

# Digital Security Surveillance

## Reference Guide



Security Systems



Security you can rely on.

**BOSCH**





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## The security industry goes digital!

Digital Video Recording is now well accepted as the recording method of choice, offering much more than just the well known benefits of improved constant recording quality, lower maintenance, such as valuable time and cost savings through the added efficiency offered by digital systems.

Advances in compression and storage devices means that compact units are available for storing and archiving the recordings in much less space than was needed with conventional tape based systems.

Remote access over public or private data or telephone networks, or even the internet means that you can access live video and recordings from wherever you want and whenever the need arises.

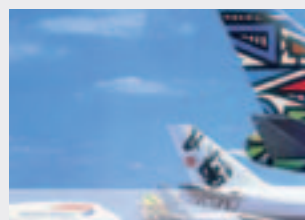


The Bosch range of digital recorders is designed to meet the widest range of applications.

Whether you simply want to upgrade from conventional analogue time lapse recorder to Eazeo, use the Divar as stand alone unit or part of a networked solution, fully integrate the DiBos with a management system, use the DVR4C as a low cost high quality recorder, or bring a conventional matrix based system into the 21st century by connecting to a network with IP products, Bosch has the right unit.

To help you make the best choice from the Bosch range of digital recorders and network products, this guide summarizes the key features and benefits, and gives clear reasons for choosing the best unit for your applications. Bosch is a major player in security and observations systems, so all products are made to the highest standards. Our warranty and advanced exchange programme are second to none, ensuring peace of mind for the user and installer.

The Bosch digital product range truly brings digital CCTV within your reach.



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## Digital products selection table

<b>Applications</b>				
<b>Application requirements</b>	<b>DVR1A</b>	<b>Eazeo DVR</b>	<b>DVR1C</b>	<b>DVR4C</b>
Use with Eazeo System		**		
Replace TLR in System	*		*	*
Replace Mux & TLR	*		*	**
Highest Quality Recording	*	*	*	*
Audio		*	*	*
Real-time Recording	*		*	*
Live Viewing over Network		*	*	**
Viewing Recordings over Network		*	*	**
Simultaneous Record and Playback				**
Multiple Remote Viewers				**
Complete System Control over Network				*
Authenticated Recording	*	*	*	**
Burn CD with Event Video				
External Disk Array				
Analyse Events in Recording				*
USB for archiving				**
<b>Typical applications</b>				
Small Retail Outlets	**	**	*	**
Shop and Fast Food Chains	**	**	*	**
Large Retail Outlets and Malls				
Casinos				
Sports Stadiums & Complexes				
City Centers				
Metro, Bus and Railway Stations				
Housing Estates, Public Areas				
Utilities				
Large Office Buildings, Industrial Sites				

\*\* = Highly recommended

\* = Recommended

## Digital products selection table

<b>Applications</b>			
<b>Application requirements</b>	<b>Divar Recorder</b>	<b>DiBos</b>	<b>IP/Video</b>
Use with Eazeo System			*
Replace TLR in System	*		
Replace Mux & TLR	**		
Highest Quality Recording	**	*	*
<b>Audio</b>			*
Real-time Recording			*
Live Viewing over Network	**	**	**
Viewing Recordings over Network	**	**	**
Simultaneous Record and Playback	**		**
Multiple Remote Viewers	**	**	**
Complete System Control over Network**		**	*
Authenticated Recording	**	**	*
Burn CD with Event Video	**	**	*
External Disk Array	**	**	**
Analyse Events in Recording	*	**	*
<b>Typical applications</b>			
Small Retail Outlets	*		
Shop and Fast Food Chains	**		*
Large Retail Outlets and Malls	**	**	**
Casinos	**	*	*
Sports Stadiums & Complexes	**	*	*
City Centers	**		**
Metro, Bus and Railway Stations	**	*	*
Housing Estates, Public Areas	**	*	
Utilities	**	**	*
Large Office Buildings, Industrial Sites	**		**

see page 20

\*\* = Highly recommended

\* = Recommended

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# DVR1A

## Digital video recorder

DVR1A1081



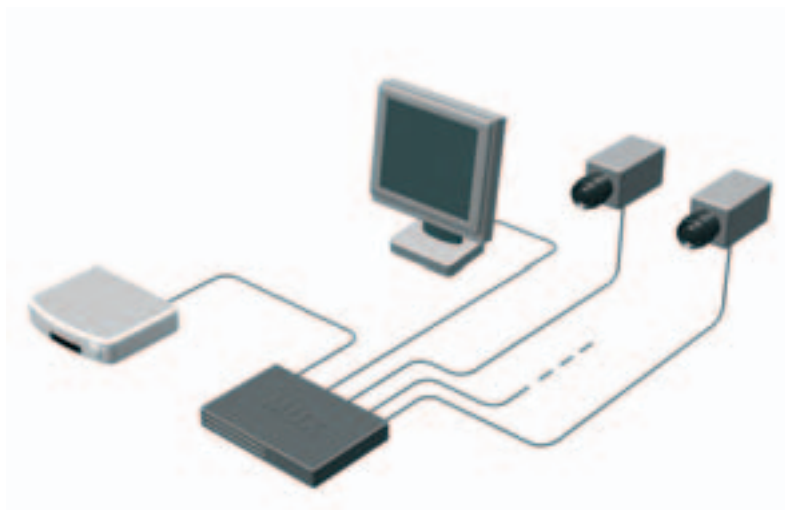
- Superior image quality through digital recording
- Quick search by date/time, alarm events and recording list
- Easy Jog/Shuttle playback control
- Export pictures and clips to Compact Flash cards
- Uninterrupted recording for one week or longer

### Specifications

Model	DVR1A1081					
Disk Capacity	80 GB					
Network Connection	No					
Record Speeds (ips)	50, 25, 12, 8, 5, 2, 1.5, 1, 0.5, 0.2, 0.1					
Quality modes	Lower	Low	Basic	Standard	High	Superior
File size (Bytes)	15 KB	20 KB	25 KB	30 KB	35 KB	40 KB
Approximate recording time in hours						
Record Duration (25 ips)	60	45	35	30	25	22
Record Duration (8 ips)	180	135	105	90	75	65
Record Duration (5 ips)	295	220	180	150	125	110
<i>ips = images per second</i>						

See page 31 for detailed product comparisons

# DVR1A general application



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## EAZEO DVR

### Digital video recorder

DVR1B1161



- Superior image and audio quality through digital recording
- Quick search by date/time, alarm events and recording list
- Easy Jog/Shuttle playback control
- Export pictures and clips to Compact Flash cards
- Uninterrupted recording for one week or longer
- Remotely view recordings and live pictures with web-based browser

#### Specifications

**Model** DVR1B1161

Disk Capacity 160 GB

Network Connection Ethernet

Record Speeds (ips) 25, 12, 8, 5, 2, 1.5, 1, 0.5, 0.2, 0.1

Quality modes Lower Low Basic Standard High Superior

File size (Bytes) 15 KB 20 KB 25 KB 30 KB 35 KB 40 KB

Approximate recording time in hours

Record Duration (25 ips) 120 90 70 60 50 44

Record Duration (8 ips) 360 270 210 180 150 130

Record Duration (5 ips) 590 440 360 300 250 220

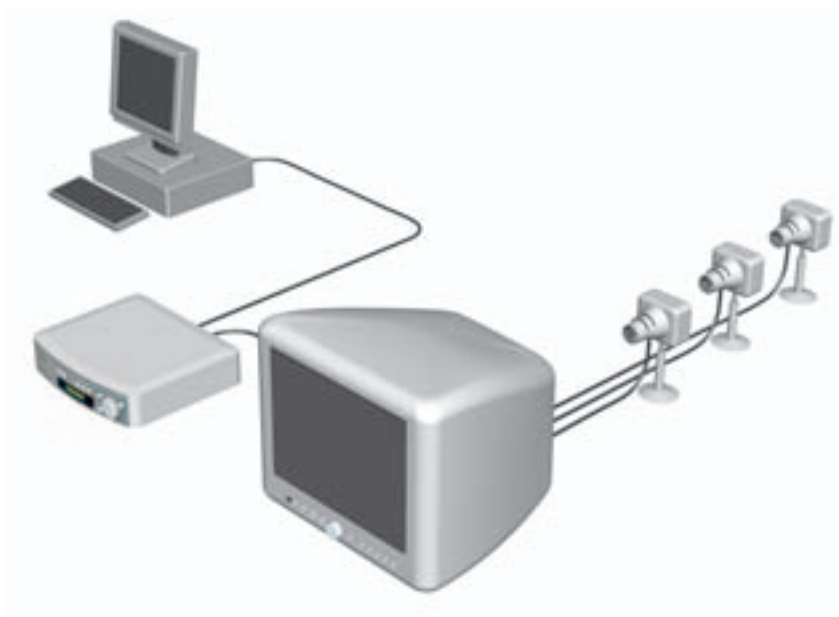
*ips = images per second*

See page 31 for detailed product comparisons

# EAZEO general application



remote viewer software



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# DVR1C

## Digital video recorder

### DVR1C1161



- Superior image and audio quality through digital recording
- Quick search by date/time, alarm events and recording list
- Easy Jog/Shuttle playback control
- Export pictures and clips to Compact Flash cards
- Uninterrupted recording for one week or longer
- Remotely view recordings and live pictures with web-based browser
- Single camera or multiple camera input routed via a multiplexer

#### Specifications

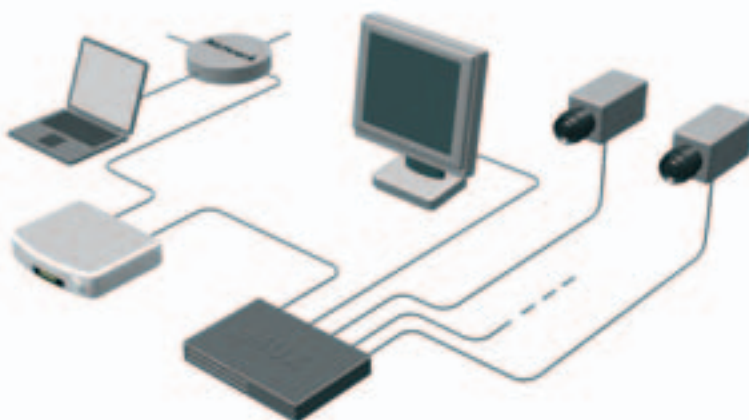
Model	DVR1C1161					
Disk Capacity	160 GB					
Network Connection	Ethernet					
Record Speeds (ips)	50, 25, 12, 8, 5, 2, 1.5, 1, 0.5, 0.2, 0.1					
Quality modes	Lower	Low	Basic	Standard	High	Superior
File size (Bytes)	15 KB	20 KB	25 KB	30 KB	35 KB	40 KB
Approximate recording time in hours						
Record Duration (25 ips)	120	90	70	60	50	44
Record Duration (8 ips)	360	270	210	180	150	130
Record Duration (5 ips)	590	440	360	300	250	220
<i>ips = images per second</i>						

See page 31 for detailed product comparisons

# DVR1C general application



remote viewer software



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## DVR4C

### Digital video recorder



- 4-Channel video and audio
- Real-time recording
- Small file sizes for extended recording
- Simultaneous recording and playback
- Easy local archiving via USB
- Remote viewing, playback and control

#### Specifications

##### DVR4C

##### DVR4

Cameras		4		
Disk versions	80GB	160GB	320 GB	600 GB
Network connection	Ethernet (TCP/IP)			
Quality modes (data rates at 25 IPS)	Low	250 kbps		
	Standard	500 kbps		
	Medium	750 kbps		
	High	1 Mbps		
	Superior	1,5 Mbps		
Record speed	25, 12.5, 6, 3, 1.5, 0.75, 0			
Record duration (medium quality)	<b>80GB</b>	<b>160GB</b>	<b>320 GB</b>	<b>600 GB</b>
25 IPS	8 days	16.5 days	33 days	62 days

# DVR4C general application



remote viewer software



## Divar Digital versatile recorders



- Integrated digital CCTV solution for managing, controlling and viewing up to 16 cameras
- Digitally records at up to 50 IPS and plays back simultaneously
- Authenticates images for evidence
- User-friendly Control Center for remote access to multiple Divars
- Can be expanded up to a 256 camera CCTV recording system with video manager
- ATM/POS interface support
- Internal or external DVD writer
- Adim support

Note: Specifications are for PAL on all products.

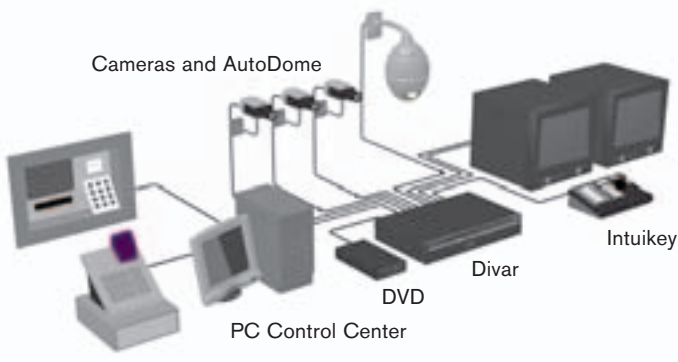
Specifications				
Model	DIVAR6	DIVAR9	DIVAR16	
Cameras	6	9	16	
Disk versions	80, 160, 320 or 600 GB			
Network connection	Ethernet, TCP/IP			
Quality modes file size (Bytes)	Standard - 16 KB			
	Medium - 25 KB			
	High - 40 KB			
Record speeds (ips)	50 total, configurable per camera: 25, 12.5, 8, 6, 5, 4, 3, 2, 1, 1/2, 1/5, 1/10, 0			
Record duration (standard mode)	<b>80 GB</b>	<b>160 GB</b>	<b>320 GB</b>	<b>600 GB</b>
50 ips	30 hrs	60 hrs	119 hrs	8,6 days
16 ips	93 hrs	7,8 days	15,5 days	27 days
6 ips	10 days	20 days	6 weeks	10 weeks

*ips = images per second*

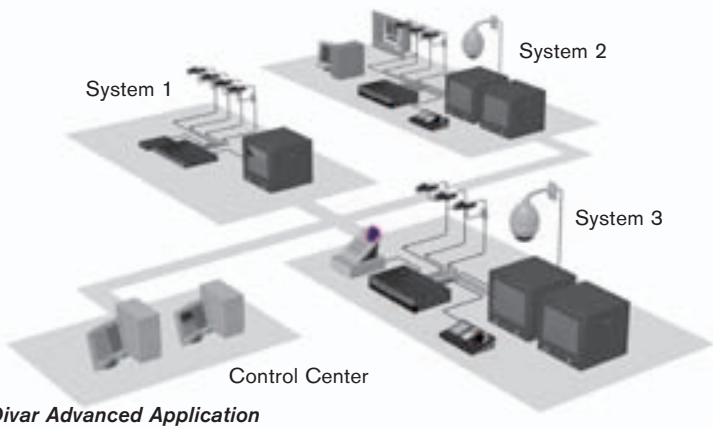
# Divar applications



Multiple Divar control center



**Divar Basic Application**



**Divar Advanced Application**

## DiBos Digital recorder and transmission system

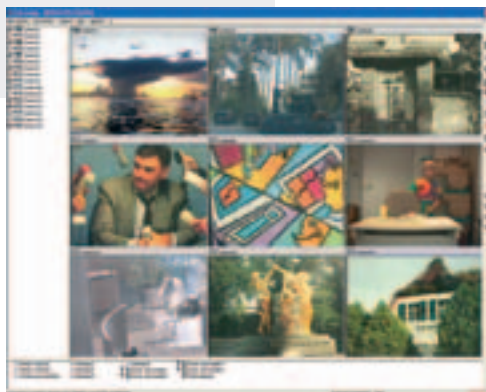


- Image is displayed when an alarm is triggered.
- Ensures quick reaction to an alarm, by displaying up-to-the-minute images.
- Sequence of events leading up to the alarm.
- History of events by recording image sequences.
- Web Browser access Control of several PTZ cameras.

Note: Specifications are for PAL on all products.

Specifications			
Model	Modular	Compact	Micro
Camera Inputs	16 or 32	8 or 16	4,8 or 16
Y/C Cameras inputs	8 or 16	4 or 8	
Resolution of images	704 x 288 pixels	704 x 288 pixels	720 x 288 pixels
Image digitization	Y:U:V, 4:2:2	Y:U:V, 4:2:2	Y:U:V, 4:2:2
Stored IPS	100	50	25/50
Contact inputs (Camera - Y/C Cameras)	32/16	16/8	5, 8 or 16
Relay outputs (Camera - Y/C Cameras)	16/8	8/4	no, 4 or 8
Internal hard disk	120, 300, 480 GB, 1 TB	120, 300, 480 GB, 1 TB	120 or 250 GB
External hard disks		Up to 2.2 TB (DVAS or DVAD series)	
19" rack (HxWxD-cm)	17,5x48,5x40	17,5x48,5x40	11x38x29,5

# DiBos application



DiBos user interface



# IP product matrix

	VideoJet 10 S/E*	VideoJet 10i S/E*	VideoJet 10 XT S/E*
<b>Interfaces</b>			
Ethernet	10/100 BT autosensing		
ISDN	—	•	—
Video In	1/-	1/-	1/-
Video Out	-/1	-/1	-/1
Full-Duplex Audio	•	•	•
Trigger In	1	1	1
Relay Out	1	1	1
Serial Data	2	2	2
CompactFlash	For Wireless LAN or local storage		
USB	—	—	—
<b>Video/Audio Specifications</b>			
Video Standards	PAL, NTSC		
Compression Standard MPEG-2	—	—	—
Compression Standard MPEG-4	•	•	•
Compression Standard M-JPEG	•	•	•
Presets** (per channel)	16	16	16
Max. Resolution	720x576 pixel (PAL) resp. 720x480 pixel (NTSC)		
Max. Frame/Fieldrate	25 fps resp. 30 fields per second		
Audio Standards	G.711		
Bandwidth Control	•	•	•
<b>Alarms and Recording</b>			
Motion Detection	•/-	•/-	•/-
Video Loss Alarm	•/-	•/-	•/-
Contrast Alarm	•/-	•/-	•/-
Connection on Alarm	•/•	•/•	•/•
Pre-/Post-Alarm Recording	•/-	•/-	•/-
Integrated Long-Term Memory	■ (via CompactFlash)		
NVR Support	■ (with integrated long-term memory)		
<b>Features</b>			
Password Protection	•/•	•/•	•/•
Watermarking	—	—	—
Multicasting	•/•	•/•	•/•
Network Protocols	RTP, Telnet, UDP, TCP, IP, ARP, HTTP, IGMP, ICMP, SNMP		
Remote Control and Configuration	•/•	•/•	•/•
Remote Control of Peripherals	•/•	•/•	•/•
Upgrade via FlashMemory	•/•	•/•	•/•
Integration into Managementsystem	•/•	•/•	•/•

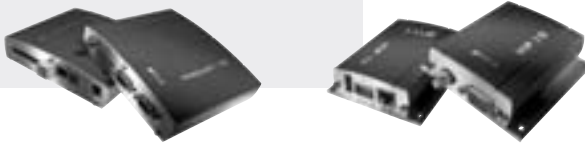
• integrated ■ optional \*sender/receiver \*\* freely configurable \*\*\* future option

	VIP 10 S/E*	VIP 1000 S/E*	VideoJet 1000	VideoJet 8000	VideoJet XPro V8	VideoJet XPro VA8
	10/100 BT		10/100/1000 BT autosensing			
	—	—	—	•	•	•
	1/-	1/-	1	8	8	8
	-/1	-/1	1	—	—	1
	•	•	•	—	—	•
	2	2	1	10	10	10
	1	1	1	—	—	5
	1	1	2	1	1	2
	—	—	—	—	—	—
	•	•	—	—	—	—
	PAL, NTSC					
	—	•	•	•	•	•
	•	•	•	—	—	—
	•	•	•	•	•	•
	16	24	24	8	8	8
	720x576 pixel (PAL) resp. 720x480 pixel (NTSC)					
	25/30 50 fps resp. 60 fields per second per channel					
	G.711	G.711; MPEG-2 Layer I/II		—	—	MPEG-2 L. I/II
	•	•	•	•	•	•
	•/-	•/-	•	•	•	•
	•/-	•/-	•	•	•	•
	•/-	•/-	•	—	—	—
	•/•	•/•	•	•	•	•
	•/-	•/-	•	•	•	•
	■ (via USB)***	■ (via USB)***	•	•	■ (via HDD cartridge)	■ (via HDD cartridge)
			•	•	■ (via HDD cartridge)	■ (via HDD cartridge)
	•/•	•/•	•	•	•	•
	—	—	•	•	•	•
	•/•	•/•	•	•	•	•
MP	RTP, Telnet, UDP, TCP, IP, ARP, HTTP, IGMP, ICMP, SNMP (VideoJet 1000: traps only)					
	•/•	•/•	•	•	•	•
	•/•	•/•	•	•	•	•
	•/•	•/•	•	•	•	•
	•/•	•/•	•	•	•	•

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## Classic line - 10 series

Single channel video transmitter or  
receiver



Specifications		
Model	VideoJet 10S (I)	VideoJet 10E (I)
Video Standards	MPEG-4, M-JPEG	
Video Data Rate	9 kBit/s - 4 MBit/s	
Video Resolutions	704 x 288 (2CIF: 20 fps*)	
	352 x 288 (CIF: 25 resp. 30 fps*) 176 x 144 (QCIF: 25 resp. 30 fps*)	
Overall Delay	100 ms	
Audio Standards	G7.11; 300 Hz-3.4 kHz	
Audio Data Rate	80 kBit/s	
Audio Sampl. Rate	8 kHz	
Configuration	via Web browser/VIDOS	
Interfaces		
Video in	1x composite; PAL or NTSC	N/A
Video out	N/A	1x composite; PAL or NTSC
Ethernet	10/100 Base T, autosensing, half/full duplex, RJ45	
Com ports	1x RS232/422/485 1x RS232	
Alarm I/O	1x input/ 1x output	
ISDN	only on I version	
CF slot	for Wi-Fi 802.11b CFcard or CompactFlash storage card**	
USB slot	N/A	N/A

\* Depends on picture content

\*\* Local storage will wnable ANR™

- Single-channel stand-alone unit
- MPEG-4 @ 2CIF/CIF
- M-JPEG @ 720x576/480
- Transmitter with dual encoding
- Multicasting & internet streaming
- FastEthernet interface
- Comprehensive security features
- Alarm/analog sensor inputs & relay output
- Serial data port(s)

<b>Specifications</b>		
<b>Model</b>	<b>VIP10S</b>	<b>VIP10E</b>
Video Standards	MPEG-4, M-JPEG	
Video Data Rate	9 kBit/s - 4MBit/s	
Video Resolutions	704 x 288 (2CIF: 14 fps*) 352 x 288 (CIF: 25 resp. 30 fps*) 176 x 144 (QCIF: 25 resp. 30 fps*)	
Overall Delay	100 ms	
Audio Standards	G7.11; 300 Hz-3.4 kHz	
Audio Data Rate	80 kBit/s	
Audio Sampl. Rate	8 kHz	
Configuration	via Web browser/VIDOS	
<b>Interfaces</b>		
Video in	1x composite; PAL or NTSC	N/A
Video out	N/A	1x composite; PAL or NTSC
Ethernet	10/100 Base T, autosensing, half/full duplex, RJ45	
Com ports	1x RS232/422/485	
Alarm I/O	2x input/ 1x output	
ISDN	N/A	N/A
CF slot	N/A	N/A
USB slot	For future purposes	For future purposes

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## Professional line - 1000 series

**MPEG-2 only or MPEG-2/4 compatible  
transmitter/receiver or transceiver**



### Specifications

Model		VideoJet 1000 MPEG-2 DVR & transceiver
Video Standards		MPEG-2, M-JPEG
Video Data Rate	MPEG-2	1MBit/s - 8 MBit/s
	MPEG-4	N/A
Video Resolutions	MPEG-2	720 x 576/480 (full D1: 50 resp. 60 fields/s*)
	MPEG-2	352 x 288 (CIF: 25 resp. 30 fps*)
	MPEG-4	N/A
	MPEG-4	N/A
	MPEG-4	N/A
Overall Delay	MPEG-2	198 resp. 180 ms (PAL resp. NTSC)
	MPEG-4	N/A
Audio Standards	MPEG-2	ISO/IEC 11172-3; MPEG-2: Layer I/II; 300 Hz - 10 kHz
	MPEG-4	N/A
Audio Data Rate	MPEG-2	256 kBit/s
	MPEG-4	N/A
Audio Sampl. Rate	MPEG-2	48 kHz
	MPEG-4	N/A
Hard disk capacity		40 GB or 120 GB
Configuration		via Web browser/VIDOS
<b>Interfaces</b>		
Video in		1x composite; PAL or NTSC
Video out		1x composite; PAL or NTSC
Ethernet		10/100 Base T, autosensing, half/full duplex, RJ45
Com ports		1x RS232/422/485 1x RS232
Alarm I/O		1x input/ 1x output
USB slot		N/A

\* Depends on picture content

- Dual encoding
- Fully interlaced video
- Modular digital CCTV matrix
- Transmitter/receiver operation
- FastEthernet interface
- Triplex hard disk recording
- Integrated video scene analysis
- Comprehensive security features
- Multicasting & internet streaming

<b>Specifications</b>			
Model	VideoJet 1000 MPEG-2/4 DVR & tranceiver	VIP1000S	VIP1000E
Video Standards	MPEG-2, MPEG-4, M-JPEG		
Video Data Rate	MPEG-2 MPEG-4	1MBit/s - 8 MBit/s 9 kBit/s - 4MBit/s	
Video Resolutions	MPEG-2 MPEG-2 MPEG-4 MPEG-4 MPEG-4	720 x 576/480 (full D1: 50 resp. 60 fields/s*) 352 x 288 (CIF: 25 resp. 30 fps*) 704 x 288 (2CIF: 20 fps*) 352 x 288 (CIF: 25 resp. 30 fps*) 176 x 144 (QCIF: 25 resp. 30 fps*)	
Overall Delay	MPEG-2 MPEG-4	198 resp. 180 ms (PAL resp. NTSC) 100 ms	
Audio Standards	MPEG-2 MPEG-4	ISO/IEC 11172-3; MPEG-2: Layer I/II; 300 Hz - 10 kHz G7.11; 300 Hz-3.4kHz	
Audio Data Rate	MPEG-2 MPEG-4	256 kBit/s 80 kBit/s	
Audio Sampl. Rate	MPEG-2 MPEG-4	48 kHz 8 kHz	
Hard disk capacity	40 GB or 120 GB	**	**
Configuration	via Web browser/VIDOS		
<b>Interfaces</b>			
Video in	1x composite; PAL or NTSC	1x composite; PAL or NTSC	N/A
Video out	1x composite; PAL or NTSC	N/A	1x composite; PAL or NTSC
Ethernet	10/100 Base T, autosensing, half/full duplex, RJ45		
Com ports	1x RS232/422/485	1x RS232	1x RS232/422/485
Alarm I/O	1x input/ 1x output		2x input/ 1x output
USB slot	N/A	For future purposes	For future purposes

\* Depends on picture content    \*\* Future option via USB

## Professional line - 8000 series

### 8 channel MPEG-2 DVR & transmitter



- Modular digital CCTV matrix
- 8 independent, non-multiplexed streams
- MPEG-2 @ full D1/CIF
- Fully interlaced video
- Integrated hard disk (120, 240 or 600 GB)
- Triplex hard disk recording
- GigabitEthernet & ISDN
- 10 alarm inputs & USB interface
- Integrated video scene analysis
- Comprehensive security features
- Multicasting & Internet Streaming

#### Specifications

Model	8 channels MPEG-2 incl. DVR and encoder	8 channels MPEG-2 incl. DVR, encoder and audio
Video Standards	MPEG-2, M-JPEG	
Video Data Rate	MPEG-2: 1 MBit/s - 8 MBit/s	
Video Resolutions	720 x 576/480 (full D1: 50 resp. 60 fields/s*) 352 x 288 (CIF: 25 resp. 30 fps*)	
Overall Delay	MPEG-2: 198 resp. 180 ms (PAL resp. NTSC)	
Audio Standards	MPEG-1: ISO/IEC 11172-3; MPEG-2: Layer I/II; 300 Hz - 10 kHz	
Audio Data Rate	MPEG-2: 256 kBit/s	
Audio Sampl. Rate	MPEG-2: 48 kHz	
Configuration	via Web browser/VIDOS	
Hard disk capacity	120 GB, 240 GB or 600 GB	
<b>Interfaces</b>		
Video in	1x composite; PAL or NTSC	
Video out	1x composite; PAL or NTSC	
Ethernet	10/100 Base T, autosensing, half/full duplex, RJ45	
ISDN	RJ45, S0 Basic Rate Interface (BRI)	
Com ports	1x RS232/422/485	
Alarm I/O	10x input	10x input/ 5x output

\* Depends on picture content

## VIDOS

### VIDOS Management System



- All-in-one alarm centre solution
- Site-map based
- Matrix features for camera management
- Full remote control
- Display on hardware monitors
- Automated guard tours
- Data bases and alarm stacks
- Sophisticated playback features
- Multicasting
- Extendible with VIDOS-NVR
- Available in 16, 32, 64 or unlimited Channel License

## VIDOS - NVR

### Network Video Recording System



- Modular NVR system
- Support of patented ANR™ technology
- Limitless scalability
- Remote multi-user access
- Comprehensive rec. features
- Digital certification by watermarking
- Powerful retrieval tools
- Full-triplex operation
- GigabitEthernet interface
- Available with preconfigured hardware
- Available in 16, 32 or 64 Channel License

**System requirements**

<b>Software</b>	<b>VIDOS**</b>	<b>VIDOS-NVR**</b>	<b>MPEG-ActiveX plugin</b>
<b>Desktop</b>			
CPU	Pentium IV, 1.8 Ghz or better	Pentium IV or Pentium III Xeon 1.8 Ghz or better	Pentium IV, 1.8 Ghz or better
Hard disk interface	IDE or better	IDE or better; for extensive recording optional SCSI II, SCSI Ultra or Fibre Channel	-
RAM	256 Mbyte	1024 Mbyte	256 Mbyte
OS	Windows XP Home/XP Professional	Windows 2000/XP Professional/Server 2003 Standard	Windows 98/2000/XP
Graphic card	NVIDIA GeForce FX 5700 Ultra or FX5900 Ultra, Matrox Parhelia, ATI RADEON 8500, 9500, 9800 or similar	VGA	NVIDIA GeForce FX 5700 Ultra or FX5900 Ultra, Matrox Parhelia, ATI RADEON 8500, 9500, 9800 or similar
Ethernet card	100 Mbit	100/1000 Mbit	100 Mbit
Sound card	recommended	no	recommended
Software	DirectX 8.1 or better	no	DirectX 9.0b
Free disk space	50 Mbyte*	20 Mbyte*	6 Mbyte*

\* Installation only \*\* VIDOS and VIDOS-NVR must not run on the same PC

## VIDOS PC examples:

Dell Dimension 8300 Computer with Intel Pentium IV, 3,2 Ghz, 1 Gbyte RAM. Graphic card ATI 9800 with 128 Mbyte, Microsoft DirectX 9.0, MPEG-ActiveX 2.60  
Possible: Up to 9 MPEG-4 data streams of 1 Mbit/s and CIF resolution.

Dell Optiplex GX280 with Intel Pentium IV, 3,2 Ghz, 512 Bbyte RAM, Graphic card Nvidia GeForce 6800 with 128 Mbyte, Microsoft DirectX 9.0b  
Possible: Up to 10 MPEG-2 data streams of 2 Mbit/s and Full D1 resolution.

# Site installation advice

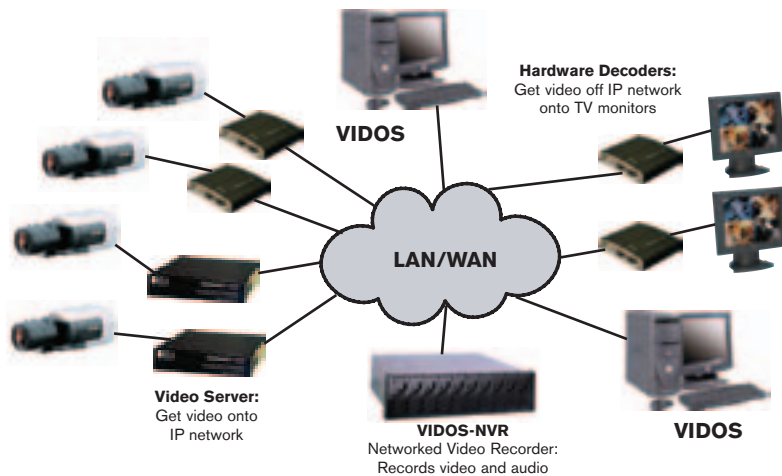
	VideoJet 10 S/E*	VideoJet 10 I S/E	VideoJet 10 XT S/E	VIP 10 S/E	VIP 1000 S/E	VideoJet 1000	VideoJet 8000	VideoJet XPro V8	VideoJet XPro VA8
<b>Installation description</b>									
Decentral installations									
MPEG4	•	•	•	•	•	•			
MPEG2					•	•			
Local Recording	•	•	•	•	•	•			
	CF	CF	CF	via USB*	via USB*	via USB			

**Central installations**

MPEG4						•			
MPEG2						•	•	•	•
Local Recording						•	•	•	•
Extreme temperature sites			•						

\*future implementation

**Decentral installation**



## External storage devices

### DVAD

### DVAS

Bosch series Storage Arrays provide instantly accessible storage for Bosch digital recorders. These storage arrays dramatically extend the recording times, enabling you to meet on site long term video storage needs.



- Low Profile compact unit
- Up to 4 hard disks

#### DVAD LP Disk arrays

Model	Storage	Hard Disk Drives
DVAD0216	320 GB	2
DVAD0416	640 GB	4
DVAD0230	600 GB	2
DVAD0430	1200 GB	4

*DVAD units can be used with Divar, HiQ and DiBos*



- Fault tolerant RAID 5 for secure storage
- Hot pluggable hard disks
- Up to 14 hard disks in a 3U high box

#### DVAS RAID Disk arrays

Model	Storage	Hard Disk Drives
DVAS0416	640 GB	4
DVAS0816	960 GB	8
DVAS1416	2240 GB	14
DVAS0430	1.200 GB	4
DVAS0830	2.400 GB	8
DVAS1430	4.200 GB	14

*DVAS units can be used with Divar, HiQ and DiBos*

## Technical comparison chart

Features	DVR1A	Eazeo DVR	DVR1C	DVR4C
# of Cameras (fixed)	1	1	1	4
PTZ Control	No	No	No	No
Storage	Storage is based on frame rate, resolution and drive capacity			
IPS (total)*	50 max	25 max	50 max	100 max
Frame Rate Setting	Individual	Individual	Individual	Per 4 cameras
Audio	No	Yes	Yes	Yes
Remote Access	No	Ethernet	Ethernet	Ethernet, xDSL, PSTN
Network Connection	No	Ethernet	Ethernet	Ethernet
Bandwidth throttle	NA	NA	NA	NA
Compression Format	M-JPEG	M-JPEG	M-JPEG	MPEG-4
Internal Hard Drive	80	160	160	80, 160, 320, 600
Alarm Capacity	Yes, 1	Yes, 1	Yes, 1	Yes, 1 per Camera
Motion Detection	No	No	No	Yes
<b>Display features</b>				
Output	Analog	Analog	Analog	Analog
Viewing	Full	Full	Full	Full Quad
Remote	No	PC via Network	PC via Network	PC via Network
SCSI Support	No	No	No	No
Processor Type	Proprietary	Proprietary	Proprietary	Proprietary
Power Loss Restart	Yes	Yes	Yes	Yes
Warranty	3-Years	3-Years	3-Years	3-Years
Remote Viewer Software	No	Web-based	Web-based	Included
Misc Notes:	CF Card for local archiving	CF Card for local archiving	CF Card for local archiving	USB for local archiving

Note:\* In systems using multiple cameras the actual camera IPS is calculated by dividing total IPS by the number of cameras

\*\* In case more than 1 channel is used max = 16

\*\*\* Bandwidth is based upon transmission rate at ips and resolution setting

## Technical comparison chart

Features	Divar	DiBos
# of Cameras (fixed)	6, 9 or 16	4, 8, 16 or 32
PTZ Control	Yes	Yes
Storage	Storage is based on frame rate, resolution and drive capacity	
IPS (total)*	50 max	100 max
Frame Rate Setting	Individual	Individual
Audio	No	No
Remote Access	Ethernet	Ethernet, ISDN/PSTN/DSL
Network Connection	Ethernet	Ethernet/Token ring
Bandwidth throttle	Yes	NA
Compression Format	Wavelet	JPEG
Internal Hard Drive	80, 160, 320, 600 GB	120, 300, 480 GB
Alarm Capacity	Yes, 1 per Camera	Yes, 5, 16 or 32
Motion Detection	Yes	Yes
<b>Display features</b>		
Output	Analog Video	VGA CRT, Analog
Viewing	Full, Quad, Multiscreen	Full, Quad, Multiscreen
Remote	PC via Network	PC via Private network
SCSI Support	DVAD, DVAS	DAT/AIT DVAD, DVAS Disk Array
Processor Type	Proprietary	PC
Power Loss Restart	Yes	Yes
Warranty	3-Years	3-Years
Remote Viewer Software	Included	Included
Misc Notes:	Additional keyboard for P/T/Z Control	Backup via Compact Flash Card
	DVD writer for local archiving	

Note:\* In systems using multiple cameras the actual camera IPS is calculated by dividing total IPS by the number of cameras

\*\* In case more than 1 channel is used max = 16

\*\*\* Bandwidth is based upon transmission rate at ips and resolution setting

## Divar Digital recording performance tables

<b>High quality</b>				
<b>Recording mode</b>	<b>80</b>	<b>160</b>	<b>320</b>	<b>600</b>
50	12 hrs	24 hrs	48 hrs	3,5 days
25	24 hrs	48 hrs	95 hrs	7 days
16	37 hrs	75 hrs	149 hrs	11 days
8	75 hrs	149 hrs	298 hrs	22 days
6	99 hrs	199 hrs	398 hrs	29 days
1	597 hrs	1193 hrs	2386 hrs	173 days
<b>Medium quality</b>				
<b>Recording mode</b>	<b>80</b>	<b>160</b>	<b>320</b>	<b>600</b>
50	18 hrs	37 hrs	73 hrs	5,7 days
25	37 hrs	73 hrs	147 hrs	11 days
16	57 hrs	115 hrs	229 hrs	18 days
8	115 hrs	229 hrs	459 hrs	36 days
6	153 hrs	306 hrs	612 hrs	48 days
1	918 hrs	1835 hrs	3671 hrs	290 days
<b>Standard quality</b>				
<b>Recording mode</b>	<b>80</b>	<b>160</b>	<b>320</b>	<b>600</b>
50	30 hrs	60 hrs	119 hrs	8,6 days
25	60 hrs	119 hrs	239 hrs	17 days
16	93 hrs	186 hrs	373 hrs	27 days
8	186 hrs	373 hrs	746 hrs	54 days
6	249 hrs	497 hrs	994 hrs	72 days
1	1491 hrs	2983 hrs	5965 hrs	434 days

## Frequently asked questions

### **Do I need to change my whole system when I move to digital recording?**

No. A conventional time-lapse recorder can be directly replaced in a CCTV system, giving all the advantages of digital recording immediately, and simply for the cost of the recorder.

### **Maintenance costs for a VCR are very high, is the maintenance cost of a digital recorder even higher?**

One of the key advantages of digital recorders is that the maintenance costs of are virtually negligible. The recording is made on a hard disk, and hard disks are some of the most reliable electro-mechanical products on the market, with incredibly long MTBF's. No routine planned maintenance is required.

Bosch digital recorders have a full 3 years' warranty.

### **What are some of the key concerns in determining what type of digital recorder is needed?**

The type and use of the recording is critical. To simply replace a time-lapse recorder a single channel DVR is the obvious choice. For multichannel time-lapse recording with occasional event recording with network possibilities, the Divar is ideal. If the highest quality (real time) or alarm recording is the goal then an MPEG2 based recorder such as Hi-Q can be selected. Extending the recording or archive time is usually by adding storage arrays. When building a larger or distributed recording system the network accessibility and control is of paramount importance.

## Frequently asked questions

### **What is wavelet compression and how does it differ from JPEG & MPEG?**

Wavelet compression is based on processing whole images one at a time. Redundant high frequency data is discarded, producing small data files and yet a pleasing image. JPEG and MPEG are Discrete Cosine Transform (DCT) methods that first divide the image into blocks of 8\*8 pixels. These blocks can become apparent at high compression rates, MPEG, especially MPEG2 which is used for DVD's and Broadcast is ideal for normal video recording but is less suited to rapidly changing pictures, such as from multiplexers.

### **Are images per second (ips) and frames per second (fps) different?**

Images per second and frames per second are both the same. They describe the video image that is stored.

### **Is digital recording a reasonable alternative to analog recording?**

Yes, you can store many more images with more hours of recording on a small 80 GB hard drive than on an analog VCR using E-180 or E-240 tapes, even using recorders in high density mode. With 160 Gb or 320 Gb disk units, unattended recording becomes a reality.

### **How can I get a permanent copy of a video clip for evidential purposes?**

The easiest and best method is to burn a CD-ROM by directly connecting a CD-ROM burner to the recorder or more often via a PC. Together with the video, a dedicated viewer will be put on the CD-ROM. Authentication ensures that the clip has not been corrupted or tampered with.

Bosch Security Systems  
For more information visit:  
[www.boschsecuritysystems.com](http://www.boschsecuritysystems.com)

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**Security you can rely on.**

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