



## HYBRID VIDEO RECORDER

A Single Solution for IP and Analog Video Surveillance

As the video surveillance security is moving from Analog to IP technology, the users are getting greater flexibility to strengthen their security cover. Both the Analog and IP solutions offer distinct advantages suitable for their specific application areas. But, migration to IP from Analog asks for infrastructural changes. Under such circumstances, users need a solution that bridges technological divide between Analog and IP by delivering hybrid recording capability to thoroughly fulfill the requirements.

### Presenting Matrix SATATYA HVR:

A range of well-engineered hybrid video recording solutions, which offer the benefits of a highly mature Analog solution and security enhancements of IP solution. Organizations already using analog video surveillance can protect their existing investment in cameras and wiring and add IP cameras at critical points. For greenfield video surveillance projects, Matrix SATATYA HVR allows mixed use of analog cameras and IP cameras depending on various factors like image quality, distance, wiring-feasibility and cost.

Designed on robust hardware and intuitive software, these HVRs are scalable and offer an easy migration from Analog to IP, whether in a small office, mid-size organization or a large enterprise.

## SATATYA HVR SOLUTION

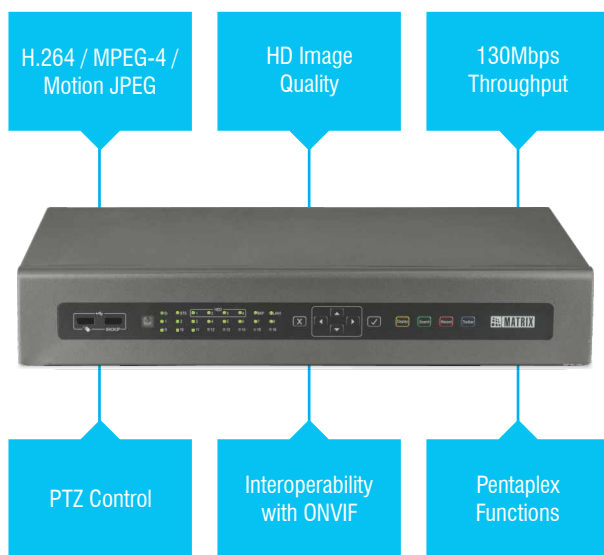


### HVRs • CMS • Web Client • Mobile Application • Analog & IP Cameras

Matrix SATATYA HVR offers a host of advantages in terms of security enhancing features, integrations and ease-of-use. Most of the HVRs available today are limited to recording Analog and IP video streams. Matrix SATATYA HVR is different from these generic HVRs as it comes with CMS, Web Client and Mobile Application for efficient management of recorded video streams, sending alerts for preventive action and reliable performance in any severe condition.

KEY FEATURES	MATRIX SATATYA HVR
Recording	<ul style="list-style-type: none"> <li>• Camera wise Motion and Scheduled Centralized Recording</li> <li>• Supports Full HD Recording of all Cameras</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>• CMS, Web Client, Mobile Application and Local</li> <li>• Monitor 5 HVRs from a Single HVR Locally by Cascading</li> </ul>
Playback and Search	<ul style="list-style-type: none"> <li>• Timeline and Event based Search</li> <li>• Synchronous and Asynchronous Playback</li> </ul>
Backup	<ul style="list-style-type: none"> <li>• Scheduled and Manual Backup over FTP/NAS</li> <li>• Crop and Backup in .AVI format</li> </ul>
Data Storage and Security	<ul style="list-style-type: none"> <li>• Camera wise Recording Retention</li> <li>• RAID0 and RAID1 Support</li> </ul>
Event Recognition	<ul style="list-style-type: none"> <li>• Motion Detection, View Tamper and Connection Failure</li> <li>• Manual Trigger, Storage Alert, Disk Volume Full</li> </ul>
Notifications	<ul style="list-style-type: none"> <li>• SMS Notification, Email Notification with Snapshot</li> <li>• Calling assigned Contact Number from Mobile Application</li> </ul>
Interfaces	<ul style="list-style-type: none"> <li>• 2 Gigabit Ethernet Ports for 130Mbps Throughput</li> <li>• Addition of Cameras from 2 Different Networks</li> </ul>
Connectivity	<ul style="list-style-type: none"> <li>• Mobile Broadband (3G/4G/LTE)</li> <li>• Free Matrix DNS</li> </ul>
Bandwidth Optimization	<ul style="list-style-type: none"> <li>• Dual Streaming for Viewing and Recording</li> <li>• Camera wise Constant and Variable Bit Rate</li> </ul>
User Management	<ul style="list-style-type: none"> <li>• Camera wise User Roles and Rights</li> <li>• IP and MAC based Access and Blocking of Users</li> </ul>
Integration	<ul style="list-style-type: none"> <li>• Ethernet based Integration with Matrix Access Control</li> <li>• 3<sup>rd</sup> Party Integration with Access Control and Fire Alarm</li> </ul>
Interoperability	<ul style="list-style-type: none"> <li>• All ONVIF or RTSP Compliant Cameras</li> <li>• Direct Support of Axis, Acti, Vivotek, Sony, Samsung, Panasonic, Grandstream and other Brand Cameras</li> </ul>

## GENERAL FEATURES



### Video Compression Techniques

Multiple video compression techniques are available for bandwidth optimization as well as the effective utilization of the storage space. H.264/MPEG-4/Motion JPEG are different video compression techniques which help in reducing overall storage cost without compromising on image quality during recording and playback functions.

### High Definition Image Quality

Higher resolution of an image helps the user to closely follow details making way for better and faster decisions to effectively safeguard people and property.

### Better Viewing Experience

SATATYA HVR Premium is available with two Gigabit Ethernet ports that each delivers data at the rate of 2-GBit/Sec for 130 Mbps throughput. These multiple Ethernet ports ensure smooth and continuous viewing experience even during simultaneous logins by load sharing.

### Interoperability

SATATYA HVRs support ONVIF2.0 and above cameras to provide greater interoperability and flexibility to customers when designing multiple vendors network video solution. Also, most of the generic camera brands are directly supported by using RTP/RTSP. Users can also stream video directly from the camera which is useful if camera and the user are in the same network while the HVR is on another network.

### Pentaplex Functions

Any video recorder's performance is measured on how effectively it can perform live recording, monitoring, playback, backup and remote access functions simultaneously. SATATYA HVRs are designed to execute all these functions simultaneously without affecting the overall performance.

### PTZ Control

Pan, Tilt and Zoom are very important functions for any real-time surveillance application. SATATYA HVRs allow connections for up to 24 PTZ cameras with the system and control them using Web Client, Mobile Application, CMS and local GUI. Admin can program PTZ tour with up to 64 different camera positions per channel so that a larger area is covered and with a greater focus on important areas.

### System Health Status

Real-time functioning status of the SATATYA HVR is displayed to monitor the working condition. It displays the functioning status of hard disks and event storage on HVR. In addition to this, it displays channel wise status of various parameters like motion detection, connection, manual recording, tampering, alarm, PTZ tour, sensor input etc. with intuitive symbols.

### User Interfaces

Convenient and Remote management of SATATYA HVR can be achieved using a wireless mouse and IR remote with IR extender.

### User Management

Different roles can be assigned to the user (admin, operator, viewer) using the user management function. Up to 40 users can also log in simultaneously. Moreover, rights can be assigned to the users per camera for accessing live view, playback, PTZ control and audio which gives the admin more flexibility.

### IP and MAC based User Access

Network functions like static routing, IP address filtering (allow/deny), media file access, MAC address filtering caters to a high level of security from unwanted users.

## MONITORING

### Monitoring Modes

SATATYA HVRs provide different monitoring modes like single, sequential and variety of layout templates such as 1x1, 2x2, 3x3, 4x4, 5x5, 5+1, 7+1, 4+3, 8+2, 12+1, 1©+12, 1+9, 4+9, 2+12 and full screen for effective monitoring of the streams.

### Monitor Multiple HVRs Locally

Multiple HVRs can be managed from a single HVR. If more than 24 cameras exist in a network, they can still be managed from one HVR. A single HVR can act as the master HVR and it can control up to 4 other HVRs. These HVRs can be locally viewed, making it possible for the user to conveniently monitor up to 120 cameras by sequencing. This eliminates the need of a dedicated server for the addition of HVRs and save cost on a separate local viewing device for each HVR.

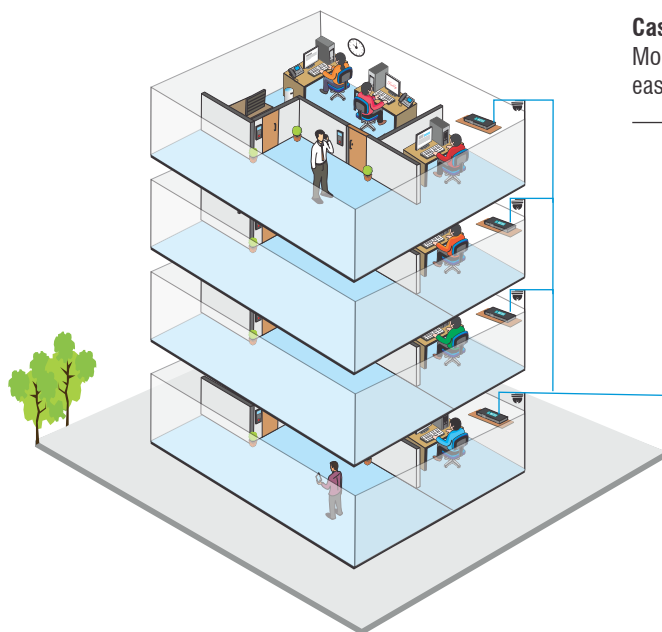
### Digital Zoom

A very useful monitoring feature, which help a user to get a closer inspection of defined area on the screen during live view. Digital zoom function is available in local GUI, Web Client, CMS and Mobile Application.

### Video Snapshot

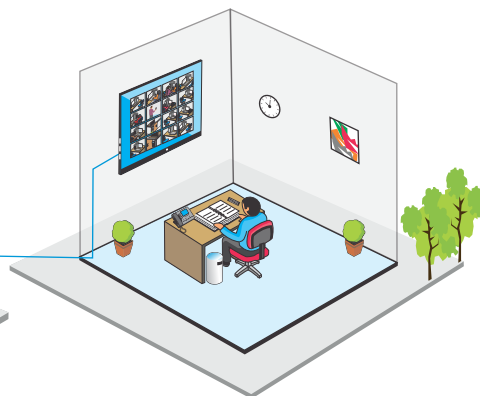
Analyzing particular video frames during live monitoring and playback is sometimes required. SATATYA HVRs capture a snapshot of the video during monitoring or playback and can store it for future reference. Snapshots can be taken from the SATATYA Mobile Application also, to ensure proof is stored in case of any event.





### Cascading

Monitor up to 120 Cameras from a single SATATYA HVR locally for easy multi-floor application.



## RECORDING

### Recording Flexibility

SATATYA HVRs offer various options like manual, scheduled and event based recording. This flexibility of event based (motion detection, camera tamper, connection failure and others), pre-alarm, post-alarm recording helps utilize disk space efficiently along with simplifying search as it records only when an event occurs.

### Recording Retention

Camera wise recording retention ensures that storage of the recording is done according to the priority of the camera. Due to this, the available hard disk space is efficiently utilized by virtually partitioning it. Some important cameras can be recorded for 60 days while non-critical cameras can also be recorded for 10 days.

### Privacy Masking\*

Privacy masking feature covers multiple areas in a single image which will not be displayed in the live view or recorded video. This helps in protecting the privacy of an organization by covering certain parts of the image.

### Motion Detection\*

Motion detection allows HVR to start recording, when any motion is detected on defined camera. It also allows us to select a particular area on the screen where detection of motion is of higher importance. This feature is used to save storage space on the hard disk from irrelevant video recordings.



\* Feature can be activated only if the installed IP camera supports this function.

## SEARCH AND PLAYBACK



### Timeline based Search

Search can be done from the available recorded videos on the basis of channel number, recording type and timeline of the event. The color codes used to indicate the recording types make it simpler for the user to search for the required video.

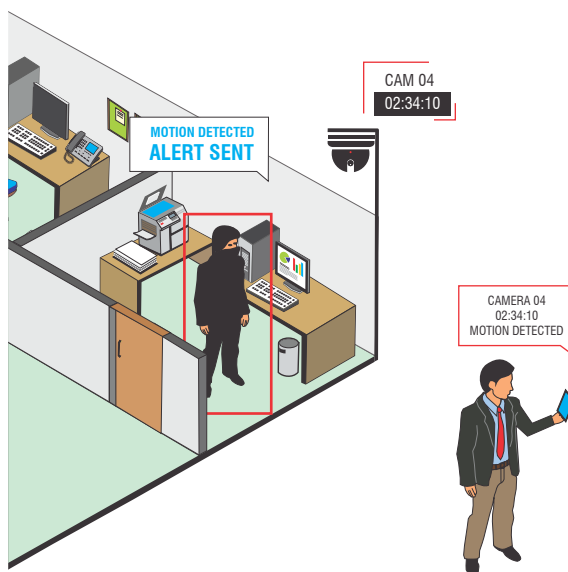
### Synchronous Playback

Synchronous playback allows tracking of an entire event by doing a playback of up to 4 cameras simultaneously across the organization.

### Asynchronous Playback

Asynchronous playback is essential when we know the location of occurrence of event but not the time. With asynchronous playback you can search a particular camera at different time simultaneously. Also, playback can also be done using, date and time, type of recording, channel number to assist in quick investigation.

## EVENTS AND ALERT MANAGEMENT



### Events Identification

SATATYA HVRs are smart devices which detect various events like motion, tamper, connection failure, alarm, manual trigger, power on, disk error, disk volume full etc.

### SMS Notification

In case of any unexpected event, like motion detection, power on, storage alert, disk error, disk volume full etc. occurs, SMS can be sent to the concerned person in order to ensure real-time notification. This ensures the security breach is prevented along with increasing productivity by saving time consumed in investigation.

### Email Notification

Snapshots can be taken when any event occurs. These snapshots can be sent through Email to multiple Email IDs which can be utilized as pictorial evidence even if the HVR or the hard disk is stolen.

### Alarm Detection and Management

Alarms play a major role in real-time video surveillance. SATATYA HVRs allow connection of up to 8 alarm input devices and 3 output devices. Using input and output linking, admin can program various applications. For example, on detection of any event like glass break, a notification in the form of a buzzer could be activated.

### Calling from SATATYA SIGHT

SATATYA SIGHT now has the facility to make calls to the person whose number has been linked to camera in the SATATYA HVRs. A different contact number is assigned to each camera, which in case of any event can be useful to take preventive measures. This simplifies the process of taking action in case of any unexpected event.

## STORAGE & BACKUP

### Higher Storage Capacity

Due to a large number of cameras, higher resolutions and longer video retention, users need a flexible video storage solution. SATATYA HVR0824P, SATATYA HVR1624P offer greater storage capacity of up to 16TB using 4 SATA hard disks while SATATYA HVR0408P, SATATYA HVR0408S, SATATYA HVR0824S and SATATYA HVR1624S offer a disk space of 4TB using 1 SATA hard disk.

### Scheduled Backup

Video file backup is most essential to prevent accidental loss of video. SATATYA HVR has the facility to take a manual backup over USB and scheduled backup over USB, FTP and NAS. Backup can be done camera wise depending on the importance of the recorded video.

### Crop and Backup

Usually files are recorded for a duration of 1 hour. However, this is a long duration of video to provide to investigation third party agency for any event. To overcome this the SATATYA HVRs give the user provision to crop the desired part of the file as evidence and take backup of the cropped file.

### Advanced Storage Management

SATATYA HVR continually monitors the free space on the hard disk and sends notification to the user when it reaches a predefined level. It also gives an option to overwrite (FIFO) the oldest recorded video after the memory is full or provide an alert and stop recording. It can also clean up the oldest file and create configured percentage of storage space. It also provides a regular cleanup option in two ways:

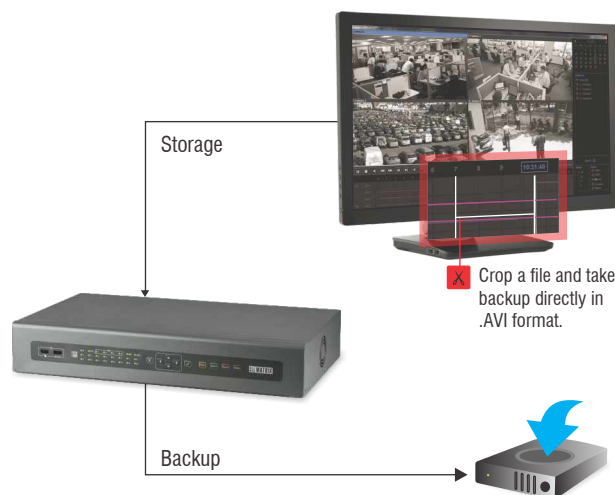
1. Clean up backed-up files after every backup
2. Clean up files older than the specified days

### RAID Support

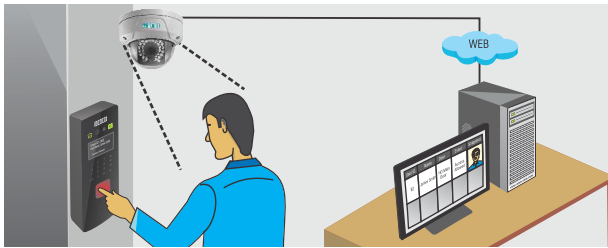
Duplication of recorded video is essential so that video is not lost in the event of disk failure. RAID setup spans video over multiple hard drives with redundancy so that it can be recovered in case either of the disks fails. SATATYA HVR has the facility of RAID0, which strips videos and RAID1, which mirrors video on two hard disks hence, reducing the chances of complete loss of video.

### Backup Management

Cloud Server, NAS and FTP can be used for scheduled recording, direct playback and data retention. In case the data from SATATYA HVR gets erased, it can be retrieved from the online servers.



## COMPLETE SECURITY SOLUTION



### Integration with Access Control

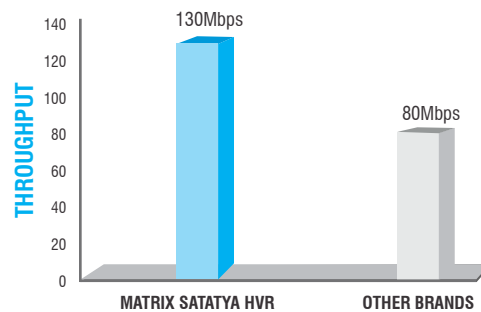
SATATYA HVRs can be integrated with the Access Control devices to take snapshots and start recording in case any event like door tamper, valid/ invalid credential is shown at the door. Such integration will not only suffice the need for pictorial evidence of any unauthorized access of the door, but also will allow taking real-time action by sending snapshots via Email.

Moreover, with the database level integration of Matrix COSEC Access Control device and Matrix SATATYA HVRs, search can be done using the door location, name of the person for faster investigation process.

### Fire Alarm Panel

When the fire alarm system detects an incident, it can trigger Matrix SATATYA to start recording, take snapshots and send them over SMS and email. This helps in knowing the cause of fire, real time status of property damages, trapped lives, guiding the rescue operations, etc.

*Matrix SATATYA HVRs handle higher traffic on the Ethernet port, allowing easy Multi-login of users.*



## NETWORK

### Bandwidth Optimization

Managing the utilization of bandwidth is of highest importance in case of IP video surveillance. The data that is processed in a second will vary according to the scene that is being captured, image quality, fps etc. All these factors play a very important role to decide the storage capacity needed. Thus, for camera-wise optimization of the available bandwidth Variable Bit Rate (VBR) and Constant Bit Rate (CBR) options are provided.

### Matrix DNS

Matrix provides a free Matrix DNS which is beneficial in case a static IP is not available. It saves cost of a separate static IP along with easy remote viewing.

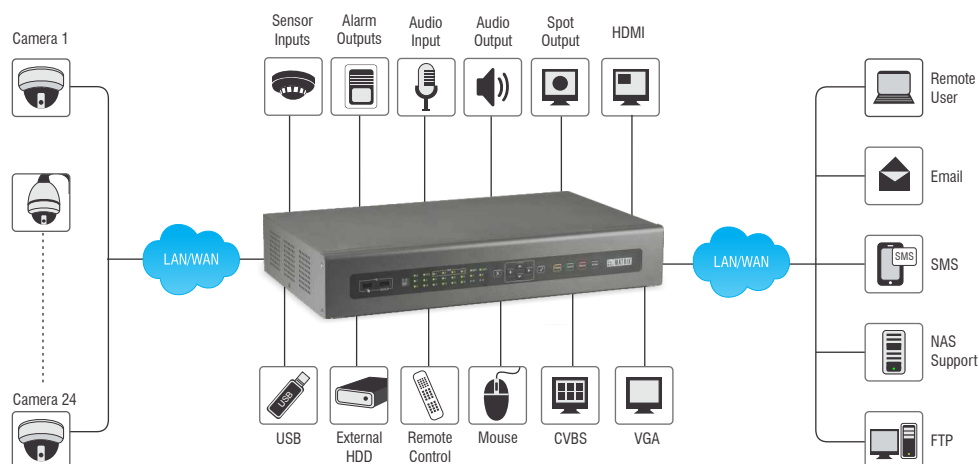
### 3G/4G/LTE Connectivity

Matrix SATATYA HVRs support direct and native connectivity with 3G/4G/LTE networks using popular USB dongles. Organizations can view video streams, get notifications and manage all other functions over 3G/4G/LTE for their remote locations where wired connectivity is not available.

### Universal Plug n Play (UPnP)

Universal Plug n Play (UPnP) is a set of networking protocols which permits networked devices to discover each other for data sharing and communication. SATATYA HVRs have the option of auto-detecting the IP cameras in the network so that it becomes simple to add cameras to the device.

## CONNECTIVITY DIAGRAM OF SATATYA HVR PREMIUM



## TECHNICAL SPECIFICATIONS

		SATATYA HVR0408S	SATATYA HVR0824S	SATATYA HVR1624S	SATATYA HVR0408P	SATATYA HVR0824P	SATATYA HVR1624P
VIDEO	Analog Inputs	4	8	16	4	8	16
	IP Inputs	8	24	24	8	24	24
	Total Inputs	8	24	24	8	24	24
	VGA Main	1	1	1	1	1	1
	HDMI Main	x	1	1	1	2	2
	HDMI Spot	x	x	x	x	x	x
	CVBS Main	x	x	x	x	1	1
	CVBS Spot	x	1	1	1	1	1
	Loop Output	x	x	x	x	8	16
AUDIO	Input	x	2	2	2	8	16
	Output	x	1	1	1	1	1
ALARM	Input	x	4	4	2	8	8
	Output	x	1	1	1	3	3
RECORDING	Image Resolution	D1 @ 25fps					
	Manual Recording	✓	✓	✓	✓	✓	✓
	Scheduled Recording	✓	✓	✓	✓	✓	✓
	COSEC Recording	✓	✓	✓	✓	✓	✓
	Camera wise Recording Retention	✓	✓	✓	✓	✓	✓
	Synchronous Playback	4					
PLAYBACK & BACKUP	Timeline based Search	✓	✓	✓	✓	✓	✓
	Manual Backup over USB	✓	✓	✓	✓	✓	✓
	Scheduled Backup on FTP and NAS	✓	✓	✓	✓	✓	✓
STORAGE	SATA Ports (4TB Per Port)	1	1	1	1	4	4
	10/100 Mbps Ethernet Interface	1	1	1	1	x	x
INTERFACES	Gigabit Ethernet Interfaces	x	x	x	x	2	2
	USB Ports	2	2	2	2	4	4
	RS-485 (For PTZ Control)	x	1	1	1	1	1
ENVIRONMENT	Operating Temperature	-10 °C to +50 °C					
	Humidity Range	10% to 95% RH					

## FEATURES LIST

### Resolution and Compression

H.264 Video Compression  
Mega-pixel Resolution  
Different Resolutions like MP\*, D1, 2CIF, CIF and QCIF

### Video Recording Frame Rates

600 fps @ D1 (24 Channels)  
Configurable Frame Rates to Optimize  
Hard Disk Usage

### Recording

Manual and Scheduled  
Pre-alarm and Post-alarm  
Trigger Based  
Motion Based  
Event Based

### Alarm\*

8 Alarm Input  
3 Alarm Output

### Audio\*

G.711, G.726, AAC, PCM Audio  
Compression  
2, 8, 16 Audio Inputs  
1 Audio Output

### Monitoring

1x1, 2x2, 3x3, 4x4, 5+1, 7+1, 4+3,  
8+2, 12+1  
Single and Sequential View  
Addition of up to 120 Cameras  
Digital Zoom on Live and Playback  
User Selectable Display Sequence

### Storage and Backup

Up to 16TB Storage Capacity  
Backup on FIFO Basis  
Storage on NAS, FTP and External HDD  
Export in AVI and Native File Format  
Upload Image in JPEG Format  
Manual and Scheduled Backup  
Crop and Backup

### Playback

Live and Remote Playback  
Different Speed Control  
Fast Reverse  
Slow Reverse  
Fast Forward  
Slow Forward  
Next and Previous Frames

## FEATURES LIST

### SEARCH

Timeline and Event Based  
Channels  
Recording Type

### DATA STORAGE AND SECURITY

Camera wise Recording Retention  
RAID0 and RAID1

### CONNECTIVITY

Matrix DNS  
3G/4G/LTE Connectivity

### INTELLIGENT FEATURES

Pentaplex Function  
Motion Detection\*  
Direct Streaming from Camera  
Privacy Masking\*  
View Tampering\*  
Day Light Saving Time (DST)  
Integration with Access Control System (ACS)

### EVENTS

Disk Error  
Disk Volume Full  
System Alarm Detection  
Manual Trigger  
Motion Detection  
View Tamper  
Camera Disconnected  
Power On  
Storage Alert

### ACTION ON EVENTS

Buzzer Notifications  
Email Notifications with Snapshots  
Recall PTZ Preset Position  
Recording on Selected Channels  
SMS Notifications  
TCP Notifications  
Turn on/off Alarm Outputs  
Upload Images on FTP/Email/Network Drive

### REMOTE FUNCTION

Live Camera Monitoring with PTZ Control  
Menu Configuration  
Record Video  
Live View and Playback

### CONTROL

IR Remote Control#  
IR Extension for Remote Control#  
Wireless Mouse

### SECURITY

IP Access Control List  
MAC based Access Control List  
User Access Rights

### SYSTEM

Firmware Upgrade  
10,000 Events Log  
3 User Access Levels (Default)  
Embedded Web Server  
Intuitive GUI  
Linux Embedded OS  
Online Users List  
Multiple Concurrent Login Sessions (Up to 40)  
Multiple Programmable Users  
Web based Interface  
Check System Health Status

### CENTRALIZED MANAGEMENT SOFTWARE (CMS)

36 Channels Simultaneous  
Display/upto 10 Pages  
Connect Multiple NVRs, HVRs and DVRs  
Create Monitoring Plans  
Grouping of Multiple Cameras  
Local Storage and Playback  
Local Scheduled Recording  
Centralized Recording and Backup  
Scheduled Backup on FTP and USB  
Native to AVI File Conversation  
Audio/Visual Alerts  
Intelligent E-map  
Integration with Access Control

### SATATYA SIGHT

Support up to 50 SATATYA Devices  
2\*2 Layout in Live View  
Remote Control for PTZ Cameras  
Device and Camera Configuration  
Playback of Recorded Files  
Favorite Channel Snapshots  
Calling a Concerned Personnel in case of  
any Event

### WEB CLIENT

Different Layout Styles  
Asynchronous/ Synchronous Playback  
Camera wise Recording, Backup and Storage  
Main Stream and Sub Stream Options  
Camera and Event wise Actions  
Broadband and Static Routing Options  
IP and MAC Address Filtering  
User Account Management

\* Feature is supported if it is supported by the installed IP camera # Feature is supported in all SATATYA HVRs except SATATYA HVR0408S

## ABOUT MATRIX

Established in 1991, Matrix is a leader in Telecom and Security solutions for modern businesses and enterprises. An innovative, technology driven and customer focused organization; Matrix is committed to keep pace with the revolutions in the telecom and security industries. With around 30% of its human resources dedicated to the development of new products, Matrix has launched cutting-edge products like IP-PBX, Universal Gateways, VoIP Gateways and Terminals, GSM Gateways, Access Control and Time-Attendance Systems, Video Surveillance System and Fire Alarm Systems. These solutions are feature-rich, reliable and conform to the international standards. Having global footprints in Asia, Europe, North America, South America and Africa through an extensive network of more than 500 channel partners, Matrix ensures that the products serve the needs of its customers faster and longer. Matrix has gained trust and admiration of customers representing the entire spectrum of industries. Matrix has won many international awards for its innovative products.

For further information, please contact:



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Due to continuous technology upgradations, product specifications are subject to change without notice.