A&E Specification

N8NRP/N16NRP Network Video Recorder

Speco Technologies
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Division 28	Electronic Safety and Security
Section 28 00 00	Electronic Safety and Security
Section 28 20 00	Electronic Surveillance
Section 28 23 00	Video Surveillance

Notes to Security System Specifiers - This A&E specification is written according to Construction Specifications Institute (CSI) 3-Part Format, based on MasterFormat™ (2016 Edition) and The Project Resource Manual – CSI Manual of Practice. 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. All trademarks are properties of their respective owners.

Part 1 General

1.1. Summary of Requirements

A. N8NRP/N16NRP Network Video Recorder (NVR)

1. The NVR shall collect multiple channels (8 or 16) of network IP video, multiple channels of audio and digitize them for the purpose of display, archive and requested distribution across the Ethernet network.

B. Related Requirements

1.	Section 28 05 00	Common Work Results for Electronic Safety and Security
2.	Section 28 05 19.11	Digital Video Recorders
3.	Section 28 05 19.13	Hybrid Digital Video Recorders
4.	Section 28 05 19.15	Network Video Recorders
5.	Section 28 21 00	Surveillance Cameras
6.	Section 28 21 13	IP Cameras
7.	Section 28 23 13	Digital Video Recorders and Analog Recording Devices

1.2. References

A. Abbreviations

1.	DDNS	Dynamic Domain Name Server
2.	DHCP	Dynamic Host Configuration Protocol
3.	DNS	Domain Name Server
4.	FTP	File Transfer Protocol
5.	GUI	Graphical User Interface
6.	HTTP	Hypertext Transfer Protocol
7.	HTTPS	Secure HTTP
8.	ICMP	Internet Control Message Protocol
9.	IGMP	Internet Group Management Protocol
10.	IP	Internet Protocol

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11. JPEG Joint Photographic Experts Group
12. MPEG Moving Pictures Experts Group
13. NAS Network Attached Storage
14. NIC Network Interface Controller
15. NTP Network Time Protocol over Ethernet
16. NVR Network Video Recorder
17. PoE Power over Ethernet
18. PPPoE Point-to-Point Protocol over Ethernet
19. P2P Peer-to-Peer
20. PTZ Pan Tilt Zoom
21. QoS Quality of Service
22. RTP Real-Time Transport Protocol
23. RTSP Real-Time Streaming Protocol
24. SD Card Secure Digital Flash Memory Card
25. SMTP Simple Mail Transfer Protocol
26. TCP Transmission Control Protocol
27. UDP User Datagram Protocol
28. UPnP Universal Plug and Play
29. VMS Video Management System
30. ESD Electrostatic discharge
31. MSIE Microsoft Internet Explorer
32. HDD Hard Disk Drive
33. EZ Easy
34. FF Fast Forward
35. FR Fast Reverse
36. DAS Direct Attached Storage
37. LAN Local Area Network
38. WAN Wide Area Network

1.3. Certifications, Standards and Ratings

A. Reference Standards

1. Networking
    a. IEEE – 802.3 Ethernet Standards
2. Video
    a. ISO/IEC 14496 Standards for MPEG-4
    b. ITU-T Recommendation H.264/H.265

1.4. Submittals

A. Product Data

1. Provide manufacturer's datasheets in printed or electronic form.

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2. Provide manufacturer's Installation and operating manuals/guides.
3. Provide manufacturer's warranty statement.

1.5. Qualifications

A. Manufacturer

1. Company specializing in manufacturing products at least ten years experience.

C. Supplier

1. Authorized distributor of specified manufacturer with at least 5 years.

D. Installer

1. Authorized installer of specified manufacturer with a least 5 years experience.

1.6. Delivery, Storage and Handling

A. Delivery

1. Deliver materials in original, unopened and undamaged packaging in accordance with manufacturer's instructions.

E. Storage

1. Store and guard materials from environmental and temperature conditions in accordance with manufacturer's instructions.

F. Handling

1. Handle and operate products and systems in accordance with manufacturer's instructions.

1.7. Warranty

A. Warranty Period

1. Manufacturer shall warranty NVR (except HDD) for a period of [5] years for the repair or replacement of defective equipment.
2. Manufacturer shall warranty HDD for a period of [3] years.

1.8. Certifications

B. Certification Types

1. CE (EMC/LVD)
2. FCC, Class A
3. RoHS

1.9. Tech Support

A. Support

1. Technical support shall be based in North America.
2. Technical support support shall be via email or toll-free phone number.
3. Technical support shall be available weekdays from 6 a.m. to 6 p.m. EST.

Part 2 Product

2.1. Manufacturer

A. Manufacturer

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   Amityville, NY 11701
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G. Product

1. NRP Series
2. Models:
   a. N8NRP: 8 Channel NVR with 8 Built-In PoE Ports
   b. N16NRP: 16 Channel NVR with 16 Built-In PoE Ports

H. Product Description

1. A 4K H.265 NVR with PoE and shall be available with 8 channel or 16 channel of video inputs.

2.2. Product Description

A. General

1. All equipment and materials used shall be standard components, regularly manufactured, regularly utilized in the manufacturer's system.
2. All systems and components shall have been thoroughly tested and proven in actual use.
3. All systems and components shall be provided with the availability of a toll free technical support phone number from the manufacturer. The phone number shall allow for immediate technical assistance for either the dealer/installer or the end user at no charge.
4. All systems and components shall be provided with an explicit manufacturer warranty.

B. Description

1. NVR shall meet the requirements of business, government and general security surveillance applications.
2. NVR shall offer remote network connectivity to a properly specified PC computer that allows transmission of video and control data over the Ethernet network.
3. NVR shall offer a GUI incorporating video display areas, toolbars, control palettes and site/device trees.
4. NVR shall employ a high profile H.264/H.265 compression algorithm in the video digitizing scheme. Network IP cameras shall be the primary video input devices.

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5. NVR shall offer simultaneously view live or playback while continuing to record and network transfer. The NVR shall provide full digital video and audio surveillance over a standard 100Base-T network.
6. NVR shall offer multiple continuously recorded digital video and audio channels onto a hard drive medium. Each channel of video data shall have the capability of being recorded, displayed, played back, archived and distributed simultaneously across the network.
7. The video shall also be capable of alarm notification based on motion via a built-in utility to configure motion detection of objects in the individual camera scenes. Each camera can be customized for motion area and sensitivity using grid blocks through the camera's setup tool. The motion events shall be transmitted to authorized users via an email notification utility.
8. The video shall also have selectable digital zoom on any camera in live view and playback mode. The video recording capability shall be fully scheduled using the built-in utility.
9. NVR shall also have full LAN, WAN and Internet connection capability. The NVR will require a broadband internet connection of a minimum 256 Mbps using either a static or dynamic type IP address. When using a dynamic IP address, DDNS shall be an available feature to track the IP address via a customized URL. The NVR supports TCP/IP and DHCP protocol.
10. NVR shall record user selectable resolution and frame rate set from within the GUI of the IP cameras.
11. NVR shall utilize a Digital Signature video authentication algorithm. It is a standard authentication that is based on a 128-bit message used to verify data integrity
12. NVR shall incorporate a series of EZ (easy) features used to simplify installation and configuration of the unit. These features shall include EZ-Setup, EZ-Network, EZ-Camera, EZ-Record, EZ-Copy and EZ-Search.
13. NVR shall support searching of recorded video from EZ Search, motion events, analytic events, date/time, museum, bookmarks, snapshots and logs.
14. NVR shall support the following playback functions: play, pause, FF, FR, and Digital Zoom.
15. On event, NVR shall trigger recording, control PTZ, Alarm Out, Pop-up alarm preview, send email, FTP, record snapshot, and activate buzzer and screen tips.
16. NVR shall offer a full multi-user authorization logon function. This function shall offer five levels of authorization based on Main Menu functions. There shall be an Administrator and User level offered. Anyone with a correct password shall log into the NVR.
17. NVR shall offer a GUI capable of complete recorder configuration and operation. Sub-features such as defined video display and control, component setup, recording setup, network setup and the use of dialog messages shall be provided in a comprehensive menu structure.

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18. Operation of the system shall be facilitated by the use of a monitoring screen whereby a security operator can perform a full scope of surveillance duties using the front panel controls and indicators, the remote application software, the CMS software or a mouse.
19. NVR shall use a HDMI / VGA Main Monitor output for video display sequencing
20. NVR shall be configurable for several foreign languages, other than English.
21. NVR shall support the use of PTZ type cameras either on an RS-485 bus using built-in protocols from several manufacturers or through the network of the PTZ IP camera.
22. NVR shall support alarm in and relay out functions. The alarm events shall be transmitted to users via a built-in email utility.
23. NVR shall support a variety of different capacity hard drives for a total capacity of 28TB.
24. The front panel shall contain a lights to indicate status of power on/off, HDD health and network connectivity.
25. NVR shall contain 2 x USB ports with one available on the front panel and one at the back of the unit.
26. NVR shall also be equipped for installation in a standard 19 in. (48.2 cm) rack shelf. The rear panel shall contain (8 or 16) isolated network PoE input ports (RJ45) for IP cameras, WAN network port (RJ45) to connect to internet, HDMI Main Monitor, VGA Main Monitor Output, Audio In/Out inputs, 2 eSATA, LAN (Network) port, and 2 USB connector.
27. NVR shall also power IP cameras through the Power over Ethernet (PoE) ports from the back of the unit.
28. NVR shall support exporting of video in AVI format with a stand-alone player.
29. NVR shall support exporting video to the following media types: DAS and NAS
30. NVR shall support and be equipped with an IR remote control.
31. NVR shall support and include a Multi-Client application for multi-NVR remote access.
32. NVR shall support bi-directional audio.
33. NVR shall meet or exceed the following design and performance specifications
34. NVR shall support multi-time zone and DST.
35. NVR shall support Smart Analytics to include abandoned object detection, missing object detection and line crossing.
36. NVR shall support S.M.A.R.T technology (Self-Monitoring, Analysis and Reporting Technology for HDD).
37. NVR shall support plug-n-play via Speco's free P2P service.
38. NVR shall support DDNS capability via Speco's free DDNS service.
39. NVR shall auto-discover Speco's and other ONVIF Profile S compliant IP cameras on the local network without needing to locate the cameras manually.
40. NVR shall incorporate an embedded Linux® operating system using a proprietary software application for control, management and display.

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C. Electrical Specification

1.	Power Input	48VDC
2.	Power Supply	48V Adapter with power cable
3.	Power Consumption	≤ 5W (N8NRP without HDD) ≤ 15W (N16NRP without HDD)
4.	Power Cable	USA standard (117 VAC, 3 prongs, 6 ft or 1.8 m)

D. Environmental Specification

1.	Operating Temperatures	-4° to 122°F (-10° to 50°C)
2.	Operating Humidity	10% to 90%, non-condensing

E. Environmental Specification

1.	Dimension	15”W x 10.5”D x 2.0”H (380mm×268mm×52mm)
2.	Mounting	Optional vented rack shelf

F. Mechanical Specification

1. System
   - a. Operating System: Embedded Linux
   - b. User Interface: Semi-transparent on-screen graphic overlays
2. Video
   - a. Inputs: 8 or 16 network cameras, PoE Ethernet (RJ45)
   - b. Outputs: HDMI, VGA
   - c. Encoding: H.264, H.265
   - d. Resolutions: 8MP/5MP/4MP/3MP/1080P/960P/720P@25/30fps
   - e. Frame Rate: 30 fps
   - f. Pre-record: 5 seconds
   - g. Post-record: 10 minutes
   - h. Display Modes: 1x1, 2x2, 3x3, 4x4, Custom
   - i. Outputs: 1 x HDMI (4K), 1 x VGA
3. Audio
   - a. Inputs: 1 x RCA, 8/16 x PoE Ethernet (RJ45)
   - b. Outputs: 1 x RCA
   - c. Codec: G.711A/G.711U
4. Network
   - a. WAN: 1 x 10/100Mbps (RJ45) (N8NRP)
1 x 1Gbps (RJ45) (N8NRP)
   - b. LAN: 8/16 x 10/100Mbps PoE (RJ45)
   - c. Protocol: TCP/IP, PPPoE, DHCP, DNS, DDNS, UPnP, NTP, SMTP, ONVIF Profile S
5. PTZ: Remote control/remote client
6. Alarms
   - a. Inputs: 4

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	b. Outputs	1
7.	Auxiliary	
	a. USB	2 x USB 2.0 ports
8.	Front Panel	
	a. Power Indicator	Power On, Blue
	b. HDD Status	Recording, Blue
	c. Network Indicator	Network access, Blue
9.	Remote Control	Full remote control operation of PTZ
10.	Remote Surveillance	
	a. Web Viewer	MSIE
	b. Control System	Speco Technologies SecureGuard
	c. Mobile Devices	iOS, Android
11.	External Storage	2 x eSATA (28TB capacity)

Part 3 Execution

3.1 Examination

A. Device shall be inspected for physical and cosmetic defects.
B. Package box shall include device, power supply, mouse, remote control unit, installation and user guides on disk.

3.2 Preparation

A. ESD-sensitive parts shall be properly protected against static buildup through the use of static shielding material.
B. Package box shall contain adequate padding to prevent damage to device and parts during shipping.

3.3 Installation

A. Device shall be installed in accordance with the manufacturers' installation guide provided.
B. Device shall be installed by qualified service professionals.
C. Device shall be installed in accordance with the National Electric Code or applicable local codes.
D. Device shall be installed in locations which adequately supports the device's environmental and electrical requirements.

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3.4 Field Quality Control

A. Test for proper communication between device and supporting devices.
B. Test for proper operation of device's system software and related software programs.
C. Determine and report all problems to the manufacturers' customer service representatives.

3.5 Adjusting

A. Make all necessary adjustments to the device and supporting devices to ensure the proper operation of the device.
B. Make all necessary adjustments to the devices to satisfy end-user requirements.

3.6 Demonstration and Training

A. Perform final inspection to validate and ensure proper functioning of device.