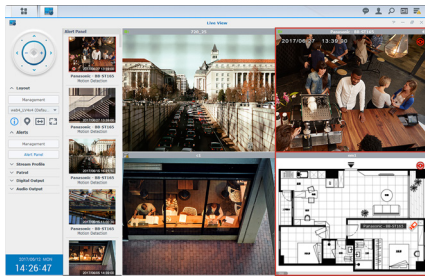# Synology®

Deep Learning NVR
DVA3221

Deep Learning Video Analytics

Synology NVR DVA3221 is an on-premises 4-bay desktop NVR solution that integrates Synology's deep learning-based algorithms to provide a fast, smart, and accurate video surveillance solution. Built-in support for push notifications keeps users informed of possible intrusions, while the automated video surveillance system helps safeguard properties by detecting people, vehicles, and anonymous objects in designated areas.

Highlights

- **Facial Recognition**
  Provide enhanced tracking and greater security by categorizing and then identifying personnel in real-time
- **People & Vehicle Detection**
  Build situational awareness by detecting people or vehicles in off-limit areas
- **People Counting**
  Measure marketing effectiveness and optimize rental prices by monitoring foot traffic
- **Intrusion Detection**
  Setup perimeter lines for automatic notifications when breaches occur
- **Easy and Flexible Integration**
  Complete surveillance deployments in no time with support for over 7,600 IP cameras, H.264/H.265, and 4K resolution[1]
- **Cross-Platform Support**
  Access from anywhere and anytime with Windows®, macOS®, iOS™, Android® and web browser support
- **Scalable Storage**
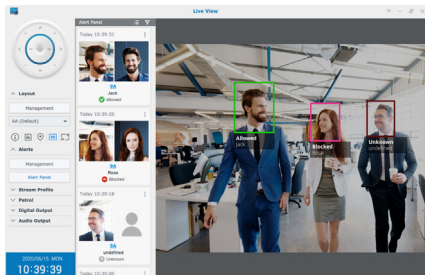 Expand with up to two DX517 expansion units for an additional 10 drive bays[2]

Safeguarding Your Assets

Surveillance Station delivers intelligent monitoring and video management tools to protect your property and assets.

Smarter On-premises Security

Synology DVA and Surveillance Station elevate video surveillance into a real-time security solution, providing instant feedback and notifications.

Next-generation Surveillance Solution with Deep Learning Technology

- **Event surveillance**: Create a custom watchlist by importing photos of attendees into a database and set rules to notify system administrators when personnel or a VIP client enters or leaves the compound.

- **Suspicious tracking**: Capture and register, or manually submit photos of an unknown person into a database to search for footage of them, or to be alerted when they re-appear on camera.

- **Covered face detection**: Detect when a person is or is not wearing a mask and be notified.

- **Flexible storage and camera channels**: Expand storage to 10 extra drive bays using two Synology DX517 expansion units. Install up to 32 IP camera channels using 6 real-time video analysis tasks[3].

Generate Actionable Insights

Advanced deep learning-based algorithms built into the DVA3221 convert vast amounts of unstructured video data into business intelligence and security insights. This helps significantly reduce workloads while enhancing overall security.

- **Facial recognition**: Instantly identify key personnel in a custom database with an accuracy of 97.04%[4].

- **People and vehicle detection**: Notify administrators when an anonymous person or vehicle is loitering in a pre-defined area such as a no-parking zone or in front of a shop.

- **People counting**: Count the number of people entering and exiting in an area using bidirectional counters to help owners gauge sales and marketing effectiveness, or adjust rental rates.

- **Intrusion detection**: Detect when a person or vehicle crosses a perimeter line, alerting administrators to potential intrusions.

Surveillance On-the-Go

With DS cam, you can watch surveillance video feeds, take snapshots, zoom in and adjust camera position with PTZ control, browse through recorded events, and receive instant notifications on-the-go.
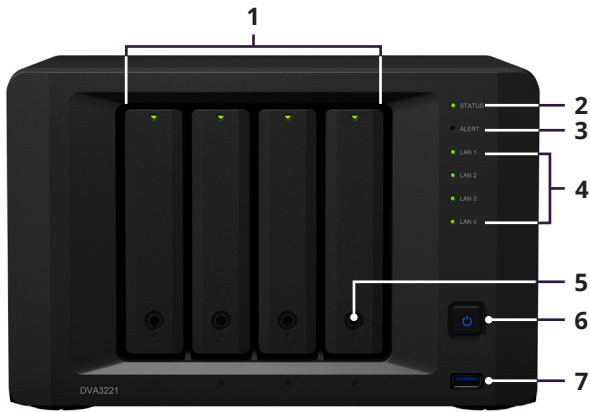
Powerful VMS Platform

Powered by Synology Surveillance Station running on Synology DSM, the DVA3221 combines powerful video analytics with robust storage and data management capabilities.
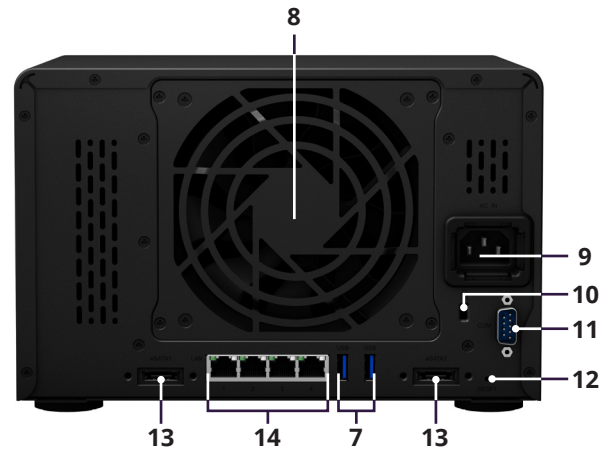
- **Complete data ownership with zero subscription fees**: Unlike security cameras that require monthly subscriptions and store data on the cloud, all DVA3221 recordings are privately stored on the unit itself, free of charge.
- **Works with more than 7,600 cameras**: No lock-ins. Choose from a wider range of camera options to suit your requirements with ONVIF support.
- **Remote monitoring and control**: Access your surveillance system anytime, anywhere, from a web browser, desktop client, or the DS cam mobile app.
- **Automation & notification**: Set up custom actions when predefined events occur, such as automatically taking snapshots when motion is detected. Get notified with e-mail, SMS, or push notifications so that you can respond in a timely manner.
- **Data Protection and CMS**: Comprehensive data protection and backup tools included for both on-site, remote, or cloud-based backup targets. Set up and manage multi-site surveillance systems easily, with optional N+M failover for maximum service availability.[5]

Hardware Overview

Front

Rear

1	Drive tray and status indicator	2	Status indicator	3	Alert indicator	4	LAN indicator
5	Drive tray lock	6	Power button and indicator	7	USB 3.2 Gen 1 port	8	System fan
9	Power port	10	Kensington Security Slot	11	Console port	12	Reset button
13	eSATA port	14	1GbE RJ-45 port				

Technical Specifications

Hardware

CPU	Intel® Atom C3538 Quad-core 2.1GHz
Hardware encryption engine	Yes (AES-NI)
GPU	NVIDIA® GeForce® GTX 1650[6]
Memory	8 GB DDR4 non-ECC SO-DIMM (4 GB x 2; expandable up to 32 GB with 16 GB ECC SO-DIMM x 2)[7]
Compatible drive type	4 x 3.5" or 2.5" SATA HDD/SSD (drives not included)
Hot swappable drive	Yes
External port	• 3 x USB 3.2 Gen 1 port • 2 x eSATA port • 1 x COM (for POS system connection)
Size (HxWxD)	166 x 250 x 237 mm
Weight	4.92 kg
LAN port	4 x 1GbE RJ-45
Wake on LAN/WAN	Yes
Scheduled power on/off	Yes
System fan	1 (120 x 120 x 25 mm)
AC input power voltage	100V to 240V AC
Power frequency	50/60Hz, single phase
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	-20 °C to 60 °C (-5 °F to 140 °F)
Relative humidity	5% to 95% RH
Maximum operating altitude	5,000 m (16,400 ft)

General DSM specification

Networking protocol	SMB, AFP, NFS, FTP, WebDAV, CalDAV, iSCSI, Telnet, SSH, SNMP, VPN (PPTP, OpenVPN™, L2TP)
File system	• Internal: Btrfs, ext4 • External: Btrfs, ext4, ext3, FAT, NTFS, HFS+, exFAT[8]
Supported RAID type	Synology Hybrid RAID (SHR), Basic, JBOD, RAID 0, RAID 1, RAID 5, RAID 6, RAID 10
Storage management	• Maximum single volume size: 108TB • Maximum system snapshots: 65,536[9] • Maximum internal volume: 64
SSD cache	Read/write cache support
File sharing capability	• Maximum local user account: 2,048 • Maximum local group: 256 • Maximum shared folder: 512 • Maximum concurrent SMB/NFS/AFP/FTP connection: 2,000
Privilege	Windows Access Control List (ACL), application privileges
Directory service	Windows® AD integration: Domain users login via SMB/NFS/AFP/FTP/File Station, LDAP integration
Security	Firewall, shared folder encryption, SMB encryption, FTP over SSL/TLS, SFTP, rsync over SSH, login auto block, Let's Encrypt support, HTTPS (customizable cipher suite)
Supported client	Windows® 7 onwards, macOS® 10.12 onwards
Supported browser	Chrome®, Firefox®, Edge®, Internet Explorer® 10 onwards, Safari® 10 onwards, Safari (iOS 10 onwards), Chrome (Android™ 6.0 onwards) on tablets
Interface language	English, Deutsch, Français, Italiano, Español, Dansk, Norsk, Svensk, Nederlands, Русский, Polski, Magyar, Português do Brasil, Português Europeu, Türkçe, Český, ภาษาไทย, 日本語, 한국어, 繁體中文, 简体中文

Surveillance Station

Maximum IP camera	• 32 channels (total of 960 FPS at 720p, H.264), including a maximum of 6 real-time Deep Video Analytics tasks • 8 free camera licenses included; additional cameras require the purchasing of additional licenses
Deep video analytics feature	• Face recognition • People counting • People and vehicle detection • Intrusion detection
IP Camera support	• Video codec: MJPEG, MPEG-4, H.264, H.265, and MxPEG (not supported by Deep Video Analytics tasks) • Audio codec: PCM, AAC, AMR, G.711, and G.726 • Camera bit-rate fine-tuning via constant and variable bit-rate control • ONVIF™ 2.6, Profile S certified, Profile G for edge recording
Live View	• Pan Tilt Zoom (PTZ) support with configurable PTZ speed • On-screen camera controls: camera zoom, focus, iris adjustment, auto pan, and auto object tracking • E-Map, Snapshot, and Snapshot Editor supported for instant editing after taking a snapshot • Video quality settings: bit-rate control, image quality, resolution, and FPS • Joystick support for easy navigation • Alert panel for a quick display of the most recently triggered events • Customizable layout and sequential camera view support
Recording	• Supported recording modes: manual, continuous, motion detection, I/O alarm, action rule, and customized • Recording formats: MP4 • The customized recording mode can be configured as a combination of conditional events, including motion detection, audio detection, tampering detection, and alarm input • Edge recording on the SD card of certain supported cameras • Configurable pre-recording and post-recording time
Playback	• Customizable layouts for playback in Timeline • Playback controls include pause, stop, previous recording, next recording, fast forward, slow motion, frame by frame, and digital zoom in/out • Embedded watermark for evidence integrity • Image enhancements including brightness, contrast, saturation, and sharpness (web client only)
Management	• Create and manage different user privileges • Rotate recorded videos by archived days or storage size • Event notification supported via SMS, E-mail, and mobile devices via DS cam • Recordings can be backed up to an external storage or remote server • Built-in NTP server • Supported tunnel: MPEG-4, H264 via RTSP over TCP, UDP, and HTTP
iOS/Android™ applications	Synology LiveCam, DS cam, DS file, DS finder
Surveillance desktop client support	Windows® 7 onwards, macOS® 10.12 onwards

Environment and Packaging

Environment safety	RoHS compliant
Package content	• 1 x DVA3221 main unit • 1 x Quick Installation Guide • 1 x Accessory pack • 1 x AC power cord • 2 x RJ-45 LAN cable
Optional accessories	• 16 GB DDR4 ECC SO-DIMM (D4ECSO-2666-16G) • Synology Expansion Unit DX517 • VisualStation VS360HD, VS960HD • Surveillance Device License Pack
Warranty	3 years[10]

*Model specifications are subject to change without notice. Please refer to www.synology.com for the latest information.

1. Check our compatibility list for all supported cameras.
2. DVA3221 supports up to two Synology Expansion Unit DX517, sold separately.
3. The DVA3221 unit comes with 8 camera licenses. Support for more cameras requires additional licenses.
4. Testing is done by the National Institute of Standards and Technology (NIST) under their Face Recognition Vendor Test (FRVT), WILD dataset.
5. Face Recognition is not supported on servers running as CMS recording servers or failover servers. DVA features other than task, detection result, and archive settings are not supported on servers running as CMS recording servers.
6. Display output is not supported.
7. DVA3221 comes with 8 GB DDR4 non-ECC SO-DIMM (2 x 4 GB) pre-installed. The non-ECC memory modules must be removed before the optional ECC memory modules can be installed.
8. exFAT Access can be purchased separately in Package Center.
9. System snapshots include snapshots taken by iSCSI Manager, Snapshot Replication, and Virtual Machine Manager. Availability of these packages varies by model.
10. The warranty period starts from the purchase date as stated on your receipt of purchase. Learn more about our limited product warranty policy.