

DIGITAL VISION NETWORK 5000 SERIES

What catches your eye?



5000 Series

The Digital Vision Network (DVN) 5000 Series motion tracking and object behavior algorithm changes the concept of video surveillance! Security personnel now have the option of specifying what represents suspicious behavior, and handling only images where suspicious behavior occurs.

DVN 5000 Series is a high-performance line of 4, 8 or 16 channel Digital Audio/Video Recording and Management Systems. DVN 5000 Series offers excellent visual quality and performance, giving more power and intelligence to your eyes.

The new hardware video processing platform ensures unmatched visual quality of images. Each camera input is completely independent, allowing image compression and image resolution to be adjusted on a camera by camera basis. All images are digitally signed and encrypted to protect against tampering or modification.

The DVN 5000 Series uses hardware-based compression technology to provide excellent performance and reliability at all times. The DVN 5000 real time series line provides up to 400/480 images per second of crisp, full frame images of the highest visual quality.

All Johnson Controls DVN models fully comply with the European Privacy Law.



DVN Available in Three Configurations

Real Time DVN

DVN 5000 real time series – delivers the ultimate audio/video performance – 25/30 images per second per camera input @ 4CIF for maximum digital video quality. DVN 5000 real time series also records up to 32 channels of lip-synchronized audio.

Multiplexed DVN

DVN 5000 Series with a built-in multiplexer is capable of processing up to 480 IPS @ CIF, 240 @ 2CIF, 120 @ 4CIF (400 IPS @ CIF, 200 @ 2CIF, 100 @ 4CIF PAL*) from 8 or 16 unsynchronized video inputs while also recording up to 8 audio channels. (Available in desktop and rackmount style chassis.)

IP Only DVN

DVN 5000 IP only series – delivers the ultimate video performance – 25/30 images per second per IP camera input for maximum digital video quality. It's the perfect solution when managing only IP cameras.

■ Flexible, Multistream Recording

DVN 5000 Series is capable of multiple recording speeds and can adjust any camera recording rate "on the fly" in response to varying conditions. Simultaneous Prime, Time-lapse and Alarm camera recording can be accommodated with customized recording speeds per sector. For example, it's possible to record in real time on the Prime sector and keep the images for a short period of time while recording with a lower frame rate on the Time Lapse sector and keeping the images for a longer period of time. This feature can be programmed in many different combinations of cameras, recording rates, motion detection, external alarm inputs and other factors. The use of separate sectors can reduce storage requirements, increase recording flexibility and make review of each category simple and fast.

■ Pentaplex Functionality

DVN 5000 Series provides real time functions of recording, playback, viewing, archiving/backup and transmitting of video and audio. The Johnson Controls state-of-the-art hardware implementation ensures deterministic, undiminished performance of all system functions and user interaction at all times, regardless of system activity or image content.

■ Embedded Technology

The embedded Operating System offers maximum efficiency, system uptime and reliability. DVN 5000 Series offers rich networking, storage features and superior compatibility with a large array of hardware devices.

■ Embedded Video and Audio Web Server

Every DVN 5000 Series has a built-in web server, VisionWeb. It allows viewing of live or recorded images (with audio) as well as control of PTZ cameras over any TCP/IP connection within Internet Explorer web browser – no special software is required. Intelligent bandwidth/picture content sensing and variable transmission quality make smooth streaming of video and audio a reality even over low bandwidth communication lines.



5000 Series

Intelligent Motion Detection Platform

■ Real Time Motion Detection

DVN 5000 Series has extremely sophisticated built-in activity detection capabilities. The motion detection engine provides an intelligent motion detection platform, successfully reducing false alarms and missed movements. High motion detection accuracy is due to the dynamic adjustment of the motion detector to the changing camera scene conditions. Additionally, our motion detector is capable of analyzing live video in real time for objects triggering motion based on various criteria such as object size, speed, direction and duration of movement.

■ Intelligent Motion Detection and Object Behavior Tracking

Motion Tracking technology can discover multiple objects in real time and track multiple object paths while they are in the view of the camera. Motion Tracking can analyze and track multiple object movements in real time and can be configured to recognize object movements that are of interest. The occurrence of a specific object and path can be used to trigger events on the system. Users can define multiple tracking, zones of interests and movement patterns for each camera while varying time, object size and object speed parameters providing a highly configurable and flexible platform. Retail and transport environments provide two clear examples where the power of Johnson Controls Motion Tracking can be easily employed for traffic and people movement analysis. Motion Tracking, with its object tracking and object behavior model, configurable parameters and custom event logic, allows DVN 5000 Series to analyze all incoming video and make intelligent record and alarm decisions on its own in response to the video it is seeing. (Please contact Johnson Controls for recommendations on optimal conditions for this feature.)

■ Permanency Detection Feature

DVN 5000 Series is capable of learning a usual camera scene and detecting if an object of specific properties is left within a camera scene for longer than a specified period of time. We call this feature the Permanency Detection feature as it can alert operators to objects that are not normally present within the view or have been 'left' behind. Similarly, Permanency Detection can operate the opposite way – if an object that is normally present within a scene (e.g. a piece of artwork in a museum) goes missing for longer than a specified period of time, DVN 5000 Series can generate an alarm.



All of the motion detection features can be scheduled, and up to 16 zones can be defined for each camera per time period. Motion detection occurs in real time and does not affect the performance of any other part of the system.



■ Activity Camera Display

DVN 5000 Series "active" live view automatically selects and displays only those cameras that are currently detecting activity. 1, 4, 9 or 16 camera view is automatically applied so that all active cameras can be displayed. Full screen active live view is available.

■ Pre-Motion and Pre-Alarm Recording

DVN 5000 Series can automatically record up to 15 minutes of pre-event (motion or alarm) video and audio and up to 15 minutes of post alarm. The pre-event recording does not affect the performance of any other system function.

Smart video search

■ Smart Search

DVN 5000 Series offers smart video search tools, which make it possible to create filters and search recorded video footage for images within regions of interest. The end result is the video footage of interest only, in a fraction of the time it would take an average person to review and retrieve the same information without this function.

■ Fast & Easy Image Find

DVN 5000 Series has a simple point and click interface showing a history of all recorded material organized by cameras in a scalable timeline.



Images can be found in seconds via this intuitive interface: click on the desired camera and the image quickly appears in a high resolution preview window – everything is online. The user can change the time scale to go back weeks or drill in to the second. Selecting a specific camera, date and time allows a user to pinpoint the exact image. Simultaneous replay of a synchronized camera is also possible.

Key Features

■ Time Synchronization

The DVN 5000 Series can utilize a single time source. Time synchronization across multiple DVN 5000 Series is automatic and ensures all cameras are time stamped with the correct time. Transparent daylight savings time management is built in – no data loss due to time changes. Synchronization of DVN 5000 Series with third party devices (video matrix switchers, access control systems, etc.) is supported.

■ Password Controls

Comprehensive password control allows powerful and flexible user access management, on a function by function, camera by camera and time of day basis.

■ Privacy Patch

Restrict operators from viewing sensitive areas. Black or heavy/light mosaic patches (definable per camera) ensure people's privacy is protected.

■ Encrypted Networking

The network traffic can be encrypted for added security and protection against network sniffing.

■ Variable Transmitted Image Resolution and Audio Quality

Transmitted audio and video quality can be adjusted "on the fly" from any DVN 5000 Series workstation. Switch image resolution (Full/4CIF – 720 x 576 pixels / 720 x 480 pixels, CIF – 360 x 288 pixels / 360 x 240 pixels or QCIF – 180 x 144 pixels / 180 x 120 pixels) so as to increase the refresh rate of incoming images or maximize the visual quality of incoming images. This has no impact on recording. Audio quality is automatically adjusted to match the available bandwidth. Resolution will depend on compression algorithm selected.

■ Pan, Tilt & Zoom (PTZ)

PTZ Controls, fully integrated in DVN 5000 Series, experience virtually no latency regardless of the available bandwidth. PTZ-capable cameras can be controlled from the server or any network connected workstation. Easy, intuitive control of movement is available by dragging the mouse cursor on the video, by PTZ graphic control panel or joystick. PTZ, Focus and Iris controls are available. PTZ camera tours and presets are fully integrated and can be invoked and configured remotely or associated with events. PTZ cameras can be controlled in full or 1, 4, 9 or 16 way split screen mode. Many third party PTZ protocols are supported.

■ True Full Screen

View or play cameras in arrangements of 1, 4, 9 or 16 cameras (arrangements definable by user). Switch between video window and full screen mode with a mouse click. Easy to use, unique mouse and joystick PTZ control is available in both window and full screen mode.

■ Virtual Zoom

DVN 5000 Series provides a special built-in virtual digital zoom feature which is available to both FIXED and PTZ cameras. Virtual digital zoom is available for live images as well as during playback. This feature offers superior image enlargement in real time for all cameras at all times!

■ Loophrough

DVN 5000 Analog Series has 4, 8 or 16 composite BNC loophrough video outputs and it can be installed before or after existing video equipment. (Not available on DVN 5016 desktop series.)

■ Image Touch-Up

Each recorded image can be digitally enhanced. Tools like Saturation, Sharpen, Blur, Contrast, Brightness, Equalize, Invert, Flip, Reverse and Mosaic are provided. A Digital Zoom feature is also available.

■ Multiple Image Export Formats

Any live or recorded image or sequence of images can be exported from DVN 5000 Series at any time while recording. Images can be exported as still images in JPEG, BMP file formats and MPEG4 AVI video clip format (with image authentication). Still images can be enhanced (brightness, contrast, saturation, sharpness, digital zoom, etc.) via built-in image enhancing software before exporting. Still images are exported in the recorded resolution. Images can be exported via any Johnson Controls client workstation to any local or network-connected storage medium. A full exporting facility is also available on DVN 5000 Series local interface. AVI video clips can be played back through Windows Media player or other standard playback software.

■ Image Print

DVN 5000 Series can retrieve and print any recorded image to a local or network printer. The resolution of the printed image is user selectable.

■ IP Camera Support

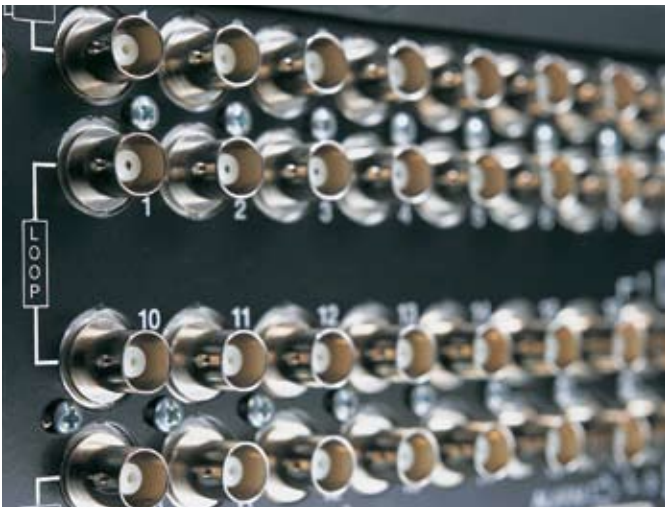
Seamlessly integrate popular models of IP cameras into the DVN 5000 Series server, which offers high performance capabilities, and viewing and controlling of each IP device. (Call Johnson Controls for the latest list of supported cameras). IP and analog cameras are both supported as well as Johnson Controls DVN100-NET encoder, providing a truly hybrid solution, which offers a migration path allowing flexibility for both existing and new installations.



Unlimited storage

■ 32 Audio channels

In addition to superior video quality, DVN 5000 Series can record and transmit audio as well. Record up to 32 audio channels in mono or 16 audio channels in stereo with DVN 5000RT Series and 8 mono or 4 stereo on multiplexed units. DVN 5000 Series video/audio environment is fully mixed. Associate many cameras with a single audio source or multiple audio sources with a single camera source. Transmit live and recorded audio – fully synchronized with video. Audio detection is also available. As with all DVN 5000 Series features, audio recording, playback and bi-directional transmission are done simultaneously, can be accessed remotely and do not affect any other function of the DVN 5000 Series.



Alarms

■ Alarm Inputs/Relay Outputs

DVN 5000 Series has up to 16 external inputs and each input is individually programmable. Up to 16 relay outputs are built-in and are available for manual or automated remote control of external devices such as lights, gates, alarms, etc.

■ Software Alarm Inputs

Each DVN 5000 Series unit can be provided with a soft alarm interface via our ActiveX® Developer's Kit. This interface allows communication with third party systems, e.g. access control systems, video matrix switches, etc. High-level software alarms can initiate DVN 5000 Series recording of cameras in response to events generated or monitored by the third party systems.

■ Backup

The DVN 5000 Series platform offers powerful backup facilities from the server itself or any network attached client. Video backup can be scheduled or in real time. Backup video quality can be identical to the original or at reduced resolution, reduced IPS and different compression algorithms so as to maximize long term archive time and minimize long term archive storage requirements.

■ Optional RAID 5 Data Protection

Johnson Controls DVN 5000 Series can be configured with RAID 5 fault-tolerant storage. This eliminates the need for around-the-clock backup of video data and prevents data loss and downtime due to a single disk failure.

■ Optional External Storage

For extremely demanding audio/video storage requirements, DVN 5000 Series offers sophisticated RAID 5 fault-tolerant external SATA based storage that provides you with a cost-effective way to store several months of audio/video online. The storage is scalable and is 19" rack-mountable. (90 days of playback supported.)

■ Multi Sector Storage/Network Storage

All video recorded to DVN 5000 Series is stored online on internal or external disk storage, which can be locally attached or network connected. The DVN 5000 Series offers unlimited off board storage potential. Video, regardless of duration of recording time, is available instantly as our video archive is extremely efficient. A graphical find function allows easy navigation through time and recorded video at different scales for Prime, Time Lapse and Alarm sectors. Random access and playback of recorded video is always available with no impact on the system's recording capabilities. DVN 5000 Series is capable of recording video and audio to multiple storage sectors simultaneously in the same or different configurations/locations. This multi-sector approach, coupled with network storage, allows simultaneous recording of cameras at two or more IPS rates and resolutions with or without motion detection in different physical locations. A sophisticated network storage architecture allows DVN 5000 Series to utilize (and monitor) any local or network attached storage transparently to the user. This provides a highly scalable architecture with virtually unlimited storage capabilities.

Hardware Based Compression

■ On-the-Fly, All-in-One Compression Engine: Wavelet and MPEG4 (real time models only)

For recording, the compression algorithm can be individually configured on-the-fly for every camera. The compression is managed by a programmable Digital Signal Processor (DSP). The programmable DSP approach ensures that DVN 5000 real time series firmware is upgradeable – enabling easy support for new and improved future compression algorithms. DVN 5000 real time series architecture can utilize multiple compression algorithms simultaneously – recording cameras in different frame rate and/or resolution as required. This could be useful particularly in Alarm conditions. Experience the difference of deterministic, real time (25/30 IPS per camera) multi-compression performance at full PAL/NTSC resolution (720 x 576 pixels / 720 x 480 pixels).

■ Intelligent MPEG4 Compression Configuration

The DVN allows configuration and priority to be given to the quality of images and bandwidth used. When quality is chosen, the DVN will deliver a variable bit rate stream to always adapt to the best quality. If bandwidth is preferred, the DVN will deliver a constant bit rate and will adjust the quality accordingly. It's also possible to use a configuration in between where bandwidth can vary but only in a delimited scale. This permits the user to adapt the system for best performance according to needs and network infrastructure.

■ Adaptive Bandwidth and Rate Control

Johnson Controls architecture is capable of sharing the same compressed bit stream between different client connections using different bandwidth. This allows DVN 5000 Series to provide optimum results for any given connection and any given bandwidth, e.g. the same compressed stream can be sent to a high bandwidth client in real time, while for low bandwidth clients, the frame rate and quality can be adjusted to match the available bandwidth. DVN recorded images are unaffected by the transmission image quality and image rate.



Comprehensive Software Suite

■ Networking

DVN 5000 Series is exceptionally versatile and can be networked via any TCP/IP infrastructure. An unlimited number of DVN 5000 Series units can be networked and accessed by one or more client PCs. Any DVN 5000 Series can operate either standalone or as a networked server, maintaining undiminished system performance levels while supporting many simultaneously connected network users. DVN 5000 Series can record network transmitted video and audio from the DVN 5000 Series Network Interface. It can also record a duplicate of any camera from any other network attached DVN 5000 Series.

■ Single Client Platform

Johnson Controls SiteManager client software can connect and interact with any Johnson Controls DVN. Software transparency allows a single client machine to control many different DVN models and versions.

■ Johnson Controls SiteManager

SiteManager offers a rich and intuitive interface to provide full control over all system features and configuration for multiple network connected Johnson Controls DVN simultaneously, regardless of Johnson Controls DVN model. SiteManager supports live view, playback, export, find and PTZ control for multiple cameras from multiple Johnson Controls DVN servers over multiple network interfaces. Advanced 2D maps, 3D maps, logical groups of resources, user defined multiple camera views and layouts, spot monitor outputs and virtual video wall management are also supported, giving the user powerful tools for enterprise wide configuration and management of all resources connected to DVN 5000 Series. Sophisticated alarm monitoring and management functions are provided within SiteManager to enable users to respond effectively at crisis times. Alarm events from multiple Johnson Controls DVNs are received by SiteManager via network in real time and multiple response actions (camera display, view display, spot monitor camera sequence, etc.) can be triggered in response to one or more alarms occurring at one or more DVN in real time. Activity can be logged (via text file or a screen activity video clip) for a permanent record of what happened.

■ Directed Network Alarm Display

Any DVN 5000 Series can send alarm video immediately to network clients running our SiteManager software. Video and audio can be directed on an alarm by alarm, client by client basis.

■ Full Remote Control and Audio/Video Transmission

True client-server architecture of DVN 5000 Series lets you view live/recorded video and audio, control and configure the server as well as perform all software upgrades remotely over the network. There are no functional differences between accessing any Johnson Controls DVN through local interface or over the network.

■ Quick and Easy

Intuitive Graphical User Interface, including mouse and joystick controls, has been designed with simplicity and effectiveness in mind. A simple auto-configuration is provided to allow rapid use of the unit after installation. DVN 5000 Series will automatically detect the number of connected cameras, disks, PTZ camera protocols, etc. Recording speeds and disk space will be equally divided between cameras for a quick start at first power up.

■ VCR Controls

DVN provides superior playback quality, features and performance. Play images forward or reverse, image by image, at single speed or 2x, 4x ... up to 512x from any point in the recorded video. Full screen playback and synchronized multi playback are also available.

■ ActiveX® Developer's Kit

Johnson Controls DVN is an open platform that lets you interface third party equipment or develop your own client applications. All Johnson Controls DVN functionality is available through Johnson Controls high level APIs.

■ Logical Groups

To simplify user navigation in the video management system, SiteManager offers the possibility to create logical groups, which include cameras, audio channels, and alarm inputs and outputs. For example, it is possible to group all the cameras located on a particular floor of a building independently of which DVN they are physically connected to. This simplifies user navigation and management.



Digital vision network – 5000 Series

Multiplexed

	DVN 5008	DVN 5016	Desktop
Enclosure	Rackmount 4U	Rackmount 4U	Desktop
Video Inputs (Analog)	8	16	8, 16
Video inputs (Network)	16 (includes a combination of 16 inputs from analog and network sources).	16 (includes a combination of 16 inputs from analog and network sources).	16 (includes a combination of 16 inputs from analog and network sources).
Loophrough	Yes	Yes	Yes (8 ch) / No (16 ch)
Spot Monitors	Requires DVN100-NET (TCP/IP)	Requires DVN100-NET (TCP/IP)	Requires DVN100-NET (TCP/IP)
Audio Input	4 stereo (8 mono)	4 stereo (8 mono)	4 stereo (8 mono)
Alarm Input	16	16	8
Auxiliary Outputs	16	16	2
RAID5 Storage	Available	Available	No
Recording Speed	up to 240 IPS @ CIF, 120 @ 2CIF, 60 @ 4CIF (200 IPS @ CIF, 100 @ 2CIF, 50 @ 4CIF PAL)*	up to 480 IPS @ CIF, 240 @ 2CIF, 120 @ 4CIF, (400 IPS @ CIF, 200 @ 2CIF, 100 @ 4CIF)*	8 ch 200/240 IPS @ CIF, 200/240 @ 2CIF, 100/120 @ 4CIF / 16 ch 400/480 IPS @ CIF, 200/240 @ 2CIF, 100/120 @ 4CIF (PAL/NTSC)
Local Recording Compression Algorithms	MPEG4**	MPEG4**	MPEG4
Transmission Algorithms	MPEG4	MPEG4	MPEG4
Communications	Ethernet Gigabit	Ethernet Gigabit	Ethernet Gigabit
Other Interfaces	USB 2.0, RS232, LPT, DVI	USB 2.0, RS232, LPT, DVI	USB 2.0, RS232, LPT
Power Supply	110 / 220 VAC	110 / 220 VAC	100 / 220 VAC

Realtime

	DVN 5004, DVN 5008, DVN 5016	IP Only	DVN 5016X
Enclosure	Rackmount 4U	Enclosure	Rackmount 4U
Video Inputs (Analog)	4,8,16	Video Inputs (Analog)	0
Video Inputs (Network)	16 (includes a combination of 16 inputs from analog and network sources).	Video Inputs (Network)	16
Loophrough	Yes	Loophrough	No
Spot Monitors	Requires DVN100-NET (TCP/IP)	Spot Monitors	Requires DVN100-NET (TCP/IP)
Audio Input	8, 16, 32 mono (4, 8, 16 stereo)	Audio Input	No
Alarm Input	4, 8, 16	Alarm Input	No
Auxiliary Outputs	16	Auxiliary Outputs	No
RAID5 Storage	Available	RAID5 Storage	Available
Recording Speed	100/120, 200/240, 400/480 IPS (PAL/NTSC)	Recording Speed	Up to 400/480 IPS (PAL/NTSC)
Recording Compression Algorithms	Wavelet/MPEG 4	Recording Compression Algorithms	MPEG 4
Transmission Recording Algorithms	Wavelet/MPEG 4	Transmission Recording Algorithms	MPEG 4
Communications	Ethernet Gigabit	Communications	Ethernet Gigabit
Other Interfaces	USB 2.0, RS232, LPT, DVI	Other Interfaces	USB 2.0, RS232, LPT, DVI
Power Supply	110 / 220 VAC	Power Supply	110 / 220 VAC

*This frame rate is supported by MPEG4 models only

**Wavelet models are also available; please check technical specification documentation for models and features.

PTZ protocols supported (via RS232/422/485)

Vicon, Sensormatic SpeedDome/DeltaDome, Philips Autodome, Panasonic, Star Micronics, Pelco (D-Protocol), Pelco (P Protocol), Kalatel Cyberdome, JVC TK-C67x Series, Alec Dragon, Samsung, VCL (VCLTP Protocol), Ernitec (ERNA Protocol), Vision (360 Protocol), Axis and others on request.

ActiveX is either a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries.

Specifications subject to change without notice.