Digital Video Recorder 400 Series

DVR 440 / DVR 480

BOSCH

en Operations manual

Operating instructions

These instructions explain the purpose of the front panel keys.

The functions available can be limited by setting passwords. Access to the unit's functions are determined by the user level of the user logged in.

Function	**Administrator** level	**Advanced User** level	**Normal User** level
View live	Yes	Yes	Yes
Sequence	Yes	Yes	Yes
Quad	Yes	Yes	Yes
OSD	Yes	Yes	Yes
Zoom	Yes	Yes	Yes
Pan/Tilt/Zoom (PTZ)	Yes	Yes	Yes
Playback	Yes	Yes	No (configurable)
Search	Yes	Yes	No (configurable)
Export	Yes	Yes	No (configurable)
Acknowledge Alarm	Yes	Yes	No (configurable)
System Menus	Yes	No	No
Covert	Yes	No	No

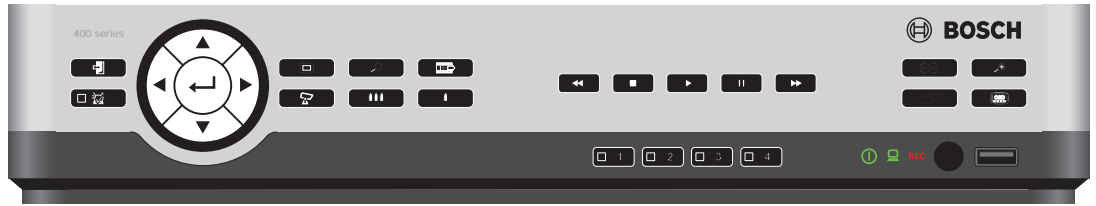**Table 5.1**   User Levels and Permissions

Front panel controls

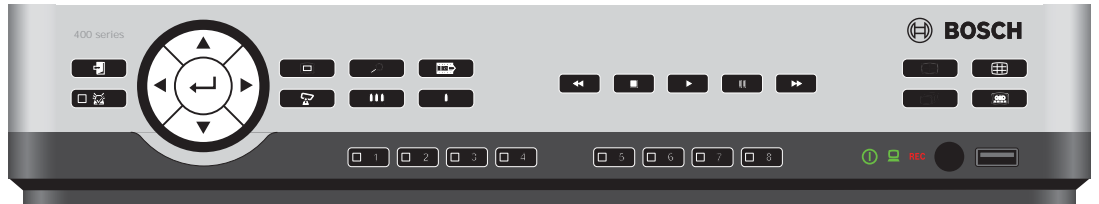**Figure 5.1**   Front panel controls - 4-channel model

Figure 2   Front panel controls - 8-channel model

Keys

The keys on the front panel control all functions. Symbols on the keys show the functions.
Inactive keys emit an audible beep when pressed.

Arrow keys:

▲ Up, ▼ Down, ◀ Left, ▶ Right

– move around through menu items or values when in menu mode
– in PTZ mode, the arrow keys can be used to control the pan or tilt functions of the selected camera
– moves the visible area of the selected image in digital zoom mode

↵ Enter key

– selects a submenu or menu item, or confirms selections made in menus
– displays the cameo submenu in full screen or quad modes

▣ Menu key

– opens the system menu

🔍 Search key

– press to open the date/time search menu to look for recorded images

🎞 Export key

– press to open the export menu

📹 PTZ key

– enables or disables the PTZ mode

📍 Zoom in key

– PTZ zoom in key
– Digital zoom in key on active full-screen display

📍📍📍 Zoom out key

– PTZ zoom out key
– Digital zoom out key

⏏ Exit key
  – press to return to previous level or to exit the menu system

🔔 Alarm indicator / acknowledge key
  – flashes when an alarm is detected
  – press to acknowledge an alarm event; an indicator light is located on the key

1 Camera keys (1-4)/(1-8)
  – press to see a full-screen display of the video input
  – the LED lights when the camera is recording
  – the LED flashes during an alarm on the camera

⊞ Quad key
  – press to go to quad mode
  – in quad mode, press to toggle to full screen

🗔 Sequence key
  – view cameras in sequence on full-screen or quad displays

OSD key
  – press to view date/time and camera information, date/time only, or none

🔍 Digital zoom key (4-channel model)
  – press to zoom in on the active full screen camera display

▦ Multi-screen key (8-channel model)
  – press to go to different multi-screen modes

❚❚ Pause key
  – press to freeze the picture

◀◀ Reverse key
  – in live mode, press to start reverse playback of recordings for the displayed cameras
  – in playback mode, press to start or speed up reverse playback
  – in pause mode, press to step back one frame

▶ Play key
  – in live mode, press to resume playback from the last selected playback position
  – in pause or fast forward/reverse modes, press to resume playback

▶▶ Fast forward key
  – in live mode, press to start playback from one minute earlier
  – in playback mode, press to speed up the forward playback rate
  – in reverse playback mode, press to start forward playback
  – in pause mode, press to step forward one frame

■ Stop key
  – while in playback mode, press to return to live mode

Indicators

The indicators on the front panel display light or flash to alert of various operating conditions.

Power - lights green when the unit is powered

Network - lights green when a remote user is connected to the unit

REC Record - lights red when the unit is recording video

Mouse Controls

All functions controlled by the front panel can, alternatively, be accessed using a USB mouse. All main DVR functions are accessible via the System Control Bar. To display the panel (monitor A only), move the mouse pointer to the bottom left of the screen or press the menu

🔲 key. To close the System Control Bar press the exit ⮨ key.

Figure 3   System Control Bar

The buttons and indicators of the System Control Bar work the same as the keys and indicators on the front panel.

–   The System Control Bar can also be controlled with the Arrow Keys and Enter Key.

Viewing pictures

The unit has two monitor outputs, A and B. The way in which these monitors display pictures depends on how the system is configured.

Monitor A

Monitor A is the main monitor. It shows full-screen, quad or multiscreen live or playback camera pictures. Status messages, alarms, motion, and video loss warnings are also displayed on this monitor. When the menu system is activated, it is displayed on this monitor. Monitor A is the default monitor for keyboard and mouse commands.

Changing the full-screen display on Monitor A

To control the display on monitor A with mouse control:

1. Display the System Control Bar.

2. Click .

3. From the pop-up menu, select the display for Monitor A

   – Select 1-4/8 for the corresponding Camera

   – Select the sequence key to sequence channels 1-4/8

Changing the quad/3x3 display on Monitor A

To control the quad/3x3 display on monitor A with mouse control:

1. Display the System Control Bar.

2. Click .

3. From the pop-up menu, select the display for Monitor A

   – Select the quad key to select the quad mode

   – Select the multiscreen key to select the 3x3 mode (DVR 480 only)

   – Select the sequence key to sequence the quad mode

Monitor B

Monitor B displays full-screen, quad or multiscreen (with or without sequence) of live pictures. When an alarm or motion input is detected, the camera picture with the Alarm/ Motion indicator can be displayed on monitor B. When multiple alarms or motion occur, camera pictures are sequenced on monitor B.

Changing the full-screen display on Monitor B

To control the display on monitor B with mouse control:

1. Bring up the System Control Bar.

2. Click the Monitor B button.

3. From the pop-up menu, select the display for Monitor B

   – Select 1-8/16 for the corresponding Camera

   – Select the sequence key to sequence channels 1-8/16

Changing the quad display on Monitor B

To control the quad display on monitor B with mouse control:

1. Bring up the System Control Bar.

2. Click the Monitor B button.

3. From the pop-up menu, select the display for Monitor B

    –   Select the quad key ⊞ to select the quad mode

    –   Select the sequence ⧉ key to sequence the quad mode

Viewing

The tables show all possible views for monitor A. The set of muti-screen views available depends on the resolution (aspect ratio) setting and the model type (4 or 8 channels).

Resolution (aspect ratio) 800x600 (4:3), 1024x768 (4:3), 1280x1024 (5:4)
Full screen
Quad
1+5 (not for 4-channel model)
1+7 (not for 4-channel model)
3x3 (not for 4-channel model)

Table 5.2   Multi-screen viewing in 4:3 and 5:4

Resolution (aspect ratio) 1366x768 (16:9), 1440x900 (16:10)
Full screen
Quad
3x2
1+8
1+2+6

Table 5.3   Multi-screen viewing in 16:9 and 16:10

Quad screen

To view quad displays:

–   Press the quad ⊞ key.

    –   A quad display of camera pictures appears on the active monitor.

Full-screen

To view a full-screen shot of a camera:

–   Press a camera key.

    –   A full-screen shot of the camera that was selected appears.

Multi-screen

To view multi-screen displays on monitor A:

–   Press the multi-screen ⊞ key.

    –   A multi-screen display of camera pictures appears on the active monitor.

Sequence

To view a sequence of live camera pictures of several cameras:

1. Press the sequence ⧉ key.

    –   A sequence of camera pictures appears, each for a pre-programmed dwell time.
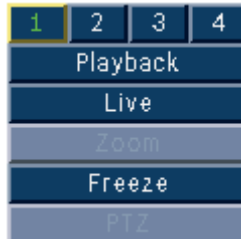
2. Press the sequence ⧉ key to stop sequencing.

Cameo assignment

The cameo assignment is used in playback mode as well as in live mode.

Assigning cameras to cameos in a quad or multi-screen view:

1. Use the arrow keys to select a cameo.
    –   The cameo with the yellow border is the selected cameo.

2. Press the enter ⏎ key to display the Cameo Menu.

3. Use the arrow keys to select a camera number (4 or 8) to put in the cameo and press the
    enter ⏎ key.

Alternatively, right click a cameo with the mouse and choose a video input from the Cameo
Menu.

Freeze image

Freezing a camera shot on monitor A:

1. Press the pause ❚❚ key to freeze all the picture in the active cameo.

2. Press the stop ■ key to return to live viewing.

3. Alternatively, right click in the active cameo and select **Freeze** or **Unfreeze** from the
    context menu using the mouse.

Zoom

To zoom in on a video image:

1. Press the zoom in 🔍 key.
    –   The picture is enlarged by a factor of 2.

2. Use the arrow keys to select the area of the picture to be displayed.

3. Press the zoom out 🔍 key to return to a full picture and leave the zoom mode.

Alternatively, right click and select **Zoom** or **Exit zoom** to enable or disable zoom mode with
the mouse. While in zoom mode, move the mouse pointer to select the area of the picture to
be displayed.

Live and playback

Live mode

The live mode is the normal operating mode of the unit where live pictures are viewed from the cameras. From live mode, switch to playback mode or the system menu.

Playback mode

Access to playback functions requires the right user level. Discuss this with your administrator. To enter playback mode:

1. To switch the unit from live to playback mode:

   – press the play ▶ key

   – press the forward ▶▶ key for instant playback, which will cause the unit to enter playback at 90 seconds before the current time
   – perform a search
   – perform an action from the cameo menu.

2. In playback mode the video control keys operate as follows:

– Press the rewind ◀◀ key to start reverse playback of recordings. Pressing it again and again increases the display rate to a maximum before returning it back to normal speed again. Press the rewind ◀◀ key in the pause mode to step back one frame at a time.

– Press the pause ▌▌ key to freeze the picture.

– Press the forward ▶▶ key to start playback of recordings. Pressing it again and again increases the display rate to a maximum before returning it back to normal speed again. Press the forward ▶▶ key in the pause mode to step forward one frame at a time.

– Press the play ▶ key to resume playback.

Press the stop ■ key to switch back to live viewing. An alarm also switches the unit back to live viewing.

Overview of the menu system

The Main menu gives access to several functions to help use the unit. Access to the Main menu is only possible with a User Account at the Administrator User Level. Access the Main menu via:

– the front panel keys,
– a USB mouse.

Slight differences in navigation and selection are only due to the differences between the keys on the unit and the mouse. The menu structure is the same in all cases.

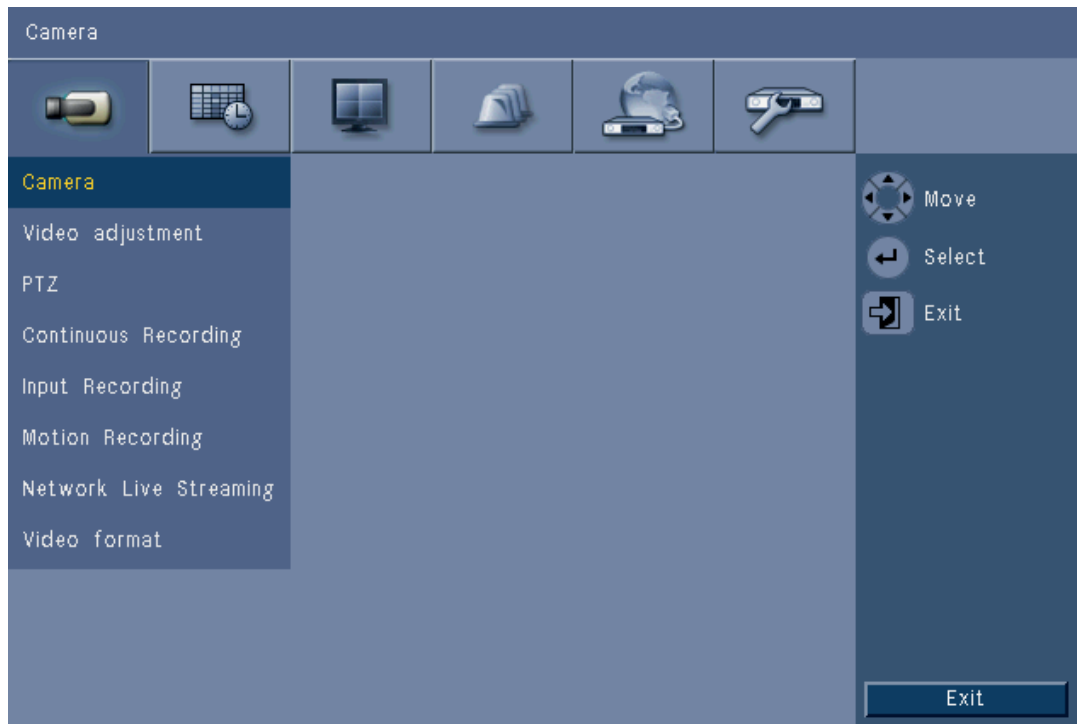The top menu consists of six menus with drop-down submenus.

Figure 4   Main menu

Access using the front panel keys

To open the Main menu, press the menu ▣ key twice.

– On the first press the System Control Bar appears on monitor A.
– On the second press the Main menu appears on monitor A.

To move through a menu or list, use the arrow ▲ ▼ ◀ ▶ keys on the front panel.

To select a submenu or item, use the enter ↵ key.

To go back, use the exit ⏏ key.

To exit the menu, press the exit ⏏ key.

To open the menu, move the pointer to the bottom of the screen.

– The System Control Bar appears on monitor A.

To open the menu, click the menu ▣ icon.

Main menu

Camera

The Camera menu is used to configure recording settings for the unit. The menu contains eight submenus:

- – Camera - per camera Enable, Name of the camera, Covert, and Audio
- – Video Adjustment - per camera Brightness, Contrast, and Color
- – PTZ - per camera Port, Address, Protocol, and Baud Rate
- – Continuous Recording - per camera Resolution, Quality, and Frame Rate
- – Input Recording - per camera Resolution, Quality, Frame Rate, Pre-event, and Post-event
- – Motion Recording - per camera Resolution, Quality, Frame Rate, Pre-event, and Post-event
- – Network Live Streaming - per camera Enable, Resolution, Quality, and Frame Rate
- – Video Format - NTSC, PAL, or Auto Detect; VGA Output - select required VGA resolution

Schedule

The Schedule menu is used to set recording types according to the hour and day of the week and for exception days.

Display

The Configuration menu contains three submenus:

- – Language - set the language option for the unit
- – Monitor A - show Camera Name and Status, Date and Time, Playback and HDD Status, and configure Sequence Dwell Times
- – Monitor B - show Camera Name and Status, Date and Time, and configure Sequence Dwell Times

Event

The Event menu contains four submenus:

- – Input - per input Input Type, Camera, Relay Output, and PTZ preset
- – Motion - per camera Sensitivity, Relay Output, and Area setup
- – Alarm Acknowledge - Toggle between Post-event time and Manual
- – System - enable alarms for Disk fail, Disk full, System/Disk temperature, Administrator Password change, Video loss, and Power On.

Network

The Network information menu contains four submenus:

- – TCP/IP - enable DHCP, set IP Address, Subnet, Gateway, DNS, HTTP Port, and Bandwidth limit
- – DDNS - set dynamic DNS for dyndns.org, sitesolutions.com, and tzo.com
- – Notification - send e-mail notification on Input, Motion detect, Disk fail, Disk full, System/Disk temperature, Administrator Password change, Video loss, Power On
- – Mail - set SMTP server, SSL, User name, Password, To 1-3, From, and Subject.

System

The System information menu contains seven submenus:

- – Date/Time - set Date, Time, Date format, Time format, Time zone, and Daylight Savings
- – NTP - set NTP Time Server and Sync interval
- – Beeper - set unit to beep on Button, Input, Motion, System, or Video loss
- – User - set Usernames, Passwords, and User Levels for Users 1-10

- Configuration - Import and Export configuration, reset to Factory defaults, Update firmware and Quick install
- Hard Disk - set Overwrite, Disk full warning, Event partition, Auto delete, and format the disk
- System - set the DVR name, and Auto user logout time

Search

To Search, press the search 🔍 key.

To Search using the mouse:

1. Move the cursor to the bottom of the screen to access the System Control Bar.

2. Click the search 🔍 icon.
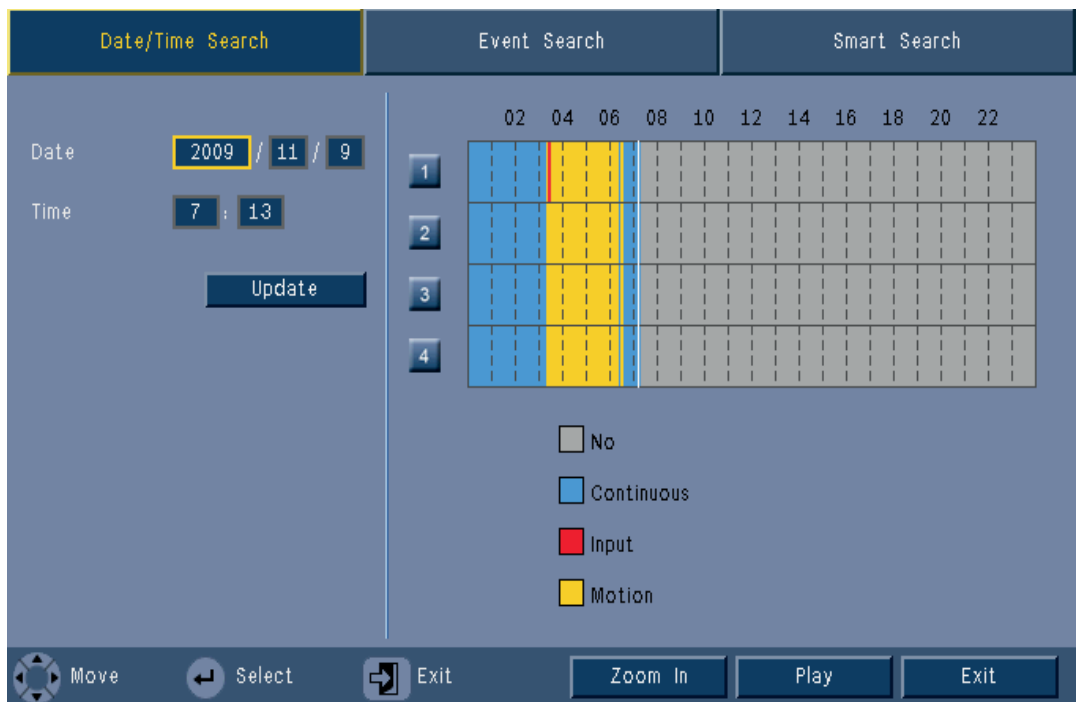   - The default search is a **Date/time** search.

Figure 5   Main menu - Search

Date/time search

Select the start date. Once the start date has been selected, the timeline will update to show the full 24 hour period.

1. Use the **Zoom In** button to magnify the timeline.
2. Enter the start time:
   - Enter the hour and minute.
   - With a mouse, click directly on the timeline to set the start time.
3. Click Play to start playback:
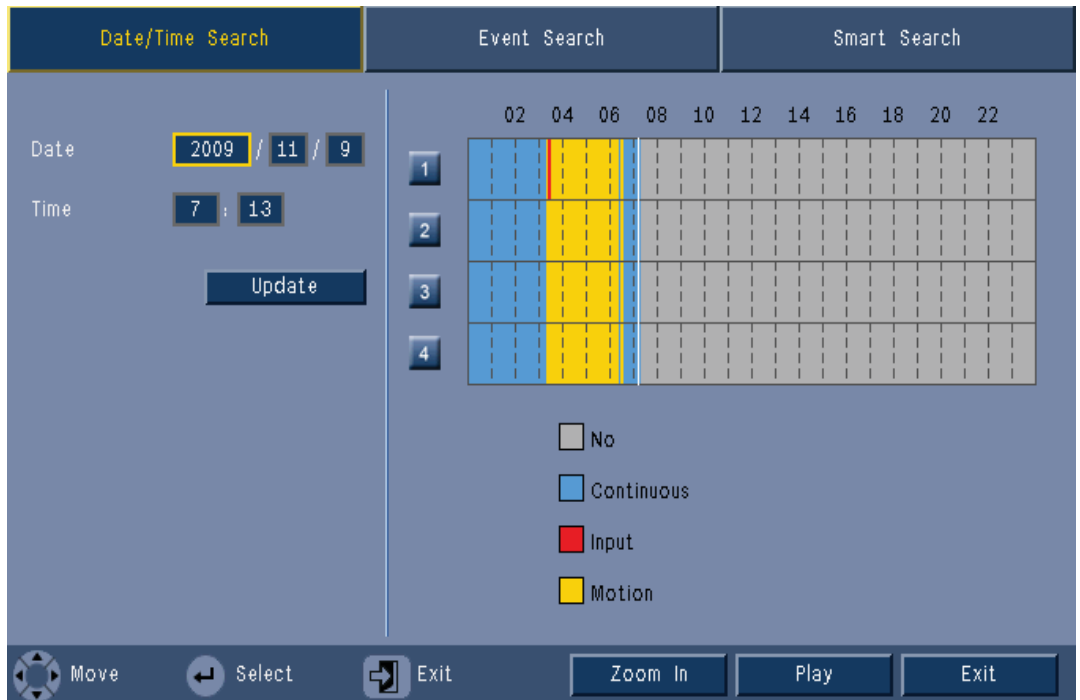   - Playback in all displayed cameos will start.

Figure 6   Search menu - Date/Time Search options

Event search

1. From a Date/Time search, press the exit 🠖 key to select the Search Tabs.
2. Press the left/right arrow keys to select Event Search.
3. Press the enter ⏎ key to activate the search.
   – With the mouse, click the Event Search tab to make it active.

Search criteria
– Under **Start** and **End**, fill in date and time values to determine the time span of the search.
– Under **Channel**, specify the camera input to search for. The selected input is shown.
– Set **Event Type** to search for alarm events, motion events, or both. Set to **All** so that the search is not restricted by an event type.
– Select **Search** to start the search.

Search results
– The recording fitting the filter and closest to the selected date and time is shown first.
   – If more events than can be shown on the page are found use Page to see more results.
– Use the up/down arrow keys to move through the list.
– Press the Play button for a full-screen playback of the selected recording.
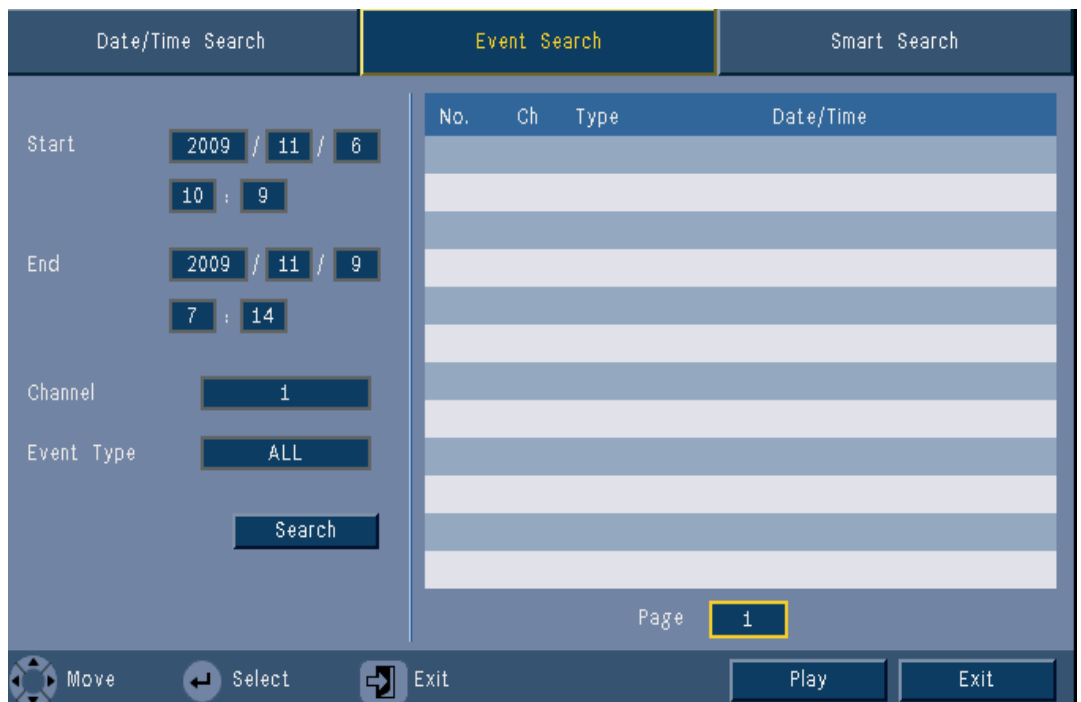

Figure 7   Search menu - Event Search options

Event Search results
The event search results are indicated by a start and stop time of a small period of video.
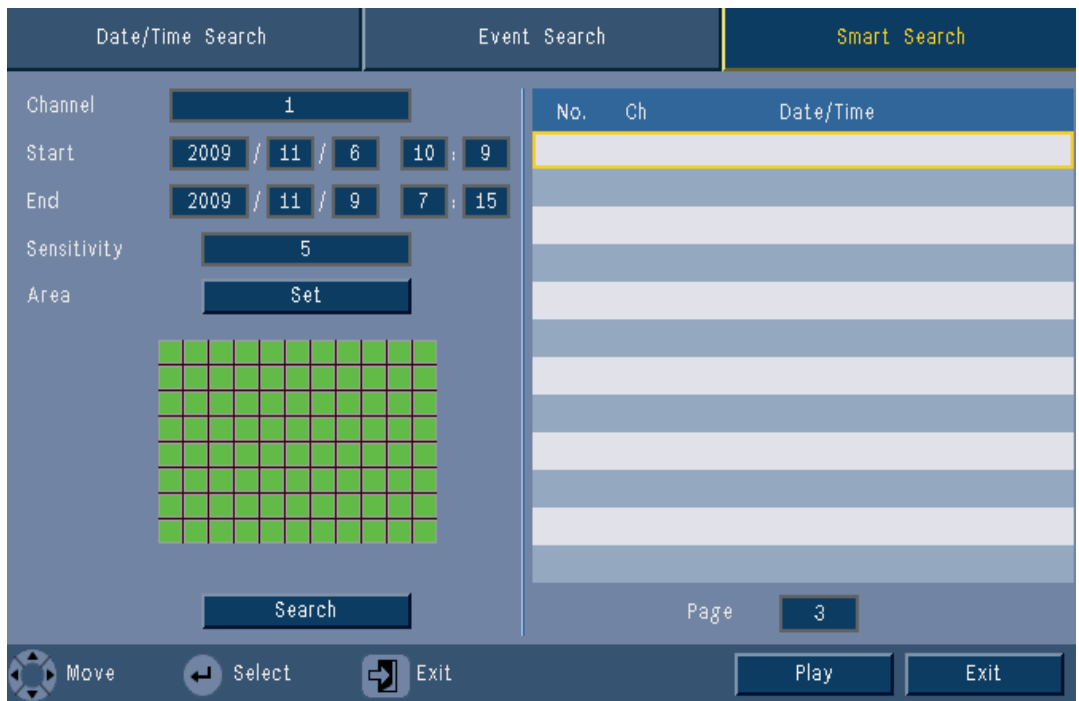Within this period of video the event search results can be found.

Smart search

1. From a Date/Time search, press the exit ⮐ key to select the Search Tabs.
2. Press the left/right arrow keys to select Smart Search.
3. Press the enter ⮐ key to activate the search.
   – With the mouse, click the Smart Search tab to make it active.

Search criteria

– Under **Channel**, specify the camera input to search for. The selected input will be shown.
– Under **Start** and **End**, fill in date and time values to determine the time span of the search.
– Set **Sensitivity** to determine the threshold for detecting change in the video.
– Set **Area** to limit the smart search to only the area effected.
– Select **Search** to start the search.

Search results

– The recording fitting the filter and closest to the selected date and time is shown first.
   – If more events than can be shown on the page are found, use Page to see more results.

Figure 8   Search menu - Smart search options

– Use the up/down arrow keys to move through the list.
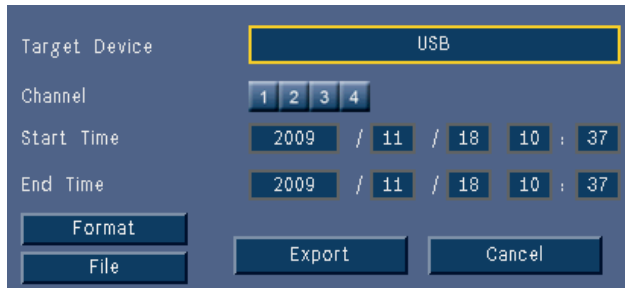– Press the Play button for a full-screen playback of the selected recording.

Smart Search results

The smart search results are indicated by a start and stop time of a small period of video.
Within this period of video the smart search results can be found.

Export

The export menu is accessed by pressing the Export ⬛⬛ key on the Front Panel or from the System Control Bar. It allows writing segments of recorded video and audio to a USB storage device.

Figure 9   Export menu

1. Choose to record to a USB from the **Target Device** selection box.
2. Select the **Channel** to archive.
3. Fill in a **Start time** and **End time** for the video segments to archive.
4. Click **Export** to create the archive.
    –   To erase a USB drive after it has been inserted, click the **Format** button.
    If the total size of the video segments is greater than the memory device's free space, then only the first segments that fit are archived.
5. Click **File** to save 'Export history log file' to USB.

System information

The System information screen is accessed from the System Control Bar by pressing the

System Information ⓘ icon. The System information menu contains:

– Model Name
– Serial Number
– Video Format
– MAC Address
– IP Address
– Software Version
– Hard Drive size and usage data

Figure 10   System Control Bar - System information

Log

The Log displays historic system events and is accessed from the System Control Bar by pressing the Log ▦ icon.

Logbook filter

From the Log display, make a selection of which system events to show.
– The Log shows the date, time, and event type of various system events.
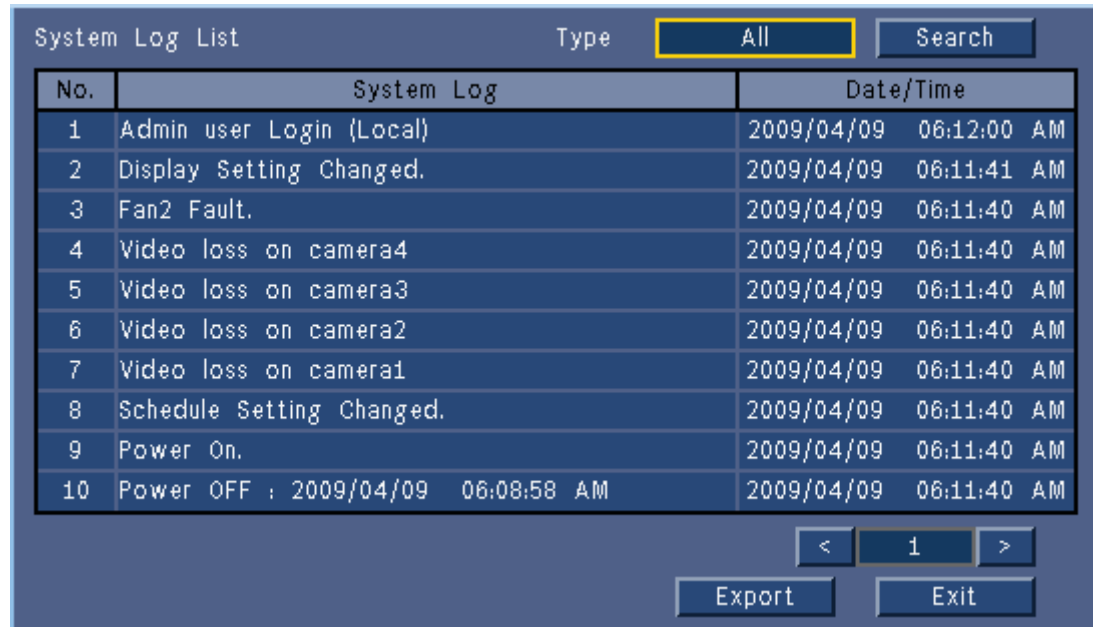– Log contents are ordered from latest to earliest.

No.	System Log	Date/Time
1	Admin user Login (Local)	2009/04/09 06:12:00 AM
2	Display Setting Changed.	2009/04/09 06:11:41 AM
3	Fan2 Fault.	2009/04/09 06:11:40 AM
4	Video loss on camera4	2009/04/09 06:11:40 AM
5	Video loss on camera3	2009/04/09 06:11:40 AM
6	Video loss on camera2	2009/04/09 06:11:40 AM
7	Video loss on camera1	2009/04/09 06:11:40 AM
8	Schedule Setting Changed.	2009/04/09 06:11:40 AM
9	Power On.	2009/04/09 06:11:40 AM
10	Power OFF : 2009/04/09 06:08:58 AM	2009/04/09 06:11:40 AM

System Log List   Type   All   Search

< 1 >   Export   Exit

Figure 11 Logbook - Logbook filter

Triggers and alarms

Various types of events change the way the unit works. These events are:
– an alarm input signal applied to the unit
– motion detection in a camera signal
– a loss of video from one of the cameras
– an internal alert from the unit itself (i.e. disk failure, temperature alarm)

The way the unit reacts to events depends on how it is programmed.

An event can cause either a trigger or an alarm. A trigger changes the way the unit works but does not require a response from the user. An alarm also changes the way the unit works but, in addition, usually activates several indicators and requires the user to acknowledge the alarm situation.

The unit reacts to an event in any one of the following ways:

Alarms

– A beeper sounds.
– A status message is displayed.
– An alarm icon is displayed.
– The border around a cameo changes color to red.
– An alarm 🚨 or video loss 🔇 indicator flashes.
– An output relay is activated.

Triggers

– A motion 🏃 indicator flashes.
– The view modes on the monitors change.
– A controllable camera might be moved to a pre-defined position.
– Recording behavior changes.
– The unit changes the way it operates via pre-defined profiles.

Background events

Triggers and alarms can change background tasks that a user may not notice. Unit responses that are not visible to the user are, for example, a change in recording speed, the activation of the output relay, and event logging. The unit can also be configured to record upon the activation of an alarm input. A trigger may change the way the camera images are displayed on the monitors without requiring intervention.

Alarm inputs

If an input causes an alarm

– Monitors A and B can switch to a pre-programmed view mode.
– Monitor A: The border around the displayed cameos is red. The alarm icon is displayed in the corresponding cameo. An alarm status message is displayed.
– Monitor B: Full screen or sequenced display of pre-programmed cameras.
– The alarm beeper sounds. The alarm 🚨 indicators flash.
– A controllable camera might be moved to a pre-defined position.

Acknowledging an input alarm

Press the acknowledge ⍻ key to acknowledge the alarm.

– The beeper is silent.

– The alarm 🚨 indicators are no longer lit.
– The alarm status message disappears.
– The last-used view mode is restored.

The alarm icon remains visible as long as the input causing the alarm is active.

If an alarm is not acknowledged, the beeper switches off after the dwell time but the alarm still needs to be acknowledged.

If auto-acknowledge is enabled, the beeper and the alarm 🚨 indicators switch off after the dwell time.

Motion events

If a motion detection signal causes an event
Monitors A and B can switch to display the motion events.

– The motion icon is displayed in the corresponding cameo. An alarm status message is displayed.

– The motion 🏃 indicator on the front panel flashes.

Video loss alarm

If the loss of a video signal causes an alarm:
Monitor A and B will show the video loss indicator.

– Monitor A can switch to a multiscreen view. The lost camera signal is displayed as a black cameo with the video loss message. The border around the camera with the video loss is red. An alarm status message is displayed.

– The alarm beeper sounds.

– The video loss 🔇 indicator is displayed until the video signal is restored.

Acknowledging a video loss alarm

Press the acknowledge ⍻ key to acknowlede a video loss alarm.

– The beeper is silent.
– The alarm status message disappears.
– The last-used view mode is restored.

If the camera with video loss is visible, the black cameo and the video loss message continue to be displayed as long as there is no video present.

Multiple alarms

Monitor A can switch to a multiscreen view if more than one alarm occurs. The latest alarm status message is always shown. Press the acknowledge ⍻ key to deactivate all alarms.

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