



**DS-9000HFI -S Series Hybrid DVR**  
**Technical Manual**

## Notices

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## Overview

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DS-9000HFI-S series DVR is the Hybrid DVR of a new generation designed by HIKVISION. The product combines various patents, along with advanced IT technologies such as video encoding/decoding, embedded system, storage, network and intellectual technology, and etc.

Based on the solid expertise in the fields of digital video surveillance and well understanding of market demands for digitalization, networking and intelligentization, HIKVISION developed the latest digital surveillance product DS-9000HFI-S series hybrid DVR, which can work as a standalone DVR, hybrid DVR or NVR, and as well as to build a powerful network for security system.

Also, DS-9000HFI-S series hybrid DVR can be widely applied in the fields of finance, public security, forces, telecom, transportation, Electricity, education, water conservancy, and etc.



DS-9000HFI-S

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## Order Models

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**DS-9004HFI-S, DS-9008HFI-S, DS-9016HFI-S**

**Note:** 1. The default DVRs are without HDD or CD-R/W.  
2. A factory recommended HDD should be used for this device.

## **Main Features**

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- User-friendly menu and easy to operate**
- Support connection to analog camera and IP camera**
- Support up to 1280×1024 VGA resolution**
- Support local preview, storage and playback high-definition video**
- Support digital zoom when preview and playback**
- Support up to 16-ch synchronous playback**
- Support digital zoom by using mouse when in PTZ control mode**
- Different channels can be set different recording expired time**
- Support normal and event video encoding parameters**
- Support redundant recording**
- Support hard disk group management**
- Support NTP and SADP protocols**

## Functions & Performances

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### Compression

- Support PAL/NTSC video input
- Adopt H.264 video compression standard
- Adopt OggVorbis audio compression standard
- Each analog channel supports dual stream, main stream supports up to 4CIF resolution, and sub stream supports up to CIF resolution
- Each IP channel supports up to HD720P (1280×720) resolution
- Video encoding parameters of each channel can be set separately, including resolution, frame rate, bit rate, image quality and etc.
- Each channel supports normal and event compression parameters
- Support both composited and video stream, audio and video stream are strictly simultaneous.
- Support watermark

### Local Functions

#### Monitoring

- Support three independent local output including VGA, main and aux audio/video output
- High definition VGA display, max support 1280×1024 resolution
- Support 1/4/6/8/9/16 image preview, channel sequence is adjustable.
- Support group switch, manual switch and automatic cycle, the dwell time can be changeable
- Support digital zoom function when preview
- User-defined preview layout
- Support motion detection, view tampering alert, video exception alert and video loss alert
- Support privacy mask
- Support various decoder control protocols and HIKVISION control protocol
- Support preset, patrol and pattern
- Support zoom in by clicking the mouse and trace function by dragging mouse

#### Hard Disk Management

- Support up to 8 SATA HDDs, each of them can support more than 2TB capacity
- Support S.M.A.R.T. technology and hard disk suspend management
- Support hard disk group management

- Support Windows compatible file format and technology of pre-allocating hard disk space, no disk fragmentation.

## **Recording and Playback**

- Support overwrite and non-overwrite recording mode
- Support multiple recording types, including manual, schedule, alarm, motion|alarm and motion&alarm recording and etc.
- Support 8 recording time periods with separate recording types
- Recording types of each audio and video channel can be set separately
- Support Pre-record and Post-record time of alarm and motion detection
- Support lock and unlock video files
- Support redundant recording
- Support video data of the designated hard disk is for read only
- Support video data query by channel, by record type, by time, and etc.
- Support digital zoom function when playback
- Support pause, play fast, play slow, skip forward, and skip backward when playback, locating in progress bar by dragging the mouse.
- Support 4-ch synchronous playback, 16-ch synchronous playback is also supported after resources distribution.

## **Backup**

- Support backup the data through USB interface
- Support backup the data through build-in SATA-R/W
- Support backup by file or by time
- Support backup device maintenance and management
- Support video clips backup when playback

## **Alarm & Exception**

- Unified manage alarm in/out of the device and IP cameras
- Unified management of the motion detection alert, view tampering alert and no video signal of the device and IP cameras
- Support alarm in/out on guard schedule setup
- Support alarm in handle methods, including recording of any channel, alarm out, on screen warning, audile warning and upload to center
- Support various exceptions alarm, including hard disk full, illegal login, network break, IP conflicted, hard disk error, video exception, and video output standard mismatch
- Support auto recovery from exceptions

## **Others**

- Support front panel, mouse, IR control, special keyboard operation.
- Support multi-level user management
- Support kinds of log record and query, including operation, alarm and exception log

## **Network**

- Support 10/100/1000M adaptive network interface
- Support TCP/IP protocols, PPPoE, DHCP, DNS, DDNS, NTP and SADP are also supported
- Support unicast and multicast, support TCP, UDP, and RTP when unicast
- Support remote query, playback and download video files, support breakpoint resume
- Support remote acquire and configure parameters, support remote import and export device parameters
- Support remote acquire device status, system log and alarm status
- Support remote button operation, remote locking and unlocking panel buttons
- Support remote format hard disk, upgrade, reboot, shutdown and other system maintenance operations
- Support RS-232 and RS-485 transparent channel transmission
- Support event alarm upload to remote management host
- Support remote JPEG capture
- Support remote PTZ control
- Support voice talk and broadcast
- Build-in WEB Server

## **Development**

- Provide the SDK supports Windows and Linux
- Provide software source code as demo
- Provide development support and training of application system

## Typical Applications

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Local or remote surveillance of banks, self-help banks and exchequers

Remote surveillance of unmanned transformer substations and telecom basic stations

Video surveillance of police industry, such as city public safety, transportation, prisons management, supervision of the police fairs

Distributed video accessing businesses, including the global eyes, wide field of vision

Networking video surveillance of examination hall

Video surveillance of pipelining, workshops and warehouses

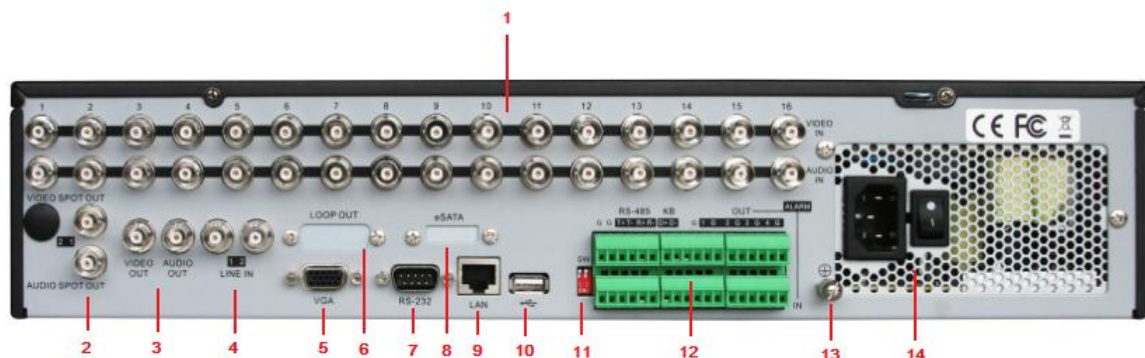
## Panels & Interfaces

### Front Panel



- ① POWER
- ② IR receiver
- ③ USB Interfaces
- ④ Status Indicators (Alarm, Ready, Status, HDD, MODEM, Tx/Rx, Guard)
- ⑤ Numeric Keys/Channel Keys
- ⑥ Function Keys
- ⑦ Control Keys
- ⑧ Shuttle

### Rear Panel



- ① VIDEO IN, AUDIO IN
- ② VIDEO SPOT OUT (for video preview only), AUDIO SPOT OUT
- ③ VIDEO OUT, AUDIO OUT

- ④ LINE IN
- ⑤ VGA Interface
- ⑥ LOOP OUT (optional)
- ⑦ RS-232 Serial Interface
- ⑧ eSATA Backup/Extended Storage Interface (optional)
- ⑨ LAN Network Interface
- ⑩ USB Interface
- ⑪ RS-485 Matched Resistance Switch
- ⑫ RS-485 Serial Interface, Keyboard Interface (support cascade), ALARM IN, ALARM OUT
- ⑬ GND, when cascading multiple devices, it is required that grounding through GND first, and then connecting to the protection ground of control keyboard and power input.
- ⑭ 100~240VAC Power Input

## Specifications

Model	DS-9016HFI-S	
Video/Audio input	Video compression	H.264
	Analog Video input	16-ch, BNC(1.0Vp-p, 75Ω), PAL/NTSC adaptive
	IP Video input	16-ch normal or 8-ch HD IP Camera(Hikvision Network Protocol)
	Composited video input	24-ch (Analog video + IP video)
	Audio compression	OggVorbis
	Audio input	16-ch, BNC(2Vp-p, 1kΩ)
	Voice talk input	2, BNC(2Vp-p, 1kΩ)
Video/Audio output	Preview resolution	PAL:704×576 NTSC:704×480
	VGA output	1, resolution: 1024×768/60Hz, 1024×768/70Hz, 1280×1024/60Hz
	Playback resolution	720P/4CIF/DCIF/2CIF/CIF/QCIF
	Video output	2-ch, BNC(1.0Vp-p, 75Ω)
	Frame rate (per channel)	PAL: 25fps, NTSC: 30fps
	Video bit rate	32Kbps~2048Kbps, or user-defined (Max. 6144Kbps)
	Audio output	2-ch, BNC(Linear Electrical Level, 600Ω)
	Audio bit rate	16kbps
	Synchronous playback	16-ch
Hard disk	Type	8 SATA interface
	Capacity	Each interface supports more than 2TB capacity
External interface	Network interface	1, RJ45 10M/100M/1000M adaptive Ethernet interface
	Serial interface	1 RS-232 interface (for parameters configuration, maintenance , transparent channel); 1 RS-485 interface (for PTZ control); 1 RS-485 keyboard interface (for special keyboard control)
	USB interface	3, USB2.0
	Alarm in	16
	Alarm out	4
Others	Power supply	100~240VAC, 6.3A, 50~60Hz
	Consumption	28W (without hard disk or DVD-R/W)
	Working temperature	-10°C~+55°C
	Working humidity	10%~90%
	Chassis	19" standard 2U chassis
Size(mm)	450mm(D)×450mm(W)×95mm(H)	

	<b>Weight</b>	≤8Kg (without hard disk or DVD-R/W)
<b>Model</b>	<b>DS-9008HFI-S</b>	
<b>Video/Audio input</b>	<b>Video compression</b>	H.264
	<b>Analog Video input</b>	8-ch, BNC(1.0Vp-p, 75Ω), PAL/NTSC adaptive
	<b>IP Video input</b>	8-ch normal or 4-ch HD IP Camera(Hikvision Network Protocol)
	<b>Composited video input</b>	16-ch (Analog video + IP video)
	<b>Audio compression</b>	OggVorbis
	<b>Audio input</b>	8-ch, BNC(2Vp-p, 1kΩ)
	<b>Voice talk input</b>	2, BNC(2Vp-p, 1kΩ)
<b>Video/Audio output</b>	<b>Preview resolution</b>	PAL:704×576 NTSC:704×480
	<b>VGA output</b>	1, resolution: 1024×768/60Hz, 1024×768/70Hz, 1280×1024/60Hz
	<b>Playback resolution</b>	720P/4CIF/DCIF/2CIF/CIF/QCIF
	<b>Video output</b>	2-ch, BNC(1.0Vp-p, 75Ω)
	<b>Frame rate (per channel)</b>	PAL: 25fps, NTSC: 30fps
	<b>Video bit rate</b>	32Kbps~2048Kbps, or user-defined (Max. 6144Kbps)
	<b>Audio output</b>	2-ch, BNC(Linear Electrical Level, 600Ω)
	<b>Audio bit rate</b>	16kbps
	<b>Synchronous playback</b>	8-ch
<b>Hard disk</b>	<b>Type</b>	8 SATA interface
	<b>Capacity</b>	Each interface supports more than 2TB capacity
<b>External interface</b>	<b>Network interface</b>	1, RJ45 10M/100M/1000M adaptive Ethernet interface
	<b>Serial interface</b>	1 RS-232 interface (for parameters configuration, maintenance , transparent channel); 1 RS-485 interface (for PTZ control); 1 RS-485keyboard interface (for special keyboard control)
	<b>USB interface</b>	3, USB2.0
	<b>Alarm in</b>	16
	<b>Alarm out</b>	4
<b>Others</b>	<b>Power supply</b>	100~240VAC, 6.3A, 50~60Hz
	<b>Consumption</b>	28W (without hard disk or DVD-R/W)
	<b>Working temperature</b>	-10°C~+55°C
<b>Others</b>	<b>Working humidity</b>	10%~90%
	<b>Chassis</b>	19" standard 2U chassis
	<b>Size(mm)</b>	450mm(D)×450mm(W)×95mm(H)
	<b>Weight</b>	≤8Kg (without hard disk or DVD-R/W)

Model	DS-9004HFI-S	
Video/Audio input	Video compression	H.264
	Analog Video input	4-ch, BNC(1.0Vp-p, 75Ω), PAL/NTSC adaptive
	IP Video input	4-ch normal or 2-ch HD IP Camera(Hikvision Network Protocol)
	Composited video input	8-ch (Analog video + IP video)
	Audio compression	OggVorbis
	Audio input	4-ch, BNC(2Vp-p, 1kΩ)
	Voice talk input	2, BNC(2Vp-p, 1kΩ)
Video/Audio output	Preview resolution	PAL:704×576 NTSC:704×480
	VGA output	1, resolution: 1024×768/60Hz, 1024×768/70Hz, 1280×1024/60Hz
	Playback resolution	720P/4CIF/DCIF/2CIF/CIF/QCIF
	Video output	2-ch, BNC(1.0Vp-p, 75Ω)
	Frame rate (per channel)	PAL: 25fps, NTSC: 30fps
	Video bit rate	32Kbps~2048Kbps, or user-defined (Max. 6144Kbps)
	Audio output	2-ch, BNC(Linear Electrical Level, 600Ω)
	Audio bit rate	16kbps
	Synchronous playback	4-ch
Hard disk	Type	8 SATA interface
	Capacity	Each interface supports more than 2TB capacity
External interface	Network interface	1, RJ45 10M/100M/1000M adaptive Ethernet interface
	Serial interface	1 RS-232 interface (for parameters configuration, maintenance , transparent channel); 1 RS-485 interface (for PTZ control); 1 RS-485keyboard interface (for special keyboard control)
	USB interface	3, USB2.0
	Alarm in	16
	Alarm out	4
Others	Power supply	100~240VAC, 6.3A, 50~60Hz
	Consumption	28W (without hard disk or DVD-R/W)
	Working temperature	-10°C~+55°C
	Working humidity	10%~90%
	Chassis	19" standard 2U chassis
	Size(mm)	450mm(D)×450mm(W)×95mm(H)
	Weight	≤8Kg (without hard disk or DVD-R/W)