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.

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NETWORK RECORDER STORAGE EXPANSION AND ARCHIVAL

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

28 00 00 Electronic Safety and Security

28 20 00 Electronic Surveillance

28 23 00 Video Surveillance

28 23 19 Digital Video Recorders and Analog Recording Devices

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.

Important Note to Security Systems Specifiers

CSI MasterFormat 2016 incorporates numerous significant changes affecting electronic safety and security. This document is written to provide flexibility in using either format, although adoption of MasterFormat 2016 is encouraged. The following is a guide to the MasterFormat numbers relevant and related to the product referenced in this specification.

MasterFormat 2014:

27 20 00 Data Communications
28 05 00 Common Work Results for Electronic Safety and Security
28 13 00 Access Control
28 13 16 Access Control Systems and Database Management
28 16 00 Intrusion Detection
28 16 33 Intrusion Detection Control, GUI, and Logic Systems
28 23 00 Video Surveillance
28 23 13 Video Surveillance Control and Management Systems
28 23 16 Video Surveillance Monitoring and Supervisory Interfaces
28 23 19 Digital Video Recorders and Analog Recording Devices
28 23 23 Video Surveillance Systems Infrastructure
28 23 29 Video Surveillance Remote Devices and Sensors

MasterFormat 2016:

27 15 01.xx Video Surveillance Communications Conductors and Cables
27 20 00 Data Communications
28 05 00 Common Work Results for Electronic Safety and Security
28 05 xx Power Sources for Electronic Safety and Security
28 05 xx Servers, Workstations and Storage for Electronic Safety and Security
28 05 xx Storage Appliances for Electronic Safety and Security
28 05 xx.xx Network Video Recorders
28 05 xx Cyber Requirements for Electronic Safety and Security
28 05 xx Communications Equipment for Electronic Safety and Security
28 05 xx Systems Integration and Interconnection Requirements
28 05 xx.xx Electrical
28 05 xx.xx Information
28 10 00 Access Control
28 10 xx Access Control Software
28 20 00 Video Surveillance
28 2x 00 Video Management System
28 30 00 Security Detection, Alarm, and Monitoring
28 3x 00 Intrusion Detection
28 3x xx.xx Intrusion Detection Interfaces to Security Monitoring and Control

HYBRID NETWORK VIDEO RECORDER

1. GENERAL

1.1. SUMMARY

1.1.1. Section includes a device to acquire, record, and store signals from both directly connected analog cameras and IP network video cameras and encoders.

Note: This product is designed to work exclusively with exacqVision Recorders from Exacq Technologies.

1.1.2. Related Requirements

1.1.2.1 28 23 19 – Digital Video Recorders

1.1.2.2 28 23 23 – Video Surveillance Systems Infrastructure

1.1.2.3 28 23 29 – Video Surveillance Remote Devices and Sensors

1.2. REFERENCES

1.2.1. Abbreviations

1.2.1.1. HDD – Hard Disk Drive

1.2.1.2. Gbps – Gigabits per second

1.2.1.3. IP - Internet Protocol

1.2.1.4. MTBF – Mean Time Between Failure

1.2.1.5. NIC – Network Interface Card

1.2.1.6. Mbps – Megabits per second

1.2.1.7. NVR – Network Video Recorder

1.2.1.8. RAID – Redundant Array of Independent Disks

1.2.1.9. SSA – Software Subscription Agreement

1.2.1.10. SSH – Secure Shell

1.2.1.11. TB - Terabyte

1.2.1.12. VMS - Video Management System

1.2.2. Reference Standards

1.2.2.1. Institute of Electrical and Electronics Engineers (IEEE) 802.3 standards

1.2.2.2. FCC – Code of Federal Regulations, Title 47, Part 15

1.2.2.3. ISO / IEC 14496 – 10 – MPEG-4, Part 10 (H.264)

1.2.2.4. UL

1.2.2.5. CE

1.3. SUBMITTALS

1.3.1. Product Data

1.3.1.1. Manufacturer’s printed or electronic data sheets

1.3.1.2. Manufacturer’s installation and operation manuals

1.4. QUALIFICATIONS

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

1.5. SOFTWARE AGREEMENT

1.5.1. The network storage expansion shall have a three-year Software Subscription Agreement (SSA) providing for available feature upgrades at no additional cost.

1.6. WARRANTY AND SUPPORT

1.6.1. Manufacturer shall provide a limited three-year warranty and updates for device firmware during the warranty period.

1.6.1.1. An extended support option shall be available.

END OF SECTION

2. PRODUCTS

2.1. EQUIPMENT

2.1.1. Manufacturer: Exacq Technologies, Inc.
11955 Exit Five Parkway
Fishers, IN 46037 USA
Phone: +1 317 845-5710
Web: https://www.exacq.com
E-mail: exacqinfo@tycoint.com

2.1.2. Model: S-Series Enterprise

2.1.3. Alternates: None

2.2. DESCRIPTION

2.2.1. The Network Recorder Storage Expansion and Archival equipment (“extended recorder storage”) shall be an appliance to expand the storage capability of multiple network-connected video recorders (“NVRs”) either as RAID-based virtual storage or as an archival device.

2.2.2. The recorder storage expansion appliance hardware shall have the following characteristics:

2.2.2.1. Management of the network video storage system, including software management, via a single manufacturer’s integrated products.

2.2.2.2. Chassis: 1U Rackmount, 2U Rackmount

2.2.2.3. Storage capacity:

2.2.2.3.1. 1U: 64 TB (4 x 16 TB)

2.2.2.3.2. 2U: 288 TB (12 x 24 TB)

2.2.2.4. RAID capability: S-64T-R1SL (RAID 5), S-288T-R2SL (RAID 6)

Exacq part numbers differentiated by on-board storage capacity and chassis size:

Model Number	Storage Capacity (TB)	Chassis size
S-64T-R1SL	64 TB	1U
S-288T-R2SL	288 TB	2U

2.2.2.5. Server characteristics:

2.2.2.5.1. Operating system: Ubuntu Linux 18.04

2.2.2.5.2. Operating system drive: BOSS, 2 x 480 GB, RAID 1

2.2.2.5.3. Monitor outputs: 1 VGA

2.2.2.5.4. Processor: Intel Xeon

2.2.2.5.5. Memory: 2 x 8 GB (16GB total)

2.2.2.5.6. Network:

2.2.2.5.6.1. 1U: 2 x 1 Gbps, 2 x 10 Gbps (RJ45)

2.2.2.5.6.2. 2U: 2 x 1 Gbps, 2 x 10 Gbps (SFP)

2.2.2.5.7. Ports:

2.2.2.5.7.1. 1U:

2.2.2.5.7.1.1. Front: 1 x Micro-AB USB / 1 x USB 2.0

2.2.2.5.7.1.2. Rear: 1 x USB 2.0, 1 x USB 3.0, 1 x Serial, 1 x VGA, 1 x iDRAC

2.2.2.5.7.2. 2U:

2.2.2.5.7.2.1. Front: 1 x Micro-AB USB, 1 x USB 2.0, 1 x VGA

2.2.2.5.7.2.2. Rear: 1 x USB 2.0, 1 x USB 3.0, 1 x Serial, 1 x VGA, 1 x iDRAC

2.2.2.6. Enclosure

2.2.2.6.1. Material: Painted steel

2.2.2.6.2. Dimensions (l x w x h):

2.2.2.6.2.1. 1U (with bezel): 23.58 in x 18.98 in x 1.69 in (598.9 mm x 482 mm x 42.9 mm)

2.2.2.6.2.2. 2U (with bezel): 28.4 in x 18.97 in x 3.41 in (721.4 mm x 481.8 mm x 86.6 mm)

2.2.2.6.3. Weight (maximum):

2.2.2.6.3.1. 1U: 53.64 lbs (24.33kg)

2.2.2.6.3.2. 2U: 65.69 lbs (31.26 kg)

2.2.2.7. Electrical

2.2.2.7.1. Input voltage: 120/240 VAC auto-sensing

2.2.2.7.2. Power Supply: Dual Hot Swap

2.2.3. Storage Management System (“SMS”)

2.2.3.1. The Storage Expansion and Archival server shall come pre-loaded with storage management software. This software package shall allow both remote and local configuration management.

2.2.3.2. The SMS server software shall provide the following features as a minimum:

2.2.3.2.1. Thick client

2.2.3.2.1.1. Client software shall be downloadable at no charge from the NVR Manufacturer’s website and be fully compatible with all available features of the SMS server software.

2.2.3.2.1.2. The client software shall be available for Windows, Apple iOS, and Linux operating systems.

2.2.3.2.2. Local management – The local management interface shall be available through an SSH utility and include the following functions:

2.2.3.2.2.1. Backing up and restoring server configuration.

2.2.3.2.2.1.1. Backup configuration to USB

2.2.3.2.2.1.2. Restore configuration from USB

2.2.3.2.2.2. Performing special modifications to system files.

2.2.3.2.2.3. Viewing and troubleshooting services, including:

2.2.3.2.2.3.1. Displaying archive status.

2.2.3.2.2.3.2. Displaying extended drive storage status.

2.2.3.2.2.4. Configuring network settings.
2.2.3.2.2.5. Check drive for bad blocks.
2.2.3.2.2.5.1. Modify Global system settings.
2.2.3.2.2.5.2. Open system for modification.
2.2.3.2.2.5.3. Commit changes by restarting server.
2.2.3.2.2.5.4. Modify extended storage settings.
2.2.3.2.2.5.5. Modify archiving settings.
2.2.3.2.2.5.6. Modify network interface settings.
2.2.3.2.2.5.7. Restart extended storage service.
2.2.3.2.2.5.8. Restart archiving service.
2.2.3.2.2.5.9. Restart networking service.
2.2.3.2.2.6. Display system files
2.2.3.2.2.6.1. Display iSCSI targets.conf file.
2.2.3.2.2.6.2. Display Samba smb.conf file.
2.2.3.2.2.6.3. Display Drive fstab file.
2.2.3.2.2.6.4. Display Networking interfaces file.

Note: The SMS comes with the exacqVision Enterprise software pre-loaded.

2.3. PERFORMANCE

2.3.1. Compatibility

2.3.2. Recording

2.3.2.1. Video storage rate:

2.3.2.1.1. 1U: 700 Mbps

2.3.2.1.2. 2U: 1200 Mbps

2.4. ENVIRONMENTAL

2.4.1. Operating temperature: 40 – 95 degrees Fahrenheit (4.5 – 35 degrees C)

2.4.2. Power/heat load (Max | Typical):

2.4.2.1. 1U: 600 W Platinum power supply

2.4.2.2. 2U: 800 W Platinum power supply

2.5. OPTIONAL EQUIPMENT

2.5.1. The NVR shall have optional expansion capability for alarm inputs and outputs.

END OF SECTION

3. EXECUTION

3.1. INSTALLATION

3.1.1. Contractor shall comply with all Manufacturer installation guidelines.

3.1.2. Contractor personnel shall comply with all applicable state and local licensing requirements.

3.2. STORAGE

3.2.1. Hardware shall be stored in an environment where temperature and humidity are in the range specified by the hardware manufacturer.

END OF SECTION