DS-7224HFI-ST Series DVR
Technical Manual
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Overview

Developed on the basis of the latest technologies, DS-7224HFI-ST Digital Video Recorder combines with the advanced H.264 video encoding and decoding standard and maintains high performance rock-solid reliability and longer recording service time. DS-7224HFI-ST Digital Video Recorder can be used as a standalone video surveillance product, as well as to build up a powerful surveillance network which is suitable for home or small-scale business applications.

DS-7224HFI-ST
Main Features

- 1280 × 1024 /1024 × 768 VGA output resolution
- Simultaneous VGA and CVBS output
- 4CIF/2CIF/CIF recording resolution at real time
- Channel zero encoding for live view via network
- Normal and event recording parameters configurable per individual camera
- Redundant recording
- Partial digital zoom by using mouse when in PTZ control mode
- 4-ch synchronous playback
- Support dual stream
- Different recording storage period configurable for each channel
- Sending of alarm images by Email
- SMTP, NTP, SADP, DHCP protocols supported
Functions & Performances

Compression
- PAL/NTSC adaptive video inputs.
- H.264 video compression with high reliability and superior definition.
- G.711 audio compression standard.
- Independent video encoding parameters, including frame rate, resolution, bit rate, video quality, etc.
- Normal and event recording parameters configurable for per individual camera.
- Support dual stream.
- Channel zero encoding for live view via network.
- Encoding for both audio/video composite stream and video stream; audio and video synchronization during composite stream encoding.
- Compression, storage and network transmission of video image at 4CIF, 2CIF or CIF resolution.
- Watermark technology.

Local Monitoring
- Up to 1280×1024 resolution for VGA output display.
- Simultaneous VGA and CVBS output.
- 1/4-camera video live view, with the camera order adjustable.
- Group switch, manual switch and automatic cycle modes selectable for video live view, with the auto cycle period configurable.
- Digital zoom in live view mode.
- Shield of assigned channel for live view.
- Privacy masking capability.
- Multiple PTZ protocols supported, and settings and callup of presets, patrols and patterns.
- Video image zoom-in by clicking the mouse and tracing by dragging mouse in PTZ control mode.

Hard Disk Management
- Connection to 2 SATA hard disk for DS-7224HFI-ST; each HDD with up to 4TB storage capacity.
- S.M.A.R.T technology.
- HDD standby function.
- HDD file system is compatible with Windows. Use pre-allocating hard disk management technology, and no disk fragments.

Recording & Playback
- Cycle and non-cycle recording mode.
Normal and event video encoding parameters.

Multiple recording types, including manual, normal, alarm, motion detection, motion | alarm and motion & alarm recording, etc.

8 recording time periods with separate recording types.

Pre-record and Post-record time for alarm and motion detection, and pre-record time for schedule and manual recording.

Lock and unlock of video files.

Redundant recording.

HDD property can be set to read-only and redundancy.

Video data search and playback by channel number, recording type, time etc.

Digital zoom function in playback mode.

Pause, play reverse, play fast, play slow, skip forward, and skip backward when playback, locating in progress bar by dragging the mouse.

4-channel synchronous playback.

Backup

Record files backed up via USB device.

Bunch backup by file or by time.

Record files edited for backup in playback.

Management and maintenance for backup devices.

Alarm & Exception

Configurable arming time for alarm in/out.

Various exception alarm types supported: alarms for video loss, motion detection, video tempering, video signal abnormal, video in/out format unmatched, illegal access, network disconnection, IP conflict, hard disk error and hard disk full.

Various exception handling methods: pop-up alarm image on monitor, audible warning, notify surveillance center, trigger alarm output, send Email, etc.

Auto recovery from exceptions.

Others

Control of DVR via front panel keys, mouse and IR control.

Three-level user management, each user with individual operating permission for DVR and camera.

Powerful record and search for log of operation, alarm and exceptions.

Import/export of device configuration files.

Network

10M / 100M adaptive network interface.
• TCP/IP protocol suites, PPPoE, DHCP, DNS, DDNS, NTP, SADP protocols, etc.
• Unicast and multicast supported; TCP and UDP protocols applicable in unicast transmission.
• DDNS protocol selectable to easyDDNS, IpServer, DynDNS, PeanutHull or NO-IP.
• Remote search, playback and download, lock/unlock of video files.
• Support breakpoint resume.
• Remote access and configuration of parameters; remote import/export of device configuration parameters.
• Remote access of device running status, system log and alarm status.
• Remote formatting of hard disk, upgrade, reboot/shutdown and other system maintenance operations.
• RS -485 transparent channel transmission.
• Event alarm and exceptions upload to remote management host.
• Remote manual recording.
• Remote video image capture in JPEG format.
• Remote PTZ control.
• Two-way audio and broadcast.
• Built-in WEB Server.

**Development**

• Provision of SDK in Windows and Linux operating systems.
• Application software source code of Demo.
• Support and training service for application system development.
Panels & Interfaces

Rear Panel of DS-7224HFI-ST

① MAIN/SPOT VIDEO OUT
② VIDEO IN
③ AUDIO IN
④ LINE IN
⑤ AUDIO OUT
⑥ VGA Interface
⑦ RS-232 Serial Interface
⑧ LAN
⑨ USB Interface
⑩ RS-485 Interface
⑪ ALARM IN, ALARM OUT
⑫ 12VDC Power Supply Interface
⑬ POWER
⑭ GND
## Specifications

<table>
<thead>
<tr>
<th>Video/Audio input</th>
<th>DS-7224HFI-ST</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Video compression</strong></td>
<td>H.264</td>
</tr>
<tr>
<td><strong>Analog video input</strong></td>
<td>4-ch</td>
</tr>
<tr>
<td><strong>Video input interface</strong></td>
<td>BNC connector (1.0 Vp-p, 75 Ω); PAL / NTSC adaptive</td>
</tr>
<tr>
<td><strong>Audio compression</strong></td>
<td>G.711</td>
</tr>
<tr>
<td><strong>Audio input</strong></td>
<td>4-ch, RCA connector (2.0 Vp-p, 1 kΩ)</td>
</tr>
<tr>
<td><strong>Two-way audio input</strong></td>
<td>1-ch, RCA (2.0 Vp-p, 1 kΩ)</td>
</tr>
<tr>
<td><strong>VGA output</strong></td>
<td>1-ch, resolution: 1280 × 1024 / 60 Hz, 1024 × 768 / 60 Hz</td>
</tr>
<tr>
<td><strong>CVBS output</strong></td>
<td>2-ch, BNC connector (1.0 Vp-p, 75 Ω); Resolution: PAL: 704 × 576, NTSC: 704 × 480</td>
</tr>
<tr>
<td><strong>Audio output</strong></td>
<td>1-ch, RCA connector (Linear, 1 kΩ)</td>
</tr>
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<table>
<thead>
<tr>
<th>Video/Audio output</th>
<th></th>
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<tbody>
<tr>
<td><strong>Recording resolution</strong></td>
<td>4CIF / 2CIF / CIF</td>
</tr>
<tr>
<td><strong>Frame rate</strong></td>
<td>Main stream: 4CIF / 2CIF / CIF@25 fps (P) / 30 fps (N) Sub stream: CIF@6 fps, QCIF@25 fps (P) / 30 fps (N)</td>
</tr>
<tr>
<td><strong>Video bit rate</strong></td>
<td>32 kbps ~ 2048 kbps, or user-defined (Max. 3072 kbps)</td>
</tr>
<tr>
<td><strong>Stream type</strong></td>
<td>Video/ Video &amp; Audio</td>
</tr>
<tr>
<td><strong>Audio bit rate</strong></td>
<td>64 kbps</td>
</tr>
<tr>
<td><strong>Dual stream</strong></td>
<td>Support</td>
</tr>
<tr>
<td><strong>Synchronous playback</strong></td>
<td>4-ch</td>
</tr>
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<table>
<thead>
<tr>
<th>Hard disk</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>2 SATA interface</td>
</tr>
<tr>
<td><strong>Capacity</strong></td>
<td>Up to 4TB capacity for each interface</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>External interface</th>
<th></th>
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<tbody>
<tr>
<td><strong>Network interface</strong></td>
<td>1, RJ45 10 M / 100 M adaptive Ethernet interface</td>
</tr>
<tr>
<td><strong>Serial interface</strong></td>
<td>1 RS-485 full-duplex interface, 1 RS-232 interface</td>
</tr>
<tr>
<td><strong>USB interface</strong></td>
<td>2, USB 2.0</td>
</tr>
<tr>
<td><strong>Alarm in</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Alarm out</strong></td>
<td>1</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>General</th>
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<tbody>
<tr>
<td><strong>Power supply</strong></td>
<td>12 VDC</td>
</tr>
<tr>
<td><strong>Consumption</strong></td>
<td>≤10 W (without hard disk or DVD-R/W)</td>
</tr>
<tr>
<td><strong>Working temperature</strong></td>
<td>-10 °C ~ +55 °C</td>
</tr>
<tr>
<td><strong>Working humidity</strong></td>
<td>10% ~ 90%</td>
</tr>
<tr>
<td><strong>Chassis</strong></td>
<td>19-inch rack-mounted 1U chassis</td>
</tr>
<tr>
<td><strong>Dimensions (W × D × H)</strong></td>
<td>445 × 290 × 45 mm</td>
</tr>
</tbody>
</table>

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| **Weight** | ≤ 4 kg (without hard disk or DVD-R/W) |