265; M-JPEG.

LAN Interface: 10 Base-T/100 Base-TX, Unicast/Multicast.

Video Channels: Triple streaming.

Frame Rate: Up to 30 fps.

Web Browser: Safari, Firefox, Google Chrome, Microsoft Edge.

Users: Live viewing for up to 10 clients.

Image Settings: Digital image effects defog, flip and mirror; configurable brightness, contrast, saturation, hue, sharpness; BLC; HLC; gamma correction; 3 DNR; motion detection; white balance, AGC; Electronic Shutter, automatic or manual; digital zoom; motion detection; privacy masks; motorized zoom and focus (lens); dynamic ROI.

Intelligent Video Analytics: Tampering/Defocus, Intelligent Motion Detection, Intrusion Detection; Line Cross, Loitering, Object Left/Removed, Tailgating, Crowding. The cameras shall have AI-based object classification analytics for vehicles, people, or animals. This shall enhance working with Museum Search in Valerus VMS.

Supported Protocols: IPv4/IPv6, TCP, HTTP, HTTPS, RTSP, RTCP, RTP, RTMP, SMTP, SNMP v1/2c/3, UPnP, TLS/TTLS, FTP, HLS, ICMP, IGMP, LDAP, NTP, DHCP, DNS, DDNS, UDP, QoS, ARP, PPPoE, Bonjour, ONVIF S/G/M/T.

* + - 1. Basis of Design: V2105D Outdoor IP Dome Camera as manufactured by Vicon Industries:
				1. Certifications: CE, FCC Class A, IK10, IP67, UL, RoHS, ONVIF S/G/T and NDAA/GSA/TAA compliant.
				2. Equipment and Materials: Standard components regularly manufactured and used in the manufacturer's system.
				3. Systems and Components: Thoroughly tested and proven in actual use.

Provided with the availability of a toll free 24-hour technical support phone number from the manufacturer. This no charge service shall be available to dealers and installers.

Provided with an explicit 5-year manufacturer warranty.

* + - * 1. Features:

Outdoor dome camera shall incorporate a fixed camera/lens combination.

True WDR and Smart IR capability.

Intelligent Video Analysis, motion, and tampering/defocus.

Mounting: Surface mountable.

* + - * 1. Camera Parameters:

Maximum Resolution: 5 MP.

Imaging Device: 1/2.8 inch progressive scan.

Sensitivity: Color: 0.05 lux; Black and White: 0.03 (IR OFF), 0 lux (IR On).

Horizontal Field of View: 96 to 32 degrees.

Vertical Field-of-View: 69 to 24 degrees.

Field-of-View Depth: 124 to 40 degrees.

Resolution: 2592x1944/1520, 2048x1536, 1920x1080, 1280x960/720, 800x600, 640x480.

Shutter Speed: 1/2 - 1/10,000 sec.

Automatic Gain Control: On/Off selectable.

Digital Zoom: Yes, ROI.

Tilt and Horizontal: Two-direction adjustment, allowing for adjustment of pan and tilt.

Lens Adjustment: Motorized lens, DC-iris.

IR Distance: Smart IR; 98 ft (30 m) with 16 IR LEDs.

* + - * 1. Physical Parameters:

Operating Temperature: Minus 22 to 140 degrees F (Minus 30 to 60 degrees C).

Operating Humidity: Up to 90 percent relative, non-condensing.

Application: Indoor or Outdoor.

Construction: Aluminum alloy body; bracket: PC+ABS; window: double glass/polycarbonate clear dome.

Dimensions: 4.4 x 5.3 inches (112 x 135 mm) diameter.

Weight: 2.2 (1 kg).

* + - * 1. Electrical Parameters:

Input Voltage: 12 VDC plus or minus 10 percent or PoE.

Current: PoE: 0.16 A; 12 VDC: 0.63 A.

Power Consumption IR On: 7.6 W.

Connectors:

Power: 12 VDC terminal block.

PoE: RJ-45.

Video and Data: RJ-45.

Slot for SD card.

Reset button.

Default button.

Radio Frequency Emission Rating: FCC Class A; CE.

* + - * 1. Network Parameters:

Communications: Open platform; compatible with Valerus Video Management System.

Compression: Smart Encoding; H.264/H.265; M-JPEG.

LAN Interface: 10 Base-T/100 Base-TX, Unicast/Multicast.

Video Channels: Triple streaming.

Frame Rate: Up to 30 fps.

Web Browser: Safari, Firefox, Google Chrome, Microsoft Edge.

Users: Live viewing for up to 10 clients.

Image Settings: Digital image effects defog, flip and mirror; configurable brightness, contrast, saturation, hue, sharpness; BLC; HLC; gamma correction; 3 DNR; motion detection; white balance, AGC; Electronic Shutter, automatic or manual; digital zoom; motion detection; privacy masks; motorized zoom and focus (lens); dynamic ROI.

Intelligent Video Analytics: Tampering/Defocus, Motion.

Supported Protocols: IPv4/IPv6, TCP, HTTP, HTTPS, RTSP, RTCP, RTP, RTMP, SMTP, SNMP v1/2c/3, UPnP, TLS/TTLS, FTP, HLS, ICMP, IGMP, LDAP, NTP, DHCP, DNS, DDNS, UDP, QoS, ARP, PPPoE, Bonjour, ONVIF S/G/T.

* + - 1. Basis of Design: V2360W-12-1 Outdoor IP Panoramic Dome Camera as manufactured by Vicon Industries:
				1. Certifications: CE, FCC Class A, IK10, IP67, UL, RoHS, ONVIF S/G/M/T and NDAA/GSA/TAA compliant.
				2. Equipment and Materials: Standard components regularly manufactured and used in the manufacturer's system.
				3. Systems and Components: Thoroughly tested and proven in actual use.

Provided with the availability of a toll free 24-hour technical support phone number from the manufacturer. This no charge service shall be available to dealers and installers.

Provided with an explicit 5-year manufacturer warranty.

* + - * 1. Features:

Outdoor panoramic dome camera shall incorporate a fixed camera/lens combination.

True WDR and Smart IR capability.

Intelligent Video Analysis, motion, tampering/defocus, intrusion detection, line cross, loitering, object left/removed, tailgating, and crowding. AI-based object classification analytics for vehicles, people, or animals. This shall enhance working with Museum Search in Valerus VMS.

Mounting: Surface mountable.

* + - * 1. Camera Parameters:

Imaging Device: 1/2.3 inch.

Maximum Resolution: 12 MP.

Shutter Speed: 1/2 - 1/10,000 sec.

Automatic Gain Control: On/Off selectable.

Sensitivity: Color: 0.07 lux; Black and White: 0.1 (IR OFF), 0 lux (IR On).

Digital Zoom: Dynamic ROI.

Lens Adjustment: Fixed fisheye.

Focal Length: 1.6 mm.

Field of View: 195 degrees, 360 degree surround view.

IR Distance: Smart IR; 49 ft (15 m) with 1 IR LED.

Dual heater system.

* + - * 1. Physical Parameters:

Operating Temperature: Minus 40 to 122 degrees F (Minus 40 to 50 degrees C).

Operating Humidity: Up to 90 percent relative, non-condensing.

Application: Indoor or Outdoor.

Construction: Aluminum alloy body; bracket: PC+ABS front case.

Dimensions: 2.2 x 5 inch (57 x 150 mm) diameter.

Weight: 2 (0.9 kg).

* + - * 1. Electrical Parameters:

Input Voltage: 24 VAC plus 20 or minus 10 percent or PoE.

Current: PoE: 0.52 A; 24 VAC: 1.1 A.

Power Consumption IR On: 13.9 W; IR Off: 8.3 W.

Connectors:

Power: 24 VAC terminal block.

PoE: RJ-45.

Video and Data: RJ-45.

Audio In and Out: Screw terminal; built-in mic; audio level alarm alert.

Slot for SD card.

Reset button.

Default button.

Radio Frequency Emission Rating: FCC Class A; CE.

* + - * 1. Network Parameters:

Communications: Open platform; compatible with Valerus Video Management System.

Compression: Smart Encoding; H.264/H.265; M-JPEG.

LAN Interface: 10 Base-T/100 Base-TX, Unicast/Multicast.

Video Channels: Triple streaming.

Resolution: 2976x2976, 2592x2592, 2048x2048, 1952x1952, 1536x1536, 1280x1280, 960x960, 640x640.

Frame Rate: Up to 30 fps.

Web Browser: Safari, Firefox, Google Chrome, Microsoft Edge.

Users: Live viewing for up to 10 clients.

Image Settings: Digital image effects defog, flip; configurable brightness, contrast, saturation, hue, sharpness; BLC; HLC; gamma correction; 3 DNR; motion detection; white balance, AGC; Electronic Shutter, automatic or manual; digital zoom; motion detection; privacy masks; dynamic ROI.

Intelligent Video Analytics: Tampering, Intelligent Motion Detection, Intrusion Detection; Line Cross, Loitering, Object Left/Removed, Tailgating, Crowding. It shall also provide AI-based object classification analytics for vehicles, people, and animals. This shall enhance working with Museum Search in Valerus VMS.

Supported Protocols: IPv4/IPv6, TCP, HTTP, HTTPS, RTSP, RTCP, RTP, RTMP, SMTP, SNMP v1/2c/3, UPnP, TLS/TTLS, FTP, HLS, ICMP, IGMP, LDAP, NTP, DHCP, DNS, DDNS, UDP, QoS, ARP, PPPoE, Bonjour, ONVIF S/G/M/T.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Bullet Cameras:

\*\* NOTE TO SPECIFIER \*\* Delete models not required.

* + - 1. Basis of Design: V2005B Outdoor IP Bullet Camera as manufactured by Vicon Industries:
				1. Certifications:

CE.

UL.

FCC, Class A.

IP67.

IK10, including front glass.

ONVIF S/T/G/M.

RoHS.

NDAA/GSA/TAA compliant.

* + - * 1. Equipment and Materials: Standard components regularly manufactured and used in the manufacturer's system.
				2. Systems and Components: Thoroughly tested and proven in actual use.

Provided with the availability of a toll free 24 hour technical support phone number from the manufacturer. This no charge service shall be available to dealers and installers.

Provided with an explicit 5 year manufacturer warranty.

* + - * 1. Outdoor IP Bullet Camera:

Fixed camera/lens combination.

Indoor/outdoor surface mounting.

High-resolution day/night camera; true WDR and Smart IR/Adaptive IR capability and include an integral varifocal DC-iris lens.

Motorized Lens: Allow for remote configuration of zoom and focus (motorized focus and zoom).

Day/Night Operation: Achieved using a built-in IR-cut filter.

Camera Position: Adjustable using the integral mount. Sunshield provided.

Dual heater provided.

Triple streaming video and support H.264/H.265 and M-JPEG compression.

Electronic iris, AGC, TWDR, white balance, defog, flip, mirror, privacy masking, ROI, and motion detection.

Intelligent Video Analysis, tampering, intelligent motion detection, intrusion detection, line cross, loitering, object left/removed, tailgating, and crowding. The cameras shall provide AI-based object classification analytics for vehicles, people, and animals. This shall enhance working with Museum Search in Valerus VMS.

* + - * 1. Day/Night IP Bullet Camera Specifications:

\*\* NOTE TO SPECIFIER \*\* Delete maximum resolution option not required.

Max. Resolution: 5 MP.

Imaging Device: 1/2.8 inch progressive scan.

Sensitivity at 30 IRE: Color: 3.1 to 10 mm: 0.03 lux; 8 to 18 mm: 0.02 lux. Black and White: 0.01 lux/0 lux (IR Off/On).

Focal Length: 3.1 to 10 mm varifocal or 8 to 8 mm varifocal.

Horizontal Field of View: 3.1 to 10 mm: 96 to 32 degrees; 8 to 18 mm: 40 to 19 degrees.

Vertical Field of View: 3.1 to 10 mm: 69 to 24 degrees;8 to 18 mm: 29 to 13 degrees.

Current: PoE: 0.42 A; 24 VAC: 0.83 A; 12 VDC: 1.67 A.

Power Consumption, IR On: 20 W.

Shutter Speed: 1/2 - 1/10,000 sec.

Tilt and Horizontal: Three-direction adjustment, allowing for adjustment of pan, tilt, and rotation.

Digital Zoom: Yes (ROI).

Lens Adjustment: Motorized lens, P-iris automatically adjusts to zoom condition.

IR Distance: Smart IR/Adaptive IR; 131 ft (40 m) with 4 IR LEDs.

* + - * 1. Electrical Specifications:

Input Voltage: 24 VAC plus 20 or minus 10 percent, 12 VDC plus or minus 10 percent or PoE Plus.

Connectors:

Power: 12 VDC or 24 VAC terminal block.

PoE: RJ-45.

Video/Data: RJ-45.

Alarm: Screw terminal.

Audio: Screw terminal.

Slot for SD card.

Reset button.

Default button.

Radio Frequency Emission Rating: FCC Class A; CE.

* + - * 1. Physical Parameters:

Operating Temperature: Minus 40 to 140 degrees F (minus 40 to 60 degrees C) with heater.

Humidity: Up to 90 percent relative, non-condensing.

Construction: Aluminum alloy body; sunshield: PC+ABS.

Dimensions:

Length: 10.3 inch (261 mm).

Diameter: 3.5 inch (89 mm).

Weight: 4 lbs (1.8 kg).

Camera Mount: Surface mount.

Adjustments: Integral mount allows positioning.

* + - * 1. Network Video Specifications:

Communication Platform: Open platform; compatible with Valerus Video Management System.

Compression: Smart Encoding; H.264/H.265; M-JPEG.

LAN Interface: 10 Base-T/100 Base-TX, Unicast/Multicast.

Video Channels: Triple streaming.

\*\* NOTE TO SPECIFIER \*\* Delete resolution option not required.

Resolution, 5 MP: 2592x1944/1520, 2560x1440, 2048x1536, 2304x1296, 1920x1080, 1600x1200, 1440x1080, 1600x900, 1280x960/720, 800x600, 640x480, 640x360, 320x240, 320x180.

Frame Rate: Max 30 fps.

Web Browser: Safari, Firefox, Chrome, Microsoft Edge.

Users: Live viewing for up to 10 clients.

Image Settings: Digital image effects defog, flip and mirror; configurable, contrast, saturation, hue, sharpness; BLC; HLC; gamma correction; 3 DNR; motion detection; white balance, AGC; Electronic Shutter, automatic or manual; digital zoom; motion detection; privacy masks; motorized zoom and focus (lens); dynamic ROI.

Intelligent Video Analytics: Tampering, Intelligent Motion Detection, Intrusion Detection; Line Cross, Loitering, Object Left/Removed, Tailgating, Crowding. The cameras shall provide AI-based object classification analytics for vehicles, people, and animals. This shall enhance working with Museum Search in Valerus VMS.

Supported Protocols: IPv4/IPv6, TCP, HTTP, HTTPS, RTSP, RTCP, RTP, RTMP, SMTP, SNMP v1/2c/3, UPnP, TLS/TTLS, HLS, ICMP, IGMP, LDAP, NTP, DHCP, FTP, DNS, DDNS, UDP, QoS, ARP, PPPoE, Bonjour, ONVIF S/G/M/T.

* + - 1. Basis of Design: V2105B Outdoor IP Bullet Camera as manufactured by Vicon Industries:
				1. Certifications:

CE.

UL.

FCC, Class A.

IP67.

IK08.

ONVIF S/T/G/M.

RoHS.

NDAA/GSA/TAA compliant.

* + - * 1. Equipment and Materials: Standard components regularly manufactured and used in the manufacturer's system.
				2. Systems and Components: Thoroughly tested and proven in actual use.

Provided with the availability of a toll free 24- hour technical support phone number from the manufacturer. This no charge service shall be available to dealers and installers.

Provided with an explicit 5-year manufacturer warranty.

* + - * 1. Outdoor IP Bullet Camera:

Fixed camera/lens combination.

Indoor/outdoor surface mounting.

High-resolution day/night camera; true WDR and Smart IR capability and include an integral varifocal DC-iris lens.

Motorized Lens: Allow for remote configuration of zoom and focus (motorized focus and zoom).

Day/Night Operation: Achieved using a built-in IR-cut filter.

Camera Position: Adjustable using the integral mount.

Triple streaming video and support H.264/H.265 and M-JPEG compression.

Electronic iris, AGC, TWDR, white balance, defog, flip, mirror, privacy masking, ROI, and motion detection.

* + - * 1. Day/Night IP Bullet Camera Specifications:

Imaging Device: 1/2.8 inch progressive scan.

Maximum Resolution: 5 MP.

Sensitivity at 30 IRE: Color: 0.05 lux; black and white: 0.03 lux/0 lux (IR Off/On).

Horizontal Field of View: 96 to 32 degrees.

Vertical Field of View: 69 to 24 degrees.

Depth Field of View: 124 to 40 degrees.

Shutter Speed: 1/2 - 1/10,000 sec.

Automatic Gain Control: On/Off selectable.

Tilt and Horizontal: Two-direction adjustment, allowing for adjustment of pan and tilt.

Digital Zoom: Yes (ROI).

Lens Adjustment: Motorized lens, DC-iris.

Focal Length: 3.1 to 10 mm varifocal.

IR Distance: Smart IR; 98 ft (30 m) with 16 IR LEDs.

* + - * 1. Electrical Specifications:

Input Voltage: 12 VDC plus or minus 10 percent or PoE.

Current: PoE: 0.16 A; 12 VDC: 0.63 A.

Power Consumption: IR On: 7.6 W; IR Off: 5.2 W.

Connectors:

Pigtail cable provided.

Power: 12 VDC terminal block.

PoE: RJ-45.

Video/Data: RJ-45.

Slot for SD card.

Reset button.

Default button.

Radio Frequency Emission Rating: FCC Class A; CE.

* + - * 1. Physical Parameters:

Operating Temperature: Minus 22 to 140 degrees F (minus 30 to 60 degrees C) with heater.

Humidity: Up to 90 percent relative, non-condensing.

Construction: Aluminum alloy body; bracket: PC+ABS; window: double glass/polycarbonate.

Dimensions:

Length: 6.9 inch (177 mm).

Width: 3.3 inch (84 mm).

Height: 3.1 inch (79 mm).

Weight: 2 lbs (0.9 kg).

Camera Mount: Surface mount.

Adjustments: 2-axis camera adjustment.

* + - * 1. Network Video Specifications:

Communication Platform: Open platform; compatible with Valerus Video Management System.

Compression: Smart Encoding; H.264/H.265; M-JPEG.

LAN Interface: 10 Base-T/100 Base-TX, Unicast/Multicast.

Video Channels: Triple streaming.

Resolution, 5 MP: 2592x1944/1520, 2048x1536, 1920x1080, 1280x960/720, 800x600, 640x480.

Frame Rate: Max 30 fps.

Web Browser: Safari, Firefox, Chrome, Microsoft Edge.

Users: Live viewing for up to 10 clients.

Image Settings: Digital image effects defog, flip and mirror; configurable brightness, contrast, saturation, hue, sharpness; BLC; HLC; gamma correction; 3 DNR; motion detection; white balance, AGC; Electronic Shutter, automatic or manual; digital zoom; motion detection; privacy masks; motorized zoom and focus (lens); dynamic ROI.

Video Content Analysis: Tampering/defocus, motion.

Supported Protocols: IPv4/IPv6, TCP, HTTP, HTTPS, RTSP, RTCP, RTP, RTMP, SMTP, SNMP v1/2c/3, UPnP, TLS/TTLS, HLS, ICMP, IGMP, LDAP, NTP, DHCP, FTP, DNS, DDNS, UDP, QoS, ARP, PPPoE, Bonjour, ONVIF S/G/T/M.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. ELECTRONIC ACCESS CONTROL MANAGEMENT SYSTEM
		1. Basis or Design: Electronic Access Control Management system as manufactured by Vicon Industries.
		2. System Description:
			1. Design Requirements: Shall provide products and systems that have been manufactured, fabricated, and installed to the following criteria: Comply with IEEE 1100, NFPA 70, NFPA 72, NFPA 80, NFPA 101.
			2. System Capabilities:
				1. Fully distributed processing, field devices are not dependent on server operations once programmed.
				2. Control access to unlimited doors.
				3. Control elevator access up to 64 floors per Cab.
				4. Manage and control access for up to 100,000 credentials per controller.
				5. Unlimited remote sites.
				6. Configurable alert screen and email notifications.
				7. Photo ID badging allows the creation of custom ID badges directly within the VAX application.
				8. Readers, inputs, and outputs expandable and/or modifiable.
				9. Single software program controlled.
				10. 50 Programmable Holidays per Holiday Group.
				11. 50 Holiday Groups configurable.
				12. Multi-site Management via Partitions.
				13. No client software needed, client accesses via HTML5 browser.
				14. Anti-passback capability.
				15. Full integration and customization of all system components.
				16. Online reconfiguration through system programming without hardware changes.
			3. Access Control Functions:
				1. Validation of Credential based on Time of day, Day of week, Holiday scheduling, mode of Door, and ad-hoc schedule.
				2. Simultaneous controlled access with various reader technologies; Proximity, PIN number, Biometrics, Mag stripe, Barcode.
				3. Automatic or manual retrieval of cardholder photographs.
				4. First person in capability.
				5. Access validation based on positive verification of Credential, PIN, or Credential/PIN combination, or dual credential with one credential being a supervisor credential.
				6. Differentiates between valid credential presentation only, and valid credential presentation followed by entry (when using door position switch).
			4. Passwords:
				1. Assignable.
				2. Unlimited number of system Administrators.
				3. Permissions of system Administrators are definable per Administrator.
				4. Administrator actions/capabilities range from basic system monitoring to control of all system functions.
				5. Administrators can be linked and managed by LDAP systems.
			5. System Programming:
				1. User-friendly, intuitive, and responsive HTML5 web client interface.
				2. Single Page Application (SPA) architecture allows seamless browser transition between pages.
			6. Alert Messages:
				1. Ability to monitor for specific events and make them spawn additional windows or email the event to the administrator.
				2. Alert information displayed in text format on the notifications area and highlighted based on severity of alert.
				3. Video feed switching capabilities associated with alert via IP communication. (fully configurable).
				4. Capability of E-Mailing alert events to administrators.
			7. System integration:
				1. VMS integration: Vicon Valerus, ViconNet Digital Video Management system, Digital Watchdog DW Spectrum, exacqVision, and Milestone Xprotect.
				2. Microsoft Active Directory Integration via LDAP protocol.
				3. CardPresso Photo badging software integration.
				4. Alarm system integration via configurable dry contact output/input.
				5. ASSA ABLOY Aperio hub integration.
				6. Vicon Pass Temporary Visitor Access allows visitors to receive a one-time web link that will grant access to a specific door.
				7. Schlage Wireless Lock, including Allegion ENGAGE Gateway, and DSC Alarm Panels.
				8. Visitor Management:

HID Easylobby SVM.

* + - * 1. Integration to other systems is possible via HTTP API.
		1. System Minimum Requirements:

\*\* NOTE TO SPECIFIER \*\* The computer specifications are the minimum standards for a basic system. When a system includes many clients, controllers, and/or users, additional server power is strongly recommended.

* + - 1. Central Processing Unit Computer: Microsoft compatible Windows 10 or newer or Windows Server 2016. 2 GHz or faster 32-bit (x86) or 64-bit (x64) processor. Two or more cores. 4 GB RAM for 32-bit or 64-bit. DVI or HDMI monitor. 10 GB hard drive space required (Additional space required for database). Microsoft .Net Framework 4.8.1 Full. Microsoft SQL Server 2016 or SQL Server 2016 Express or higher.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Servers:
			1. Servers shall be available preloaded with VAX software in both a 1U rack-mount or small desktop micro form factor.
			2. They shall be powered by Dell and Intel technology and have a warranty of 5 years, next day on site support and 24/7 customer service.
			3. 1U Rack-mount server, model VEAA-1U00N0-00, provides no storage.
				1. Electrical Specifications:

Certifications: FCC Class A, NDAA compliant.

Power Supply: 600 W, dual redundant.

Typical Power Consumption: 250 W (850 BTU).

Max Power Consumption: 300 W (1000 BTU) max.

CPU: Xeon 16 GB DDR4.

OS Drive: 480 GB SSD.

Display: Single VGA.

Operating System: Microsoft Windows 11 Iot Enterprise; Windows Server.

Networking: 2x 1GbE RJ-45, 1x RJ-45 iDRAC, 2x 10 GbE.

Front Panel Controls/Indicators: USBs (1x USB/1x Micro USB), status LEDs, power button.

Rear Panel I/O and Controls: AC power socket; 1x USB 2.0; 1x USB 3.2, 1x serial.

* + - * 1. Mechanical Specifications:

Application: Indoor.

Construction: Steel and plastic.

Mounting: Rack Mount: 1U rack.

Dimensions (HxWxD): 1U Rack 1.7 x 19 x 21.9 inches (43 x 483 x 556.2 mm) (with bezel).

Weight: 29.17 lb (13.23 kg).

* + - * 1. Environmental Specifications:

Operating Temperature Range: 50 to 95 degrees F, (10 to 35 degrees C).

Operating Humidity Range: 10 to 85 percent, non-condensing.

* + - 1. Small desktop micro server, model VEVA-MC00N0-00, provides no storage.
				1. Electrical Specifications:

Certifications: FCC Class A, NDAA compliant.

Power Supply: 90 W external PSU.

Typical Power Consumption: 60 W (200 BTU).

Max Power Consumption: 90 W (300 BTU) max.

CPU: Intel Core i5 14th Gen, 16 GB DDR4.

OS Drive: 1x 256 GB M.2 SSD.

Display: Intel HD (HDMI+DP).

Operating System: Microsoft Windows 10/11 Iot Enterprise.

Networking: 1x 1GbE RJ-45.

Front Panel Controls/Indicators: USBs (1x USB 3.2, 1x USB 3.2 Type C), 1x Universal Audio Port.

Rear Panel I/O and Controls: AC power socket; 2x USB 3.2 Gen1; 2x USB 2.0; 1x Kensington lock, 1x RJ-45.

* + - * 1. Mechanical Specifications:

Application: Indoor. Construction: Steel and plastic.

Mounting: Desktop.

Dimensions (HxWxD): 7.17 x 1.42 x 7.02 inches (182 x 36 x 178.6 mm)

Weight: 2.95 lb (1.34 kg).

* + - * 1. Environmental Specifications:

Operating Temperature Range: 50 to 95 degrees F (10 to 35 degrees C).

Operating Humidity Range: 20 to 80 percent, non-condensing.

* + 1. Basis of Design: One Door Controller: VAX-1D-REX-1 as manufactured by Vicon Industries.
			1. Supports 2 readers (IN and OUT configuration).
			2. Power input: IEEE 802.3af PoE standard provides up to 20 Watts.
			3. Processor: 32-bit microprocessor-based.
			4. Storage: 100,000 users, 50,000 events (onboard).
			5. Terminals: Quick disconnect terminal headers.
			6. Reader Communications: Wiegand Data1/Data0.
			7. Lock Power: Solid State 12 VDC at 500 mA / 24 VDC at 250 mA (with opt. converter).

\*\* NOTE TO SPECIFIER \*\* Not to be used to power Magnetic locks or Electric strikes.

* + - 1. Auxiliary Power: 12 VDC at 200 mA max. (Used to power motion devices, Piezo's, etc.).
			2. Reader Power: 12 VDC at 450 mA max. per port.
			3. Relay Outputs: 2X solid state relay 60 V (TVS circuit limits 24 V), 1A, fully configurable, no mechanical ports.
			4. Relay Output Devices: Fully configurable to work with the following devices:
				1. Door strike.
				2. Magnetic lock (use external relay or dry contact module).
				3. Door opener.
				4. External buzzer.
				5. External alarm systems (arming/disarming).
				6. Gates.
				7. Auxiliary devices that will accept dry contact input.
				8. Man trap devices (door open or unlocked).
			5. Reader Formats: Magnetic stripe, Biometric, Bar code, and Wiegand up to 64 bit.
			6. Inputs: 4 Dry contact inputs, fully configurable including supervised or digital input setting.
			7. Input Functions Include:
				1. Door contact.
				2. Door opener to enter (require card).
				3. Door opener to exit.
				4. External motion sensor.
				5. Emergency alarm.
				6. External alarm status (check if alarm system is armed).
				7. Door prevent unlock (used with mantraps).
				8. Auxiliary Input:

Pulse selected output.

Activate selected output.

Deactivate selected output.

Toggle selected output.

Activate alarm interfaced.

Disengage emergency alarm.

Override doors with crisis levels.

* + - 1. Networking: 10/100Mbps supporting Static or DHCP modes with 2 Ethernet status LEDs; on-board HTTP interface for diagnostics and remote IP configuration. Secured by configurable password and can be disabled; 256 bit AES encryption between panel and server (optional).
			2. Security: Hardware secured by configurable password.
			3. Tamper Sensor: Photo tamper sensor (configurable) (no moving parts).
			4. LED Indicator: 2 PoE power indicator, 2 Reader active indicators, 3 output indicators, 1 communication status and Door status and heartbeat LED beneath unit.
			5. 2 Line x 16 Ch LCD Display (contrast adjustable) with LED back light (brightness adjustable) used for on-board diagnostics and initial configuration such as IP address and communication modes.
			6. Diagnostics: on-board diagnostics shall include Reader test, output test, input test, ping with IP, ping with name, Debug mode, read only mode.
			7. Keyboard: Four user push buttons for data entry or output selection.
			8. Sound: On-board piezo buzzer (90 dB at 100 mm).
			9. Motion (optional): PIR motion sensor mounted on bottom of unit for authorizing exit without card read.
			10. Time: Keeps up to 1 month without power connection, no battery needed. Automatic DST switch.
			11. Operating Temperature: 32 to 122 degrees F (0 to 50 degrees C).
			12. Operating Humidity: 10 to 90 percent relative humidity, non-condensing.
			13. Expandable modular design.
			14. PCB Dimensions: 2.91 x 7.72 inches (74 x 196 mm).
			15. Enclosure Dimensions (W x H x D): 10.2 x 3.4 x 2.3 inches (286 x 875 x 59.3 mm).
			16. Enclosure Color: Black or White.
			17. Compliance: Panel is ETL Listed conforms to UL 294 Certified to CSA-C22.2 no.205.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Basis of Design: Two Door Controller: VAX-2D-1 as manufactured by Vicon Industries.
			1. Supports 2 readers (1 for each door).
			2. Power input: IEEE 802.3af PoE standard provides up to 20 Watts.
			3. Processor: 32-bit microprocessor-based.
			4. Storage: 100,000 users, 50,000 events (onboard).
			5. Terminals: Quick disconnect terminal headers.
			6. Reader Communications: Wiegand Data1/Data0.
			7. Lock Power 1: Solid State wet relay 12 VDC at 500 mA / 24 VDC at 250 mA (with opt. Converter).
			8. Lock Power 2: Solid State Relay, - 60 V (TVS circuit limits 24 V), 500 mA, fully configurable, no mechanical ports, requires external lock power for second strike.

\*\* NOTE TO SPECIFIER \*\* Not to be used to power Magnetic locks or Electric strikes.

* + - 1. Auxiliary Power: 12 VDC at 200 mA max. (Used to power motion devices, Piezos, etc.).
			2. Reader Power: 12 VDC at 450 mA max. shared across both reader port and auxiliary 12 VDC output.
			3. Relay Outputs: 1x solid state relay - 60 V (TVS circuit limits 24V), 1 A, fully configurable, no mechanical parts; dry contact.
			4. Reader Formats: Magnetic stripe, Biometric, Bar code, and Wiegand up to 64 bit.
			5. Inputs: 4 Dry contact inputs, fully configurable including supervised or digital input setting.
			6. Input Functions Include:
				1. Door contact.
				2. Door opener to enter (require card).
				3. Door opener to exit.
				4. External motion sensor.
				5. Emergency alarm.
				6. External alarm status (check if alarm system is armed).
				7. Door prevent unlock (used with mantraps).
				8. Auxiliary Input:

Pulse selected output.

Activate selected output.

Deactivate selected output.

Toggle selected output.

Activate alarm interfaced.

Disengage emergency alarm.

Override doors with crisis levels.

* + - 1. Networking: 10/100 Mbps supporting Static or DHCP modes with 2 Ethernet status LEDs; on board HTTP interface for diagnostics and remote IP configuration, secured by configurable password and can be disabled; 256 bit AES encryption between panel and server (optional).
			2. Security: Hardware secured by configurable password.
			3. Tamper Sensor: Photo tamper sensor (configurable) (no moving parts).
			4. LED Indicator: 2 PoE power indicator, 2 Reader active indicators, 3 output indicators, 1 communication status and Door status and heartbeat LED beneath unit.
			5. 2 Line x 16 Ch LCD Display (contrast adjustable) with LED back light (brightness adjustable) used for on-board diagnostics and initial configuration such as IP address and communication modes.
			6. Diagnostics: on-board diagnostics shall include Reader test, output test, input test, ping with IP, ping with name, Debug mode, read only mode.
			7. Keyboard: Four user push buttons for data entry or output selection.
			8. Sound: On-board piezo buzzer (90dB at 100 mm).
			9. Motion (optional): PIR motion sensor mounted on bottom of unit for authorizing exit without card read.
			10. Time: Keeps up to 1 month without power connection, no battery needed. Automatic DST switch.
			11. Operating Temperature: 0 degrees Celsius to 50 degrees Celsius (32 degrees Fahrenheit to 122 degrees Fahrenheit).
			12. Operating Humidity: 10 to 90 percent relative humidity, non-condensing.
			13. Expandable modular design.
			14. PCB Dimensions: 2.91 x 7.72 inch (74 x 196 mm).
			15. Enclosure Dimensions (W x H x D): 10.2 x 3.4 x 2.3 inches (286 x 875 x 59.3 mm).
			16. Enclosure Color: Black or white.
			17. Compliance: Panel is ETL listed conforms to UL 294, certified to CSA-C22.2 no.205.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Basis of Design: Multi-Door Kits: VAX-MDK-2, VAX-MDK-4, VAX-MDK-6, or VAX-MDK-8 two, four, six or eight-door kit. Two-eight door access control panel of modular design mounted in steel vented and lockable enclosure. Ideal for retrofits. DC powered, communicates over TCP/IP and battery backup. Built in lock power. Connects to VAX software via TCP/IP. The kits consist of a master controller that distributes power and communication between 1-4 two door expansion modules that communicate to the master. Available to support Wiegand or OSDP protocol.
			1. Model Options:

\*\* NOTE TO SPECIFIER \*\* Delete model options not required.

* + - * 1. VAX-MDK-2:

Two Door Kit mounted in steel vented and lockable enclosure.

2 x lock power output 12 VDC 500 mA.

4 x configurable Solid State Relay 24 VDC 1 A.

2 x Wiegand reader inputs.

6 x dry contact configurable inputs.

* + - * 1. VAX-MDK-4:

Four Door Kit mounted in steel vented and lockable enclosure.

4 x lock power output 12 VDC 500 mA.

8 x configurable Solid State Relay 24 VDC 1 A.

4 x Wiegand reader inputs.

12 x dry contact configurable inputs.

* + - * 1. VAX-MDK-6:

Six Door Kit mounted in steel vented and lockable enclosure.

6 x lock power output 12 VDC 500 mA.

12 x configurable Solid State Relay 24 VDC 1 A.

2 x Wiegand reader inputs.

18 x dry contact configurable inputs.

* + - * 1. VAX-MDK-8:

Eight Door Kit mounted in steel vented and lockable enclosure.

8 x lock power output 12 VDC 500 mA.

16 x configurable Solid State Relay 24 VDC 1 A.

8 x Wiegand reader inputs.

24 x dry contact configurable inputs.

* + - 1. Supports up to 8 Readers (model dependent) (1 for each door).
			2. Power input: 1 x 12-13.5 VDC power input. Current rating based on connected peripherals. 5 A maximum.
			3. Processor: 32-bit microprocessor-based.
			4. Operation mode:
				1. Requires server software for credential/schedule configuration.
				2. Will operate stand-alone once programmed.
			5. Storage:
				1. Up to 100,000 users/cardholders per controller.
				2. 50,000 event storage onboard.
			6. Terminals: Quick disconnect terminal headers.
			7. Reader Communications (model dependent):
				1. Up to 8 x Wiegand Data1/Data0, with optional LED and buzzer control.
				2. LED Indicator: Up to 8 x Reader active indicators.
			8. Lock Power (model dependent):
				1. Up to 8 x Solid State Wet Relay 12 VDC at 500 mA.
				2. LED Indicator: Up to 8 X Lock Power LED.
				3. Advanced Power savings: Power can be reduced by 80 percent for continuous duty locksets.
			9. Relay Outputs (model dependent):
				1. Up to 16 X Solid State Relay 60 V (TVS circuit limits 24 V), 1 A.
				2. Fully configurable, no mechanical parts.
				3. Dry Contact.
				4. LED Indicator: Up to 8 x output indicator.
			10. Relay Output Devices: Fully configurable to work with the following devices:
				1. Door strike.
				2. Magnetic Lock (use external relay or dry contact module).
				3. Door opener.
				4. External buzzer.
				5. External alarm systems (arming/disarming).
				6. Gates.
				7. Aux devices that will accept dry contact input.
				8. Man trap devices (door open or unlocked).
			11. Inputs (model dependent): Up to 24 x Dry contact inputs, fully configurable including supervised or digital input setting.
			12. Input Functions Include:
				1. Request to exit.
				2. Door contact.
				3. Door opener to enter (require card).
				4. Door opener to exit.
				5. External motion sensor.
				6. Emergency alarm.
				7. External alarm status (check if alarm system is armed).
				8. Door prevent unlock (used with mantraps).
				9. Aux input:

Pulse selected output.

Activate selected output.

Deactivate selected output.

Toggle selected output.

Activate alarm interfaced.

Disengage emergency alarm.

Override doors with crisis levels.

* + - 1. Auxiliary Power: 12 VDC at 350 mA without readers. (Used to power motion devices, Piezo's, etc.) Current shared with two reader ports. 1 port per two door module.
			2. Reader Power: 12 VDC at 350 mA max shared across both reader port and Auxiliary 12 VDC on eachtwo door module.
			3. Reader Formats: Magnetic stripe, Biometric, Bar code, and Wiegand format up to 64 bit.
			4. Networking:
				1. 10/100 Mbps supporting Static or DHCP modes, 2 Ethernet status indicators.
				2. On board HTTP interface for diagnostics and remote IP configuration. Secured by configurable password and can be disabled.
				3. LED Indicator: 2 x PoE power indicator.
				4. 256 bit AES encryption between Panel and Server (configurable).
			5. Security:
				1. Hardware secured by configurable password.
				2. Hardware secured by locked steel enclosure.
			6. Tamper Sensor: Photo tamper sensor (configurable) (no moving parts).
			7. Display: 2 Line x 16 Ch LCD Display (contrast adjustable) with LED back light (brightness adjustable) used for on-board diagnostics and initial configuration such as IP address and communication modes.
			8. Keyboard: Four user push buttons for data entry or output selection.
			9. Diagnostics: Several on board diagnostics available.
			10. Sound: On-board piezo buzzer (90 dB at 100 mm).
			11. Time: Keeps up to 1 month without power connection, no battery needed. Automatic DST switch.
			12. Firmware: Controller firmware is remotely upgradable from server software for added functionality, features, and patches.
			13. Anti-Passback: Local anti-passback, independent of software.
			14. Operating Temperature: 0 degrees Celsius to 50 degrees Celsius (32 degrees Fahrenheit to 122 degrees Fahrenheit).
			15. Operating Humidity: 10 to 90 percent relative humidity, non-condensing.
			16. Enclosure Dimensions (W x H x D): 11.625 x 17.25 x 3.625 inches (295 x 438 x 92 mm).
			17. Enclosure Color: Gray.
			18. Compliance: Panel is ETL listed conforms to UL 294, certified to CSA-C22.2 no. 205.
			19. Two-door expander board shall be available, VAX-EXP-2D; models available to support Wiegand or OSDP protocol.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Basis of Design: TROVE Multi-Door Controllers: VAX-TROVE-4DR, VAX-TROVE-8DR/VAX-TROVE-8DR-RK, VAX-TROVE-12DR. and VAX-TROVE-16DR four to 16 door controllers, all housed in an Altronix Trove enclosure with built-in eFlow power supply. Communicates over TCP/IP and battery backup. Built in lock power. Connects to VAX software via TCP/IP. The controllers consist of a master controller that distributes power and communication between two door expansion modules that communicate to the master. The 8 door model is available in rack-mount version. Available to support Wiegand or OSDP protocol.
			1. Model Options:

\*\* NOTE TO SPECIFIER \*\* Delete model options not required.

* + - * 1. VAX-TROVE-4DR:

Four Door Controller mounted in Altronix Trove lockable enclosure.

1x eFlow6NB power supply.

8 x Solid State Relays 24 VDC 1 A; 4 x lock relays 12 VDC, 500 mA.

4 x Wiegand reader inputs.

12 x supervised or digital inputs (door contact, exit button, external REX, etc.).

* + - * 1. VAX-TROVE-8DR/VAX-TROVE-8DR-RK:

Eight Door Controller mounted in Altronix Trove lockable enclosure.

1x eFlow6NB power supply.

16 x Solid State Relays 24 VDC 1 A; 8 x lock relays 12 VDC, 500 mA.

8 x Wiegand reader inputs.

24 x supervised or digital inputs (door contact, exit button, external REX, etc.).

* + - * 1. VAX-TROVE-12DR:

Twelve Door Controller mounted in Altronix Trove lockable enclosure.

1x eFlow102NB power supply.

24 x Solid State Relays 24 VDC 1 A; 12 x lock relays 12 VDC, 500 mA.

12 x Wiegand reader inputs.

36 x supervised or digital inputs (door contact, exit button, external REX, etc.).

* + - * 1. VAX-TROVE-16DR:

Sixteen Door Controller mounted in Altronix Trove lockable enclosure.

1x eFlow102NB power supply.

32 x Solid State Relays 24 VDC 1 A; 16 x lock relays 12 VDC, 500 mA.

16 x Wiegand reader inputs.

48 x supervised or digital inputs (door contact, exit button, external REX, etc.).

* + - 1. Supports up to 4-16 Readers (model dependent) (1 for each door).
			2. Power input: 1x eFlow6NB power supply/1x eFlow102NB power supply (4-8 door controller/12-16 door controller)
			3. Processor: 32-bit microprocessor-based.
			4. Operation mode:
				1. Requires server software for credential/schedule configuration.
				2. Will operate stand-alone once programmed.
			5. Storage:
				1. Up to 100,000 users/cardholders per controller.
				2. 50,000 event storage onboard.
			6. Terminals: Quick disconnect terminal headers.
			7. Reader Communications on door controllers (model dependent):
				1. Up 16 x Wiegand Data1/Data0, with optional LED and buzzer control.
				2. LED Indicator: Up to 16 x Reader active indicators.
			8. Lock Power on door controllers (model dependent):
				1. Up to 16 x Relays, 12 VDC at 500 mA.
			9. Relay Outputs (model dependent):
				1. Up to 32 x Solid State Relay 24 VDC 1 A limit per relay on door controllers; 32 configurable ports on I/O controller.
				2. Fully configurable, no mechanical parts.
				3. LED Indicator: Up to 48 x output indicators.
			10. Relay Output Devices: Fully configurable to work with the following devices:
				1. Door strike.
				2. Magnetic Lock (use external relay or dry contact module).
				3. Door opener.
				4. External buzzer.
				5. External alarm systems (arming/disarming).
				6. Gates.
				7. Aux devices that will accept dry contact input.
				8. Man trap devices (door open or unlocked).
			11. Inputs (model dependent): Up to 48 x Dry contact inputs on door controller, 32 dry contact inputs on I/O controller, fully configurable including supervised or digital input setting.
			12. Input Functions Include:
				1. Request to exit.
				2. Door contact.
				3. Door opener to enter (require card).
				4. Door opener to exit.
				5. External motion sensor.
				6. Emergency alarm.
				7. External alarm status (check if alarm system is armed).
				8. Door prevent unlock (used with mantraps).
				9. Aux input:

Pulse selected output.

Activate selected output.

Deactivate selected output.

Toggle selected output.

Activate alarm interfaced.

Disengage emergency alarm.

Override doors with crisis levels.

* + - 1. Reader Formats: Magnetic stripe, Biometric, Bar code, and Wiegand format up to 64 bit.
			2. Networking:
				1. 10/100 Mbps supporting Static or DHCP modes, 2 Ethernet status indicators.
				2. On board HTTP interface for diagnostics and remote IP configuration. Secured by configurable password and can be disabled.
				3. LED Indicator: 2 x PoE power indicator.
				4. 256 bit AES encryption between Panel and Server (configurable).
			3. Security:
				1. Hardware secured by configurable password.
				2. Hardware secured by locked steel enclosure.
			4. Tamper Sensor: Photo tamper sensor (configurable) (no moving parts).
			5. Display: 2 Line x 16 Ch LCD Display (contrast adjustable) with LED back light (brightness adjustable) used for on-board diagnostics and initial configuration such as IP address and communication modes.
			6. Keyboard: Four user push buttons for data entry or output selection.
			7. Diagnostics: Several on board diagnostics available.
			8. Sound: On-board piezo buzzer (90 dB at 100 mm).
			9. Time: Keeps up to 1 month without power connection, no battery needed. Automatic DST switch.
			10. Firmware: Controller firmware is remotely upgradable from server software for added functionality, features, and patches.
			11. Anti-Passback: Local anti-passback, independent of software.
			12. Operating Temperature: 0 degrees Celsius to 49 degrees Celsius (32 degrees Fahrenheit to 120 degrees Fahrenheit).
			13. Operating Humidity: 10 to 85 percent relative humidity, non-condensing.
			14. Enclosure Dimensions (W x H x D): 4-8 Door/I/O Controller: 14.5 x 18 x 4.62 inches (368 x 457 x 117 mm); 12-16 Door Controller: 21.75 x 27.25 x 6.5 inches (546 x 692 x 165 mm). Rack-Mount Model Dimensions: 19.0 x 3.25 x 26.5 inches (483 x 82.6 x 673.1 mm).
			15. Enclosure .Color: Gray.
			16. Compliance: Panel is ETL listed conforms to UL 294, certified to CSA-C22.2 no. 205.
			17. Two-door expander board shall be available, VAX-EXP-2D.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Basis of Design: Elevator Master Panel: VAX-ELV-STR-2 as manufactured by Vicon Industries.
			1. Supports 2 Readers (1 per cab).
			2. Power input: IEEE 802.3af PoE (Power over Ethernet) standard (15.4 W).
			3. Processor: Processor: 32-bit microprocessor.
			4. Storage: 50,000 users, 50,000 events (on board).
			5. Terminals: Quick disconnect terminal headers.
			6. Reader Communications: Wiegand Data1/Data0 with optional LED and buzzer control.
			7. Auxiliary Power: 12 VDC at 200 mA without readers; current shared with two reader ports. (Used to power Elevator Expander Boards).
			8. Reader power: 12 VDC at 250 mA maximum shared across both reader port and Auxiliary 12VDC output.
			9. Reader Formats: Magnetic stripe, Biometric, Bar code, and Wiegand up to 64 bit.
			10. Communications: On board RS485 via RS-485 module SE-X02 up to 8 Elevator Expander Board.
			11. Networking: 10/100Mbps supporting Static or DHCP modes with 2 Ethernet status LEDs; 256 bit AES encryption between panel and server (optional).
			12. Tamper Sensor: Photo tamper sensor (configurable) (no moving parts).
			13. LED Indicator: 2 PoE power indicator, 2 Reader active indicators, 1 communication status, heartbeat LED beneath unit.
			14. 2 Line x 16 Ch LCD Display (contrast adjustable) with LED back light (brightness adjustable) used for on-board diagnostics and initial configuration such as IP address and communication modes.
			15. Keyboard: Four user push buttons for data entry or output selection.
			16. Sound: On-board piezo buzzer (90dB at 100 mm).
			17. Time: Keeps up to 1 month without power connection, no battery needed. Automatic DST switch.
			18. Firmware remotely upgradeable from server software.
			19. Elevators: Ability to support up to 4 Cabs per master panel. Ability to support up to 64 Floors per master panel (with 8 Expander Boards). Up to 2 readers. Ability to support Button Sensing or Non-Button Sensing.
			20. Elevator Relays: Up to 64 Solid State Relay 30VDC, 500mA, normally open. Dry contact. LED Indicator: output indicator.
			21. Elevator Time Zones: User: Ability to support 256 user time zones: 4 zones (9 boundaries) per day. Ability to support 50 user holiday time zone groups, each has 50 holidays, each user holiday time zone: 2 zones (5 boundaries) per day. Floor: Ability to support 64 (unlimited) floor time zones, 4 zones (9 boundaries) per day, Ability to support 8 floor holiday time zone groups, each has 50 holidays, each floor holiday time zone: 2 zones (5 boundaries) per day, Ability to support 64 one time run time zones (ad-hoc).
			22. Operating Temperature: 2 to 122 degrees F (0 to 50 degrees C).
			23. Expandable modular design.
			24. PCB Dimensions: 2.9 x 7.72 inches (74 x 196 mm).
			25. Enclosure Dimensions (W x H x D): 11.41 x 17.41 x 2.95 inches (290 x 435 x 75 mm).
			26. Enclosure Color: Gray can.
			27. Compliance: Panel is ETL Listed conforms to UL 294 Certified to CSA-C22.2 no.205.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Basis of Design: IO-Master Panel: Included with VAX-IO-STR-2 as manufactured by Vicon Industries.
			1. Power input: 12 VDC powered with external power supply.
			2. Processor: Processor: 32-bit microprocessor.
			3. Storage: 50,000 events (on board)
			4. Terminals: Quick disconnect terminal headers.
			5. Auxiliary Power: 12 VDC at 300 mA. (Used to power expander board) Current shared with two reader ports.
			6. Communications: On board RS485 via RS-485 module for Expander Boards.
			7. Networking: 10/100 Mbps supporting Static or DHCP modes with 2 Ethernet status LEDs; 256 bit AES encryption between panel and server (optional). LED Indicator: 2 x power indicator.
			8. Security: Hardware secured by configurable password.
			9. Tamper Sensor: Photo tamper sensor (configurable) (no moving parts).
			10. Display: 2 Line x 16 Character LCD Display with LED back light used for on-board diagnostics and initial configuration such as IP address and communication modes. Contrast adjustable. Brightness adjustable.
			11. Keyboard: Four user push buttons for data entry or output selection.
			12. Sound: On-board piezo buzzer (90dB at 10cm).
			13. Diagnostics: Several on board diagnostics available including the following: Ping with IP: Ability to perform a basic network connectivity test by communicating with the server IP via ICMP protocol. Ping with Name: Ability to perform a basic network connectivity test by communicating to the server by resolving the name of the server via a Dynamic Name Service (DNS). Debug mode: Optional debug mode that allows extra logging of communications and panel decisions. Read Only mode: Displays controller configuration and miscellaneous information: Panel Name, Panel ID, IP Address, Panel MAC Address, Panel Subnet Mask, Panel Gateway, Panel DNS, Communication mode, Server IP Address/Name, Server Port, Firmware Version, Network Name, DHCP Bound address, Time (UTC and Local), Connection Status.
			14. On-board Communication Configuration:
				1. Ability to configure communication method to server (name or IP address).
				2. Ability to configure name or IP address that the server can be reached.
				3. Ability to configure network settings of controller, including: Static IP address or DHCP. Controller IP Address, subnet mask, default gateway, DNS server.
				4. Time: Keeps up to 1 month without power connection, no battery needed. Automatic DST switch.
				5. Firmware: Controller firmware is remotely upgradable from server software for added functionality, features, and patches.
				6. IO-Boards:

Ability to support up to 64 Inputs and Outputs per master panel (with 8 Expander Boards).

* + - * 1. Input/Output Time Zones:

Input: Ability to support 16 Input time zones: 2 zones (5 boundaries) per day. Ability to support 16 holiday groups, each has 50 holidays, each Input holiday time zone: 2 zones (5 boundaries) per day.

Output: Ability to support 64 Output time zones, 5 zones (11 boundaries) per day. Ability to support 8 holiday groups, each has 50 holidays, each Output holiday time zone: 2 zones (5 boundaries) per day.

* + - * 1. Input/Output Functions: Ability to place an Input on a schedule. Ability to assign an Input to a holiday group. Ability to place a detection time on an Input. Ability to assign an action to an Input. Input Actions: Do Nothing, Activate Selected Output, Deactivate Selected Output, Toggle Selected Output, Pulse Selected Output (high), Pulse Selected Output (low), Pulse Selected Output (opposite), Activate Multiple Outputs (up to 5), Deactivate Multiple Outputs (up to 5), Toggle Multiple Outputs (up to 5). Ability to place a delay on any Input Actions. Ability to place an action duration for pulses. Ability to configure an Input as Normally Closed. Ability to place an Output on a schedule. Ability to assign an Output to a holiday group. Ability to configure an Output as Normally Closed. Ability to configure an Output to not generate any events. Ability to protect an Output from Input Actions. Ability to configure an Output to be initially On.
				2. Operating Temperature: 32 to 122 degrees F (0 to 50 degrees C).
				3. Expandable modular design.
				4. PCB Dimensions (W x H): 7.72 x 2.91 inches (196 x 74 mm).
				5. Enclosure Dimensions (W x H x D): 8.5 x 10.25 x 3.25 inches (216 x 260 x 83.0 mm).
				6. Enclosure Color: Gray can.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Basis of Design: Elevator/IO Expander Board: VAX-IO-EXP8PCB.
			1. Processor: Processor: 32-bit microprocessor.
			2. Power Input: 12 VDC supplied by Elevator/IO Master Panel, no external power needed.
			3. Configuration: 8 DIP switches for inputting addressing and diagnostics.
			4. Communication: RS-485 (2-wire communication) Multidrop (Daisy Chain or Star) via SE-EX02 Module.
			5. Inputs: 8 x dry contact inputs. Fully configurable. LED Indicator: 1 x Input activity indicator.
			6. Outputs: 8 dry contact Solid State Relays. Fully configurable. Capable of switching up to 60V, 500mA limit. Other relay options available. LED Indicator: 8 x output status indicator. Field replaceable solid state relays.
			7. Tamper: Each IO panel has individual photo-tamper sensor. Fully configurable.
			8. Diagnostics: Input/Output test mode, activated through DIP switch configuration.
			9. Terminals: Quick disconnect terminal headers.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - 1. IO-Board Management to Allow:
				1. Inputs: Ability to apply a name to each Input. Ability to define a detection time until the input is considered active. Ability to place an Input on a schedule to only monitor during specific times. Ability to apply holiday schedules to an input for alternate schedules during holidays. Ability to assign an action to be performed when the input is activated. Actions: Do Nothing, Activate Selected Output, Deactivate Selected Output, Toggle Selected Output, Pulse Selected Output (high), Pulse Selected Output (low), Pulse Selected Output (opposite), Activate Multiple Outputs (up to 5), Deactivate Multiple Outputs (up to 5), Toggle Multiple Outputs (up to 5). Ability to place a delay on any Input Actions. Ability to place an action duration for pulses. Ability to configure an Input as Normally Closed.
				2. Outputs: Ability to apply a name to each Output. Ability to place an Output on a schedule. Ability to apply holiday schedules to an Output for alternate schedules during holidays. Ability to configure an Output as Normally Closed. Ability to configure an Output to not generate any events. Ability to protect an Output from Input Actions. Ability to configure an Output to be initially On.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Communication Converter: RS-485 module.
			1. LED Indicators: 1 data receive, 1 data send.
			2. Terminals: Quick disconnect terminals, connects to expander module on Master Panel or APERIO-8.
			3. Power Requirement: No external power needed.
			4. Communication: Capable of communicating to ASSA ABLOY Aperio hub, or Elevator/Input/Output Expander Board via RS-485 Bus.
			5. Warranty: 2 year, Limited.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Basis of Design: Allegion IP Gateway as manufactured by Vicon Industries: VAX-ENGAGE-GATEWAY.
			1. Controls up to 10 ENGAGE Series LE and NDE wireless locksets.
			2. GATEWAY is added to VAX and requires VAX-SCHLAGE license.
			3. Communication Protocol: 2.4 GHz Bluetooth version 4.
			4. Transmission/Encryption: AES-256 bit key.
			5. System Interface: Ethernet to IP host; RS-485 to ACP. Supports Schlage Control Smart locks.
			6. Power Supply: PoE: 60 mA; 12 VDC: 330 mA; 24 VDC: 100 mA. Current: PoE: 60 mA; 12 VDC.
			7. Dimensions (HxWxD): 5.1 x 6.0 x 1.2 inches (13.0 x 15.3 x 3.04 cm). Weight: 8.6 oz (0.24 kg).
			8. Operating Temperature: 32 to 120 degrees F (0 to 49 degrees C). Operating Humidity: 0 to 100 percent non-condensing.
			9. Certifications: UL294; FCC Part 15; Industry Canada; RoHS.
		2. Basis of Design: Mullion Mount Proximity Access Reader as manufactured by Vicon Industries: VAX-300R.
			1. Dimensions: 1.7 x 3.2 x 0.7 inch (43 x 81 x 18 mm)
			2. Design: Weatherproof IP67.
			3. Characteristics: High reliability; consistent read range characteristics; low power consumption; vandal resistant.
			4. Color: Black; white snap-on cover included.
			5. Features: Multicolor LED indicator-red, green, amber, and off.
			6. Mounting: Mullion, including metal door and window frames, and flat surfaces.
			7. Communication Format: Wiegand ABA Track II.
			8. Frequency: 125 Khz excitation.
			9. Read Range: 5 inches (126 mm).
			10. Operating Temperature: Minus 40 to 149 degrees F (minus 40 to 65 degrees C).
			11. Current Draw: 30 mA typical, 75 mA peak at 12 VDC.
			12. Compliance: CSA, UL, FCC, CE, C-Tick.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Basis of Design Proximity Single Gangbox Access Reader as manufactured by Vicon Industries: VAX-500R.
			1. Dimensions: 3 x 4.6 x 0.4 inches (76 x 117 x 10 mm).
			2. Design: Weatherproof IP67.
			3. Characteristics: High reliability; consistent read range characteristics; low power consumption.
			4. Colors: Black; white snap-on cover included.
			5. LEDs: Four-state standard: Red, Green, Amber, and Off.
			6. Audio: Beeper included standard.
			7. Mounting: Single gangbox and flat surfaces; may be mounted directly to metal.
			8. Communication format: Wiegand ABA Track II.
			9. Frequency: 125 KHz excitation.
			10. Read Range: up to 8 inch (202 mm).
			11. Operating Temperature: Minus 40 to 149 degrees F (Minus 40 to 65 degrees C).
			12. Current Draw: 35mA typical; 75 mA peak at 12 VDC.
			13. Compliance: FCC, ICC, CE, C-Tick, CSA, UL, ETL listed.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Basis of Design: Keypad/Proximity Access Reader as manufactured by Vicon Industries: VAX-600KP.
			1. Dimensions: 4.6 x 3 x 0.75 inches (117 x 76 x 19 mm).
			2. Design: Weatherproof (IP67 rated).
			3. Characteristics: Uses non-mechanical capacitive technology (no moving parts), High reliability; consistent read range characteristics; low power consumption; vandal resistant.
			4. Colors: Black; white snap-on cover included.
			5. LEDs: Multicolor LED indicator-red, green, amber, and off.
			6. Mounting: Metal or plastic-single gangbox or flat surfaces.
			7. Communication format: High security 40 bit, AWID, HID.
			8. Keypad output: Wiegand.
			9. Frequency: 125 KHz excitation.
			10. Read Range: Up to 7 inches (176 mm).
			11. Operating Temperature: Minus 40 to 149 degrees F (minus 40 to 65 degrees C).
			12. Current Draw: 70 mA typical, 110 mA peak at 12VDC.
			13. Compliance: FCC, ICC, CE, C-Tick, and ETL listed.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Basis of Design: Vandal-Resistant Proximity Mullion/Single Gangbox Access Readeras manufactured by Vicon Industries: VAX-P403R/VAX-P405R.
			1. Dimensions: 2 x 5.25 x 1 inches (51x133x25 mm)/3 x 4.5 x 1 inches (76x114x25 mm).
			2. Design: Weatherproof IP67.
			3. Characteristics: High reliability; consistent read range characteristics; low power consumption.
			4. Colors: Black.
			5. LEDs: Four-state standard: Red, Green, Amber, and Off.
			6. Audio: Beeper included standard.
			7. Mounting: Metal door, mullion (window frame)/Single gangbox and flat surfaces; may be mounted directly to metal.
				1. Communication format: Wiegand ABA Track II.
			8. Frequency: 125 KHz excitation.
			9. Read Range: Up to 5 inch (126 mm).
			10. Operating Temperature: Minus 40 degrees F to 149 degrees F (Minus 40 degrees C to 65 degrees C).
			11. Current Draw: 30mA typical; 75 mA peak at 12 VDC.
			12. Compliance: FCC, ICC, CE, IP67.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Basis of Design: Clamshell/ISO Style Proximity Card as manufactured by Vicon Industries: VAX-CRD-SD/VAX-CRD-P.
			1. Size: 3.4 x 2.2 x 0.06 inches (86 x 55 x 1.5 mm)/3.4 x 2.1 x 0.031 inches (86 x 55 x 1.5 mm).
			2. Printing Surface Imaging: Use Glossy Adhesive Overlay for color dye sublimation printing of images and text or print directly on card/Supports dye sublimation imaging (PVC printable).
			3. Frequency: 125 kHz excitation.
			4. Communication format: Wiegand 26 bit and ABA Track II magnetic stripe.
			5. Read Range: Up to 4 inches (102 mm)/Up to 7 inches (176 mm).
			6. Material: ABS.
			7. Color: Off-white/Glossy white.
			8. Operating Temperature: Minus 35 to 122 degrees F (minus 37 to 50 degrees C).
			9. Slot Punch: Standard Vertical/Vertical and horizontal indicators.
			10. Compliance: FCC, CE, ETL.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Basis of Design: Image Technology Proximity Card as manufactured by Vicon Industries: VAX-CRD-MT.
			1. Size: 2.1 x 3.4 x 0.031 inches (53 x 86 x 0.79 mm).
			2. Printing Surface Imaging: Appropriate for direct color dye sublimation printing of images and text.
			3. Frequency: 125 kHz excitation.
			4. Communication format: Wiegand 26 bit and ABA Track II magnetic stripe.
			5. Read Range: Up to 7 inches (176 mm).
			6. Material: PVC.
			7. Color: Glossy white.
			8. Operating Temperature: Minus 35 to 122 degrees F (minus 37 to 50 degrees C).
			9. Slot Punch: Vertical and horizontal indicators.
			10. Compliance: FCC, CE, ETL.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Basis of Design: Proximity Key Tag as manufactured by Vicon Industries: VAX-PRX-TAG.
			1. Dimensions: 1.5 x 1.2 x 0.15 inches (36 x 30 x 3.8 mm).
			2. Frequency: 125 kHz excitation.
			3. Operation: Passive (no battery.
			4. Read Range: Up to 3.5 inches (88 mm).
			5. Material: ABS.
			6. Color: Light gray.
			7. Operating Temperature: Minus 35 to 122 degrees F (minus 37 to 50 degrees C).
			8. Slot Punch: Reinforced Brass eyelet easily fits on key ring.
			9. Communication format: Wiegand 26 bit and ABA Track II magnetic stripe.
			10. Compliance: FCC, CE, ETL.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Basis of Design: Mobile Contactless Smartcard Mullion Reader as manufactured by Vicon Industries: VAX-CR-35L.
			1. Long range: Up to 15-ft reading range.
			2. Dimensions: 1.7 x 4.7 x 1.2 inches (43 x 119 x 30 mm).
			3. Technology: Contactless smartcard and Bluetooth Low Energy (BLE).
			4. Technologies Supported: Interoperable with CSN (may include ISO 14443, LEGIC Advant and Prime, MIFARE) and Sector (MIFARE and FIPS201), as well as other VAX mobile access credentials.
			5. Frequency: 13.56 MHz (contactless smartcard); 2.4 GHz (BLE).
			6. Communication format: Wiegand 26 bit, ABA Track II magnetic stripe (clock and data) or OSDP (Open Supervised Device Protocol).
			7. Voltage/Current: +8 - 14 VDC (linear power recommended)/ 40 mA typical, 195 mA peak at 12 VDC.
			8. Cabling: 24 AWG minimum, multi-conductor stranded with overall foil shield.
			9. Audio Tone: Beeper included, standard.
			10. LED: Five state standard (blue, red, green, amber, and off).
			11. Compliance: FCC, ICC, CE, and IP67.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Basis of Design: Mobile Contactless Smartcard Reader/Keypad as manufactured by Vicon Industries: VAX-CSR-6.4.
			1. Long range: Up to 15 ft reading range; physical credentials, up to 2 inches (51 mm).
			2. Dimensions: 3 x 4.6 x 0.75 inches (76 x 117 x 19 mm).
			3. Technology: Contactless smartcard and Bluetooth Low Energy (BLE).
			4. Technologies Supported: Interoperable with CSN (may include ISO 14443) and Sector (MIFARE and FIPS201), as well as other VAX mobile access credentials.
			5. Frequency: 13.56 MHz (contactless smartcard); 2.4 GHz (BLE).
			6. Communication format: Wiegand 26 bit, ABA Track II magnetic stripe (clock and data) or OSDP (Open Supervised Device Protocol).
			7. Voltage/Current: +8 - 14 VDC (linear power recommended)/40 mA typical, 175 mA peak at 12 VDC.
			8. Cabling: 24 AWG minimum, multi-conductor stranded with overall foil shield.
			9. Audio Tone: Beeper included, standard.
			10. LED: Four state standard (red, green, amber, and off).
			11. Compliance: FCC, ICC, CE, and IP67.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Basis of Design: High-Security Vandal-Resistant Smartcard Readers Mullion/Single Gangbox Access Reader as manufactured by Vicon Industries: VAX-D403R/VAX-D405R.
			1. Dimensions: 2 x 5.25 x 1 inches (51x133x25 mm)/3 x 4.5 x 1 inches (76x114x25 mm).
			2. Design: Weatherproof IP67.
			3. Characteristics: High reliability; consistent read range characteristics; low power consumption.
			4. Colors: Black.
			5. LEDs: Four-state standard: Red, Green, Amber, and Off.
			6. Audio: Beeper included standard.
			7. Mounting: Metal door, mullion (window frame)/Single gangbox and flat surfaces; may be mounted directly to metal.
			8. Communication format: Wiegand ABA Track II or OSDP (model dependent).
			9. Frequency: 13.56 MHz excitation.
			10. Read Range: up to 1.5 inch (38 mm).
			11. Operating Temperature: Minus 40 degrees F to 149 degrees F (Minus 40 degrees C to 65 degrees C).
			12. Current Draw: 135mA typical; 75 mA peak at 12 VDC.
			13. Compliance: FCC, ICC, CE, IP67.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Basis of Design: Mobile Access Smartcard Credentials as manufactured by Vicon Industries: VAX-BTC, VAX-CSM-2PV, VAX-CSK-2V, VAX-CSC-2V.
			1. Five types of smartcards: one mobile credential stored on smartcard and three contactless credentials (all MIFARE DESFire EV2): composite high-security ISO, composite high-security ISO with HiCo magnetic stripe; high security clamshell and high security fob.
			2. Dimensions (contactless): ISO: 2.1 x 3.4 x 0.03 inches (54 x 86 x 0.76 mm); Clamshell: 2.1 x 3.4 x 0.07 inches (54 x 86 x 1.8 mm); Key fob: 1.9 x 1.5 x 0.28 inches (49 x 38 x 7 mm).
			3. Technology: Mobile: Bluetooth Low Energy (BLE). Contactless: Smartcard.
			4. Technologies Supported (contactless): MIFARE DESFire EV2.
			5. Frequency: Mobile: 2.4 GHz. Contactless: Excitation (13.56 MHz).
			6. Read Range: Mobile: Reader dependent (up to 1.5-in./up to 15-ft); Contactless: ISO/Clamshell - 2.25 in. (57 mm); Fob - up to 1 in. (25 mm).
			7. Communication format: Wiegand 26 bit and ABA Track II magnetic stripe (clock and data) or OSDP.
			8. Operation: Mobile: iPhone or Android smartphone; Contactless: Passive (no battery).
			9. Marking: Date code and ID.
			10. Imaging (Contactless): ISO: supports dye sublimation; Clamshell: glossy adhesive overlay for dye sublimation or print directly on card; Fob: N/A.
			11. Color (Contactless): ISO: glossy white; Clamshell: white; Fob: gray.
			12. Operating Temperature: ISO: Minus 31 to 122 degrees F (minus 35 to 50 degrees C); Clamshell/Fob: Minus 40 to 158 degrees F (minus 40 to 70 degrees C).

\*\* NOTE TO SPECIFIER \*\* Delete access control accessories not required.

* + 1. Basis of Design: Transmitters and Receiver as manufactured by Vicon Industries: VAX-LRT4-H, VAX-LRT4-S1 and VAX-LRR4.
			1. Two transmitters available, one supports Proximity credential (125 kHz; VAX Readers) and one a Smartcard credential (MIFARE 13.56 MHz; VAX Readers). Both have 4 buttons.
			2. Long range transmitters up to 200 ft (61 m) for button press and up to 3.5 in. (88 mm) on presentation. Receiver read range is up to 200 ft (61 m).
			3. Receiver provides 4 outputs.
			4. Frequency: Transmitter: Button press: 433 MHz; Presentation: 125 kHz or 12.56 MHz. Receiver: 433 MHz.
			5. Weigand communication format or OSDP.
			6. IP 67.
			7. Receiver: Powered by 12 VDC; Current Draw: 120 mA typical at 12 VDC.
			8. Transmitter: 3.3 V lithium battery (replaceable).
			9. LEDs: Receiver has four state standard (red, green, amber, and off); transmitter has red LED activated on button press.
			10. Mounting:
				1. Transmitter: Built-in eyelet for key ring or lanyard.
				2. Receiver: USA/European wall box or flat surface.
			11. Dimensions:
				1. Transmitter: 1.45 x 2.5 x 0.56 inches (37 x 63.5 x 14.2 mm).
				2. Receiver: 3.4 x 6.3 x 2.3 inches (86.4 x 160 x 58.4 mm).
			12. Weight: Transmitter: 0.7 oz (20 g). Receiver: 12 oz (340 g).
			13. Operating Temperature: Minus 40 to 122 degrees F (minus 40 to 50 degrees C).
		2. Access Control Accessories:
			1. MemMod: Anti-passback plug in module; used to expand memory capacity on. Required for Anti Passback functionality.
				1. Power: From one/two-door controller.
				2. Memory Size: 512 KB.
				3. LED: Power indicator.
				4. PCB Dimensions (WxH): 0.708 x 0.551 inches (1.8 x 1.4 cm).
		3. Steel Vented and Lockable Enclosure; empty steel enclosure used for expansion: VAX-ENCL-ST-1.
			1. Enclosure Dimensions (WxHxD): 11.41 x 17.41 x 2.95 inches (29 x 43.5 x 7.5 cm).
			2. Capacity:
				1. Up to 4 two door controllers.
				2. Up to 8 IO-EXP8PCB expander boards (no master).
				3. Up to 6 IO-EXP8PCB expander boards (with master).
		4. Software Features and Functions:

\*\* NOTE TO SPECIFIER \*\* The access control software modules consist of many functions and they need to be specified here. These software modules are required to activate the system component functions. A software license is NOT required to activate these software features and functions. Typically retain all sub paragraphs.

* + - 1. Server Software:
				1. Shall be installed on a standard PC running Microsoft Windows 10 or Higher or Windows Server 2016.
				2. 2 GHz or faster 32-bit (x86) or 64-bit (x64) processor. Two or more cores.
				3. 4 GB RAM for 32-bit and 4 GB RAM for 64-bit.
				4. DVI or HDMI monitor.
				5. 10 GB hard drive space required (additional space required for database).
				6. Microsoft .Net Framework 4.81 Full.
				7. Shall support Microsoft SQL Server 2016, SQL Server 2016 Express, or later version.
				8. Shall be 100 percent web based and can be accessed via any web enabled device including Cell Phones, Tablets, Laptops, PCs with any operating system etc. without the need for any additional plug-in's (i.e., no active x controls, Flash, etc.).

Google Chrome (desktop and mobile).

Mozilla Firefox.

Apple Safari (desktop and mobile)

Other browsers that support HTML5 may function but are untested.

* + - * 1. Web interface and controller communications shall be possible through WAN/LAN if network allows.
				2. Software design shall be of a Single Page Application (SPA) architecture allowing seamless navigation between screens.
				3. Shall have Responsive Web interface. Interface will automatically adjust to ensure an optimal experience based on device.
				4. Shall have ability to Partition software for multisite all hosted from one location allowing site administrators only access to their site readers and cards or multiple sites.
				5. Shall have functions that will be accessed via tool bar Icons, including Help prompts that will appear when the mouse pointer hovers over the selection button.
				6. Shall be possible to install the server software in a virtualized environment.
				7. Communication shall use SSL encryption with modern cryptography, utilizing TLS 1.2, and AES 256 GCM/DHE RSA as the key exchange mechanism.
				8. Software shall advise when a software update is available and who to contact to upgrade.
				9. Software shall utilize a smart installer, capable of the following functions:

Analyze if installation prerequisites are met.

If prerequisites are missing, installer will locate them on installation media or download from the internet.

Automatically create SQL instance and database.

Automatically assign database permissions and setup service users.

Automatically add Windows Firewall exceptions for communication ports.

Web server, controller communication and management interface can be configured on alternate ports.

Installer can upgrade the software.

Ability to configure different communication ports when installing the software.

Ability to configure web services to run as a different windows user.

* + - * 1. Software shall have the capability to be run via command line for advanced troubleshooting.
				2. Web interface shall utilize Gzip compression for reduced load times and bandwidth consumption.
				3. Web interface shall utilize cache control for static files such as images, static text, and cardholder images.
				4. Software shall provide a unified interface for doors and elevators, including shared time schedules and access groups.
				5. User interface (UI): Can be changed from English to Spanish or French.
			1. Administrator Control Capabilities:
				1. Shall provide an Administrator interface secured by encrypted password control and SSL communication from web client to server.
				2. System shall support unlimited administrator accounts.
				3. Shall provide for an Administrator that can either be a System-Admin or a Non-sys-admin with customizable permissions. Permissions can be granted globally or for a specific partition/actor to an Administrator or Security Group.
				4. Ability to reset administrator passwords via email.
				5. Administrator actions and changes shall be logged and visible to other administrators via reporting tools.
				6. Shall support Administrator Management which determines privileges, functions, and Partitions that can be accessed. Functions that cannot be accessed will not be visible. The following items are available:

Manage Access Privilege Groups.

Manage Cameras and Integration.

Manage Door Holiday Groups.

Manage Door Holiday Schedules.

Manage Door Schedules.

Manage Doors.

Manage Elevators.

Manage Floor Holiday Groups.

Manage Floor Holiday Schedules.

Manage Floor Schedules.

Manage Holidays.

Manage OneTimeRun Schedules.

Manage Panels.

Manage Sites.

Manage User Holiday Groups.

Manage User Holiday Schedules.

Manage User Schedules.

Manage Users.

Reporting Alerts.

Reporting DoorActivity.

Reporting FloorActivity.

Reporting UserActivity.

Reporting UserList.

Special Permissions Override Door.

Override Floor.

Override Output.

Update Panel.

View Cameras.

View Status.

* + - * 1. System shall render functions that administrators do not have access to invisible and inaccessible.
				2. Ability for administrators to configure personal settings the following functions:

Customize which notifications are visible when viewing event monitoring.

Choose which events should be treated as alerts.

Choose which events will prompt an email being sent to the administrator.

Choose if alerts will activate a sound in the web browser.

Choose which notifications will spawn in-line camera view of associated devices.

Customize notifications by groups/types and viewed by specific users, schedules, etc.

* + - * 1. Ability to integrate administrator authentication with LDAP systems.
			1. VAX Database Segregation and Multi-Tenant Hosting Management Capabilities:
				1. System shall support the ability to host multiple VAX systems on a single software installation.
				2. Each tenant shall have their own individual database.
				3. System shall allow the following configuration when multi-tenant mode is enabled:

Ability to add new tenant.

Ability to configure the database connection string for each tenant.

Ability to define one or more DNS subdomains for each tenant which shall be used to access the tenants VAX database.

Ability to define which hardware controllers are associated to each tenant (MAC address).

Ability to define individual backup settings and backup schedules for each tenant.

* + - * 1. System shall support the ability to import an SSL certificate (including WildCard Certificates) with either the of the following file extensions:

\*.CER.

\*.PFX.

* + - 1. Site Management:
				1. Labeling:

Ability to name any created sites.

Ability to create a description for each site.

Ability to assign a Site to a Partition.

Ability to designate a timezone that the site will reside in, used to automatically convert devices timezone to local time zone.

* + - * 1. Areas:

Ability to configure up to 254 areas in each site.

Ability to apply a name to each area.

Ability to assign to a reader what area the reader grants access to.

Ability to run muster report based on site and areas.

* + - * 1. Anti-passback Configuration to allow:

Local Timed anti-passback: Ability to control re-entry into an area, at a specific door, based on a definable time value.

Reset: Allow the ability to reset the anti-passback on a per panel basis.

Ability to configure soft or hard anti-passback.

Ability to configure anti-passback to ignore cardholders with the Supervisor flag.

Ability to configure anti-passback to ignore or take into consideration the opening of a door as a cardholder entering/exiting an area.

* + - 1. VAX Historical Reports:
				1. Ability to execute various historical reports in the system and define which administrators can run which reports.
				2. Ability to define a Start Time and Stop time for each report using intuitive slider bars or manually input time.
				3. Ability to select a time zone (EST, UTC, etc) that the results of the report will be displayed in.
				4. Ability to export any report into CSV or HTML format file for later viewing.
				5. Ability to email reports automatically using script engine (ACE).
				6. Historical information related to an elevator or door shall have a camera icon associated with the event that when clicked will bring up historical video for any cameras associated with that door/elevator at the specific time of the event if there are cameras associated with the device the event is related to.
				7. Ability to execute the following historical reports:

Administrator Log Report:

Ability to select one, some or all administrators to run the report against.

View administrator activity for the selected administrators, including changes to users, system settings, panel updates, the time of the change along with the previous value of the field in some cases.

Logged administrator changes shall include the new value of the change, and the old value of the change.

User Activity Report:

Ability to select one, some or all users/cardholders to run the report against.

View user activity for the selected users based on date criteria. Results will include all doors/floors the user has been granted/denied access to, along with which credential that was used.

Door Activity Report:

Ability to select one, some or all doors to run the report against.

View door/reader activity for the selected doors based on date criteria, including the time of the event, the device that spawned the event, a user/credential if the event involved a user and the message associated with the event.

Floor Activity Report:

Ability to select one, some or all elevator floors to run the report against.

View Floor activity for the selected floors based on date criteria, including the time of the event, the device that spawned the event, the Cab the floor is attached to, a user/credential if the event involved a user and the message associated with the event.

Input Activity Report:

Ability to select one or more Inputs attached to any IO-Panels or Door Panels in the system that was defined as an "Aux Input."

View Input activity for the selected Inputs based on date criteria, including the time of the event, the device that spawned the event, the controller the Input is attached to and the message associated with the event.

Output Activity Report:

Ability to select one or more Outputs attached to any IO-Panels or Door Panels in the system that was defined as an "Aux Output."

View Output activity for the selected Outputs based on date criteria, including the time of the event, the device that spawned the event, the controller the Output is attached to and the message associated with the event.

Muster Report:

Ability to select a site and areas to run the report against.

View cardholders that are in the selected areas based on the date criteria.

Notifications Report:

Ability to view all historical notifications/events based on date criteria.

User List Report:

Ability to generate a list of all cardholders in the system along with their user properties, credentials, and which access groups they are a member of.

Alert Monitoring Report:

Ability to have a separate screen dedicated to monitoring live notifications.

Ability to use global or temporary notification filtering options.

Ability to track which notifications the administrator has seen or missed.

Ability to auto select notifications as they come in.

Ability to click on a notification and see more information about that specific notification. If a cardholder is attached to the event and has a picture; Picture will display as large as possible on the same screen.

Time Tracking Report:

Ability to select one or more Entry Readers to run the report against.

Ability to select one or more Exit Readers to run the report against.

Ability to export an HTML or CSV output.

Report shall display the following:

List of cardholders who have gone through any of the selected Entry or Exit readers.

Entry and exit time each day (can have multiple entries and exits each day).

Time between entry and exit.

Display time of 0 if there was an exit without an entry or an entry without an exit on the same day.

Total time between entry and exit between all days defined in the report parameters.

Total time between entry and exit for all cardholders added together between all days defined in the report.

* + - * 1. Ability to execute the following configuration reports:

Access Privilege Group Configuration.

Door Configuration.

Elevator/Floor Configuration.

Input Configuration.

Output Configuration.

Panel Network Configuration.

Schedule Configuration.

* + - 1. VAX Notification and Alert Management:
				1. Software web interface shall provide an in-line notification area that statically follows the screen as the administrator navigates the software.
				2. Notification area shall provide near real-time events as they are happening.
				3. Ability to click on specific notifications and be linked to a page in the web interface specific to the event such as:

Clicking an "unknown connection from panel with MAC address 4A5342343" will bring the administrator to the "Add panel" screen with the Mac address filled.

Clicking an "Unknown user denied access with credential 33-45545" will bring the administrator to the "Add User" screen with the credential pre-populated.

Clicking an "Access Denied" or "Access Granted" notification will bring the administrator to the "Edit User" page of the specific user.

* + - * 1. Ability to configure which notifications show up in red (alerts).
				2. Ability to configure if alerts will produce a warning sound in the web browser.
				3. Ability to configure which notifications/alerts will be emailed to the administrator.
				4. Ability to pause real time events.
				5. Ability to clear real time events that are currently on the screen.
				6. Ability to configure which notifications spawn in-line camera view with associated cameras.
				7. Ability to configure which notifications will send an email with information about the event to the administrator.
				8. Notification Rule Engine: For the customization (color/sound) of all notifications.
				9. Web Push: Allows the selection of specific notifications to be pushed to the desktop system.
			1. Open Supervised Device Protocol (OSDP): Supported for improved cybersecurity.
				1. Enhances security with peripheral devices such as card readers.
				2. Supports 2-way encrypted communication via AES-128 allowing detection of disconnected readers.
				3. Supports VAX-MDK and VAX-TROVE controllers with specific firmware.
				4. Supports several VAX readers.
			2. VAX Custom Script Engine (ACE):
				1. System shall support customizable script engine that can be described as:

Action Control Engine.

Server Side Script Engine.

Global Linking.

Rules Engine.

Action scheduler.

* + - * 1. Script engine shall consist of a script (Action Plan) and a definable trigger (Action Trigger) to execute the script.
				2. Script (Action Plan) shall consist of one or more Actions chained together to accomplish a task.
				3. Action Plans shall be executed via web browser button, HTTP API command or from a definable Action Trigger.
				4. Action Plans shall have the following capabilities:

Action Plan shall be assigned a unique name.

Action Plan shall utilize easy to use drag and drop interface for creating a graphical easy to read script.

Action Plan shall support unlimited combinations of Actions.

Support over 40 different actions which can be chained together.

Actions shall support conditional chain to allow a different set of Actions to occur if the previous Action in the chain succeeds or fails.

Action Plans shall support customizable variables that can be pre-set or utilize variables from the trigger such as User Id, Door Id, Card number.

Action Plans shall be capable of supporting arithmetic operations and comparisons between variables.

Support communication with other systems with the following Actions:

HTTP Request Action.

SMS Send Action.

Email Send Action.

Notify Administrator.

* + - * 1. Action Triggers shall have the following capabilities:

Define which Partition the trigger is scoped to.

Define if the trigger conditions are restricted to a specific sit.

Define the type of trigger condition and trigger state.

Define if the trigger condition can be met by a specific object or any object within the trigger type and state.

Define time restrictions to limit what day of week and time of day the trigger conditions can be met.

Define a time drift to allow trigger conditions to be met if the source of the trigger comes later than real time.

Define which Action Plan will execute when the trigger conditions are met.

Define how much logging the Action Plan will perform.

* + - 1. VAX Interactive Map Management:
				1. System shall support the ability to display and customize an interactive map.
				2. System shall allow configuration of unlimited maps.
				3. Floor plans shall be imported as .JPG, .BMP, .PNG or .GIF file which are commonly exported from CAD programs.
				4. Configuration of a map shall include the following functionality:

Ability to name each map.

Ability to select a picture to import as the map.

Ability to associate a map to a Partition and a Site.

Ability to configure relationships between maps for navigational purposes (North, South, East, West, Up, Down).

System shall utilize click and drag mechanics to easily place objects onto the map.

Ability to place any of the following objects onto a map:

Doors.

Elevator Floors.

Inputs.

Outputs.

Areas.

Cameras.

Ability to draw an area on the map for the purpose of monitoring occupancy levels of an area.

* + - * 1. Monitoring a map shall include the following functionality:

Icons shall dynamically change based the following circumstances:

Door objects will change color based on schedule type (Card mode, PIN, Unlocked, etc.).

Door objects icon will change between a closed and open icon based on door contact state.

Input and Output icons shall change color based on schedule type.

Input icons shall change based on input state (open or closed).

Elevator Floor icons shall change color based on schedule type.

Real-time indication of a door's state (locked/unlocked).

Ability to navigate between maps via named tabs on the top of the screen.

Ability to navigate between maps that are related to each other (North, South, East, West, Up, Down).

Contextual sidebar area will display information about the currently selected object:

Live camera view shall appear in the contextual sidebar if a selected object is a camera or has an associated camera.

Door schedule and status information shall appear in the contextual sidebar when a door is selected.

Names of cardholders estimated to be in an area shall appear in the contextual sidebar when an area is selected.

Ability to override schedules and outputs on selected object from contextual sidebar.

Lock State: Shows the real time status of the door strike output.

* + - 1. VAX Triple Swipe Actions:
				1. Ability to configure a reader and credential to activate one or more functions via swiping or presenting a credential 3 times in a row within a set span of time.
				2. Ability to configure a single triple swipe action per reader if using regular proximity type reader.
				3. Ability to configure which users/cardholders can execute triple swipe actions, including which users can disarm the alarm system.
				4. Ability to configure up to 5 triple swipe actions at one reader if the reader has keypad input.
				5. Ability to use any of 3 predefined triple swipe actions when using keypad input for a total of 8 actions.

Override the door into card mode.

Resume an overridden door.

Resume any overridden outputs.

* + - * 1. Ability to change the mode of a door via triple swipe action:

Override Lockdown Mode.

Override Card mode.

Override PIN mode.

Override Card or PIN mode.

Override Card and PIN mode.

Override Unlock mode.

Override First Card In mode.

Override Toggle Lockdown Mode.

Override Toggle Card mode.

Override Toggle PIN mode.

Override Toggle Card or PIN mode.

Override Toggle Card and PIN mode.

Override Toggle Unlock mode.

Override Toggle First Card In mode.

Override Lockdown with Auto-resume.

Override Card mode with Auto-resume.

Override PIN mode with Auto-resume.

Override Card or PIN mode with Auto-resume.

Override Card and PIN mode with Auto-resume.

Override Unlock mode with Auto-resume.

Override First Card In mode with Auto-resume.

Cancel Override.

* + - * 1. Ability to toggle, activate, deactivate, or pulse a relay via triple swipe action.
				2. Ability to toggle, activate, deactivate, or pulse an output connected to an external alarm system to arm or disarm an alarm.
			1. VAX Crisis Levels (Emergency Lockdown):
				1. Ability to configure up to 16 Crisis levels (Code Red, Code yellow, Code Green, etc.) that can be used to quickly make global changes to the entire system in an emergency.
				2. Ability to configure the name and door mode of each crisis level.
				3. Ability to apply a crisis level to all doors in a particular site or a single door via web browser interface.
				4. Ability to apply a crisis level to a panel via an Aux input function.
				5. Ability to apply a security level to each user/cardholder. If a user/cardholder security level is equal or higher than the crisis level, the user/cardholder will be granted access based on the door mode and access privilege rules.
			2. VAX Video Camera integration:
				1. Ability to integrate with 1 or more of the following Video Management Software (VMS) systems:

ViconNet Digital Video Management system.

Vicon Valerus.

Digital Watchdog DW Spectrum.

ExactQ ExactVision.

Milestones Xprotect.

* + - * 1. Support to integrate with multiple instances of VMS systems across different communication mediums such as LAN/WAN.
				2. Ability to synchronize individual cameras or groups of cameras from the VMS software.
				3. Shall support real-time video monitoring displays:

Up to 2 separate video streams simultaneously.

View up to 16 cameras in each stream (if VMS supports matrix larger than 1 x 1).

View in-line camera view, browser view or full window view.

* + - * 1. Associate cameras with a door, elevator, or both.
				2. Associate a PTZ camera with a door based on a pre-set position.
				3. Ability to configure specific events to spawn an inline camera view directly above the notifications/events area of the web interface.
				4. Linking of video and events based on pre-set events provided by the access control software.
				5. Historical events can spawn a video matrix to cameras based on the time of the event and associated cameras.
				6. Administrator permissions specific to who can manage and make changes to the camera system.
			1. General Purpose Input/Output Configuration:
				1. Ability to configure Inputs/Outputs on general purpose Input/Output board.
				2. Input Configuration:

Ability to apply a name to each Input.

Ability to define a detection time until the input is considered active.

Ability to place an Input on a schedule to only monitor during specific times.

Ability to apply holiday schedules to an input for alternate schedules during holidays.

Ability to assign an action to be performed when the input is activated.

Actions:

Do Nothing.

Activate Selected Output.

Deactivate Selected Output.

Toggle Selected Output.

Pulse Selected Output (high).

Pulse Selected Output (low).

Pulse Selected Output (opposite).

Activate Multiple Outputs (up to 5).

Deactivate Multiple Outputs (up to 5).

Toggle Multiple Outputs (up to 5).

Ability to place a delay on any Input Actions.

Ability to place an action duration for pulses.

Ability to configure an Input as Normally Closed.

Unmanaged Door Configuration.

Ability to assign an Input as a door contact.

Ability to view Input as a door in the use case that a door contact is connected as an input with no outputs or readers.

* + - * 1. Output Configuration:

Ability to apply a name to each output.

Ability to place an output on a schedule.

Ability to apply holiday schedules to an output for alternate schedules during holidays.

Ability to configure an Output as Normally Closed.

Ability to protect an Output from Input Actions.

Ability to configure an Output to be initially On.

* + - 1. VAX Visitor Management Integration:
				1. Ability to allow integration into VAX through the API from HID EasyLobby.

EasyLobby 10.2.0 and requires integration module from HID (EL-ACI-VICON).

* + - * 1. Visitor checked in are automatically enrolled into VAX with:

First name, last name, expire date, start date, photo, credential, unique identifier, privileges.

* + - * 1. Visitor checkouts automatically revoke permissions or delete the record in VAX (configurable).
			1. Automatically assign permissions across multiple partitions using assigned Access Group suffix.
			2. Badge Design and Printing shall provide the following:
				1. Badge printing shall provide the ability to print various designs on printable card credentials.
				2. Card templates shall be provided, with the ability to design front and back of cards.
				3. Cards shall be able to be printed to any card printers on the network.
				4. Ability to link card to database data and include links to any of the customizable card holder fields, including date of birth, titles, initials, first or last name and photography.
				5. Ability to import Cardholder photographs or images from files.
			3. Schlage Integration:
				1. Allegion Schlage wireless locksets shall integrate with VAX through a server and the ENGAGE Gateway. It shall be able to view status of alarm partitions and alarm zones, arm and disarm, bypass zones, contact emergency services and silence trouble beeping.
				2. Three external components to integrate Schlage Locksets: ENGAGE Gateway acts as a Panel; Schlage Lockset acts as a Door and the Allegion ENGAGE to register app and devices to a Schlage system.
			4. Administrator Control Capabilities:
				1. Shall provide an Administrator interface secured by encrypted password control and SSL communication from web client to server.
				2. Shall provide for an Administrator that can either be a System-Admin or a Non-sys-admin with customizable permissions.
				3. Shall support Administrator Management which determines privileges, functions, and Partitions that can be accessed. Functions that cannot be accessed will not be visible. The following items are available: Manage Access Privilege Groups. Manage Cameras And Integration, Manage Door Holiday Groups, Manage Door Holiday Schedules, Manage Door Schedules, Manage Doors, Manage Elevators, Manage Floor Holiday Groups, Manage Floor Holiday Schedules, Manage Floor Schedules, Manage Holidays, Manage OneTimeRun Schedules, Manage Panels, Manage Sites, Manage User Holiday Groups, Manage User Holiday Schedules, Manage User Schedules, Manage Users, Reporting Alerts, Reporting DoorActivity, Reporting FloorActivity, Reporting UserActivity, Reporting UserList, Special Permissions Override Door, Override Floor, Override Output, Update Panel, View Cameras, View Status.
			5. System Partitioning:
				1. System shall support unlimited partitions (with appropriate licensing), which logically separate the system into pieces.
				2. Administrators can be given permissions to manage specific aspects of a partition or multiple partitions.
				3. Administrators shall only see partitions or parts of partitions they are explicitly given permission to manage.
				4. Ability to assign user/cardholders to more than 1 partition, if the Administrator assigning access groups has permissions to manage cardholders within the desired partitions.
				5. Administrators with limited permissions will not see the menus/icons for parts of the software they do not have permission to use.
				6. Door and Elevator Panels shall be assigned to a single partition.
				7. Holidays, schedules, and Access groups shall not be shared between partitions.
				8. Administrator shall not see events on devices they do not have permission to view/manage.
				9. Custom Fields and Crisis Levels settings shall be shared between partitions.
			6. Credential/Cardholder Management:
				1. Shall provide User/Cardholder management screen with unlimited number of users/cardholders (100,000 per controller).
				2. Shall provide Simple cardholder enrollment, with all available cardholder options available on one screen.
				3. Shall support assignment of Unlimited credentials to a single cardholder, including Cards, Pins, biometrics, etc.
				4. Shall support assignment of additional user/cardholder attributes. Assign a Start/Stop date to a cardholder. Assign a security level for Crisis Level feature. Assign the cardholder as a Master user. Assign the cardholder as a supervisor user. Assign the cardholder the permission to activate First Person In schedules. Assign the cardholder the ability to perform Triple Swipe Actions. Assign the cardholder the ability to disarm an external alarm system. Assign the cardholder the ability to open auto-openers without the use of a button.
				5. Shall provide ability to view a list of all cardholders.
				6. Shall provide capability of finding a specific card holder based on specified search criteria such as name or credentials.
				7. Shall provide the ability to assign a photographic image for each cardholder, image can be uploaded from local device or taken in the web browser with an image device. (Chrome only).
				8. Shall provide ability to assign to Unlimited Access Privilege Groups.
				9. Shall provide ability to assign cardholder to Access Privilege Groups across different Partitions.
				10. Shall provide ability to assign cardholder directly to a partition for later access assignment.
				11. Shall provide ability to assign unlimited custom fields to a cardholder.
				12. Shall provide ability to import large amounts of users/cardholders via CSV file.
				13. Shall provide ability to assign cardholder to Access Privilege Groups across different Partitions.
				14. Shall provide ability to assign cardholder directly to a Partition for later access assignment.
				15. Shall provide ability to assign Unlimited custom fields to a cardholder.
				16. Shall provide ability to import large amounts of users/cardholders via CSV file.
				17. System shall optionally disallow creation of PIN numbers that are too similar to other PIN numbers automatically.
			7. Access Privilege Groups:
				1. Shall support ability to create unlimited administrator definable/customizable Access Privilege Groups.
				2. Shall support ability to apply any combination of door/time zone.
				3. Shall support restriction/allowance of Cardholders movement through identified doors, at specific times, including holiday schedule.
				4. Cardholders can be assigned to multiple access groups for enhanced customization.
				5. Software shall have built in validation to prevent conflicts of users being given different permissions for the same doors/floors.
				6. Ability to search for readers, floors and users when creating or modifying Access Privilege Groups.
			8. ScheduleManagement:
				1. The system shall have separate sections for time zones for user access (User Schedules), door access (Door Schedules), as well as floor access (Floor Schedules).
				2. The system time zones shall be drag and drop graphics allowing for easy viewing, as well as eliminating the chance of programming error.
				3. The system time zones shall be color coded to the mode of the span for easy viewing and eliminating the chance of programming error.
				4. Shall have ability to provide a specific schedule name and description.
				5. Ability to re-use time schedules across multiple devices.
				6. Ability to replicate a schedule across multiple days via click and drag to weekdays, weekends, week.
				7. Software shall create per-configured time schedules used in typical deployments.
				8. Door Schedules:

Shall support an Unlimited amount of Door Schedules .

Shall support 20 unlock/lock times per day.

Shall support 8 different Time Zone modes in any combination:

Ability to have Lockdown (no cards other than cards flagged as master will be granted access).

Ability to have Card Only (valid cards required to grant access).

Ability to have PIN Only (valid PINs required to grant access).

Ability to have Card or PIN (valid card or PIN required for access).

Ability to have Card and PIN (valid card and PIN required for access).

Ability to have Unlock (door is in public mode).

Ability to have "First Credential in" by card (door will not follow its public schedule until a card flagged with first card in feature is presented at the door during the public schedule).

Ability to have Dual Credentials (2 valid cards one flagged as supervisor required to grant access).

* + - * 1. User Schedules (user access schedule):

Shall support up to 256 User Time Zone schedules the system will support.

Shall support 8 Allowed/Not Allowed time spans per day.

Shall support 2 different Time Zone modes in any combination:

Ability to have Allowed (user will be allowed through the door as long as the Door Time Zone is in a mode that accepts the type of credential being presented).

Ability to have Not Allowed (user will be denied access to the door).

* + - * 1. Floor Schedules:

Ability shall support Unlimited Floor Time zone schedules the system will support.

Ability shall have 8 time spans per day.

Shall support 3 different Time Zone modes in any combination:

Ability to have Card Only (valid cards required to grant access).

Ability to have Unlock (floor is in public mode).

Ability to have Lockdown (no cards other than cards flagged as master will be granted access).

* + - * 1. Input Schedules:

Ability to support unlimited Input Time zone schedules the system will support.

Ability to have up to 5 time spans per day.

Support 2 different Time Zone modes in any combination:

Ability to have Monitor (Input will be monitored during this span).

Ability to have Not Monitored (Input changes will be ignored).

* + - * 1. Output Schedules:

Ability to support unlimited Output Time zone schedules the system will support.

Ability to have up to 11 time spans per day.

Support 2 different Time Zone modes in any combination:

Ability to have ON (Output relay will close during this span).

Ability to have OFF (Output relay will open during this span).

* + - * 1. One Time Run Schedules (elevator and doors):

Ability to create one time event schedules that can change the state and mode of a door or elevator floor for a period of time, can also span multiple days.

* + - 1. Holiday Management to Allow:
				1. Ability to apply a specific schedule for groups of doors to follow when it is a holiday.
				2. Ability to apply a specific user schedule for groups of users to follow during a holiday.
				3. Ability to create a holiday with the following options: Date of the holidays. If the holiday is reoccurring annually. Name and description of the holiday. Which groups of doors will be affected by the holiday and what holiday time zone they will follow. Which groups of Access Privilege Groups will be affected by the holiday and what holiday time zone they will follow. Which groups of elevator floors will be affected by the holiday and what holiday time zone they will follow. Which groups of inputs and outputs will be affected by the holiday and what holiday time zone they will follow.
			2. Door Management shall provide the following:
				1. Ability to apply a specific name and description to each door and reader.
				2. Ability to apply a time zone to control when a specific door is to unlock/lock, accept cards, pins, etc.
				3. Ability to apply a Holiday group to control how a specific door will behave on a Holiday.
				4. Configure Door Held Open:

Ability to disable Door Held Open alert.

Ability to disable Held Open buzzer.

Ability to configure how long a door can be held open before an alert is raised.

Ability to configure if the held open alert/buzzer will stop once the door is closed.

* + - * 1. Configure Forced Open:

Ability to disable Door Forced Open alert.

Ability to disable Forced Open buzzer.

Ability to configure if the Forced Open alert/buzzer will stop once the door is closed.

* + - * 1. Ability to configure an unlock delay.
				2. Ability to configure how long the door will be unlocked after a valid credential presentation.
				3. Ability to configure the controller to play a sound when the door opens.
				4. Automatic Door Operator Integration:

Ability to enable/disable the use of an auto-opening device on a door.

Ability to configure an unlock delay when using auto-opening device.

Ability to configure the insecure side of the door to require a card read before auto-opener button will function.

Ability to configure auto-opener to open with REX.

Ability to configure auto-opener to open with motion.

* + - * 1. Reader Configuration:

Ability to apply a name and description to a reader.

Ability to enable/disable keypad use on a reader.

Ability to configure how many seconds between PIN presses will pass before the credential becomes invalid.

Ability to configure back to back reader interference interval.

Ability to configure what area a reader is granting access to for use of tracking where users are in a building (used for muster and anti-passback).

Ability to configure Triple Swipe actions.

* + - * 1. Local Anti-passback Configuration.

Ability to enable local anti-passback.

Ability to monitor door contact for passage through a door.

Ability to configure soft or hard anti-passback.

Ability to configure a timeout period for anti-passback.

Ability to exclude supervisor users from anti-passback limitations.

* + - * 1. Camera Association Configuration:

Ability to create an association between a door and a cameras.

Ability to view associated cameras from the doors page.

Ability to associate a predefined position to a camera if using PTZ camera.

* + - * 1. Door Schedule Override:

Ability to deviate the state of the door from the normal schedule.

Ability to override a door until explicitly resuming the normal schedule.

Ability to override the state of a door and instruct the controller to resume the normal schedule once the door is scheduled to change state. The door will resume normal schedule after that.

Ability to override a door for a specified period (5 minutes or more).

Ability to resume a door to its normal schedule regardless of override method.

Ability to override a door through the following method:

Override door from the software web interface.

Override door via triple swipe action at reader.

Override door via auxiliary input action.

Override door via Crisis Levels feature.

Ability to pulse a door to unlock from any page in the software web interface.

* + - 1. Elevator management shall provide the following:
				1. Ability to manage up to 64 floors per elevator cab per Elevator Master Panel.
				2. Ability to apply a specific name and description to each cab, reader, and floor.
				3. Ability to manage up to 4 cab per Elevator Master Panel.
				4. Ability to configure if an individual cab is using button sensing elevator technology.
				5. Ability to apply a time zone to control when a specific Floor is to unlock/lock, accept cards.
				6. Ability to apply a Holiday group to control how a specific floor will behave on a Holiday.
				7. Ability to generate floor to output map for wiring and diagnostic purposes.
				8. Ability to assign readers to 2 cabs.
				9. Ability to configure up to 4 cabs on schedules without readers.
				10. Floor Override:

Ability to deviate the state of a floor from the normal schedule.

Ability to override a floor until explicitly resuming the normal schedule.

Ability to override the state of a floor and instruct the controller to resume the normal schedule once the floor is scheduled to change state. The floor will resume normal schedule after that.

Ability to resume a floor to its normal schedule regardless of override method.

Ability to override a door through the following methods:

Override floor from the software web interface.

Override floor using the API.

* + - * 1. Override floor using the Action Control Engine (ACE).
			1. Panel management shall provide the following:
				1. Ability to apply a specific name and description to each door/elevator panel.
				2. Ability to assign a panel to a specific partition.
				3. Ability to configure a password code for accessing the panel LCD interface and panel web interface.
				4. Ability to disable/enable the web interface of the panel for remotely configuring IP settings.
				5. Ability to configure the panel connection mode as static IP or DHCP.
				6. Ability to configure the LCD screen on the panel, brightness and on time.
				7. Ability to configure how long a forced open buzzer lasts.
				8. Ability to configure the panel tamper sensor sensitivity and disable/enable.
				9. Ability to configure how the integrated motion behaves, along with sensitivity options.
				10. Panel Inputs and outputs are 100 percent configurable; all inputs/outputs can be configured as normally open or normally closed, supervised, events enabled/disabled.
				11. Ability to configure Inputs as any of the following functions: Request to Exit, Door Contact, Door Opener to exit, Motion Sensor, Emergency alarm, External Alarm Status, Door Opener to Enter, Man Trap Input. Aux Input action: Toggle/Activate/Pulse selected output. Toggle/Activate/Pulse alarm interface. Override doors with Crisis Level. Play Sound.
				12. Ability to configure Outputs/Relays as any of the following functions: Door Strike, Door Opener, External Buzzer, Alarm Interface, Aux Output, Secondary Door Strike, Door Unlocked or Open.
				13. Ability to place panel into debug mode for diagnostics, troubleshooting and additional logging.
				14. Ability to view in real time the following information:

Real time door contact status (open or closed).

Real time if the door is in an overridden state.

Real time mode of the door (card mode, unlocked).

* + - * 1. Ability to unload an update to an individual panel.
				2. Ability to request a panel show its currently known time.
				3. Ability to reset anti-passback locations of users on a specific panel.
				4. Ability to request a panel to disconnect from the server for a period of time.
				5. Ability to manually place a panel into firmware update mode.
				6. Output Override:

Ability to deviate the state of an output from the normal state (open or closed).

Ability to override an output until explicitly resuming to its normal state.

Ability to resume an output to its normal state regardless of override method.

Ability to override an output through the following methods:

Override output from the software web interface.

Override output via triple swipe action.

Override output via aux input function.

Override output from API or script engine (ACE).

* + - 1. Microsoft Active Directory (AD) Integration via LDAP protocol:
				1. Ability to obtain read only directory information from LDAP provider.
				2. Ability to synchronize AD Users based on selected AD Security Groups.
				3. Ability to choose which AD Security Groups AD Users will be synchronized from.
				4. Ability to configure AD Security Groups as Access Privilege Groups.
				5. Ability to give access to Doors/Floors based on AD Security Group membership.
				6. Ability to synchronize the following AD User information: First Name and last name, User Expiry Date: Expired Users will have access rights to Doors/Floors removed. User Status (enabled/disabled): Disabled Users will have access rights to Doors/Floors removed. AD Group membership.
				7. Ability to synchronize credentials (Card/FOB/PIN) via AD User Attribute Fields.
				8. Ability to synchronize credentials in the following manners: Wiegand Credential from Single AD Attribute Field. Wiegand Credential from 2 individual fields with Fixed Site Code. Wiegand Credential from three Individual Fields. PIN from single field.
				9. Ability to synchronize AD User Attributes as Custom Fields.
				10. Ability to configure how often VAX checks the LDAP provider for changes (1 to 60 minutes).
				11. Ability to automatically disable Users who have been deleted or disabled in Active Directory without panel update required.
				12. Ability to filter AD groups by root OU.
			2. VAX Data Management:
				1. Software shall provide the ability to perform automatic database backup to a location selected by the administrator.
				2. Ability to backup user profile pictures along with database backup.
				3. Backup locations shall include:

Shared network drive.

External USB drive.

Folder on local hard drive.

* + - * 1. Ability to compress database backups for better space utilization.
				2. Ability to encrypt a backup with a definable password.
				3. Software shall provide the capability to manually back up the database to a selected location.
				4. Ability to automatically remove backups older than a defined period of days in the backup directory.
				5. Availability of a database restore utility that can be performed via web browser.
				6. Ability to stop/start/restart the web service through management web interface.
				7. Software shall include system tray application that shows status of web service and provides control to stop/start the web service.
				8. Ability to remotely change network settings on remote server hosting the web service.
				9. Ability to purge old alerts/notifications based on data retention period.
				10. Data Migrator: Enables the export and import of data between partitions and systems.
				11. Database Warning Size Menu: Allows the setup of an alarm to notify when a set present of the 10 GB SQL 2012 database is reached.
			1. VAX Software Registration Management:
				1. Software registration directly through dealer or the manufacturer.
				2. Ability to manage and view the following licensing information from web interface:

View current license package.

View expiry date of license.

View license features and limitations.

* + - * 1. Software shall provide 30 day warning prior to software license expiration.
				2. Software shall provide 10 day grace period after software license expiration if no administrator has logged in since the license expired.
				3. Software shall provide life safety features if the license is expired, and the grace period is over.
			1. Assa Abloy Aperio Integration:
				1. Software shall provide unified management of Aperio devices.
				2. Ability to communicate with up to 8 Aperio wireless locks per Aperio controller.
				3. Ability to store 100,000 users, bypasses Aperio 2,000 user limitation.
				4. Cabinet or door locks supported.
				5. Ability to share time schedules between regular door controllers an Aperio controllers.
			2. Vicon Pass:
				1. Temporary Visitor Access allows visitors to receive a one time web link that will grant access to a specific door.
			3. Health Monitoring:
				1. There shall be a full set of tools to maintain the health of the system.
				2. A comprehensive list of events shall be provided in the Health Settings section, including Actions to be taken in the event there is a change to the value the Health Settings is monitoring.
				3. Health History reporting tool shall allow the Administrator to view events related to the health and upkeep of the system, including Health Issue Filtering choices and Status and Severity.
				4. The ability to keep track of updates, backups, storage space and battery power shall be provided.
			4. Software Navigation and Contextual Help:
				1. Offer contextual help file by hovering over fields, check boxes, drop-down menus.
				2. Ability to place objects into list format (such as panels, doors, user) for conducting comparisons between objects.
				3. Ability to edit attributes of objects from the list view.
				4. Software shall offer comprehensive documentation can be accessed through web interface or accessed via start menu shortcut on host web server.
1. EXECUTION
	1. GENERAL
		1. Installation is to be performed by skilled technicians under direction of experienced supervisors, who are properly trained and qualified for this work.
		2. GC Security Project Manager: May visit the job site and inspect the VMS installation at any time during the Project.
		3. Penetrations:
			1. Attempt to avoid work in finished areas.
				1. Patch and repair holes drilled in finished surfaces so there is no noticeable defect in the surface.
			2. Do not drill any structural beams, columns, or walls without the Architect's permission.
			3. Do not modify any UL fire-rated door or frame in any way.
			4. Seal conduit penetrations through exterior walls.
			5. Fire caulk, where required, the interior and exterior of conduit sleeves after wiring has been placed and the system has been tested.
	2. EXAMINATION
		1. Do not begin installation until substrates have been properly prepared. If substrate preparation is the responsibility of another installer, notify the Architect of unsatisfactory preparation before proceeding.
			1. Examine pathway elements intended for cable. Check raceways, cables trays and other elements for compliance with space allocations, installation tolerances, hazards to cable installation and other conditions affecting installation.
	3. PREPARATION
		1. Clean surfaces thoroughly prior to installation. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	4. INSTALLATION
		1. Collaboration: The SC is to collaborate with the Owner and technology consultant to plan the precise function and security schema.
			1. Authentication levels, assignments, access control policies, procedures, and other options are to be designed in conjunction with the Owner's needs.
			2. The SC will present the plan for the Owner and Consultant's approval prior to implementation.
		2. Conduit and Raceway:
			1. Camera Back Boxes:
				1. At each exterior camera location, the EC is to provide flush mounted metallic, deep, 4 square box, firmly secured in the wall or ceiling deck.
				2. If Ceiling is removable, attach box to the ceiling grid with proper box T-Bar support.
			2. Provide 4-square junction boxes with covers as required for proper raceway installation.
			3. Junction boxes, cabinets and panels must be NEMA-l rated, unless otherwise noted.
			4. Wiring must be concealed. Surface raceways should only be used in finished spaces. Use plenum-rated cable in accessible ceiling spaces.
			5. The EC is responsible for furnishing and installing conduit, junction boxes, pull boxes, etc. where required to conceal cabling for both power and video circuits of the entire System. Conduit installed is to be a minimum 3/4 inch unless otherwise specified.
			6. Conduits must be installed with pull boxes at a minimum of every 100 feet.
			7. Multiple VMS cables and wiring may be run in the same conduit.
		3. Install in accordance with manufacturer's instructions and approved submittals.
			1. The EC is responsible for furnishing and installing all 120 VAC circuits where required. The EC is to furnish and install 120 VAC hard wired connections and duplex outlets as necessary to provide a complete power system for the VMS.
			2. The TC is responsible for furnishing and installing VMS category cabling for video circuits.
			3. Plenum cable must be utilized when running cable through plenum-rated ceilings and in conjunction with NEC guidelines.
			4. Conductors within enclosures must be carefully cabled and laced. Cables must be identified with printed wire markers.
			5. Cable is to be run in conduit, stubbed up into open ceiling space and routed to appropriate telecom room via j-hooks or similar approved support.
			6. Visually inspect wire and cable for faulty insulation before installation. Protect cable ends with acceptable end caps except during actual termination. Protect wire and cable from kinks. Provide grommets and strain relief material where necessary, to avoid abrasions or excess tension on wire and cable.
			7. Plenum wiring will not be spliced outside of control devices unless absolutely necessary. If plenum wire splicing is approved, then it must be done within an approved enclosure containing wire nut connections located in an accessible area. Identify boxes with a blue letter "S" painted, stenciled or with permanent marker, centered on cover.
			8. Identification and Tagging:
				1. Cables and wires to be properly identified on both ends.
				2. Provide temporary stickers or tags on ceiling grid to indicate where devices are to be installed later for the VMS.
			9. Wiring Protection and Splicing: SC, TC and EC must comply with all Division-26 requirements.
			10. Wiring is not to be attached to wiring of other systems, sprinkler pipes or other objects that may cause interference, life safety problems or inconvenience to other trades.
			11. VMS wiring must be supported directly from the building structure or permanent walls using appropriate hangers.
			12. VMS wiring must be separated a minimum of 6 inches from line voltage electrical wiring, telephone wire, data wiring, etc. Plenum cable must be routed no closer than 12 inches (304 mm) from any fluorescent or high discharge electrical lighting, and 48 inches (1219 mm) from voltages and transformers greater than 600 volts.
			13. A wire service loop of no less than 16 ft shall be provided for each camera for potential camera relocation. This is to include all wires necessary for camera function.
			14. Grounding: Per Manufacturer's written recommendations and also fully coordinated with the Owner.
			15. Comply with Division-26 Specifications requirements.
		4. Labeling: Label cables using approved scheme. Label horizontal cables at the device and equipment chassis within 12 inches (305 mm) of termination. Affix labels in a visible location. Labels must be machine-made and permanently attached. Label access control interface cables on both ends with door number. Label equipment chassis per approved labeling scheme.
	5. FIELD QUALITY CONTROL
		1. Inspection: Verify units and controls are properly installed, connected, and labeled and interconnecting wires and terminals are identified.
		2. Test Schedule: Schedule tests after pretesting has successfully been completed and system has been in normal functional operation for at least 14 days. Provide a minimum of 10 days' notice of test schedule.
		3. Operational Tests: Perform operational system tests to verify that system complies with specifications. Include all modes of system operation. Test equipment for proper operation in all functional modes.
	6. OPERATIONAL INSTRUCTION
		1. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate and maintain VMS equipment.
		2. Train Owner's maintenance personnel on procedures and schedules for troubleshooting, servicing, and maintaining equipment.
		3. Demonstrate methods of determining optimum alignment and adjustment of components and settings for system controls.
		4. Schedule training with Owner, through Architect, with at least seven days advance notice.
	7. PROTECTION
		1. Protect installed products until completion of project. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION