

# COMVISION LONGREACH SERIES DATASHEET

## Network Surveillance Recorder NSR25-RT4U-16C



**INTUITIVE.**

**DISTRIBUTED.**

**FLEXIBLE.**

**PLUG & PLAY.**

**EMBEDDED.**

### PRODUCT OVERVIEW

No other security environment is more demanding than the mission-critical enterprise arena. If a video system fails, it can mean security operations fail. Such video surveillance systems require unparalleled reliability, scalability and redundancy, coupled with high image quality and intuitive operator control.

ComVision is proud to introduce the NSR-25. This Network Surveillance Recorder is an enterprise class solution designed specifically for use in high end security applications where quality real time video footage is essential.

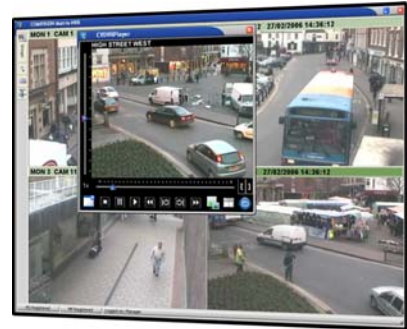


Built on distributed client-server architecture, the ComVision NSR-25 is specifically designed for digital recording as part of the ComVision Longreach Solution.

The ComVision NSR-25 solution enables you to simultaneously view, store, and capture high-quality video and data. Each 16 channel NSR is capable of storing 31 days of real time footage at a resolution of 4 CIF. Users also have the ability of storing video data to a central location across a network on our Remote Storage Server. *(Please see NSR-RS16B datasheet)*

The NSR-25 has a proven track record. It is installed in some of the world's most prestigious security installations. These include major Government sites, Infrastructure sites, Town Centers, and Corporate sites.

### DISTRIBUTED VIDEO



All ComVision NSR series devices are capable of being distributed across a network. Network-distributed video systems offer substantial economical, installation and performance advantages over classic analog, matrix based systems. The ComVision Virtual Matrix functionality makes setting up operator control points, adding additional monitors, adding and viewing additional cameras a breeze.

There is no limit to the scalability of the ComVision Longreach Series.

### TAKING CONTROL

Control any camera on any NSR unit with ComVision's DCT Touch Screen Keyboard. This unique keyboard can be setup anywhere on the network; it allows users to switch any camera to any monitor and gives full proportional Pan/Tilt/Zoom control. *(Please see DCT Keyboard datasheet)*



# COMVISION LONGREACH SERIES DATASHEET

## Network Surveillance Recorder NSR25-RT4U-16C

### CONTROL ROOM MANAGEMENT

At the hub of the ComVision Longreach Solution is our PenControl Security Management Software (SMS).



PenControl is an Integrated Management System where Operators have full control of all security hardware resources from single or multiple workstations. The system utilises an open architecture approach where any equipment type and manufacturer can be integrated for seamless control by the system Operators. High level integration of the following security resources is possible:

- CCTV Equipment, including Matrix Switchers, Multiplexers, VCR's, DVR's, Video Printers.
- Video Streaming equipment utilising PSTN, ISDN and TCP/IP networks.
- Access Control Systems.
- SCADA Control and Building Management systems, including HVAC Plant, Fire Alarm, Lighting Control, Power System Control, Irrigation, Vertical Transport.
- Telephony System, including an interface to PSTN Lines, RT Systems and Intercom Systems.

A PenControl system is configured using its modular software to satisfy customer specifications. Being a modular system allows customers to purchase base system components and then build on the system to include extra functionality in the future.

User defined response procedures to alarms and events step the operator through what is required whilst automatically prioritising events. Comprehensive event logs are generated and therefore allow audits and reports to be generated from a central point.

As well as being highly configurable the operator workstation is also available in two different formats. A single screen format is available for the basic system while a dual screen workstation can be used for the premium system. *(Please refer to the ComVision PenControl A and E Specification for additional information)*

### NSR COMPRESSION TECHNOLOGY

The NSR-25 utilises the power of H.264 video compression. H.264 allows for highly efficient video file storage and data transfer across the network.

H.264 is the most advanced video coding standard available today. It uses many new coding techniques not available in MPEG2, MPEG4 and H.263. It raises the bar considerably by allowing better picture quality while significantly lowering the bit rate. This allows for lower overall system cost and reduced infrastructure requirements.



The video, audio and IO capture, digitization and H.264 compression is processed by hardware on each video capture card. The NSR-25 contains four cards giving a total of 16 real time video channels, 16 synchronised audio channels, 16 digital inputs and 16 relay outputs. The NSR-25 is capable of capturing and storing 400 frames per second giving users the ability to record and view all cameras in real time, all the time.

### NSR COMPRESSION SECURITY

The time and date for each recorded frame is encrypted within the video. Therefore, this secures the information and makes it impossible to tamper with.

Additional security can be implemented by programming an individual 'Site Code' which is used with the compression / encryption process. Using this feature makes each site's video unique and this site code is required to playback any video.

Every time a video file is opened, the ComVision playback application verifies the encrypted file to ensure it hasn't been tampered with. Video analyzer functionality is also available for authentication of the video files along with providing statistical video metrics information.

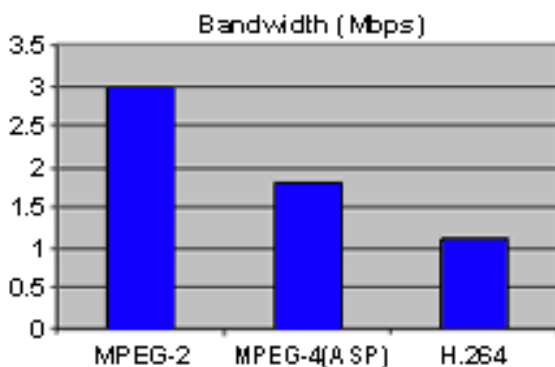
# COMVISION LONGREACH SERIES DATASHEET

## Network Surveillance Recorder NSR25-RT4U-16C

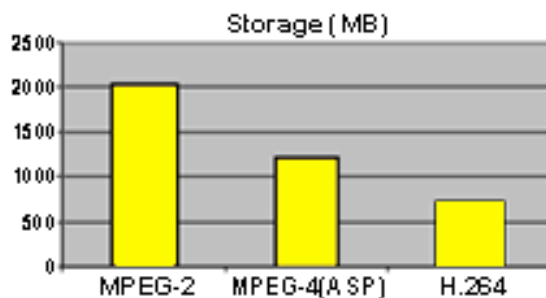
### H.264 PERFORMANCE

The graphs below are practical comparisons between different coding technologies for a 90 min DVD quality video:

#### Bandwidth Comparison:



#### Storage Comparison:



As you can see there is a significant difference in the bandwidth and storage requirements. This difference has been proven to relate directly to the practical implementation and engineering of a system, the performance of a system, the long term stability of a system, the capital expenditure and long term maintenance costs of a system.

In simple terms, the higher the bandwidth and storage requirements are for a system, the more complicated and expensive the system becomes.

### POWERFUL REMOTE CLIENT ACCESS

The ComVision Virtual Matrix client (VMII) is designed to remotely access all ComVision NSR models. The VMII application gives operators an intuitive easy to use interface and makes short work of navigating and viewing cameras, searching video footage, exporting video footage and controlling cameras from anywhere on the network.

The VMII application is very flexible in its configuration. The same application can be setup for use as a management review station, a remote gatehouse control point, and a control room video wall application. When used with the PenControl SMS it can be programmed as an alarm response application giving operators instant access to recorded video that has been associated with system alarms.



When used as a video wall, any number of monitors can be created by simply adding additional Video Wall machines. Any split screen arrangement is also possible and can be built across any number of monitors.

The following picture illustrates a typical central control room using the PenControl SMS system to switch and control cameras on the ComVision Virtual Matrix monitors.

# COMVISION LONGREACH SERIES DATASHEET

## Network Surveillance Recorder NSR25-RT4U-16C



Users simply navigate through site maps and PenControl presents camera, alarm, and IO control points on these maps. Users simply touch the respective icon to initiate control.

Once an operator has a camera on a monitor, at any time he can initiate instant playback by double clicking on the image of interest. Therefore operators can easily look at the live and playback images simultaneously.

The illustration below demonstrates how easy it is for

operators to access live camera images, recorded camera images, snap-shot images and to export images to file and DVD. When images are exported to DVD for archive and court presentation, they are exported in an encrypted format with all the necessary playback software.

You can prove images have not been tampered with by running ComVision analysis software which verifies the image file authenticity.



# COMVISION LONGREACH SERIES DATASHEET

## **Network Surveillance Recorder NSR25-RT4U-16C**

### **HARDWARE SPECIFICATION**

ComVision NSR devices can be located anywhere on a network (LAN or WAN). Live video is streamed across the network and presented on the Virtual Matrix monitors. Recorded video can be recorded directly on the NSR device and/or streamed to a central "Remote Storage Server".

Comvision has taken an open architecture IT Approach when designing the NSR-25. This means the system hardware components are off-the-shelf industrial IT components. Service engineers can source components quickly and easily. The C Three series software solution is also designed in an open architecture environment.

Everybody knows how quickly hardware technology improves in today's fast moving world, so our software solution has allowed us to seamlessly upgrade our hardware technology while maintaining a common software platform. This means our customers can benefit from using the latest hardware technology while phasing out the old technology over a period of time. One major benefit of not changing the software platform means there is little or no operator training necessary during the evolution of a system.

Built to last, the ComVision NSR-25 has been designed from the ground up with quality and ease of maintenance in mind.

ComVision works closely with Seagate and the new ES Series hard drives. These drives are specifically engineered and optimised for digital video recording in security and surveillance applications.

Using Raid 5 or 6 Hot Swap drive bays along with Hot Swap power supply modules and front loaded Hot Swap Fans, engineers can maintain the ComVision NSR-25 without interrupting its day to day tasks.

Engineers and operators are alerted to system faults by the PenControl SMS. Having centralised reporting and programming facilities allows for ease of maintenance and maximum up-time.

High airflow over its power packed Intel Core 2 Duo processor guarantees a long life and hassle free system.

The front LCD console monitors and displays the health status of the unit along with channel and recording information. If the system stops recording the LCD console displays a critical error and will then re-start the recording service automatically. Engineers can ascertain the health of a unit at a glance.

The NSR-25 I/O module allows up to 16 digital inputs and 16 relay outputs to be controlled from our PenControl Security Management System (SMS). Additionally Video Motion Detection, Video Loss, Hard Disk Drive Failure and other various system alarms are also monitored by our SMS system.

PTZ cameras are controlled directly via the NSR's on-board RS485/422 port. The NSR supports all major camera manufacturers control protocols.

### **WHAT IS RAID**

The basic idea of RAID is to combine multiple small, inexpensive disk drives into an array of disk drives, which yields higher performance than that of a Single Large Expensive Drive (SLED). Additionally, this array of drives appears to the computer as a single logical storage unit or drive.

RAID stands for "Redundant Arrays of Inexpensive Disks".

#### ***Raid 5:***

Combines data striping (for enhanced performance) with distributed parity (for data protection) to provide a recovery path in case of failure. It allows one disk to fail without any data loss. If a disk does fail, users simply replace the disk while the system is running and the NSR-25 will automatically rebuild itself.

#### ***Raid 6:***

This is similar to Raid 5, but it also allows users to nominate how many parity drives are to be used. This basically means you can nominate how many drives can fail at any given time. If two parity drives are used, then two drives can fail without any data loss.

# COMVISION LONGREACH SERIES DATASHEET

## **Network Surveillance Recorder NSR25-RT4U-16C**

### KEY HARDWARE FEATURES

- ✓ Plug-and-Play Hardware. A stand-alone system is fully operational out of the box. Users simply follow the installation instructions, connect the cameras and turn the unit on.
- ✓ Up to 8 Terra Bytes of Hard Disk storage per NSR machine.
- ✓ 16 BNC video inputs and 16 RCA Audio inputs
- ✓ Continuous 4 CIF (704 x 576 pixel) recording on all channels.
- ✓ 31 days real time recording, on all channels stored on board. 400 images per second (IPS) across 16 video channels.
- ✓ Dynamic image compression: 40:1 to 240:1, Max 2400:1 (Depends on image movement and camera image quality)
- ✓ Real Time Live and Playback Viewing speeds on all channels.
- ✓ Uses Seagate ES Series hard disk drives as standard. Specifically engineered and optimised for digital video recording in security and surveillance applications.
- ✓ SCSI hard disk drive option, used for ultimate reliability in harsh environments.
- ✓ 8 Hot Swap front loaded drive bays, CD/DVD-ROM, hot swap front loaded fans.
- ✓ Hot Swappable Dual Redundant Power Supply Unit. With dual power rail inputs.
- ✓ Raid 5 is standard. Raid 6 and Raid 1 mirroring is optional.
- ✓ Digital Inputs and Outputs (optional). 16 Optically isolated digital inputs and 16 relay outputs accessible from the rear of the unit.
- ✓ Integrated LCD console monitors and displays the health status of the unit along with channel and recording information. It also allows users to restart the NSR-25 without having to logon to the unit.
- ✓ Remote monitoring software for the health status of any machine on the network. This includes all the NSR's critical services, network availability, and hard disk drive monitoring.
- ✓ Remote alarms reported to Security Management System (SMS).
- ✓ Remote email to report HDD fault.
- ✓ Two Gigabit LAN connections allow users to use multiple networks for file transfer and playback. Useful when using the ComVision Remote Storage Server for centralised recording.
- ✓ Remote Storage Server option with dynamic network monitoring and automatic recovery and re-synchronisation of video data after network or hardware fault.
- ✓ High quality industrial rack mount chassis. (4RU)
- ✓ Intuitive and flexible configuration modes.
- ✓ Distributed IP architecture built on Windows XP Professional and XP Embedded technology.
- ✓ H.264 video compression is used for low bandwidth and hard disk consumption.
- ✓ Scalable to any size requirements by stacking units.
- ✓ Integrated index file used for fast image retrieval.
- ✓ Automatic video file management.
- ✓ Industrial ball bearing fans provide high air flow and high reliability.
- ✓ Thermal sensors and alarms used for automatic shutdown to prevent damage to hardware and video data.
- ✓ Low bandwidth UDP WAN server option for integration over ADSL, DSL and VPN wide area networks.
- ✓ ComVision DCT touch screen joystick camera control.
- ✓ Lockable front door prevents tampering with the unit.
- ✓ Front accessible USB 2.0 ports
- ✓ Visual temperature, fan speed and recording activity indicators.
- ✓ Enhanced integration available through our Software Development Kit (SDK).

# COMVISION LONGREACH SERIES DATASHEET

## **Network Surveillance Recorder NSR25-RT4U-16C**

### **KEY SOFTWARE FEATURES**

#### ***VIRTUAL MATRIX CLIENT FUNCTIONS:***

- ✓ Operator logon and password protection.
- ✓ Slide out menu system to maximize camera image size.
  - 'Pin out' slider menu function
- ✓ Camera Control – methods include:
  - ✓ Mouse over live image, proportional PTZ control.
  - ✓ ComVision DCT touch screen joystick camera control.
  - ✓ Slide out 'Camera Control' menu with the following control functions:
    - Pan / Tilt / Zoom.
    - Set and go to presets.
    - Start and Program camera patterns / tours.
    - Light / Washer / Wiper control.
    - Iris / focus control.
    - Auxiliary output control.
- ✓ Slide out, drag and drop 'Camera Selection'.
- ✓ Programmable camera configuration.
- ✓ Slide out, drag and drop 'Camera Group' selection.
- ✓ Programmable camera group configuration.
- ✓ Slide out, drag and drop 'NSR Group' selection.
- ✓ Slide out, 'Function' menu for system control and programming.
- ✓ Slide out, 'Split Screen' controller.
- ✓ Digital Snap shot and printing options.
- ✓ Export footage to CD or DVD in three mouse clicks.
- ✓ Create your own 'Video Wall' with any split screen configuration you like.
- ✓ Watch up to 16 real time, high movement, '4-CIF' images on each 'Virtual Matrix Video Wall'.
- ✓ Connect any camera from any NSR to any monitor across the network. 'Virtual Matrix' functionality.
- ✓ Virtual matrix 'Remote Control' capable of controlling any Video Wall application cross the network.
- ✓ Configurable launch application buttons.
- ✓ Configurable caption bar formats and colours.
- ✓ Flash caption bar on camera switch option.

- ✓ Flash caption bar on alarm switch and display alarm time and date information.
- ✓ 'Auto Maximize' video area on startup.
- ✓ 'Auto logon' on startup.
- ✓ 'Auto stay-on-top' feature.
- ✓ Configurable client options:
  - Standalone Mode.
  - Video Wall Mode.
  - Review Station Mode.
- ✓ Automatic video connection on startup option.
- ✓ Auto sequencing video on startup option.
- ✓ Defined camera types with graphical icon.
- ✓ Hot key functions.
- ✓ Intuitive installation of remote clients.
- ✓ Intuitive configuration.
- ✓ Comprehensive system manuals.

#### ***PLAYBACK FEATURES:***

- ✓ Instant Playback by double clicking the live image.
- ✓ Playback multiple cameras simultaneously while looking at the live images.
- ✓ Programmable right click menu for image playback.
- ✓ Time / Date searching.
- ✓ Playback features:
  - Play forward.
  - Play reverse.
  - Fast forward with slider bar control.
  - Fast back with slider bar control.
  - Stop.
  - Pause.
  - Time period cropping by using slider bar control.
  - Full screen option for playing video to VCR composite output.
  - Digital snap shot printing with user comment entry.
  - Export to file.
  - Export to CD / DVD.
  - Resizable window.

# COMVISION LONGREACH SERIES DATASHEET

## **Network Surveillance Recorder NSR25-RT4U-16C**

- Goto time and date.
- Slider bar frame control.
- Caption bar displays embedded data information.
- Files mode playback with explorer interface.
- ✓ Enhanced integration available through our Software Development Kit (SDK).

### **RECORDING FEATURES:**

- ✓ PAL and NTSC recording options.
- ✓ 'Normal' recording Mode / 'Recycle' recording mode.
- ✓ Reserve data drive space configuration.
- ✓ Individual camera channel configuration:
  - Channel description.
  - Frame rates.
  - Picture sensitivity.
  - Quality.
  - VMD Sensitivity.
  - Recording interval.
  - Maximum recording period.
  - Recycling.
  - Record video On / Off.
  - Live video On / Off.
  - Video loss detection.
  - Video loss alarms.
  - VMD configuration.
  - VMD zones (four per camera).
  - Change state of alarm configuration.
- ✓ Enhanced integration available through our Software Development Kit (SDK).

### **PENCONTROL SMS FEATURES:**

- ✓ Control cameras using the PenControl SMS system.
- ✓ Touch screen option.
- ✓ Unlimited site maps.
- ✓ Graphical site representation.
- ✓ Build your own GUI (Graphical User Interface) to suit your site requirements with the PenControl SMS configuration tools.

- ✓ Digital Input and Relay Output control (Optional 16 I/O's per NSR-25 device).
- ✓ Allocation of system devices such as cameras, alarm points and I/O's to individual users, user groups and workstations.
- ✓ Monitor NSR Alarms from the PenControl SMS system.
  - Digital inputs, outputs, VMD, Video Loss, Hard Disk Drive and hardware System Fault alarms.
  - Automatic macros can be used to manage video that are associated to alarms.

### **SYSTEM ALARM FEATURES:**

- ✓ Video Motion Detection (VMD) with up to 4 VMD zones per camera.
  - Intuitive VMD configuration tools over live image.
  - VMD sensitivity configuration.
- ✓ Video loss configuration.
- ✓ Report alarms to multiple servers.
- ✓ Digital input configuration.
- ✓ Enhanced integration available through our Software Development Kit (SDK).

### **LCD HEALTH MONITORING FEATURES:**

- ✓ LCD Health Monitor functions:
  - 2 line, 32 character display. Programmed to use dynamic text scrolling.
  - Unit health monitoring.
  - Recording period display.
  - Individual channel information.
  - Safe reboot option.
  - Forced reboot option.
  - Configurable reboot delays.
  - Configurable refresh interval.

# COMVISION LONGREACH SERIES DATASHEET

## Network Surveillance Recorder NSR25-RT4U-16C

### NSR-25 CHASSIS SPECIFICATION

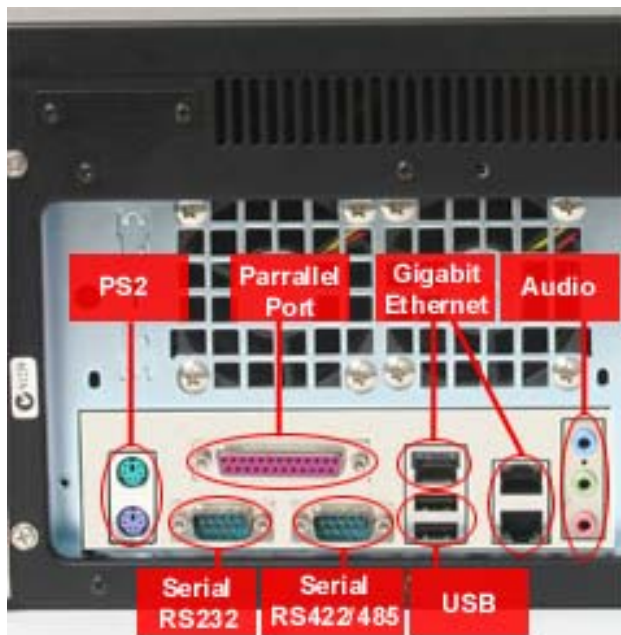


Dimensions:	483(W) x 177(H) x 550(D) mm (19"x7.0"x21.7") Standard 4 Rack Unit Chassis
Front Cover:	Lockable with LED indicators
Drive bays:	8 Hot Swappable IDE, S-ATA, SCSI, and the latest S-ATA II & SAS Bays, 1 x CD/DVD RW Drive
USB Slots:	2 x Front Chassis 4 x Rear Chassis
LCD Display:	Navigation Options: <ul style="list-style-type: none"> <li>• 2 line, 32 character display</li> <li>• Recording period and health</li> <li>• Critical error menu</li> <li>• NSR menu – Channel Info.</li> <li>• Safe system re-start menu</li> <li>• Forced system re-start menu</li> </ul>
Power Supply:	Rear Hot Swap Chassis Installation: <ul style="list-style-type: none"> <li>• Dual power rail inputs.</li> <li>• 500 Watt PSU (2 x 250W modules)</li> <li>• 1650 BTU/hr (British Thermal Units per Hour) Maximum.</li> </ul>
Operating Temperature:	Recommended operating temperature 17 to 21 degrees Celsius. Range: -5 to 35 degrees Celsius.
System Fans:	3 x Front Hot-Swap 3.5 inch Fans 2 x Rear Chassis 2.5 inch Fans 4 x PSU Fans 1 x CPU Fan 1 x Internal Fault Buzzer
Thermal Sensors:	2 x Internal Chassis with programmable temperature range. 1 x CPU with programmable temperature range.
Buttons:	1 x Power On/Off 1 x Mute Alarm Warning
LED's:	8 x HDD Activity (one for each HDD) 8 x HDD Power (one for each HDD) 1 x Fan Health 1 x Temperature
PS2:	1 x Mouse 1 x Keyboard
Colour:	Black

# COMVISION LONGREACH SERIES DATASHEET

## Network Surveillance Recorder NSR25-RT4U-16C

### NSR25-RT4U-16C REAR CONNECTORS



PS2:	1 x Mouse 1 x Keyboard
Parallel:	1 x Printer Port
Gigabit Ethernet:	2 x Gigabit Ethernet Ports
Audio:	1 x Stereo Audio Outputs
USB:	2 x USB Ports (Rear and front)
Serial Port 1:	1 x RS232 Serial Port
Serial Port 2:	1 x RS422 / RS485 Serial Port • Used For Camera Control.



Camera Terminations:	16 x BNC Jack (Camera Inputs) Composite Signal, 1 volt p-p 75 Ohms.
Frame Size:	704 x 576 Pixels (4 CIF) – PAL 704 x 480 Pixels (4 CIF) – NTSC
Record Rate:	400 fps, 4 CIF Resolution – PAL 480 fps, 4 CIF Resolution – NTSC
Audio Terminations:	16 x RCA Jack (Audio Inputs via break out cable)
DVI Output:	1 x Digital Monitor Output
VGA Output:	1 x Standard Monitor Output
S-Video / Composite Output:	1 x S-Video or Composite Monitor Output
Input / Output Module:	1 x Optional IO Module • 16 x Digital Inputs • 16 x Relay Outputs