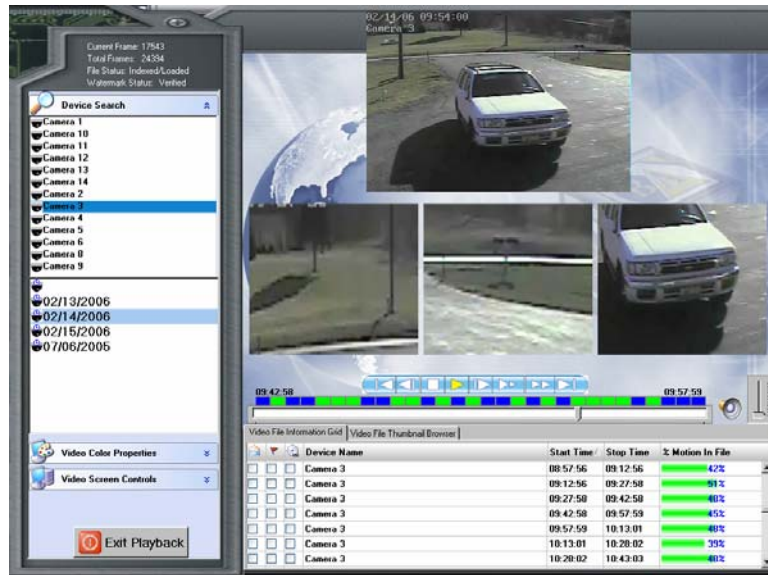


# BASys Max HDVS Version 4.5 A&E Specification



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## 1. INTRODUCTION

The Brewster Alexander BASys Max Hybrid Digital Video Server shall provide a truly flexible CCTV security solution. Allowing the use of coax based video and audio inputs and allow the use of Brewster Alexander's IP Devices and third Party IP devices to provide audio and video. The Hybrid Digital Video Server shall provide an intuitive interface allowing easy local and remote live viewing and playback of video and audio.

The Hybrid Digital Video Server (hereafter referred to as HDVS) shall provide high quality H.264 hardware compression for video and audio input from 4 to 64 inputs per 4U rack mount case. Each channel of high quality video shall be able to record at 30 frames per second and up to 4CIF (704x480) resolution. Also each channel's quality, frame ratios, frames per second, alarm status, camera name, motion settings, brightness, contrast, hue, saturation, resolution, and network bandwidth shall be configurable independently.

The internal hard disks shall provide high quality, continuous digital recording. Up to 4 SATA hard drives can be on the motherboard hard drive controller providing up to 4Tb of hard drive space. The motherboard controller can also be configured to run in a RAID 5 configuration. The HDVS system can also be upgraded using an upgrade card to handle up to 10 SATA hard drives in a RAID 0,1,5,50 configuration providing up to 10Tb (non RAID) per 4U rack mount case.

High quality H.264 video and audio recordings shall be accessible locally to the user from a powerful and easy to use GUI (Graphical User Interface) with the ability to search by camera name, date, times, events or thumbnail images. Remote operators shall also be able to utilize the same live and playback software GUIs that are available local to the HDVS so that only one interface needs to be learned. Brewster Alexander does not require any software licenses to remotely access the system. HDVS video can also be displayed via advanced H.264 hardware decompression to standard NTSC monitors making a virtual matrix control using optional hardware either in the HDVS system, remote workstation, or IP Decoder Devices.

Variable alarm configuration shall allow remote notification of alarms via a variety of communication channels. Alarm data can be sent or received by but is not limited to text, via TCP/IP, RS-232 inputs, RS-485 inputs, RS-422 inputs, meta data, normally open contacts, normally closed contacts, video loss events, motion data, input from third part IP Encoder and IP Cameras.

The HDVS shall integrate with ISONAS access control system using Isonas's TCP/IP interface. With the ability to associate any Analog or IP Device to be assigned to any Isonas device, door or group of doors. This allows video verification, locking, unlocking and admitting users from remote workstations and from the HDVS server interface. The HDVS Server software must also receive messages such as alarms and faults from the Isonas software to be displayed and distributed to remote workstations.

The HDVS shall be supplied with a built in CD-R/RW writer providing a quick and easy solution for copying video and audio from the HDVS. The HDVS can also use third party software to archive video and audio external hard drive arrays or to network attached storage devices.

The HDVS shall support digital watermarking to help identify and eliminate any tampering with the recorded video and audio.

## **2. HDVS MINIMUM SYSTEM REQUIRMENTS**

All equipment and materials used shall be standard components that are regularly manufactured and used in the manufacture's system. All components of the system shall conform to all FCC, ROHS and CE standards.

- Intel Core 2 Duo 2.6GHz Processor or Higher
- 6 PCI Slots
- 1 PCI Express x16 Slot
- Minimum of 4 SATA RAID 5 onboard ports
- 4U rack mount case
- CD-R/RW (Optional DVD-R)
- 512Mb DDR RAM
- Dual 10/100/1000 Mbps Ethernet Ports
- 4 Slot Hot Swap Hard Drive Bay
- 400 Watt Dual Fan Power Supply
- Keyboard and Mouse
- BASys Max HDVS Server Software
- Unlimited BASys Max HDVS Remote Client Software License
- 1 - RS-232 Serial Port
- 1 - RS-232/RS-485/RS-422 Selectable Serial Port
- Windows XP Embedded Operating System
- 2Gb Transcend Solid State Disk On Chip for Operating System

## **3. HDVS Hardware Capabilities**

- A. The HDVS shall utilize advanced hardware H.264 DSP compression and decompression, allowing the computers CPU to run only 1% - 5% utilization producing less heat and increasing the life span of the HDVS.
- B. Allow the end user the ability to install any third party virus software, monitoring software or any other requirements that may be in place, without affecting the performance or operation of the HDVS.
- C. The ability to add off the shelf additional hard drives for increasing the amount of storage space. The HDVS shall not require any type of license or proprietary hardware for upgrading the amount of storage space in a HDVS.
- D. The HDVS shall have the ability to automatically detect and switch between 110 Volt and 220 Volt power sources with no user intervention.
- E. The HDVS shall have the ability to record, transmit and switch between both PAL and NTSC video standards.

## General System Requirements

- A. The system shall allow the recording, live viewing, and playback of recorded video. Storage for a minimum of 30 frames per second per camera with synchronized audio for a period of thirty days without the need for offline storage to removable media. The system shall perform all viewing, playback and video storage functions simultaneously.
- B. System shall be configured with control software and shall be capable of recording video continuously, during alarm events, or while activity is present.
- C. System software shall allow search and retrieval of stored video. The user shall be provided time and date of the video that was captured, whether alarm or motion events occurred and which camera captured the video. The software shall provide video storage management, hardware control, alarm configuration and export of video and individual frames. The system, as installed, shall allow the viewing of live or recorded video over standard network or modem connections, with proper authentication. The video can be viewed and searched from anywhere at any time.
- D. The system must store and compress video and audio data using hardware based H.264 compression.
- E. The system must be able to transmit network data via TCP, UDP, and RTP.

## BASys Software Requirements

- A. The BASys Max shall be capable of recording all IP and coax based data either from a BASys IP Camera, BASys IP Encoder, and PC Based BASys Max or BASys Max Embedded system.
- B. The BASys Max shall be able to act as a central data server for the collection of all video and audio streams from single or multiple sites.
- C. The BASys Max shall use an event and timestamp for advanced search of audio/video. It shall use a certain type of file structure to perform these searches and use no type of SQL Server.
- D. The BASys Max shall use NTFS rights and Windows XP Active Directories to implement security on a per user level.
- E. The BASys Max shall create an audit trail of events and user activities.
- F. The BASys Max shall provide a way to protect archived audio/video against network access and non-administrative user access.
- G. The BASys Max shall provide digital encryption to prevent and detect manipulation of recorded images.
- H. The BASys Max shall provide firewall software that only allows the correct ports on the system to be access. It should report any attempt of access on and non-authorized ports.
- I. The BASys Max shall transmit all command and control messages using TCP/IP protocol and use cryptographic keys with no less than 128-bit encryption.
- J. The BASys Max shall offer a watchdog service with the following functionality:
  - 1. Activation of an optional hardware watchdog.

2. Monitors operation of all BASys services and restarts them if they are malfunctioning.
  3. Monitor all aspect of the PC. Such as power supply voltages, fan speeds and temperatures.
  4. Monitor all IP based devices and automatically try to reconnect and notify the administrator that a communications problem has occurred.
- K. The BASys Max shall offer a plug and play type hardware discovery service with the following functionalities:
1. Automatically discover any new PCI based capture cards that are added.
  2. Automatically discover any new storage devices that are attached.
  3. Automatically discover encoders and decoders as they are attached to the network.
- L. The BASys Max shall be possible to use both the BASys Max server and the client workstation on a single workstation or on separate workstations.
- M. The BASys Max shall be able to dynamically change frame rates, resolution and compression setting with no break in video or audio.
- N. The BASys Max shall provide functionality for the storage and playback of video streams based on date/time and/or triggering of events such as:
1. Digital motion detection
  2. Digital input activation
- O. To support remote configuration, the BASys Max server shall have a network connection with custom VNC software installed.
- P. The BASys Max system shall not limit the actual storage capacity configured per server.
- Q. Each video and audio input shall use its own dedicated process for encoding. If a single channel fails it can restart itself without affecting the encoding of any other channels.

## **Video Control Application**

- A. The control application shall have the capability to view multiple BASys Max systems on the same screen even if those that are assigned to different archiving servers.
- B. The control application shall have the ability to monitor 1, 4, 6, 8, 9, 10, 16, 25, and 36 camera views in which every video is shown in real time 30 frames per second.
- C. The control application shall automatically adapt to the network topology whether UDP multicast, UDP unicast, RTP or TCP.
- D. The administrator application should allow the administrator or users with the appropriate access rights to change the system configuration. It shall have the following minimum capabilities:
  1. Shall provide the ability to change the video quality, bandwidth, frame rate, motion detection, brightness, contrast, hue, saturation, masking, camera name, video loss sensitivity and camera covering detection.
  2. Shall provide the capability to rename all cameras and set them up based on system topology.
  3. Shall provide the capability to restrict or enable access right to cameras on a per user basis.

4. Shall provide the ability to set the recording mode for each individual camera based on motion detection, alarm input or continuous recording.
  5. Shall detect and warn users of any IP conflict within a given network.
  6. Shall provide the capability to set a pan-tilt-zoom protocol to a specific video encoder's serial port and allow a mixture of different motorized domes and motorized cameras within a system.
  7. Shall provide the capability to assign passwords to each user and set access rights, camera monitoring, pan-tilt-zoom control, live viewing, archived video and bookmarks.
- E. The monitoring application shall allow live viewing of video and audio with individual BASys Max units. It shall have the following minimum capabilities.
1. The operator shall be able to control pan-tilt-zoom, focus, iris, dome relays and dome presets.
  2. The operator shall be able to start/stop local recording.
  3. The operator shall have the capability to activate or de-activate viewing of all system events as they occur.
- F. The Archived video viewing shall have the following minimum capabilities:
1. Shall support video playback of any available time span.
  2. Shall provide functionality to search multiple archived video servers and display it transparently to the operator.
  3. Shall provide export to CD-R or DVD-R in a format that can be by default played in Microsoft Windows Media Player.
  4. Shall be able to "enhance" single video frames by using tools such as embossing, negative images, sharpening, darkening and lightening.
  5. Shall provide notification of the watermark if any video has been altered.
  6. Shall provide image export to JPEG and BMP format with time/date stamp on the image.
  7. Shall provide a thumbnail timeline of the first frames of video.
  8. Shall allow playback of video from an IP Device via TCP/IP.
  9. Shall allow lookup and playback of information from the Isonas access control system. Lookup information should include but is not limited to badge number, a person name, time / date, events and doors.
  10. Shall allow backup of an entire day or individual files to a standard external storage device such as a USB Drive or a Network Drive.
- G. The IP video Web Browser Application shall meet all the following requirements:
1. The web client shall view live video and recorded video. All applications shall support LAN, WAN and VPN, and shall support Internet, wireless and cellular networks via an internet gateway service.
  2. The web client shall be compatible with any standard browser available today.
  3. The system shall allow up to 256 users accessing the system simultaneously
  4. The web client shall have the capability to view multiple BASys Max Systems on the same screen even those that are assigned to other archiving servers.
  5. All applications shall automatically adapt to the network topology whether UDP multicast, UDP unicast or TCP.

## ***Quick-Spec***

**BASys Max HDVS Model Numbers (4 - 64 Channels):**

<b>BASys HDVS 4 – 64 Channel</b>	
BA-4-E-CD-4-300	BASys Max HDVS, 4U, 4 channel, Standard, 300 GB, 120 FPS
BA-4-E-CD-8-600	BASys Max HDVS, 4U, 8 channel, Standard, 600 GB, 240 FPS
BA-4-E-CD-16-600	BASys Max HDVS, 4U, 16 channel, Standard, 600 GB, 480 FPS
BA-4-E-CD-16-1000-S	BASys Max HDVS, 4U, 16 channel, High-Res, 1 TB, 480 FPS
BA-4-E-CD-24-800	BASys Max HDVS, 4U, 24 channel, Standard, 800 GB, 720 FPS
BA-4-E-CD-24-1600-S	BASys Max HDVS, 4U, 24 channel, High-Res, 1.6TB, 720 FPS
BA-4-E-CD-32-1000	BASys Max HDVS, 4U, 32 channel, Standard, 1 TB, 960 FPS
BA-4-E-CD-32-2000-S	BASys Max HDVS, 4U, 32 channel, High-Res, 2 TB, 960 FPS
BA-4-E-CD-48-1500	BASys Max HDVS, 4U, 48 channel, Standard, 1.5 TB, 1,440 FPS
BA-4-E-CD-64-2000	BASys Max HDVS, 4U, 64 channel, Standard, 2 TB, 1,920 FPS
BA-4-E-CD-0-3000	BASys Max NVR, 4U, 3TB

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**Physical Specifications**

**Power Supply**

Input ..... 100-240 VAC, 50/60 Hz, 3.0/1.5A

**Physical Characteristics: Rack Mount Chassis Version**

Unit Dimensions (HxWxD)..... 175 mm (6.875”) High  
 432 mm (17.0”) Wide  
 521 mm (20.5”) Deep

Rack Height..... Four (4) units

Unit Weight ..... 20.39 kg. (44.95 lbs.)

Shipping Weight ..... 27.24 kg. (60.05 lbs.)

**Environmental Requirements**

Operating Temperature..... 5° to 35° C (41° to 95° F)

Storage Temperature ..... -10° to 60° C (14° to 140° F)

Humidity..... 5%-95% RH non-condensing

Operating Altitude..... 3,048 m (10,000 ft)