A&E System Specification

DS-7708NI-I4

DS-7716NI-I4

DS-7732NI-I4

DS-7716NI-I4(B)

DS-7732NI-I4(B)

Part 1 General:

1.1 Summary of Requirements

    A. NVR

        1. 8/16/32 Channel NVR

1.2 References

    A. Abbreviations

1.	AGC	Automatic Gain Control
2.	AWB	Automatic White Balance
3.	BLC	Back Light Compensation
4.	CIF	Common Intermediate Format
5.	DSCP	Differentiated Services Code Point
6.	DHCP	Dynamic Host Configuration Protocol
7.	DNR	Digital Noise Reduction
8.	DNS	Domain Name Server
9.	DDNS	Dynamic Domain Name Server
10.	FPS	frames per second
11.	FTP	File Transfer Protocol
12.	GUI	Graphical User Interface
13.	HLC	High Light Compression
14.	HTTP	Hypertext Transfer Protocol
15.	HTTPS	Secure HTTP
16.	ICMP	Internet Control Message Protocol
17.	IGMP	Internet Group Management Protocol
18.	IP	Internet Protocol
19.	JPEG	Joint Photographic Experts Group
20.	MicroSD	Removable miniaturized Secure
21.	MicroSD	Removable miniaturized Secure Digital flash memory card
22.	MPEG	Moving Pictures Experts Group
23.	MWB	Manual White Balance
24.	NAS	Network Attached Storage
25.	NTP	Network Time Protocol over Ethernet
26.	PoE	Power over Ethernet
27.	PPPoE	Point-to-Point Protocol over Ethernet
28.	QoS	Quality of Service
29.	ROI	Region of Interest
30.	RTP	Real-Time Transport Protocol
31.	RTSP	Real-Time Streaming Protocol
32.	SD Card	Secure Digital flash memory card
33.	SMTP	Simple Mail Transfer Protocol
34.	TCP	Transmission Control Protocol
35.	UDP	User Datagram Protocol
36.	UPnP	Universal Plug and Play
37.	VMS	Video Management System

38. WB   White Balance
39. WDR   Wide Dynamic Range

1.3 Certifications, Standards and Ratings

A. Reference Standards

1. EMC
   a. FCC
   b. CE-EMC
   c. RCM
   d. IC-EMC
   e. KC

2. Safety
   a. UL
   b. CB
   c. CE-LVD
3. Environment
   a. RoHS
   b. WEEE
   c. Reach

1.4 Submittals

A. Product Data

1. Manufacturer's hard (physical) or soft (Electronic) datasheets
2. Installation and operating manuals for any and all equipment required for a VMS (Video Management System).
3. Manufacturer's warranty documentation

1.5 Qualifications

A. Requirements

1. This product shall be manufactured by an enterprise whose quality systems are in direct compliance with ISO- 9001 protocols.
2. All system components shall be carefully tested and proven in actual use. Comprehensive repair and spare parts shall be given, for which the manufacturer shall provide warranty.
3. All installations, integration, testing, programming, system commission, and related work shall be done by installers who are trained, authorized, and certified by the manufacturer.

1.6 Delivery, Storage and Handling

A. Delivery

1. The NVR shall be delivered in the Manufacturer's unique, sealed, undamaged package.
2. Any and all identification labels shall remain intact.

    B. Storage and Handling
        1. The NVR shall be protected from mechanical and environmental conditions as designated by the manufacturer.

1.7 Licensing and Support Agreements

    A. Recorder
        1. Requires no licensing fees per channel or device, for basic software.
        2. Requires no Software Support Agreements with the manufacturer.
    B. Free DDNS Service
    C. Free iVMS-4200 Client

1.8 Warranty and Support

    A. Warranty Agreement
        1. The manufacturer provides a limited three year warranty which guarantees the product to be free of any defects in workmanship or material (three years, parts and factory labor).
    B. Spares and Repairs
        1. Spare parts, as well as comprehensive repair parts shall be included for all systems and components.
        2. The spare and repair parts, both of warranty and non-warranty items, shall be guaranteed by the manufacturer.

END OF SECTION

Part 2 Product:

2.1 Manufacturer

    A. Manufacturer

        Hikvision Digital Technology Co.,Ltd.
        No.555 Qianmo Road
        Binjiang District , Hangzhou China.
        Web: www.Hikvision.com

    B. DS-7708NI-I4   DS-7716NI-I4   DS-7732NI-I4   DS-7716NI-I4(B)   DS-7732NI-I4(B)

2.2 Description
        1. Le NVR prend en charge jusqu'à 8/16/32 entrées IP vidéo.
        2. The NVR should support up to 12MP IP video input.
        3. The NVR should support recording resolution includes 12 MP/8 MP/6 MP/5 MP/4 MP/3 MP/1080p/UXGA/720p/VGA/4CIF/DCIF /2CIF/CIF/QCIF.
        4. The NVR shall be able to select from the following recording streams:

a. Main Stream
b. Sub Stream
5. The DS-7708NI-I4 should support Incoming/outgoing bandwidth not less than 80 Mbps/256 Mbps.
The DS-7716NI-I4 should support Incoming/outgoing bandwidth not less than 160 Mbps/256 Mbps.
DS-7732NI-I4 should support Incoming/outgoing bandwidth not less than 256 Mbps/256 Mbps.
The DS-7716NI-I4(B) should support Incoming/outgoing bandwidth not less than 160 Mbps/256 Mbps.
DS-7732NI-I4(B) should support Incoming/outgoing bandwidth not less than 256 Mbps/256 Mbps.
6. The DS-7700NI-I4 should have 1 HDMI and 1 VGA output resolution includes
HDMI: 4K (3840 × 2160)/60Hz, 4K (3840 × 2160)/30Hz, 1920 × 1080p/60Hz, 1600 × 1200/60Hz, 1280 × 1024/60Hz, 1280 × 720/60Hz, 1024 × 768/60Hz
VGA: 1920 × 1080p/60Hz, 1280 × 1024/60Hz, 1280 × 720/60Hz, 1024 × 768/60Hz
The DS-7700NI-I4(B) should have 2 HDMI, 1 VGA and 1 CVBS output resolution includes
CVBS: 1-ch, BNC (1.0 Vp-p, 75 Ω), resolution: PAL: 704 × 576, NTSC: 704 × 480
HDMI1: 4K (3840 × 2160)/60Hz, 4K (3840 × 2160)/30Hz, 2K(2560 × 1440)/60Hz, 1920 × 1080p/60Hz, 1600 × 1200/60Hz, 1280 × 1024/60Hz, 1280 × 720/60Hz, 1024 × 768/60Hz
VGA: 2K(2560 × 1440)/60Hz, 1920 × 1080p/60Hz, 1280 × 1024/60Hz, 1280 × 720/60Hz, 1024 × 768/60Hz, HDMI1/VGA Simultaneous Output
HDMI2: 1920 × 1080/60Hz, 1280 × 1024/60Hz, 1280 × 720/60Hz, 1024 × 768/60Hz
7. Le NVR prend en charge plusieurs 34 langues, qui comprennent le chinois, l'anglais, le russe, l'estonien, le bulgare, le hongrois, le grec, l'allemand, l'italien, le slovène, le polonais, le néerlandais, le portugais, l'espagnol, le roumain, le danois, le suédois, le norvégien, le finnois, le croate, Slovène, serbe, turc, coréen, traditionnel chinois, thaï, vietnamien, japonais, letton, lituanien, ouzbek, kazak.
8. The NVR shall support multi-user level management with password protection.
Three-level user management; admin user is allowed to create many operating accounts and define their operating permission, which includes the limit to access any channel.
9. Secure Activation
a. The NVR shall not have a default admin password for enhanced cyber security. NVR shall require a secure password to be created and confirmed upon first connecting to the network.
b. A system algorithm shall check the user defined password for strength, based on the manufacturer's criteria.
c. System shall determine and display password security level as "weak", "medium", or "strong".
d. Password shall contain a minimum of two kinds of characters (lowercase letters, uppercase letters, numbers and special characters).
e. Only ASCII characters shall be allowed.
f. Password length shall be eight characters minimum.
g. NVR cannot have a backdoor password. No recovery of passwords should be possible. Resetting of password while maintaining settings shall require assistance of manufactures technical support. Reset switch can be used to restore camera to factory settings requiring a secure password to be created and confirmed. Use of reset switch may require assistance of technical support.

10. Le NVR prend en charge onVIF pour le support de la caméra réseau de tiers. Les protocoles compatibles de caméras réseau tierces sont ACTI, Arecont, AXIS, Bosch, Brickcom, Canon, PANASONIC, Pelco, SAMSUNG, SANYO, SONY, Vivotek , HUNT et ZAVIO, et des caméras qui adoptent le protocole ONVIF.
11. The NVR shall be compatible with several free DDNS servers and support third-party network cameras, including Peanut, NOIP, DYNDDNS.
12. The NVR can be operable by front panel, mouse, remote control, or control keyboard.

2.3 Decoding, Recording and Playback

1. The NVR should support H.265/H.265+/H.264/H.264+/MPEG4 decoding format.
2. The NVR should support 12 MP/8 MP/6 MP/5 MP/4 MP/3 MP/1080p/UXGA/720p/VGA/4CIF/DCIF /2CIF/CIF/QCIF.
3. Audio decoding format: G.711ulaw, G.711alaw, G.722, G.726.
4. Video playback types including instant/event/tag/log/external file.
5. The DS-7708NI-I4 NVR shall offer 8-Channel, 1080P independent playback and support picture capture and playback.
   The DS-7716NI-I4, DS-7732NI-I4, DS-7716NI-I4(B), DS-7732NI-I4(B) NVR shall offer 16-Channel, 1080P independent playback and support picture capture and playback.
6. The NVR shall tag video clip, and offer search and playback by tag, as well as digital zoom on live view and playback.
7. The NVR shall be able to provider a snapshot icon for manual capture during live view and playback.
8. The NVR shall be able to playback the video footage at 8x without skipping and at rates up to 256x for improved video search.
9. The NVR should support holiday recording schedule configuration.
10. The NVR should support continuous and event video recording parameters.
11. The NVR should support multiple recording types: manual, continuous, alarm, motion, motion | alarm, motion & alarm VCA, and POS.
12. The NVR should support POS information overlay on image.
13. The NVR should support pre-record and post-record for alarm, motion detection for recording, and pre-record time for schedule and manual recording.
14. The NVR should support to searching record files and captured pictures by events (alarm input/motion detection).
15. The NVR should support tag adding for record files, searching and playing back by tags.
16. The NVR should support locking and unlocking record files.
17. The NVR should support local redundant recording and capture.
18. The NVR should support provide new playback interface with easy and flexible operation.
19. The NVR should support searching and playing back record files by channel number, recording type, start time, end time, etc.
20. The NVR should support playback by main stream or sub stream.
21. The NVR should support smart search for the selected area in the video.
22. The NVR should support zooming in when playback.

23. The NVR should support reverse playback of multi-channel.
24. The NVR should support pause, play reverse, speed up, speed down, skip forward, and skip backward when playback, and locating by dragging the mouse.
25. The NVR should support thumbnails view and fast view during playback.
26. The NVR should support playback by transcoded stream.
27. The NVR should support manual capture, continuous capture of video images and playback of captured pictures.
28. The NVR should support to enable H.265+ to ensure high video quality with lowered bitrate.
29. The 8-ch NVR shall be able to support a 1/2/4/6/8 split screen in live view on connected monitor, and support click and drag the live view window to automatically adjust displayed camera order.
The 16-ch NVR shall be able to support a 1/2/4/6/8/9/16 split screen in live view on connected monitor, and support click and drag the live view window to automatically adjust displayed camera order.
The 32-ch NVR shall be able to support a 1/2/4/6/8/9/16/32 split screen in live view on connected monitor, and support click and drag the live view window to automatically adjust displayed camera order.
30. The NVR should support capture settings by timing, motion and alarm type, maximum 8 time zones each day, each time zone maximum 1 hour.

2.4 Storage
1. The 7700NI-I4 support up to 4 SATA hard disks can be connected.
   The 7700NI-I4(B) support up to 4 SATA hard disks and 1 eSATA disk can be connected.
2. The 7700NI-I4 and 7700NI-I4(B) support up to 8TB capacity for each HDD.
3. Supports 8 network disks (NAS/IP SAN disk).
4. Supports S.M.A.R.T. and bad sector detection.
5. HDD group management.
6. Supports HDD standby function.
7. HDD property: redundancy, read-only, read/write (R/W).
8. HDD quota management; different capacity can be assigned to different channel.
9. NVR with eSATA interface can support disk clone to the eSATA disk.

2.5 Network
1. Two self-adaptive 10M/100M/1000Mbps network interfaces, and the multi-address and network fault tolerance working modes are configurable.
2. IPv6 is supported.
3. TCP/IP protocol, DHCP, DNS, DDNS, NTP, SADP, SMTP, SNMP, NFS, and iSCSI are supported.
4. TCP, UDP and RTP for unicast.
5. Auto/Manual port mapping by UPnPTM.
6. Remote web browser access by HTTPS ensures high security.
7. The ANR (Automatic Network Replenishment) function is supported, it enables the IP camera save the recording files in the local storage when the network is disconnected, and synchronizes the files to the NVR when the network is resumed.
8. Remote reverse playback via RTSP.

9. Supports accessing by the platform via ONVIF.
10. Remote search, playback, download, locking and unlocking of the record files, and support downloading files broken transfer resume.
11. Remote parameters setup; remote import/export of device parameters.
12. Remote viewing of the device status, system logs and alarm status.
13. Remote keyboard operation.
14. Remote HDD formatting and program upgrading.
15. Remote system restart and shutdown
16. RS-232, RS-485 transparent channel transmission
17. Alarm and exception information can be sent to the remote host
18. Remotely start/stop recording.
19. Remotely start/stop alarm output.
20. Remote PTZ control.
21. Remote JPEG capture.
22. Virtual host function is provided to get access and manage the IP camera directly.
23. Two-way audio: 1-ch, RCA (2.0 Vp-p, 1 k Ω).

2.6 Alarm

1. Configurable arming time of alarm input/output.
2. Alarm for video loss, motion detection, tampering, abnormal signal, video input/output standard mismatch, illegal login, network disconnected, IP confliction, abnormal record/capture, HDD error, and HDD full, etc.
3. POS triggered alarm supported.
4. VCA detection alarm is supported.
5. VCA search for human search, vehicle search, people counting and heat mapping.
6. Connectable to the thermal network camera.
7. Supports the advanced search for fire/ship/temperature/temperature difference detection triggered alarm and the recorded video files and pictures.
8. Alarm triggers full screen monitoring, PTZ linkage, audio alarm, notifying surveillance center, sending email and alarm output.
9. Automatic restore when system is abnormal.

2.8 POS

1. POS information overlay on live view and playback
2. POS triggered recording and alarm.
3. The NVR should support third party POS brand for integration such as EPSOM, AVE, NUCLEUS
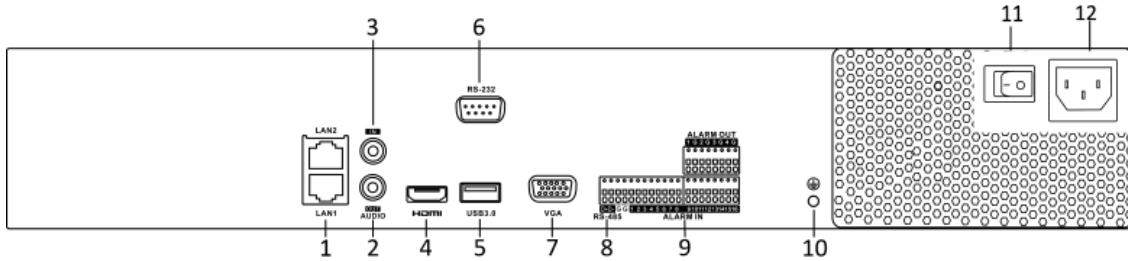4. The NVR can maximum support to overlay 44 characters each line, and 16 lines at most in image.

2.9 Physical Design

1. The NVR shall have the ability to be rack mounted.
2. Pluggable hard disk design with front panel.
3. Operation Conditions   -10 to +55° C (+14 to +131° F)
4. Humidity   10 to 90 %
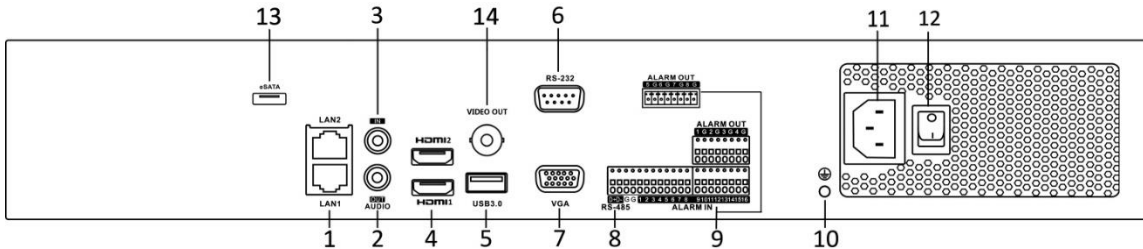5. Power Supply   100 to 240 VAC

6. Power Consumption   20W (without HDD disk)   (DS-7700NI-I4)
7. Dimensions   445 × 400 ×71 mm (17.5"× 15.7" × 2.8")   (DS-7700NI-I4)
8. Weight   ≤ 5 kg (11 lb)   (DS-7700NI-I4)
9. Chassis   19-inch rack-mounted 1.5U chassis   (DS-7700NI-I4)
10. Physical Interface

(DS-7700NI-I4)

Index	Description	Index	Description
1	LAN1 and LAN2 Interfaces	7	VGA Output (DB9 Connector)
2	AUDIO OUT	8	RS-485 Serial Interface
3	AUDIO IN	9	Controller Port, Alarm In/Alarm Out
4	HDMI Interface	10	GND
5	USB 3.0 Interface	11	100 to 240 VAC power supply
6	RS-232 Serial Interface	12	Power Switch

(DS-7700NI-I4(B))

Index	Description	Index	Description
1	LAN1 and LAN2 Interfaces	2	AUDIO OUT
3	AUDIO IN	4	HDMI Interface
5	USB 3.0 Interface	6	RS-232 Serial Interface
7	VGA Output (DB9 Connector)	8	RS-485 Serial Interface
9	Controller Port, Alarm In/Alarm Out	10	GND

11	100 to 240 VAC power supply	12	Power Switch
13	eSATA Interface	14	VIDEO OUT

2.10 Warranty

    A. General

        1. All system components shall be carefully tested and proven in actual use. Comprehensive repair and spare parts shall be given, for which the manufacturer shall provide warranty.

        2. All equipment provided shall be backed by a 3 years manufacturer warranty.

END OF SECTION

Part 3 Execution

3.1 Examination

    A. Inspect chosen area of installation prior to receiving devices and report any conditions that affect the installation process or any subsequent operation.

    B. Please do not begin installation until all unacceptable conditions are rectified.

3.2 Preparation

    A. +Assess the compatibility of mounting screws for all equipment to be installed.

    B. Make sure all video systems are tested properly and meet standard operational requirements.

    C. Define, conclude, and report all issues with equipment to the manufacturers' customer service representatives.

3.5 Adjusting

    A. Execute the necessary modifications to the Video Management System for proper operation in accordance with the instructions provided by the manufacturer.

    B. Ensure the customers unique requirements are reflected in the camera settings.

3.6 Demonstration

    A. Upon final inspection, validate the video solutions system and its device functions correctly.

END OF SECTION