A&E Specification

N32NRN 4K H.265 32-Channel NVR with Face Recognition, Smart Analytics and Dual LAN Ports

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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. N32NRN Network Video Recorder (NVR) with Face Recognition and Smart Analytics

1. The NVR shall collect 32 channels of network IP video and 32 channels of IP camera audio and digitize them for the purpose of display, archive and requested distribution across the Ethernet network. The NVR shall also support Facial Recognition and advanced Smart Analytics.
2. The N32NRN shall have two Ethernet (LAN) ports to allow camera network traffic to be isolated from the main network.
3. The NVR shall comply with NDAA Section 889 Part B guidelines.

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. GUI Graphical User Interface
5. HTTP Hypertext Transfer Protocol
6. HTTPS Secure HTTP
7. IP Internet Protocol
8. JPEG Joint Photographic Experts Group
9. LPR License Plate Recognition
10. NAS Network Attached Storage
11. NIC Network Interface Controller
12. NTP Network Time Protocol over Ethernet
13. NVR Network Video Recorder
14. PPPoE Point-to-Point Protocol over Ethernet
15. P2P Peer-to-Peer
16. PTZ Pan Tilt Zoom
17. RAID Redundant Array of Independent Disks
18. RTSP Real-Time Streaming Protocol
19. SMTP Simple Mail Transfer Protocol
20. TCP Transmission Control Protocol
21. UPnP Universal Plug and Play
22. VMS Video Management System
23. ESD Electrostatic discharge
24. HDD Hard Disk Drive
25. EZ Easy
26. S.M.A.R.T. Self-Monitoring, Analysis and Reporting Technology
27. LAN Local Area Network
28. WAN Wide Area Network

1.3. Certifications, Standards and Ratings

A. Reference Standards

1. Networking
   a. IEEE 802.3 Ethernet Standards
   b. ONVIF Profiles G, S and T
2. Video
   a. ISO/IEC 14496 Standards for MPEG-4
   b. ITU-T Recommendation H.264/H.265
3. Compliance
   a. NDAA Section 889 Part B

1.4. Submittals

A. Product Data

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

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.

B. Supplier

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

C. Installer

1. Authorized installer of specified manufacturer with at 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.

B. Storage

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

C. Handling

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

1.7. Warranty

A. Warranty Period

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

1.8. Certifications

A. Certification Types

1. NDAA Section 889 Part B compliant
2. ONVIF Profiles G, S and T
3. CE (EMC/LVD)
4. FCC, Class A
5. RoHS

1.9. Tech Support

A. Support

1. Technical support shall be based in North America.
2. Technical support shall be via email (techsupport@specotech.com) or toll-free phone number (1-800-645-5516, option 3).
3. Technical support shall be available weekdays from 6 a.m. to 6 p.m. EST.

Part 2 Product

2.1. Manufacturer

A. Manufacturer

1. Speco Technologies, 200 New Highway, Amityville, NY 11701
2. Tel. 1-800-645-5516, Fax. 1-631-957-3880
3. Web Site: www.specotech.com

B. Product

1. NRN Series
2. Models: N32NRN4TB, N32NRN6TB, N32NRN8TB, N32NRN12TB, N32NRN16TB, N32NRN20TB, N32NRN24TB, N32NRN32TB, N32NRN40TB, N32NRN48TB, N32NRN60TB, N32NRN64TB, N32NRN80TB, N32NRN96TB, N32NRN100TB, N32NRN120TB, N32NRN128TB, N32NRN140TB, N32NRN160TB

C. Product Description

1. A 4K H.265 NVR with facial recognition and smart analytics, capable of 32 channels of video, with two Ethernet ports and 8 internal SATA ports.

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 camera lists.

4. NVR shall automatically detect and record H.265 and H.264 compression from IP cameras. Network IP cameras shall be the primary video input devices.
5. NVR shall offer simultaneous live view or playback while continuing to record and network transfer. The NVR shall provide full digital video and audio surveillance over a standard Ethernet network with a network bandwidth of 320 Mbps.
6. NVR shall provide two Ethernet ports. When two or more network ports are present, the NVR shall allow selection of the network work pattern, supporting Network Fault Tolerance and Multiple Address modes, so that camera traffic can be isolated from the main network.
7. 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.
8. NVR shall 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 through the camera's setup tool. Motion events shall be transmitted to authorized users via an email notification utility.
9. NVR shall provide selectable digital zoom on any camera in live view and playback mode. Video recording shall be fully scheduled using the built-in utility, with recording modes of analytics, continuous, motion, sensor, schedule and manual.
10. NVR shall have full LAN, WAN and Internet connection capability 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 shall support TCP/IP, PPPoE and DHCP protocols.
11. NVR shall record at the user-selectable resolution and frame rate set from within the GUI of the IP cameras, up to 12MP at 20 fps, and 8MP or lower at 30 fps, per channel.
12. NVR shall incorporate a series of EZ (easy) features used to simplify installation, configuration and operation of the unit. These features shall include EZ Setup, EZ Wizards, EZ Search and EZ Mobile.
13. NVR shall support searching of recorded video by EZ Search, motion events, specific date/time, events, museum, bookmarks, snapshots and logs. NVR shall support bookmark pins on playback and instant playback of individual channels directly from the live view screen.
14. NVR shall support the following playback functions: play, pause, fast forward, rewind and digital zoom. Smart Search shall display camera records for a certain period of time in highlighted colors, with different colors referring to different record events.
15. On event, NVR shall be capable of triggering recording, snapshot, PTZ preset, alarm output, pop-up video, email, push notification and buzzer.
16. NVR shall offer a full multi-user authorization logon function. The NVR shall support up to 16 users and up to 8 permission groups, including the default permission groups of Administrator, Advanced and Common, with configurable local and remote permissions.
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.
18. Operation of the system shall be facilitated by a monitoring screen whereby a security operator can perform a full scope of surveillance duties using the IR remote control, a mouse, the web client, SecureGuard® or Speco Blue VMS.

19. NVR shall provide two HDMI main monitor outputs (maximum 4K) and one VGA main monitor output (maximum full HD), with simultaneous HDMI and VGA video output.
20. NVR shall be configurable for several foreign languages, other than English.
21. NVR shall support the use of PTZ cameras through the network of the PTZ IP camera, including presets and cruise functions, with remote PTZ control via the internet.
22. NVR shall support 16 local alarm inputs and 9 local alarm outputs. Alarm modes shall include manual, sensor, motion, exception and AI. Alarm events shall be transmitted to users via a built-in email utility.
23. NVR shall provide 8 internal SATA ports, each supporting up to 20TB, for a total storage capacity of up to 160TB.
24. NVR shall support RAID levels 0, 1, 5, 6 and 10, with global hot spare support.
25. The front panel shall contain indicators for power, recording status and network connectivity.
26. NVR shall contain 3 USB ports: 1 USB 2.0 port on the front panel, and 1 USB 2.0 port and 1 USB 3.0 port on the rear of the unit.
27. The rear panel shall contain two network ports (RJ45), two HDMI main monitor outputs, VGA main monitor output, RCA audio input and output, alarm input/output terminals, USB ports, AC power inlet and power switch.
28. NVR shall be supplied with rack ears and shall be 2U in height for rack-mount installation.
29. NVR shall support backup/export of video to a USB drive or over the network, in JPG, AVI and proprietary format (player included).
30. NVR shall include a remote control and mouse.
31. NVR shall support remote access via web browser, mobile devices (iOS® and Android™ via the Speco Blue App or SecureGuard® client), and the Speco Blue VMS and SecureGuard® management software, with a maximum of 10 users online via the web client. NVR shall support remote monitoring, recording, playback, configuration, upgrades and PTZ control via the internet, and management through the SecureGuard® Dashboard.
32. NVR shall support 2-way audio communication (speaker required).
33. NVR shall support time zone selection, daylight saving time (DST) and time synchronization via NTP.
34. NVR shall support Smart Analytics from Speco Smart Analytic Cameras, including People/Vehicle Detection (line crossing, intrusion and people counting), Facial Recognition, License Plate Recognition (LPR), abandoned/missing object detection and trip wire. Additional camera-based events described in the manufacturer's user manual, such as tampering, crowd density and loitering, shall be supported when used with compatible cameras.
35. NVR shall support Speco Facial Recognition Cameras, matching of faces detected by facial recognition cameras, and identification assignment to faces.
36. NVR shall store faces and shall have the ability to store corresponding information. NVR shall support storage of up to 10,000 face images, with import/export of the face database.
37. NVR shall support face search on up to 32 channels, face recognition trigger events on up to 6 channels, face match alarms/events, smart playback of faces, and face statistics.
38. NVR shall support various face searching techniques: museum search, search by image, search by track and search by snapshot.
39. NVR shall support LPR on all 32 channels, including license plate detection, match and search, storage of up to 50,000 license plate images, and license plate match alarms.

40. NVR shall support fisheye dewarping through the web client and mobile app.
41. NVR shall support S.M.A.R.T. technology for HDD monitoring, reporting temperature, power-on time, bad sectors and health.
42. NVR shall support plug-n-play via Speco's free US-based P2P service.
43. NVR shall support DDNS capability via Speco's free US-based DDNS service.
44. NVR shall auto-discover Speco's and other ONVIF compliant IP cameras on the local network without needing to locate the cameras manually.
45. NVR shall incorporate an embedded Linux® operating system using a proprietary software application for control, management and display.

C. Electrical Specification

1. Power Input: AC power inlet (AC100-240V)
2. Power Supply: Power cord (Included)
3. Power Consumption: ≤ 30W (without HDD)

D. Environmental Specification

1. Operating Temperature: 14° to 122°F (-10° to 50°C)
2. Operating Humidity: 10% to 90%
3. For indoor use only

E. Physical Specification

1. Dimensions: 17.5"W x 17.2"D x 3.5"H (445mm x 436mm x 90mm), 2U
2. Mounting: Rack ears included

F. Mechanical Specification

1. System
   a. Operating System: Embedded Linux
   b. User Interface: IR Remote, Mouse
2. Video
   a. Inputs: 32 IP cameras, H.264/H.265 auto detection (12 MP max.)
   b. Outputs: 2 x HDMI (max. 4K), 1 x VGA (max. full HD)
   c. Encoding: H.264, H.265 (auto detection)
   d. Resolutions: 12MP/8MP/5MP/4MP/3MP/1080P/720P
   e. Frame Rate: 12MP at 20 fps; 8MP or lower at 30 fps (maximum, per channel)
   f. Pre-record: 5 seconds (maximum)
   g. Post-record: 10 minutes (maximum)
   h. Recording Modes: Analytics, continuous, motion, sensor, schedule, manual
3. Audio
   a. Network Inputs: 32 channels (IP camera audio)
   b. 2-Way Audio: 1 x RCA
   c. Local Output: 1 x RCA
4. Network
   a. Network Ports: 2 x RJ45 (10/100/1000 Mbps)
   b. Network Bandwidth: 320 Mbps

c. Protocols: TCP/IP, PPPoE, DHCP, DNS, DDNS, UPnP, NTP, SMTP, ONVIF Profiles G, S, T
d. Services: Free US-based Speco P2P and DDNS service

5. Simultaneous Playback: 16 channels maximum
6. Search: EZ Search, motion, specific date/time, event, museum, bookmarks, snapshots, log
7. Backup
   a. Media: USB drive, network
   b. Format: JPG, AVI, proprietary format (player included)
8. PTZ: Network PTZ control via IP camera
9. Alarms
   a. Inputs: 16 local
   b. Outputs: 9 local
   c. Linkage: Record, snapshot, preset, email, pop-up window
10. Auxiliary
    a. USB: 1 x USB 2.0 port (front); 1 x USB 2.0 port and 1 x USB 3.0 port (rear)
11. Front Panel
    a. Power Indicator: Power On, Blue
    b. HDD Status: Recording, Blue
    c. Network Indicator: Network access, Blue
12. Remote Surveillance
    a. Web Viewer: Web browser
    b. Control System: Speco Blue VMS, SecureGuard®
    c. Mobile Devices: iOS®, Android™ via Speco Blue App or SecureGuard® client
    d. Maximum Users: 10 online (web client)
13. Storage: 8 x SATA internal ports, 20TB maximum per HDD, up to 160TB total capacity; RAID 0, 1, 5, 6, 10
14. Smart Analytics
    a. People/Vehicle Detection: Line crossing, intrusion, people counting
    b. Facial Recognition: Store up to 10,000 face images; face search up to 32 channels; face recognition trigger events up to 6 channels
    c. LPR: 32 channels; store up to 50,000 license plate images
    d. Others: Object abandoned/missing, trip wire

Part 3 Execution

3.1 Examination

A. Device shall be inspected for physical and cosmetic defects.

B. Package box shall include device, power cord, mouse, remote control unit, rack ears, and installation and user guides.

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 manufacturer's 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 support the device's environmental and electrical requirements.

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 manufacturer's 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.