

Exacq Technologies, headquartered in Indianapolis, Indiana, is a leading developer of open architecture, Video Management System (VMS) solutions for security and surveillance applications. Our exacqVision VMS client-server solutions are scalable from a small single camera solution to large scale corporate or campus systems with thousands of cameras. Real-time and recorded video can be viewed, managed and configured from any location on the network.

For additional information, contact:

Exacq Technologies, Inc.

11955 Exit Five Parkway

Fishers, IN 46037 USA

Phone: +1 317 845-5710

Web: [www.exacq.com](http://www.exacq.com)

E-mail: [exacqinfo@tycoint.com](mailto:exacqinfo@tycoint.com)

## IP FISHEYE CAMERA/VIDEO MANAGEMENT SERVER

### DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

**28 20 00      Electronic Surveillance**

**28 23 00      Video Surveillance**

#### Notes to Specifier:

1. Where several alternative parameters or specifications exist, or where, the specifier has the option of inserting text, such choices are presented in **<bold text>**.
2. Explanatory notes and comments are presented in **colored** text.
3. The specifier may also choose to specify this product under:
  - 28 23 13 Video Surveillance Control and Management Systems
  - 28 23 29 Video Surveillance Remote Devices and Sensors

## IP FISHEYE CAMERA/VIDEO MANAGEMENT SERVER

### PART 1 GENERAL

#### 1.01 SUMMARY

- A. Section includes an IP fisheye camera with embedded Video Management System (VMS) server software ("IP camera-server").
- B. Related Requirements
  - 1. 28 23 13 - Video Surveillance Control and Management Systems
  - 2. 28 23 23 – Video Surveillance Systems Infrastructure
  - 3. 28 23 29 - Video Surveillance Remote Devices and Sensors

#### 1.02 REFERENCES

- A. Abbreviations
  - 1. API – Applications Programming Interface
  - 2. ATM – Automatic Teller Machine
  - 3. HMAC – hashed Message Authentication Code
  - 4. IP - Internet Protocol
  - 5. LDAP – Lightweight Directory Authentication Protocol
  - 6. NVR – Network Video Recorder
  - 7. PoE – Power over Ethernet
  - 8. POS – Point of Sale
  - 9. SDK – Software Development Kit
  - 10. VMS - Video Management System
- B. Reference Standards
  - 1. Network
    - a. Institute of Electrical and Electronics Engineers (IEEE) 802.3 Ethernet Standards
  - 2. Noise Immunity
    - a. FCC – Code of Federal Regulations, Title 47, Part 15
  - 3. Video
    - a. ISO / IEC 10918 – JPEG
    - b. ISO / IEC 14496 – 10 – MPEG-4, Part 10 (ITU H.264)
  - 4. Impact
    - a. IEC 62262:2002 and IEC 60068-2-75:1997- IK10
- C. Definitions
  - 1. Soft Trigger – Activation of event through the push of an on-screen button, which could initiate recording, PTZ presets, output triggers or email.

**1.03 SUBMITTALS**

- A. Product Data
  - 1. Manufacturer's printed or electronic data sheets
  - 2. Manufacturer's installation and operation manuals

**1.04 QUALIFICATIONS**

- A. Manufacturer shall be ISO 9001 certified with a minimum of three years' experience in manufacturing IP video digital storage equipment and associated interfaces.

**1.05 LICENSES**

- A. The IP camera-server shall provide VMS server functionality upon obtaining a license from the Manufacturer.

**1.06 WARRANTY AND SUPPORT**

- A. Manufacturer shall provide a limited three-year warranty for the IP fisheye camera.
- B. Manufacturer shall provide software updates and support for the VMS server software without charge for a period of one year.

END OF SECTION

**PART 2 PRODUCTS****2.01 EQUIPMENT**

- A. Manufacturer: Exacq Technologies, Inc.  
 11955 Exit Five Parkway  
 Fishers, IN 46037 USA  
 Phone: +1 317 845-5710  
 Web: [www.exacq.com](http://www.exacq.com)  
 E-mail: [exacqinfo@tycoint.com](mailto:exacqinfo@tycoint.com)
- B. Model: Illustra Edge Fisheye camera
- C. Alternates: None

**2.02 DESCRIPTION**

- A. The IP Fisheye Camera/Video Management Server ("IP camera-server") shall be a 360° field of view color camera with single imager and fisheye lens and embedded Video Management System (VMS) server software.
- B. The IP camera-server shall make its video viewing and control functions available via a client side application accessing the IP camera-server's own server software.
- C. The IP camera-server shall be able to coexist on an Enterprise network with Video Management servers connected to supported IP cameras which do not have their own embedded VMS server software.
- D. The IP camera-server shall be accessible from mobile and web clients.
- E. The IP camera-server shall provide up to 64 GB of onboard video storage via SD card.
- F. Camera Properties
1. Video
    - a. Compression:
      - 1.) H.264
      - 2.) MJPEG
    - b. Maximum Frame Rate and Resolution: 30 fps @ 1920 x 1080
    - c. Resolution Options: CIF, 4CIF, 720p, 1080p
    - d. Imager: 1/2.5"
    - e. Minimum Illumination: 1.2 lux
    - f. Lens Type: 1.37 mm
    - g. Horizontal Field of View: 180°
    - h. Embedded Analytics: motion detection
    - i. Wide Dynamic Range: 82 dB
  2. Storage Card: SDHC, Class 10 or better
  3. Electrical
    - a. Power Input: PoE 802.3af, Class 3
  4. Environmental:

- a. Operating Temperature: -10°C to 45°C (14°F to 113°F)
- 5. Physical
  - a. Dimensions (diameter x h): 149 mm (5.85 in) x 74 mm (2.91 in) maximum
- 6. Impact Rating: IK10
- G. Video Management System (“VMS”) Properties
  - 1. The embedded VMS server software shall provide the following features as a minimum:
    - a. System
      - 1.) Up to 10 IP camera-server connections per client
      - 2.) Browser-based viewing of live and stored video
      - 3.) Support for fish-eye and panoramic lens cameras with dewarping capability
      - 4.) Client bandwidth throttling
      - 5.) Soft triggers
      - 6.) Use the Active Directory or LDAP features of a network to authenticate users and determine which permissions they will have on each server.
      - 7.) Support a single page that displays:
        - a.) status of all servers and cameras currently connected
        - b.) current alarms, events, MAC addresses, camera configuration, format and frame rate from each individual camera-server
      - 8.) Display system information about users that are currently logged into the system, plug-in file version information number and status, and a system log that contains a detailed history of the processes that occur on the system
      - 9.) Record an audit trail of when users log in that shows what changes they have made, what video they have viewed and what they have exported
    - b. Live video view
      - 1.) Multiple monitor view support
      - 2.) PTZ control and presets
      - 3.) Digital PTZ control and preset views, with the following capabilities:
        - a.) save the location of the video streams, audio streams, maps and event views
        - b.) be accessible in both live and recorded video modes
        - c.) allow automatic cycling through two or more saved views to create a video tour
          - i. allow the configuration of the tour dwell time included views
      - 4.) Motion **and alarm** indication
        - a.) Video decoding shall not be required to process motion detection.
    - c. Recording
      - 1.) Pre and post alarm recording for supported analytics and available external alarm inputs
      - 2.) **Continuous motion, time or alarm-based recording**
      - 3.) Non-interruption of configured recording during administration and configuration tasks
      - 4.) Configuration of video recording rules for number minimum or maximum number of days on a per video stream basis
      - 5.) **Use the operating system’s native file system for recording the video**
    - d. Search, playback, export, archive

- 1.) Instant replay
- 2.) Event search
  - a.) Thumbnail views
  - b.) Timeline views
- 3.) Multi-camera playback
- 4.) Export options
  - a.) DVD (self contained player with tamper protection)
  - b.) .AVI, .MOV or .EXE file
- e. Events and Actions
  - 1.) Connect the following event types to a desired action:
    - a.) Video Motion
    - b.) Video Loss
    - c.) Input Trigger
    - d.) Health
    - e.) IP Camera Connection
    - f.) Software Trigger
    - g.) Analytics
  - 2.) Support the following action types:
    - a.) Record Video
    - b.) Output Trigger
    - c.) Output Video
    - d.) Send an email
    - e.) Burn a CD/DVD
    - f.) Call a PTZ Preset
- f. The IP camera-server shall have the ability to support upgraded VMS software providing additional advanced functionality, to include the following:
  - 1.) System
    - a.) Up to 1000 IP camera-server connections per client
    - b.) Ability to specify minimum and maximum retention times on a per camera basis
    - c.) Audit trail
    - d.) Custom user groups
    - e.) User permissions configurable across multiple servers from a single screen
    - f.) E-mail notifications on system health
    - g.) Enterprise level camera management
    - h.) Third party integrations via command line, API and web SDK.
  - 2.) Live view
    - a.) Event linking on video, serial, and health events
    - b.) Camera groups
    - c.) Multi-streaming
    - d.) Event notifications

- e.) Map support, including hierarchical maps
  - i. Placement of soft triggers within maps
- f.) Two-way audio
- 3.) Search, playback, export, archive
  - a.) Multiple camera export
  - b.) POS and ATM serial text search
  - c.) Time-lapse recording
  - d.) Archiving
  - e.) Intelligent search
  - f.) Bookmarking
  - g.) Case management
- 2. Client/Edge Architecture
  - a. The VMS software shall have a client/edge-based architecture configurable for client software to be running on any network-connected TCP/IP workstation.
  - b. Multiple client workstations shall be capable of simultaneously viewing live and/or recorded video from one or more servers.
  - c. The IP camera-server shall support both client browser-based and a mobile web client interface.
    - 1.) Client
      - a.) The client software shall be available for Windows, Apple iOS, and Linux operating systems.
      - b.) A loss of video signal shall be configurable to be displayed on-screen.
      - c.) Client software shall be downloadable at no charge from the Manufacturer's web site and be fully compatible with all available features of the VMS server software.
      - d.) The camera-server VMS software shall allow the user to have any combination of VMS client applications running on any of the supported operating systems and to be able to connect to any of the VMS camera-servers or independent servers running on any of the supported operating systems.
      - e.) The camera-server VMS software shall have the capability to run multiple client applications simultaneously on one workstation with multiple monitors.
      - f.) Acceptable Client operating systems
        - i. Microsoft Windows 7/8/10 (all versions)
        - ii. Microsoft Windows Server 2003/2008/2012/2016
        - iii. Linux Ubuntu 8.04/10.04 Debian Package
        - iv. Mac OSX (operating on Intel CPU)
  - 2.) Client functionality
    - a.) The VMS client software shall use a combination of a user name and a password to authenticate the user's permission level.
    - b.) Clients shall be able to request audio, video, and data, as supported by the IP camera-server.

- c.) The VMS shall allow the configuration of the video devices to be performed in the client and pushed out to the devices, storing the configuration on both the camera and the VMS.
- d.) Views - The VMS shall be able to organize the camera video view panel in the following layout patterns:
- i. 1-camera (full-screen)
  - ii. 4-camera (2x2)
  - iii. 8-camera (3 large views and 4 small views)
  - iv. 10-camera (2 large views and 8 small views)
  - v. 13-camera (1 large view and 12 small views)
  - vi. 16-camera (4x4)
  - vii. 8-camera (1 very large view and 7 small views)
  - viii. 9-camera (3x3)
  - ix. 6-camera (2x3) widescreen
  - x. 12-camera (4x3) widescreen
  - xi. 20-camera (5x4) widescreen
  - xii. 30-camera (6x5) widescreen
  - xiii. 48-camera (8x6) widescreen
- e.) Users shall be able to select their own icon and the software triggers to display in the client and on connected VMS servers.
- f.) PTZ control
- i. The VMS software shall allow control of PTZ cameras to authorized user clients.
  - ii. When used on a non-PTZ camera, the VMS shall digital pan, tilt and zoom on any video whether in live or recorded mode.
  - iii. The VMS shall allow following methods of controlling a PTZ camera:
    - PTZ graphics control windows
    - Live graphic overlay PTZ control icons
    - Keyboard control (up, down, left, right arrows; page up, page down for zoom)
    - PTZ presets
    - Digital PTZ
    - USB joystick to control PTZ cameras
    - Proportional PTZ control with mouse
- g.) Record – The VMS client software shall allow:
- i. configuration of each video input's recording time on an hourly basis
  - ii. recording on motion
  - iii. recording on event
  - iv. non-recording times
- h.) Search and playback - The VMS client software shall provide the following search and playback capabilities:
- i. Search and playback of recorded video, audio and events from VMS servers



- ii. Capability to search for and play back video from multiple cameras simultaneously, displayed in a synchronized multi-camera layout
  - iii. Search through recorded video based on time, date, video source and image region with results displayed as both a clickable timeline and a series of thumbnail images
  - iv. Perform a visual thumbnail search, where the user can select one camera to see one image per set time period and play video from that image or zoom in to a time range
  - v. Search and play back of audio in synchronization with video
- i.) Export - The VMS client software shall provide the following export capabilities:
- i. export video, maps, and audio in any of the following file formats:
    - .exe with executable player, with ability to authenticate that the video has not been tampered with using a keyed Hash Message Authentication Code (HMAC).
    - .avi
    - .ps
    - Quick time .mov
  - ii. export a video segment from specific cameras or audio inputs to a CD or DVD upon an input trigger or other event being activated
- j.) Workstation requirements:
- i. Single monitor
    - Processor: Intel® Atom® D525 at 1.8 GHz or higher
    - Graphics: 1280x1024x32 bits
    - RAM: 1GB
    - NIC: 10/100/1000BASE-T Ethernet
    - Hard Disk: 40 GB
    - Acceptable operating systems:
    - Microsoft® Windows 7 or later
    - Linux Ubuntu 8.04 or higher
    - Mac OSX 10.4 or higher
  - ii. Multiple monitors
    - Monitors: up to 4 VGA at 1920 x 1200 resolution
    - Processor: Intel® Core i7 or higher
    - Graphics: Multi-Output Display Adapter
    - RAM: 4GB
    - NIC: 10/100/1000BASE-T Ethernet
    - Hard Disk: 40 GB
    - Acceptable operating systems:
    - Microsoft® Windows 2003 Server
    - Microsoft® Windows 7 (all versions) or higher

- Mac OSX 10.6 or higher
- Linux Ubuntu 10.04 or higher

### 3.) Web client

- a.) A web client interface, running on a separate computer, shall allow authorized users to view live video, view recorded video, control pan-tilt zoom (PTZ) cameras and activate triggers.
  - b.) The web client interface shall allow connections to multiple camera-servers and VMS servers simultaneously.
  - c.) The web client interface shall operate without requiring installation of any software. When using the web client interface, the camera-server VMS shall transcode the video into a JPEG file of the size as the browser screen before sending it to the browser.
  - d.) The web client interface shall support the following browsers:
    - i. Internet Explorer 6 and later
    - ii. Firefox 2 and later
    - iii. Opera 9 and later
    - iv. Apple Safari
    - v. Google Chrome
  - e.) The web client interface shall also connect with non-JavaScript browsers and shall be compliant with HTML 4.0 ([www.w3.org](http://www.w3.org)).
  - f.) Mobile web client
    - i. A free mobile application shall be available permitting remote view of live and recorded video.
    - ii. The mobile application shall support PTZ control and the monitoring and activation of alarms and triggers for the mobile device.
    - iii. The mobile application shall be available for devices running Apple iOS, Google Android, Microsoft Windows, and Amazon Kindle Fire software.
    - iv. The mobile application shall allow simultaneous interaction with multiple camera and NVR devices from the same Manufacturer.
- d. The web service supporting the mobile application shall size the video stream to accommodate both low bandwidth and high bandwidth networks.

END OF SECTION

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Contractor shall comply with all Manufacturer installation guidelines.
- B. Contractor personnel shall comply with all applicable state and local licensing requirements.

**3.02 STORAGE**

- A. Hardware shall be stored in an environment where temperature and humidity are in the range specified by the Manufacturer.

END OF SECTION