

SECTION 28 23 13
MAXPRO® VIDEO MANAGEMENT SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Provide a complete video surveillance and management system, including engineering, components, installation and commissioning.

1.2 RELATED SECTIONS

NOTE TO SPECIFIER: Include related sections as appropriate if video surveillance and management system is integrated to other systems.

- A. Section 26 05 00 – Common Work Results for Electrical, for interface and coordination with building electrical systems and distribution.
- B. Section 28 05 13 – Conductors and Cables for Electronic Safety and Security, for cabling between system servers, panels and remote devices.
- C. Section 28 05 28 – Pathways for Electronic Safety and Security, for conduit and raceway requirements.
- D. Section 28 13 00 – Security Management System, for interface and coordination with electronic access control systems.
- E. Section 28 23 00 – Video Surveillance Equipment, for interface with, and administration of video recording devices and equipment.
- F. Section 28 23 19 – Digital Video Recorders and Analog Recording Devices, for interface to and administration of video recording devices.
- G. Section 28 23 23 – Video Surveillance System Infrastructure.

1.3 REFERENCES

- A. Reference Standards: Provide systems which meet or exceed the requirements of the following publications and organizations as applicable to the Work of this Section:
 - 1. Canadian ICES-003
 - 2. Consultative Committee for International Radio (CCIR)
 - 3. Conformity for Europe (CE)

4. Electronic Industry Association (EIA)
5. Federal Communications Commission (FCC)
6. Joint Photographic Experts Group (JPEG)
7. National Television Systems Committee (NTSC)
8. Phase Alternating Line (PAL)
9. Underwriters Laboratories Inc. (UL)

1.4 SYSTEM DESCRIPTION

- A. The Video Management System (VMS) shall control multiple sources of video surveillance subsystems in a facility to collect, manage and present video in a clear and concise manner. VMS shall intelligently determine the capabilities of each subsystem across a single or multiple sites, allowing video management of any compatible analog or digital video device through a unified configuration platform and viewer.
- B. Basis-of-design is the Honeywell MAXPRO VMS.

1.5 SUBMITTALS

- A. General: Submittals shall be made in accordance with the Conditions of the Contract and Submittal Procedure Section.
- B. Manufacturer's Product Data: Submit manufacturer's data sheets indicating systems and components proposed for use, including instruction manuals.
- C. Shop Drawings: Submit complete shop drawings including connection diagrams for interfacing equipment, list of connected equipment, and locations for major equipment components.
- D. Record Drawings: During construction maintain record drawings indicating location of equipment and wiring. Submit an electronic version of record drawings not later than Substantial Completion of the project.
- E. Operation and Maintenance Data: Submit manufacturer's operation and maintenance data, customized to the system installed. Include system and operator manuals.
- F. Field Tests: Submit results of field testing of every device including date, testing personnel, retesting date (if applicable), and confirmation that every device passed field testing.
- G. Maintenance Service Agreement: Submit a sample copy of the manufacturer's maintenance service agreement, including cost and services for a one year period for Owner's review. Maintenance shall include, but not be limited to, labor and materials to repair the system, tests and adjustments, and regular inspections.

1.6 QUALITY ASSURANCE

- A. Manufacturer: Minimum ten years experience in manufacturing and maintaining video management systems. Manufacturer shall provide toll-free technical assistance and support available 24/7.
- B. Manufacturing Location: Provide equipment assembled in the United States.
- C. Installer: Minimum two years experience installing similar systems, and acceptable to the manufacturer of the video management system.
- D. Environmental Conditions: Video management system shall be designed to function in the following environmental conditions:
 - 1. Operating Temperature: shall be between 5°C and 40°C (40°F – 104°F) non-condensing.
 - 2. Emissions: CFR 47 Part 15 Subpart B EN55022, EN61000-3-2, EN61000-3-3, CISPR 22.
 - 3. Immunity: EN55024.
 - 4. Safety: UL60950, NWGQ (7), IEC60950, IEC 60825-1:2001.
- E. Power Requirements: Components shall have the following electrical specifications: 100-240 V AC (50 Hz/60 Hz).

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's labeled packages. Store and handle in accordance with manufacturer's requirements, in a facility with environmental conditions within recommended limits.

1.8 WARRANTY

- A. Manufacturer's Warranty: Submit manufacturer's standard one-year warranty for the video surveillance system.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Video Management System (VMS) Manufacturer: Honeywell MAXPRO® VMS Video Management System, <https://www.security.honeywell.com/>.

2.2 SYSTEM COMPONENTS

- A. VMS server, controller containing a database of all network-connected cameras, integrated components and their configurations.
- B. Workstations that render video and act as a main user/machine interface.

2.3 OPERATIONAL REQUIREMENTS

- A. VMS shall provide a single graphical user interface (GUI) to monitor, control and administer digital video surveillance equipment from multiple systems and platforms.
- B. VMS shall include a fully scalable enterprise-class media management system to enable simultaneous live monitoring from multiple stations and be configurable for storage both on and off site.
- C. VMS software shall be configured to store and to view images captured by one camera or numerous cameras and monitor connections across an unlimited number of servers.
- D. The VMS application shall have following major capabilities:
 - 1. Capable of managing pentaplex user operations of attached recording devices simultaneously, including live viewing, recording, playback, archiving of video data to an external storage device, and handling the exchange of data between the server and a remote workstation.
 - 2. Live viewing of up to 64 cameras on a single workstation with up to four monitors set up at CIF resolution. For 1080p and up to 4K resolution, the number of live streams shall be benchmarked based on the client hardware configuration deployed.
 - 3. Integration with multiple digital and network video recording devices.
 - 4. Integration with multiple video matrix switchers and matrix keyboards.
 - 5. The number of recorders and switchers shall be scalable within a network to handle any size of installation.
 - 6. Capable of managing the integration with multiple digital IP cameras through compatible recording devices.
 - 7. Integration with electronic access control systems.
 - 8. Integration with video analytics and a data management utility.
 - 9. Capable of managing failover and redundant capabilities of the recording device(s) and the database server. 1+1/N+M MAXPRO NVR failover and failback automatically or manually. View and playback on one client panel.
 - 10. Capable of managing the investigation and video archive search tools of the recording devices.
 - 11. Capable of managing advanced search capabilities of the recording devices.
 - 12. Capable of managing motion detection-based recording.

13. Multi-level user access rights for managing viewing rights and access to the recorder functions.
14. Capable of managing continuous, scheduled, manual, event-based and alarm-based recording features of the recording devices.
15. Support for Unicast network topologies and communication protocols.
16. Macro capability to allow for custom scripts and to provide both customization and third party integration.
17. Integrates Honeywell Video Analytics.
18. Support for both centralized and distributed architectures.
19. Simultaneous use of multiple video compression including H.264, H.265 (including camera dependent smart codec support), MPEG-4 and MJPEG.
20. Utilization of off-the-shelf computer workstations, servers, networking and storage equipment.
21. Capable of person anonymization for GDPR compliance.

E. Cyber Security Features:

1. Enhanced password security – non-recoverable passwords, enforcing complex passwords, password expiry, and no default passwords.
2. Addressed Unauthenticated/Unauthorized channels.
3. Secured firewall configuration.
4. Secured Web client – enabled HTTPS and TLS 1.2, and protection from CSRF and XSS attacks.
5. Restricted folder and Registry access to operators.
6. Secured Assemblies – Digital signing.
7. Secure communication with the new equiP Cameras using Honeywell proprietary protocol and Encrypted video streams with 30 Series camera using TLS 1.2

F. Mode for User Login: VMS Server and Workstation shall have the option of two modes of user logins:

1. Windows Authentication: Uses the Windows logged-in user name.
2. User DB Authentication: Uses a preconfigured user name and password.

G. VMS Workstation shall provide the following operator functions:

1. Configuration: The operator (with Administrator privileges) shall have the option to configure VMS. VMS shall support live updates of all configurations. The following configurations shall be possible:
 - a. Recorders Configuration: Option to add/edit/delete recorders.

- b. Camera Configuration: Option to add/edit/delete cameras and associate to a particular recorder or switcher and map to a particular site, partition or event group.
 - c. Monitor Configuration: Option to add/edit/delete monitors and map to a particular site, partition, event group or keyboard. It shall provide an option to add a digital monitor and associate it with a particular workstation. It shall provide an option to configure a digital monitor with a default salvo and startup in full screen. It shall provide an option to add an analog monitor and associate it with a particular switcher. Option to save a digital correction in the video input page.
 - d. Switcher Configuration: Option to add/edit/delete analog video switchers.
 - e. Keyboard Configuration: Option to add/edit/delete keyboard controllers.
 - f. User Management (Users and Roles): Option to add/edit/delete roles and associate to predefined privileges and then add/edit/delete users and associate users with roles. Option to associate permissions with salvo selection and tool bar buttons.
 - g. Site Configuration: Option to add/edit/delete a site.
 - h. Workstation Configuration: Option to add/edit/delete a workstation.
 - i. Event Group Configuration: Option to add/edit/delete event groups. Support of bulk event association to enable/disable and adjust events for recorders and inputs in bulk.
 - j. Partition Configuration: Option to add/edit/delete partitions.
 - k. Sequence Configuration: Option to add/edit/delete a scan sequences.
 - l. Intercept Key Configuration: Option to add/edit/delete intercept keys from UltraKey keyboards to change the key function to a new and desired function.
 - m. System Macro Configuration: Option to add/edit/delete macros. Option to restore macros. Execute button option to trigger selected macros provides mechanism for testing written macros.
 - n. Port Configuration: Option to add/edit/delete keyboard controllers and analog video switchers to the ports available on the controller.
2. Viewer:
- a. Capable of being launched multiple times on the same workstation a minimum of four (4) times to display four (4) viewers on four (4) separate monitors per workstation.
 - b. Main video viewing screen capable of showing 1x1, 2x2, 3x3, 4x4, 5x5, 6x6 1x5, 2x8, and 1x12 salvos of live or recorded video. The Viewer application shall be capable of a full screen mode where only the video salvo is displayed.

- c. Each Viewer has the capability to be associated to a specific monitor on a workstation and be assigned a unique output number that is either selectable from the viewer device tree, an UltraKey controller, or from a system macro.
- d. Capable of saving current salvo as a View and allowing the user to select the saved view by either dragging and dropping it into the viewer, using an UltraKey controller or a system macro.
- e. Capable of selecting a particular camera or salvo by using the mouse to drag it onto the main video viewing screen. Users shall also have an undo/redo option for camera drag/drop and salvo selection from the viewer and UltraKey controller.
- f. Capable of switching an analog camera to an analog or digital monitor so that the system will recognize to switch to the analog matrix switch or to pull the video from an encoder.
- g. Capable of choosing My Salvos (unique to the current operator) or Shared Salvos while saving a salvo.
- h. Capable of allowing duplicate salvo names to be set by different users and in different locations.
- i. Capable of dragging any monitor defined in the system onto a video panel and take control of that monitor.
- j. Option to send a command to the controller to switch a particular analog camera onto the analog monitor through a drag and drop operation.
- k. Capable of configuring and running scan sequences.
- l. Capable of independently adjusting the contrast, brightness, and saturation settings for each camera.
- m. Support for both analog and digital PTZs through the GUI or the keyboard.
- n. Innovative “One-Click” or “Mouse Drag” 3D PTZ control experience that does away with legacy PTZ controls of continuous clicking.
- o. Intelligence events from cameras can be viewed at the alarm panel and trigger event recording on MAXPRO NVRs for further investigation.
- p. 360° de-warping “spreads” the distorted fisheye image into natural panoramic and/or multiple tile views. Operators can view and focus on zones of interest on live and recorded video.
- q. Capable of exporting user selected images or video clips. A digital signature shall be attached to every exported clip.
- r. Clip Creation: The Clip Creation facility shall permit multi-camera clip generation.
 - Story clips allow for selecting multiple cameras at different times to create a single clip to play the cameras back in order. Also supports saving salvo information in a story clip.

- Salvo clips provide an instant clip export button to create an instant clip while maintaining the salvo information. Supports pre-determined pre- and post-times that are user-configurable in the preferences.
 - Clip preview window facility supports play back of the individual cameras prior to commencing clip creation.
 - Capable of manually setting the clip duration in the clip creation window for each camera.
- s. Capable of playing back the exported video clips. Each video channel that is being recorded by the recording system shall be overlaid with text and a time stamp that is customizable by the user.
 - t. Allows the user to initiate recording through the GUI or controller.
 - u. Capable of complete alarm management for the alarms coming from recorders or switchers.
 - v. Quick and responsive alarm actions can be initiated from the preview pane options.
 - w. Application launch pad launches other applications from within the Viewer.
 - x. Control of operator messaging, allowing operators to communicate with each other. Operators can exchange text, images and annotated video sources. Operators can hand over a video source to another operator using messaging.
 - y. Ability to set up surrounding camera views. Support for setting presets in surrounding cameras.
 - z. Option to perform various operations through the context menu on a particular video (live/recorded/sequence). These operations include: Full screen, point and drag, enable square select, maintain aspect ratio, toggle text, digital PTZ, add bookmark, send message, start recording, stop recording, mark in, mark out, save image, save image as, and show surrounding cameras.
 - aa. Ability to manage the timeline control of the recording device, which provides camera recording statistics. Timeline control shall have the following features: Mark in/out (with looping facility), bookmark (including for all playing cameras or all selected cameras or removing all bookmarks), snapshot, time slider, time search, time jump, and play controls. Timeline control shall also include dedicated buttons for step reverse and step forward and keyboard shortcuts for playback operations.
 - bb. Support for bookmark searches based on cameras, time duration, and comments.
 - cc. Controllable by a keyboard controller connected to the VMS server/controller with the following major features: selecting salvos, ending monitor commands, switching operations, and PTZ control operations.
 - dd. Preference configuration including: fps of unselected panels, rendered type, preview pane, and text display format.

- ee. Support for smooth reverse playback at 2x (Recorder Dependent)
 - ff. Capable of displaying analytics annotations (Recorder/Camera Dependent)
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- 3. Search: The Search facility shall include searches based on date and time.
 - 4. Reports: The Report facility shall include event history reports and audit log reports.
 - 5. Remote Monitor: The Remote Monitor facility shall allow operators to control a remote monitor connected to another workstation and perform review capabilities so that both the local operator and the remote viewer can simultaneously watch the same video.
 - 6. Maps: The Maps facility shall include drag-and-drop camera setup on maps, intuitive navigation across sites, buildings and floors, live video pop-up and instant playback, and alarm indication on maps.

2.4 VMS INTEGRATIONS

- A. Recorders: VMS shall support integration with digital and network video recorders (DVRs/NVRs). VMS shall have the ability to access and manage necessary functions of the recording devices through the VMS client interface, such as live video, recorded video, camera configuration, PTZ control and other associated functions. The system shall support the following recording devices:
 - 1. Honeywell MAXPRO® NVR and MAXPRO® NVR Hybrid
 - 2. Honeywell ADPRO iFT Series NVR and Gateway
 - 3. Honeywell Performance Series NVR and HQA DVR
 - 4. Honeywell Enterprise Series
 - 5. Honeywell Fusion Series
 - 6. Honeywell Rapid Eye Series
 - 7. 3rd Party Recorders (see the VMS compatibility page on www.security.honeywell.com/hota/compatibility/index.html for a complete list)
- B. Analog Video Switchers: VMS shall support matrix switcher integration including camera call up, monitor switching, video command support and PTZ support. The video subsystem shall be the controller device for video cameras, monitors, and VCRs, and shall associate camera inputs with monitor outputs. The system shall allow users to program video monitors and video cameras to execute commands upon recognition of an alarm or any other condition within the system. The user shall be able to add, edit, delete, and partition video subsystems. The system shall support the following analog video switchers:
 - 1. Honeywell VideoBloX Series
 - 2. Ultrak MAXPRO-1000
 - 3. Pelco 9600 Series

- 4. American Dynamics
- 5. Vicon
- 6. Burle
- C. Video Analytics:
 - 1. Honeywell Active Alert
 - 2. IntrusionTrace and LoiterTrace of ADPRO NVR and equiP Cameras
 - 3. VehicleTrace License Plate Recognition of HBL6GR2-LPR camera with MAXPRO NVR
- D. Data Management Utility:
 - 1. Honeywell Integrated Data Manager
- E. IP Surveillance Control Keyboards:
 - 1. Honeywell HJK7000 UltraKey Plus
 - 2. Honeywell HJC5000 UltraKey Lite
- F. Electronic Access Control Systems:
 - 1. Honeywell Pro-Watch Release 3.8 or later

2.5 SYSTEM HARDWARE

- A. VMS Server: Server shall operate with no performance degradation using the following minimum hardware and operating system configuration:
 - 1. Processor:
 - a. Up to 5 Client Server: Single Intel® Quad Core Xeon® E3 1225V3 3.2 GHz S1150
 - b. Up to 10 Client Server: Single Intel® Quad Core Xeon® E-2134 3.5GHz
 - c. Up to 25 Client Server: Dual Intel® 8 Core Xeon® Silver 4110 2.1 GHz
 - 2. System Memory (RAM):
 - a. Up to 5 Client Server: 8 GB
 - b. Up to 10 Client Server: 16 GB
 - c. Up to 25 Client Server: 32 GB
 - 3. Optical Drive: DVD+/-RW
 - 4. Hard Disk Drives: Two separate hard drives or two sets of RAID arrays.
 - a. Disk/RAID set 1 utilizing 7200 SATA or 10K-15K RPM SCSI 146 GB
 - b. Disk/RAID set 2 utilizing 7200 SATA or 10K-15K RPM SCSI 146 GB

- c. If fault tolerance is required, RAID set one is RAID 1 or 10 and RAID set two is RAID 10 or 0 + 1
5. Network Interface Card (NIC): Dual or compatible pair of NICs, 1 Gbps
6. Human Interface: 102-key keyboard and a mouse pointing device
7. Graphics Adapter: 32-bit color or higher, video resolution 1280x1024 pixels, 65K colors non-interlaced
8. Operating System: Original software CDs and startup installation diskettes for:
 - a. Windows® Server 2008 R2 Standard SP1 64-bit OR Windows Server 2012 Standard 64-bit OR Windows Server 2016 R2
 - b. Microsoft SQL Express 2008 R2 OR SQL Express 2012
9. Windows Media Player Version 12
10. For installations where the system is integrated with Honeywell IP Engine recording software with more than 500 cameras, install a separate IP Engine database server. The specification of this server shall be determined based on end-user deployment requirements.

NOTE TO SPECIFIER: Workstation configuration can use either a two (2) or four (4) monitor setup. Select the workstation configuration for the monitor setup that is required.

- B. VMS Dual Monitor Workstation: Workstation shall operate with no performance degradation using the following minimum hardware and operating system configuration for a two (2) monitor setup:
 1. Processor: Intel® Core™ i7-8700, 3.2 GHz or equivalent newer generation Intel® Core™ Processors for client systems.
 2. System Memory (RAM): 16 GB
 3. Optical Drive: DVD-RW
 4. Hard Disk Drives: Single disk or RAID 7200 SATA 250 GB or 10K to 15K SCSI 250 GB; RAID 0 or 0+1.
 5. Network Interface Card (NIC): 1 Gbps
 6. Human Interface: 102-key keyboard and a mouse pointing device
 7. Graphics Adapter: Integrated Intel UHD graphics 630
 8. Operating System: Windows 7 Professional or Windows 10 Enterprise, 64-bit
 9. Windows Media Player Version 12
- C. VMS Quad Monitor Workstation: Workstation shall operate with no performance degradation using the following minimum hardware and operating system configuration for a four (4) monitor setup:
 1. Processor: Intel® Core™ i7-8700, 3.2 GHz or equivalent newer generation Intel® Core™ Processors for client systems.

2. System Memory (RAM): 16 GB
3. Optical Drive: DVD-RW
4. Hard Disk Drives: Single disk or RAID 7200 SATA 250 GB or 10K to 15K SCSI 250 GB; RAID 0 or 0+1.
5. Network Interface Card (NIC): 1 Gbps
6. Human Interface: 102-key keyboard and a mouse pointing device
7. Graphics Adapter: Integrated Intel UHD graphics 630 and NVIDIA Quadro P620
8. Operating System: Windows 7 Professional or Windows 10 Enterprise, 64-bit
9. Windows Media Player Version 12

2.6 MANUFACTURER SUPPORT

- A. Manufacturer shall provide customer service, pre-sales applications assistance, after-sales technical assistance, access to online technical support, and online training using Web conferencing.
- B. Manufacturer shall provide 24/7 technical assistance and support by means of a toll-free telephone number at no extra charge.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine site conditions prior to installation. Notify Architect and Owner in writing if unsuitable conditions are encountered. Do not start installation until site conditions are acceptable.

3.2 INSTALLATION

- A. All components of the video management system shall be thoroughly tested before shipping to the project location.
- B. Video management system shall be installed, programmed and tested in accordance with manufacturer's installation instructions.
 1. Coordinate interfaces with Owner's representative where appropriate.
 2. Provide backboxes, racks, connectors, supports, conduit, cable, and wire for a complete and reliable installation. Obtain Owner's approval for exact location of all boxes, conduit, and wiring runs prior to installation.

3. Install conduit, cable, and wire parallel and square with building lines, including raised floors areas. Do not exceed forty percent (40%) fill in conduits. Gather wires and tie to create an orderly installation.
4. Coordinate with other trades to provide proper sequencing of installation.

3.3 FIELD COMMISSIONING AND CERTIFICATION

- A. Field Commissioning: Test video management system as recommended by manufacturer, including the following:
 1. Conduct complete inspection and testing of equipment, including verification of operation with connected equipment.
 2. Test devices and demonstrate operational features for Owner's representative and authorities having jurisdiction, as applicable.
 3. Correct deficiencies until satisfactory results are obtained.
 4. Submit written copies of test results.

3.4 TRAINING

- A. Conduct on-site system administrator and security/surveillance operator training, with the number of sessions and length of sessions as recommended by the video management system manufacturer. Training shall include administration, provisioning, configuration, operation, and diagnostics.

END OF SECTION