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C-MAX
4 Channel DVR
(Digital Video Recorder)

User/Installation Manual

Table of Contents

IMPORTANT	4
WARRANTY INFORMATION	5
REPAIRS & RETURNS	6
IMPORTANT SAFEGUARDS	7
INTRODUCTION	8
Digital video recorder for security applications	8
Features.....	8
INSTALLATION	9
Connections.....	9
FIRST TIME USE	11
Quick Setup Menu	11
Operating instructions	13
FRONT PANEL CONTROLS	14
Viewing pictures.....	16
Quad screen	16
Full screen.....	16
Sequence	16
Zoom	16
LIVE, PLAYBACK, COPY/BACKUP & SEARCH	17
Live mode	17
Playback mode	17
Copy / Backup mode.....	17
Search mode	19
MENU SYSTEM	20
Overview of the menu system.....	20
Accessing the menu from the unit	20
Quick Setup	21
CAMERA.....	22
RECORDING	24

Event Source.....	26
SYSTEM	27
Profiles	38
UTILITY	40
Connecting external device with serial port	42
Connecting text input device.....	42
Connecting PAN/TILT/ZOOM	43
Connecting between C-MAX 4 CHANNEL DVR and SPD1800	43
Set PTZ on C-MAX 4 CHANNEL DVR.....	44
Viewing with connected PTZ	45
Controlling pan / tilt	46
Controlling zoom / focus	46
Using load preset	46
Using save preset	46
Using clear preset	46
Using auxiliary on	47
Using auxiliary off	47
USING THE CONTROL CENTER LITE	48
Getting Started	48
System requirements.....	48
Installing the Program.....	49
How to Log in	50
Configuration Tool	50
Monitor.....	51
Playback.....	52
Adding or Replacing of HDD at Removable HDD-Rack	52
REMOVING THE HARD DRIVE	53
HDD Registration and Format	55
SPECIFICATIONS	56

IMPORTANT

FCC NOTICE

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- 1.) This device may not cause harmful interference, and
- 2.) This device must accept any interference that may be received, including interference that may cause undesired operation.

IC NOTICE

This device complies with the RSS-210 Industry Canada.

Operation is subject to the following two conditions:

- 1.) This device may not cause interference, and
- 2.) This device must accept any interference, including interference that may cause undesired operation.

READ THIS MANUAL

Every effort has been made to insure that this WTI system is of the highest quality. This product has been carefully inspected to comply with rigid quality standards before shipment to you. In consideration of your investment and the desire to obtain full performance capability engineered into your new WTI product, we recommend that you read this manual before attempting to operate your system.

FOR MORE ASSISTANCE OR MORE INFORMATION

WTI (Wireless Technology, Inc.)

2064 Eastman Avenue, Suite 113, Ventura, CA 93003-7787

TEL 805/339-9696

FAX 805/339-0932

EMAIL: sales@wirelesstech.com

INTERNET: <http://www.gotowti.com>

The software/firmware furnished with the equipment is confidential to and is copyrighted by WTI (Wireless Technology, Inc.) It is not to be copied or disclosed in any manner without the consent of WTI (Wireless Technology, Inc.) The software/firmware is furnished to the purchaser under a license for use on a single system.

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WARRANTY INFORMATION

PRODUCT WARRANTY

We appreciate your purchase of *Wireless Technology, Inc.* (WTI) security products. We take pride in the quality of our products and have manufactured each new WTI product to exacting quality standards. In normal use, it will provide you with years of satisfactory performance. However, should you experience difficulty; you are protected under the provisions of this warranty.

WTI warrants to the original user a product that is free of defects in materials and workmanship in normal use. WTI warrants to the original user that WTI's products will be free of defects in materials and workmanship in normal use for a period of 12 months from the date of sale. WTI's obligation under this warranty shall be limited to the repair, including all necessary parts and the cost of labor connected therewith, or at our option, the replacement of any product that shows evidence of a manufacturing defect within the warranty period.

This warranty is extended to all WTI products purchased and used within the United States of America and is valid only when service is rendered by the authorized WTI (*Wireless Technology, Inc.*) Warranty Station.

This warranty shall not apply to appearance or accessory items including, but not limited to, knobs, connectors, cabinets and connecting cables. This warranty shall not, in addition, apply to repairs or replacements necessitated by any cause beyond the control of WTI including, but not limited to, acts of nature, improper installation, misuse, lack of proper maintenance, accident, voltage fluctuations, unauthorized repairs or modifications.

This warranty becomes void in the event serial numbers are altered, defaced or removed, or an attempt is made to field service or alter performance of any WTI products.

WTI reserves the right to make changes in design, or to make additions to, or improvements upon, products without incurring any obligation to install the same on products previously manufactured.

The foregoing is in lieu of all other warranties expressed or implied and WTI neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with the sale of our products. In no event shall WTI or its Authorized Dealers be liable for special or consequential damage arising from the use of this product, or any delay in the performance of this warranty due to causes beyond its control.

REPAIRS & RETURNS

REPAIR AUTHORIZATION

Please contact WTI (*Wireless Technology, Inc.*), to obtain a repair authorization number (RA) and provide the following information:

- 1.) Product Model & Serial Numbers.
- 2.) Date of shipment, purchase order number, sales order number or WTI invoice number.
- 3.) Details of the defect or malfunction. If there is a dispute regarding the warranty or product, which does not fall under the warranty conditions stated within the description of the written warranty, please include a written explanation with the product when returned.

SHIP FREIGHT PRE-PAID TO:

WTI (*Wireless Technology, Inc.*)
2064 Eastman Avenue, Suite 113
Ventura, CA 93003-7787
TEL 805/339-9696
FAX 805/339-0932

RETURNS

No unauthorized returns will be accepted. All returns must have an authorized (RA) number issued by the factory (CA number if returned for credit and RA number if returned for repair). Products returned for repair or credit will be rejected if no authorization number has been issued or freight has not been pre-paid. All merchandise returned for credit will be subject to a 20% restocking and refurbishing charge.

IMPORTANT SAFEGUARDS

IMPORTANT SAFEGUARDS

1. Read and follow these instructions. It is important to read all safety and operating instructions before installing or using this equipment.
2. Retain Instructions. Retain this manual and any supplements for future reference.
3. Prevent all liquids or other material from entering the housing. Protect the unit against extremes of vibration, pressure or dampness while transporting unit.
4. When connecting the power source, please follow all electric safety standards and only use the power supply designated for this device.
5. To reduce the risk of electric shock or equipment damage, work on the unit only when the power is shut off and is unplugged from its power source to prevent accidental activation. Also take precautions to avoid contact between the equipment and other electrical wires or power sources that may be present at the installation site.
6. Heed warnings. Adhere to all warnings on the equipment, and in this manual.

Do not attempt to open the sealed DVR assembly. There are no user-serviceable parts inside. Refer servicing to the WTI (*Wireless Technology, Inc.*) factory service center only.

RECOMMENDED TOOLS AND ACCESSORIES FOR PROPER INSTALLATION:

- 1.) Tie-wraps to secure cable runs
- 2.) #1 Phillips screwdriver
- 3.) #3 and 1/8" slot screwdrivers
- 4.) Cordless power drill
- 5.) 1/2" open end wrench or 1/2" socket wrench
- 6.) Self-sealing connector tape - Used to weatherproof all outdoor cable connections
- 7.) Appropriate conduit if mounted outdoors.
- 8.) Hand held radios

WTI (*Wireless Technology, Inc.*) recommends the use of RG59/U such as Belden 8241 or equivalent 75Ω coaxial cable with 22-gauge solid copper center conductor and foam polyethylene dielectric. Either RG6/U or RG11/U would make an excellent substitute.

Long coaxial cable runs cause signal degradation and/ or "SYNC" discrepancies. Limit RG59/U cable lengths to 500 feet.

Do not use screw on type BNC connectors. They are not suited for reliable installations.

INTRODUCTION

Digital video recorder for security applications

WTI's C-MAX 4 CHANNEL DVR can record up to four camera signals with associated audio signals while simultaneously providing live multi-screen viewing and playback. The unit has comprehensive search and playback facilities for viewing stored video. Once set up, all recording takes place in the background without requiring operator intervention. The maximum recording rate is 120 (NTSC) and 100 (PAL) images per second.

The unit also has extensive alarm handling functions, including motion detection in user-definable areas of the image on any camera input. Input alarms and video loss are also treated as alarm signals.

The unit can be easily operated and programmed via the front panel control keys and on-screen display menu system. A monitor output provides full-screen and quad screen viewing. USB supports easy archiving of video.

Via a network, PC-based applications can be used for live viewing, playback and configuration. The C-MAX 4 CHANNEL DVR includes an archive player for stand-alone PC playback. Authenticity can be checked with the remote PC software.

Looping video inputs with automatic termination switches, a video output, alarm inputs and outputs, and an Ethernet connector are on the rear panel. The monitor output provides a CVBS video signal in either NTSC or PAL.

Features

- Small file sizes using MPEG-4-based compression.
- Four video and four audio inputs.
- Simultaneous recording and playback.
- Real-time recording on all channels.
- Easy archiving of video with USB.
- Remote access and control via LAN, WAN, DSL.
- Full-screen and quad display capabilities in live and playback modes.
- Four switching (alarm) inputs and four alarm outputs.
- Motion detection and Video loss detection.
- Audible alarm.
- PTZ Control

INSTALLATION

To install the C-MAX 4 CHANNEL DVR make the connections described below and then enter the relevant data in the quick setup menu.

Connections

Primary connections

1. Connect the cameras to the BNC camera input connectors.
 - a. The C-MAX 4 CHANNEL DVR sets video signal's impedance (75) automatically. Impedance is set as 75• basically. If connecting a device to video output, impedance will be "Hi-z" status.
 - b. The C-MAX 4 CHANNEL DVR automatically configures itself as a PAL or NTSC unit by detecting the signal format of the first connected camera (lowest camera input number)
2. Connect a monitor to the BNC output MON Out.
 - a. Connect the unit to the monitor using 75Ω video coaxial cables with BNC connectors.

Optional connections

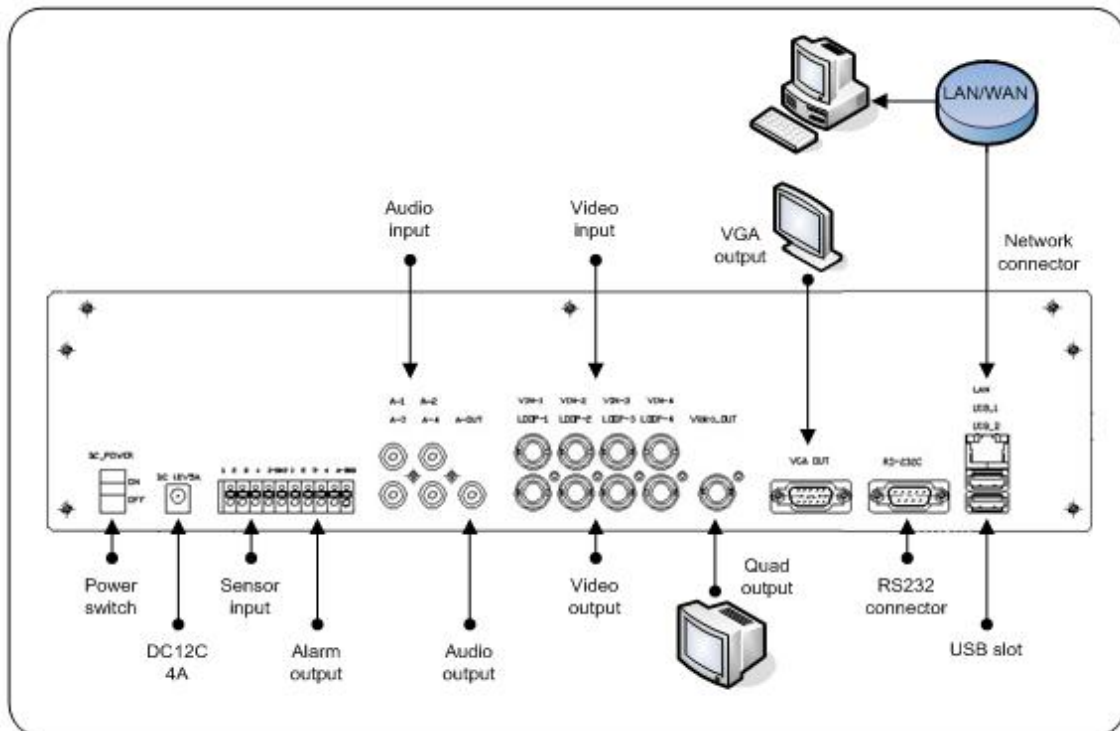
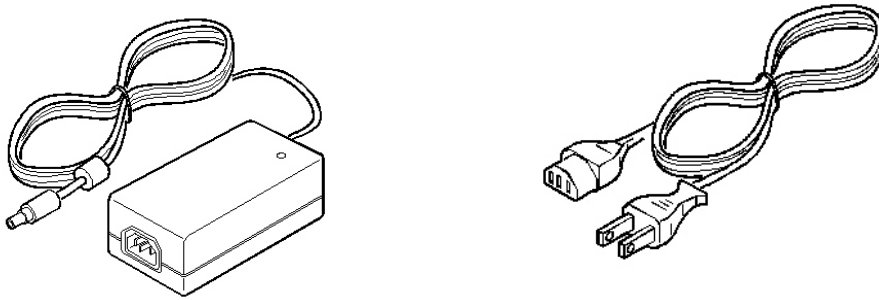
3. Connect up to four audio inputs via the RCA connectors.
4. Connect an audio output device via the RCA connectors.
5. Connect up to four (alarm) inputs via the terminal connector.
 - a. Each input line can be switched by a relay contact from devices such as pressure pads, passive infra-red detectors, smoke detectors and similar device. You can configure the alarm inputs as N/O (Normal Open) or N/C (Normal Close) in the menu system. The default is N/O.
6. Connect up to four alarm output relays via the terminal connector.
 - a. Relay 1 responds to an input alarm, Relay 2 responds to a system failure and the other relays are assigned to the remote software. Configure the alarm output as N/O or N/C in the menu system.
7. Connect to your network via the Ethernet port.
 - a. The C-MAX 4 CHANNEL DVR is delivered with the DHCP function switched on, so IP address are assigned automatically if the network server uses DHCP. (Refer to the System settings/Connectivity/Network setup menu)

Powering up

8. Switch on all connected equipment.
9. Connect the power cord to the unit and switch on.

Be sure to use a DC adapter that is provided by WTI.

Power (applied adaptor) : 12Vdc 5A (110V ~ 220V)



FIRST TIME USE

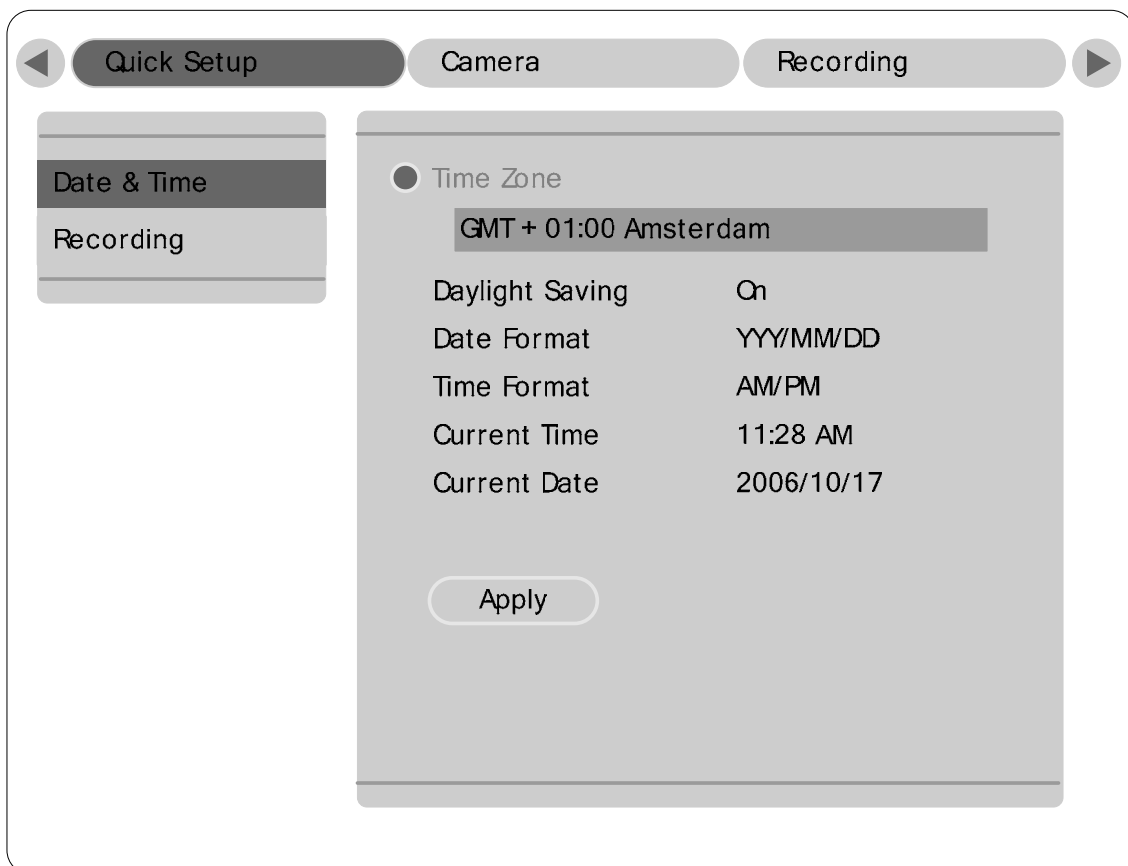
To open the quick setup menu, press the MENU key on the front panel and select the Quick setup submenu. Fill in the basic settings to get the unit operational. The unit begins recording automatically. Press the EXIT key to close the menu.

Navigating

- Use the LEFT, RIGHT, UP and DOWN keys to move through a menu.
- The ENTER key selects a submenu or menu item, or saves selections made in menus.
- Use the EXIT key to go back or to exit the menu.

Quick Setup Menu

>> DATE.TIME



>>> TIME ZONE

- Select the correct time zone from a list. The default time zone is GMT 00:00.

>>> DAY LIGHT SAVING

- Select if DST is used (On) or not (Off).

>>> DATE FORMAT

- Select from three date formats which show either the month (MM), the day (DD) or the year (YYYY) first.

>>> TIME FORMAT

- Select between 24 Hour and 12 Hour (AM/PM) format.

>>> CURRENT TIME

- Fill in the current time.

>>> CURRENT DATE

- Fill in the current date.

>>> APPLY

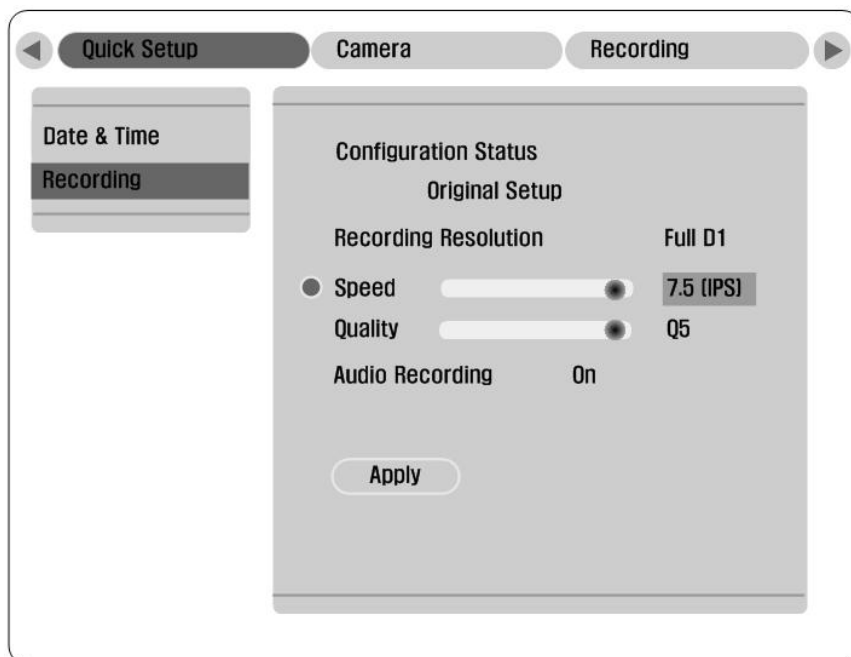
- Select this item to save your current time and date settings.

Changing time settings

All recorded video is time stamped for authentication. A linear timescale, with no gaps or overlaps, is used for searching and archiving. If you change the time, there is a mismatch between the time stamp and the linear timescale. This offset is displayed during playback on the right of the time stamp.

To prevent mismatches, we recommend that you archive any important video and reformat the hard disk when you change the time.

>>> RECORDING



>>> CONFIGURATION STATUS

- This shows the current setting of the C-MAX 4 CHANNEL DVR. When the C-MAX 4 CHANNEL DVR is still configured in the same way as it was during the last quick setup, the configuration status displays Original setup. Otherwise it shows Custom setup.

>>> RECORDING RESOLUTION

- Set recording resolution of all cameras [CIF /Half D1/ Full D1].

>>> SPEED (IPS)

- Select the recording speed to be used for all cameras.
- The Images Per Second (IPS) rates available for PAL range from 0, 0.75 (one image every 1.3 seconds), up to 25 IPS.
- The IPS rates available for NTSC range from 0, 1(one image every second), up to 30 IPS.

>>> QUALITY

- Select either Q1 ~ Q5 for the image quality level.

>>> AUDIO RECORDING

- Select **On** or **Off** to record Audio or not to record Audio.

>>> APPLY

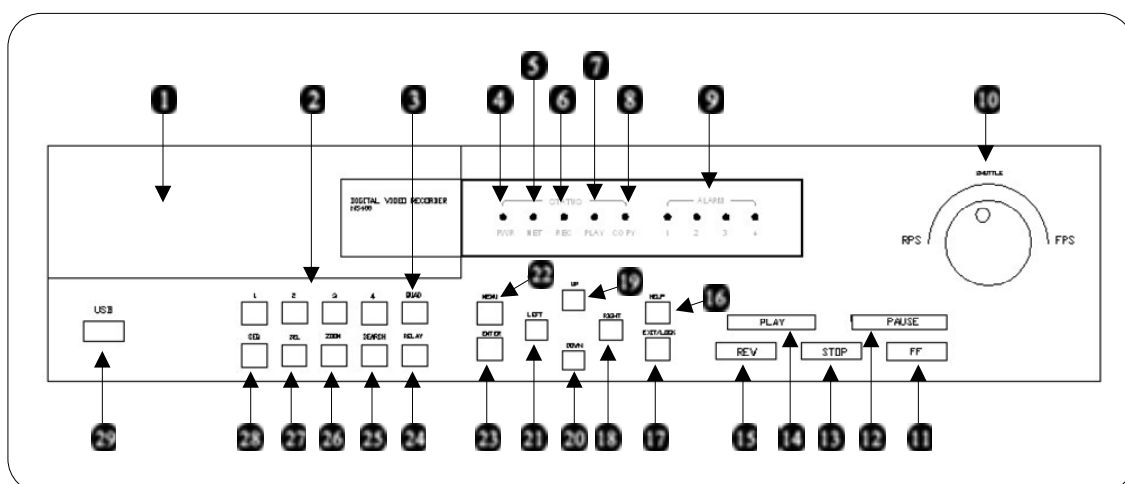
- Select this item to save your settings.

Operating instructions

The purpose of the front panel keys is explained here. The functions available can be limited by setting passwords. An administrator has access to many more functions in the menu. Refer to Menu System for a full list of available menu items.

FRONT PANEL CONTROLS

Keys 1 to 4: Press to select a camera for full screen display in live or playback mode. The indicators light in green when a camera is selected in full screen mode or quad mode. They light in red when there is an alarm or video loss for that input or camera.



- ❶ HDD / CD-ROM Removable Rack:
- ❷ Keys 1 to 4: Press to select a camera for full screen display in live or playback mode.
- ❸ QUAD key: Press to display a quad screen in live or playback mode.
- ❹ PWR: The power indicator lights to indicate that power is being supplied to the unit.
- ❺ NET: The indicator lights when the unit is accessed via the network.
- ❻ REC: The recording indicator lights when the unit is recording video.
- ❼ PLAY: The playback indicator lights when playback is active.
- ❽ COPY: In case of USB copy or CD backup, Copy LED turns on.
- ❾ They light in green when there is an alarm or video loss for that input or camera.
- ❿ SHUTTLE: In case of rotating Shuttle during Search & Playback mode, the speed of Forward/Reverse Play increases by 2x, 4x, 8x, 16x, and 32x.
- ⓫ FF Key: By pressing FF key during Playback mode, the speed of Play increases toward Forward direction.
- ⓬ PAUSE key: In playback mode press to pause playback.
- ⓭ STOP key: In playback mode, press to stop playback.

- 14 PLAY Key: By pressing PLAY key during Live mode, it back to Play mode and runs forward play.
- 15 REW key: By pressing REW key during Playback mode, the speed of Play increases toward Reverse direction. And by pressing REW key during Live mode, it back to Play mode and display 1 minute previous video image.
- 16 HELP key: By default the On-Screen Display (OSD) shows all information during live and playback mode. If a text device is connected, text data is shown only in the full screen mode. Event information is shown only in live mode. Press the HELP button to show only the channel number, the time and the date. Press twice to disable the OSD. In the menu mode, press to see an explanation of the selected item.
- 17 EXIT key: Escape from the current menu level. If in Edit mode, changes are not saved. In playback mode, press to stop playback and to go back to live mode. In pause mode, press to go back to live mode. If the beeper sounds, press EXIT to silence it.
- 18 RIGHT key: In menu mode, press to move the current selected position to the right. In zoom mode, press to move the zoomed area to the right.
- 19 UP key: In menu mode, press to move the current selected position upwards. In zoom mode, press to move the zoomed area upwards.
- 20 DOWN key: In menu mode, press to move the current selected position downwards. In zoom mode, press to move the zoomed area downwards.
- 21 LEFT key: In menu mode, press to move the current selected position to the left. In zoom mode, press to move the zoomed area to the left.
- 22 MENU key: Press to active the setup menu for configuration of the C-MAX 4 CHANNEL DVR on the local monitor (in live mode only).
- 23 ENTER key: In menu mode, selects a submenu or menu item or saves selections made in menus.
- 24 RELAY key: In live mode, the relay can be on/off.
- 25 SEARCH key: Press to enter the search menu.
- 26 ZOOM key: Zooms in on the active camera display.
- 27 SELECT key: By pressing Select key during Playback Full screen mode and MENU key, it back to Copy/Backup menu.
- 28 SEQ key: View cameras in sequence on full screen.
- 29 USB slot: Insert a USB memory into this slot.

Viewing pictures

The unit has one monitor output. The monitor picture display depends on how the system has been set up. It shows full screen or quad live or playback camera pictures. Alarms, motion, and video loss warnings are also displayed on the monitor. When the menu system is activated, it is displayed on the monitor.

Quad screen

To view a Quad screen display on the monitor, press the QUAD key.

Full screen

To view a full screen shot of a camera, press a camera key.

Sequence

To view a sequence of live camera pictures in full screen, press the SEQ key. The sequence icon is displayed on the monitor. A sequence of camera pictures appears, each for a pre-programmed dwell time. Pressing the sequence key again or selecting a single camera stops sequencing.

Zoom

To zoom in on a camera picture:

1. Press the ZOOM key.
 - The zoom icon is displayed on the monitor.
 - The picture is enlarged by a factor of 2.
2. Use the Up, Down, Left and Right keys to select the area of the pictures you want to see.
3. Press the ZOOM key again to return to a full picture and leave the zoom mode.
 - The zoom icon is displayed on the monitor.

LIVE, PLAYBACK, COPY/BACKUP & SEARCH

Live mode

The live mode is the normal operating mode of the unit where you watch live pictures from the cameras. From the live mode you can switch to the search mode, the playback mode or to the system menu. Access to system menu, search and playback functions may require a password. Discuss this with your administrator. To switch back to live viewing from another mode, close the activated mode by pressing the EXIT key.

Playback mode

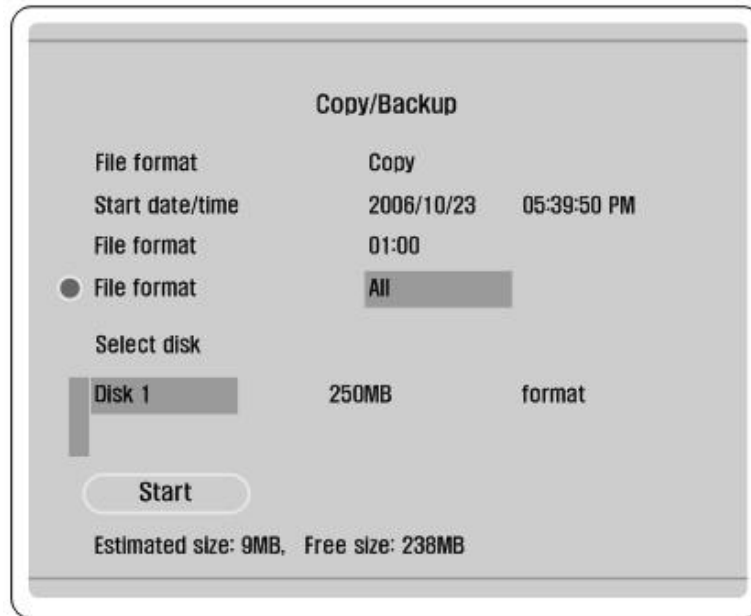
To enter the playback mode, press the play key. Use the Reverse, Pause, Fast Forward and Stop keys to change the direction and speed of the recording being played.

In case of display of Full D1 resolution recorded, it shakes when Pause during playback. (when connect video out device operated in Interlace mode). In such case, press "Pause" one more to remove video shaking. And press "Pause" again to return original mode. (Toggle type)

Copy / Backup mode

Press SELECT key during Playback mode and press MENU key, Copy/Backup menu will be shown.

Insert USB memory stick, USB status will be shown on "Select disk". In case of Backup, CD status will be shown on "Select disk".



Copy

1. Select Copy from the “File format”.
 - A. - To play the AVI format you can use a normal Windows compatible MPEG-4 player such as Media Player but you must ensure that an XVID codec is installed. (Check the Internet for this codec.)
2. Type starting time to copy from the “Start date/time”
3. Set a range to copy from the “Duration”.
4. Copy is available per each channel.
 - A. Select a channel to copy from the Playback mode before shown Copy menu.
5. Select USB memory to copy from the “Select disk”.
6. Press Start button to start Copy.
7. Press EXIT button to back to previous menu after completing Copy.

Backup

1. Select Backup from the “File format”.
2. Type starting time to backup from the “Start date/time”.
3. Set a range to backup from the “Duration”.
4. Select a camera to backup from Camera.
 - A. One or all cameras can backup simultaneously.
5. Select Disk to backup from the “Select disk”.
6. Press Start button to start Backup.
7. Press EXIT button to back to previous menu after completing Backup.

CD Backup

1. Select CD Backup from the “File format”.
2. Type starting time to backup from the “Start date/time”.
3. Set a range to backup from the “Duration”.
4. Select Disk to backup from the “Select disk”.
5. Press Start button to start Backup.
6. Press EXIT button to back to previous menu after completing Backup.
7. When CD backup, it has the limits in Encoding rate around 10 second base on Recording resolution as follow.
 - A. 4 fps at CIF
 - B. 2 fps at Half D1
 - C. 1 fps at Full D1

Search mode

Press the SEARCH key to open the search menu. Use the search menu to search for stored video recordings.

>> SEARCH CRITERIA

- Fill in a time and date from where to start the search
- Fill in the end time and date for the search
- To search for a specific type of event, select a filter option: Input Alarm, Motion, Text or All.
- Select Start Search to start the search.
- A full screen playback starts and the search results are displayed from the selected time and date.
- Press the EXIT key to exit the search mode and return to the playback mode.

>> EVENT LIST

- Use the up/down arrow keys to select an event in the list of search results.
- Press the play key for a full screen playback of selected event.
- Press the EXIT key to close the search menu and return to the playback mode at the selected time and date or at the selected event

MENU SYSTEM

You access all the parameters used to set up the unit via the menu system using the keys on the front of the unit itself. The PC-based Control Center Lite application allows you to access the menu system from a remote computer

Overview of the menu system

The main menu gives access to seven major menu groups. Each of these groups has a submenu tree where the values and functions can be selected. The seven menu groups are:

- **Quick Setup.** The Quick Setup is the easiest way to set-up the unit, activating all cameras to record with the same settings and conditions.
- **Camera.** The Camera menu is used to program the individual cameras.
- **Recording.** The Recording menu is used to configure dynamic recording conditions such as image quality and recording rate.
- **Event Source.** The Event Setup menu is to configure the alarm inputs and motion detection.
- **System.** The System Settings menu is used to configure various system parameters.
- **Profiles.** The Profiles menu is for setting the time frame for the four available profiles.
- **Utility.** This menu is used for the storage system including internal hard disk settings

Accessing the menu from the unit

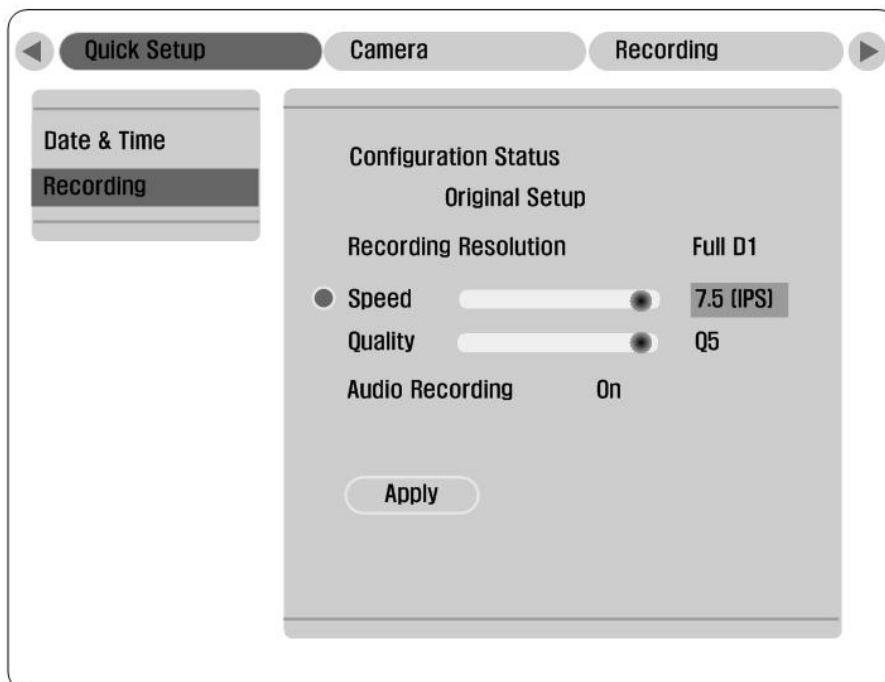
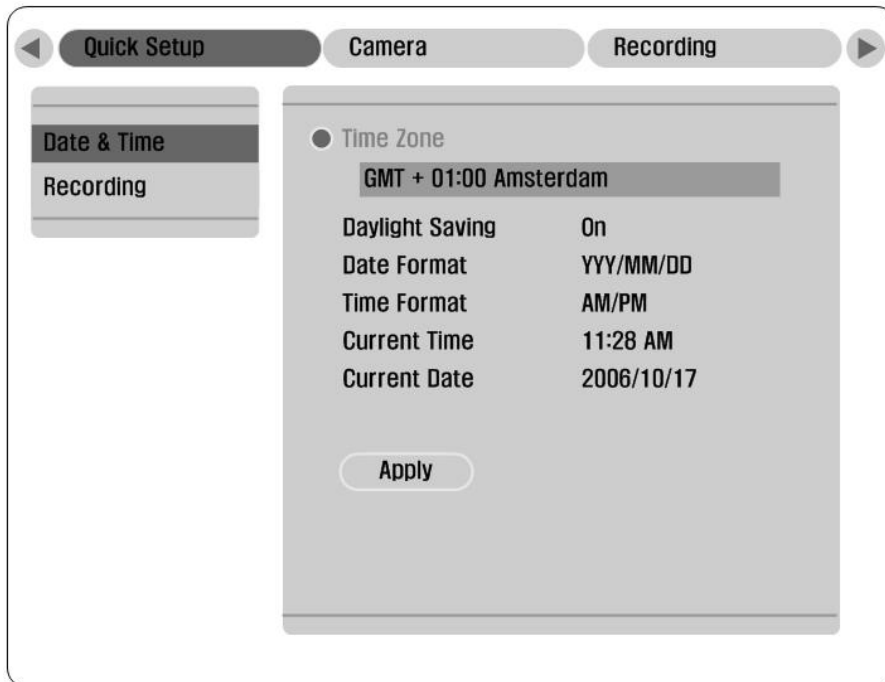
To open the menu (in live mode only):

1. Press the MENU key.
2. The main menu appears on the monitor.

If the administrator password is enabled, the C-MAX 4 CHANNEL DVR asks for a password when the main menu is activated.

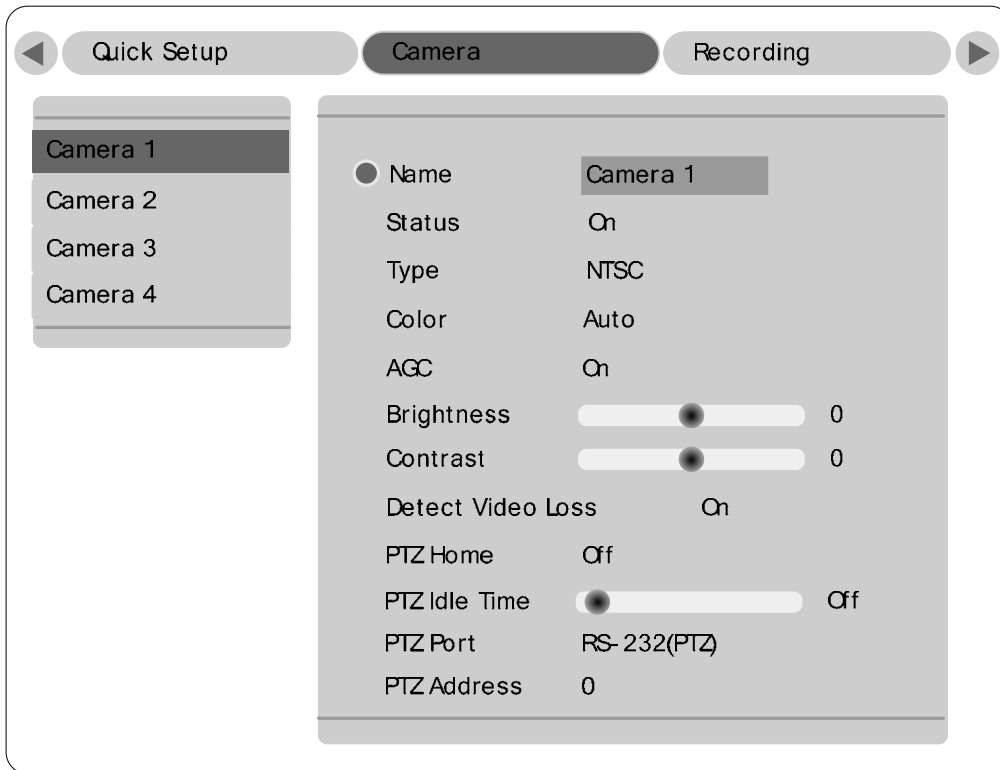
Quick Setup

The quick setup menu provides easy setup of recording and time. For recording, all four cameras are configured to record with the same settings and conditions. If the current time or date is changed and applied, the time of the previously recorded images is shifted so that no images are lost.



CAMERA

Use the Camera Setup menu to access the submenus for setting the camera names, for locking cameras and for controlling cameras.



>> NAME

- To select a character, press up and down scroll keys. Press the right scroll key to move to the next position.

>> STATUS

- Each camera can be toggled **On** (default) and **Off**.

>> TYPE

- **PAL** or **NTSC**. The TV format is auto-detected. Mixing of PAL and NTSC cameras is not supported.

>> COLOR

- Color mode of each camera is selectable **B/W**, **Color** or **Auto** (default). If **Auto** is selected, the C-MAX 4 CHANNEL DVR itself determines if black and white or color cameras are connected.

>> AGC, BRIGHTNESS AND CONTRAST

- AGC (automatic gain control) is toggled **On** or **Off**.
- Brightness and Contrast is controllable in 19 levels (from -9 to +9) with a slider. Default is **0**.

>> DETECT VIDEOLOSS

- Video loss detection can be toggled **On** (default) and **Off** for each camera

>> PTZ Home

- If you do not operate while PTZ Idle Time, It will move to preset #1 position

>> PTZ Idle Time

- Set PTZ Operating Time, If you set 20 Sec after 20sec it will go to preset #1 position.

>> PTZ Port

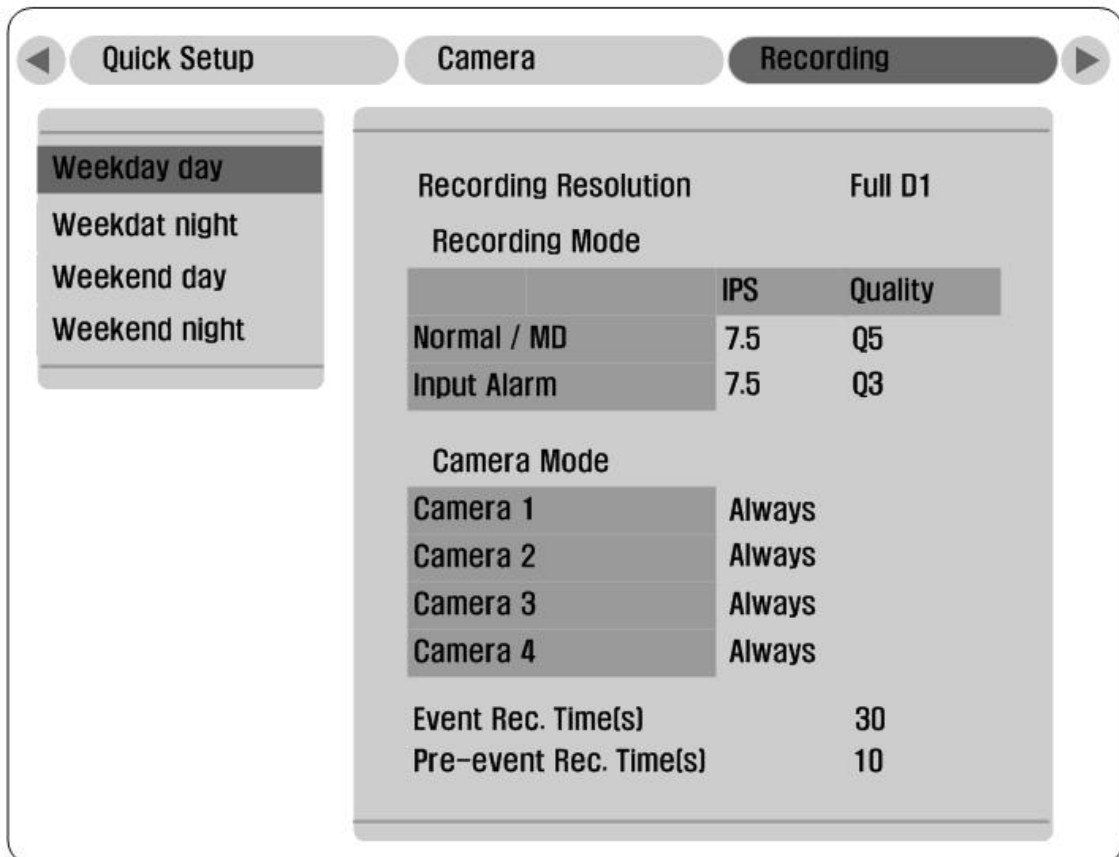
- Set the value.

>> PTZ Address

- Press the [ENTER] button to open the dialogue box.

RECORDING

The overall schedule consists of 4 periods: **Weekday Day**, **Weekday Night**, **Weekend Day** and **Weekend Night**. The start and end time of each period is set in the Profiles menu. Recording conditions can be configured for each of the four periods



>>> RECORDING RESOLUTION

- Set recording resolution of all cameras [CIF /Half D1/ Full D1].
- [Limitation] 'Recording Resolution.

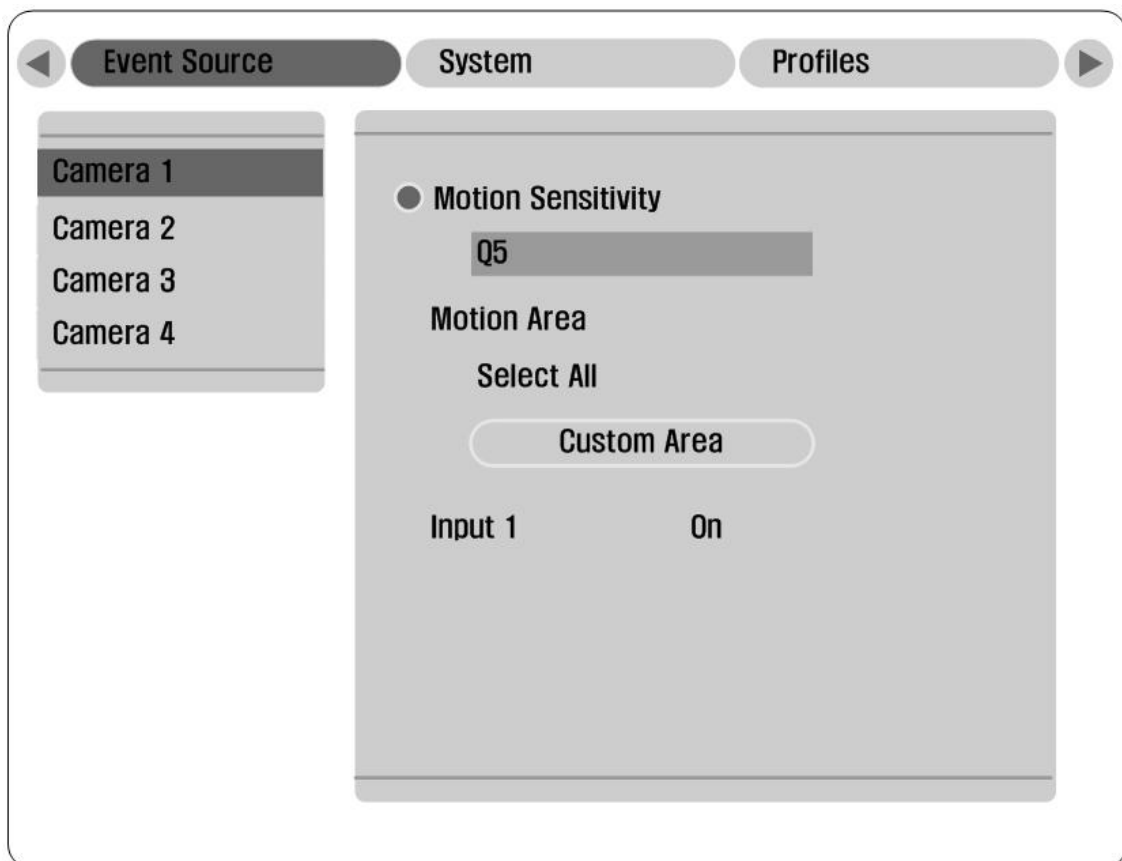
Half D1	NTSC	Max - IPS	15 _(frame/sec)
		Max - Pre-event Rec	15 _(sec)
	PAL	Max - IPS	12.5 _(frame/sec)
		Max - Pre-event Rec	15 _(sec)
Full D1	NTSC	Max - IPS	7.5 _(frame/sec)
		Max - Pre-event Rec	10 _(sec)
	PAL	Max - IPS	6 _(frame/sec)
		Max - Pre-event Rec	10 _(sec)

>> RECORDING

- Set the normal recording rate and quality to be used for all cameras.
- [Limitation] Make reference to the 'Recording Resolution.
 - Set the recording rate and quality that are used when an input alarm is triggered. All cameras then record at these values when an input alarm is triggered.
- For each camera separately, set the conditions for recording:
 - **Always** - camera is always recorded at the set recording rate and quality.
 - **Motion only** - camera is recorded at the normal rate and quality only when motion is detected (no images are recorded when there is no motion).
 - **Motion + auto snapshot** - camera is recorded at the normal rate and quality when motion is detected. The rest of the time a snapshot of the camera picture is recorded (I-frame images only).
 - **Event Recording time** can be configured to a maximum of 120 seconds or to follow the event duration.
 - **Pre-event recording time** can be configured to a maximum of 30 seconds. Pre-event recording takes place:
- [Limitation] Make reference to the 'Recording Resolution.
 - on an alarm input if the normal recording rate is 0 IPS,
 - on a motion event (if a motion mode is selected).

Event Source

- The sensitivity of the motion detection has six levels, **Very Low, Q1, Q2, Q3, Q4** and **Q5** or set to **Off** for no detection.
- To setup the motion detect area for the whole screen, select **Select All**.
- To clear the existing motion detect area setting, select **Clear All**.
- To edit the motion area, select **Custom Area**. A 16x12 grid is displayed on the monitor. With the scroll keys, move around the grid. Press the play key to select a specific area. A blue square indicates a selected area. To unselect a selected area, move on to it and press the play key. When area selection is completed, press EXIT to close the area selection mode. When motion is detected in a selected square, it turns red.
- Four different alarm inputs (**Input 1, Input 2, Input 3, Input 4**) can be connected. Each alarm input can be configured **On** (default) or **Off**. An activated input alarm starts alarm recording on all cameras.



SYSTEM

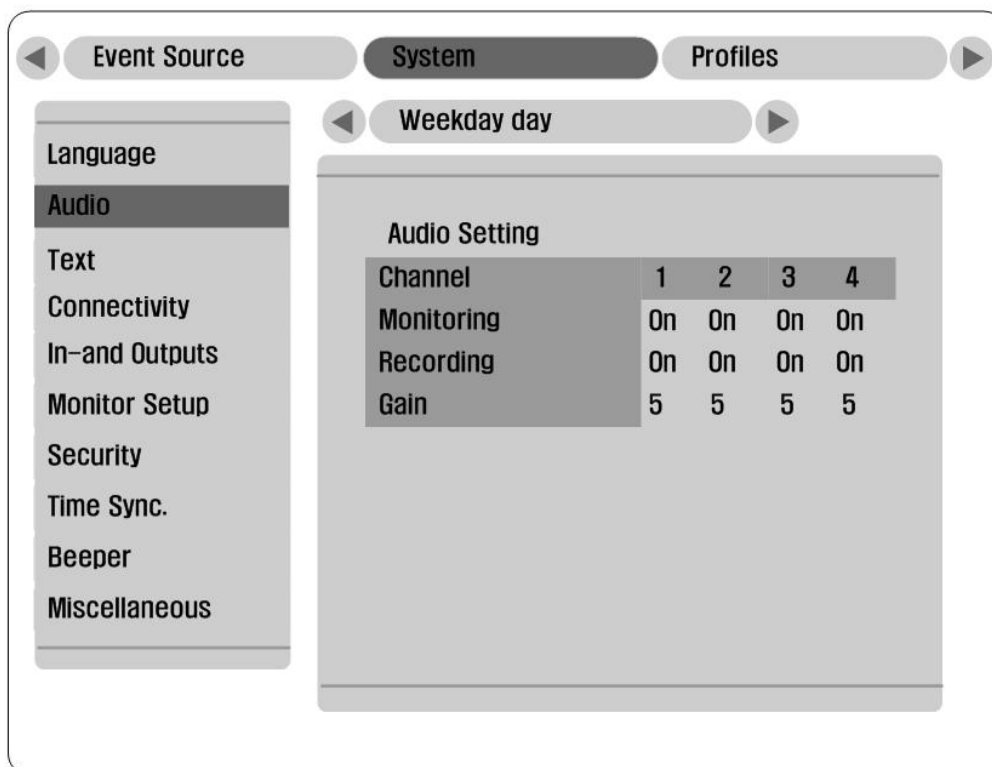
Use the System Settings menu to get access to those items that are used to configure the system

>> LANGUAGE

- A language is selectable from the list with the up/ down scroll keys. Press the play key to confirm.

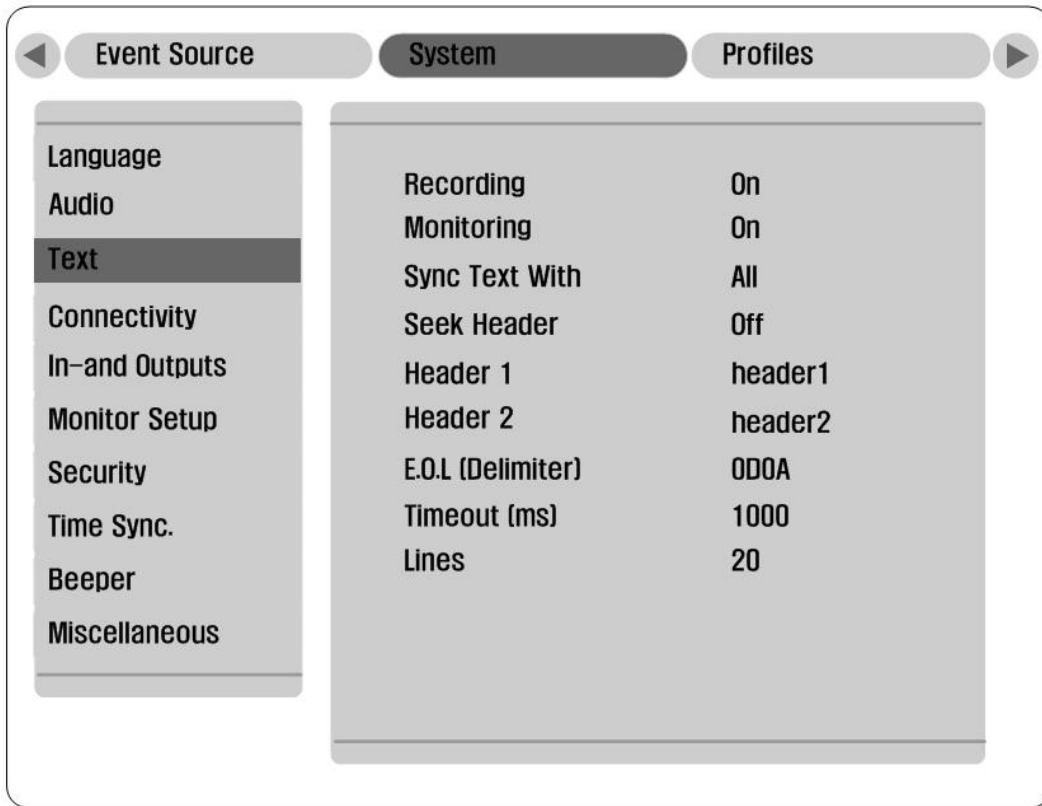
>> AUDIO

- An audio input can be set to record with its corresponding video input. Audio 1 is mapped to video 1, audio 2 to video 2, audio 3 to video 3 and audio 4 to video 4.
- For a Quad screen display in live mode, the 4 audio channels are mixed. For a Quad screen display in playback mode, no audio is played back. Audio is only played back in forward, real-time and full screen playback.
- Audio monitoring, recording and gain can be configured per profile for each channel in the table.



>> TEXT

- The C-MAX 4 CHANNEL DVR can record and display ASCII data on the monitor. The external device can be a text input device.



>>> RECORDING

- Set On to record text data on the hard disk of the C-MAX 4 CHANNEL DVR. Text is recorded separately from images, but is synchronized based on time information.

>>> MONITORING

- Set On to display live text data on a monitor. Text is over-lay on the live image.

>>> SYNC TEXT WITH

- Select All to display (and record) text data on all channels (in a quad screen display, text appears in the upper-left channel.) Text can also be displayed (and recorded) with a specific channel only.

>>> SEEK HEADER

- If the text device sends a header, set to On.
- If a header is sent, select a single or a double line header.

>>> DELIMITER

- If the text device sends an end-of-line delimiter, enter its value.

>>> TIMEOUT

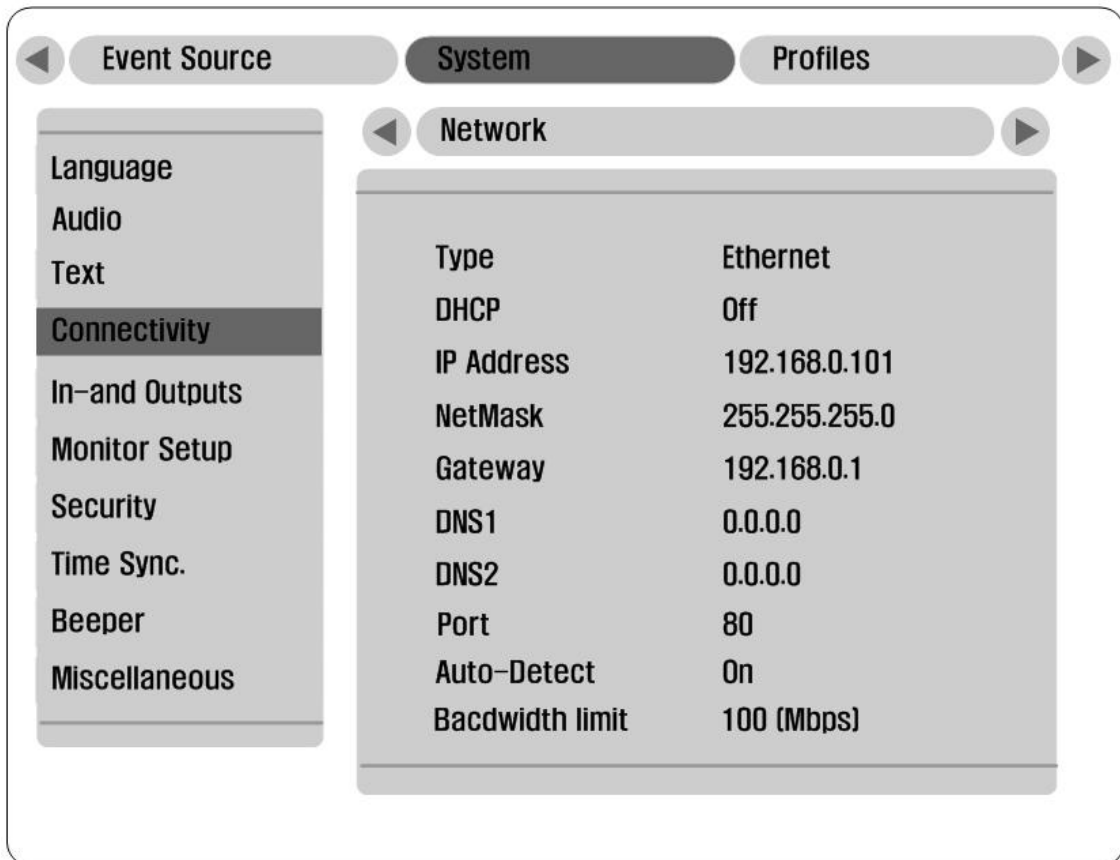
- If the text device does not send a delimiter, the text is recorded as a single block. Enter the time (in milliseconds) that must expire after the last received character to separate text blocks.

>>> LINES

- If the text device does not send a delimiter or use a timeout, enter the number of lines to be used for a single block of text.

>> CONNECTIVITY

The Connectivity menu gives access to settings that control the behavior of the unit with respect to all external devices or a network



>>> NETWORK

- Select the type of connection; Ethernet or xDSL.
- Set DHCP to On to have IP address, subnet mask and default gateway assigned automatically by the network DHCP server.
- Fill in the IP, subnet mask and default gateway addresses when DHCP is set to Off.
- Fill in the DNS in order to use an e-mail address. At least one DNS should be specified.
- Set Auto-Detect to On to allow the Remote viewer software to automatically detect the C-MAX 4 CHANNEL DVR in a network.
- Set the Bandwidth limit throttle to restrict the network bandwidth used.

>>> XDSL

- Specify the Username and Password for an xDSL connection if required
- When connected, the status shows Connected.

>>> PORT

- The C-MAX 4 CHANNEL DVR provides flexible network communication port configuration. If the C-MAX 4 CHANNEL DVR is on a special network, the network port can be changed to the appropriate number. For network communication port information, ask your network administrator.
- The default is 80.

>>> COM PORT

- Configure the single RS-232 serial port for use with either a text device.
- Select Device with the up/down keys.
- Select appropriate values for serial communication for Baud rate, Parity, Stop bits and Data bits.

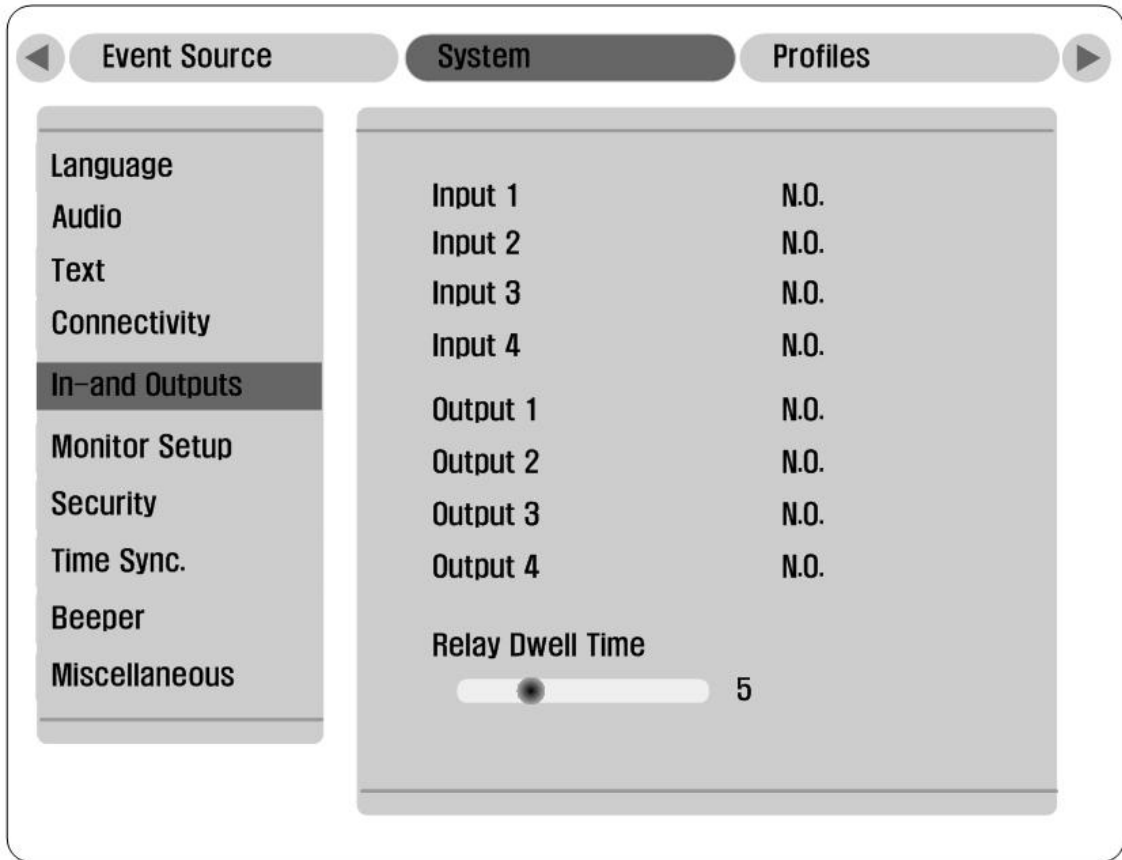
>>> E-MAIL SETUP

The C-MAX 4 CHANNEL DVR can send an e-mail on a specified event.

- If Status is set to On, an e-mail is sent to the specified address on an input alarm, video loss or system failure.
- Specify a recipient address and an sender address.

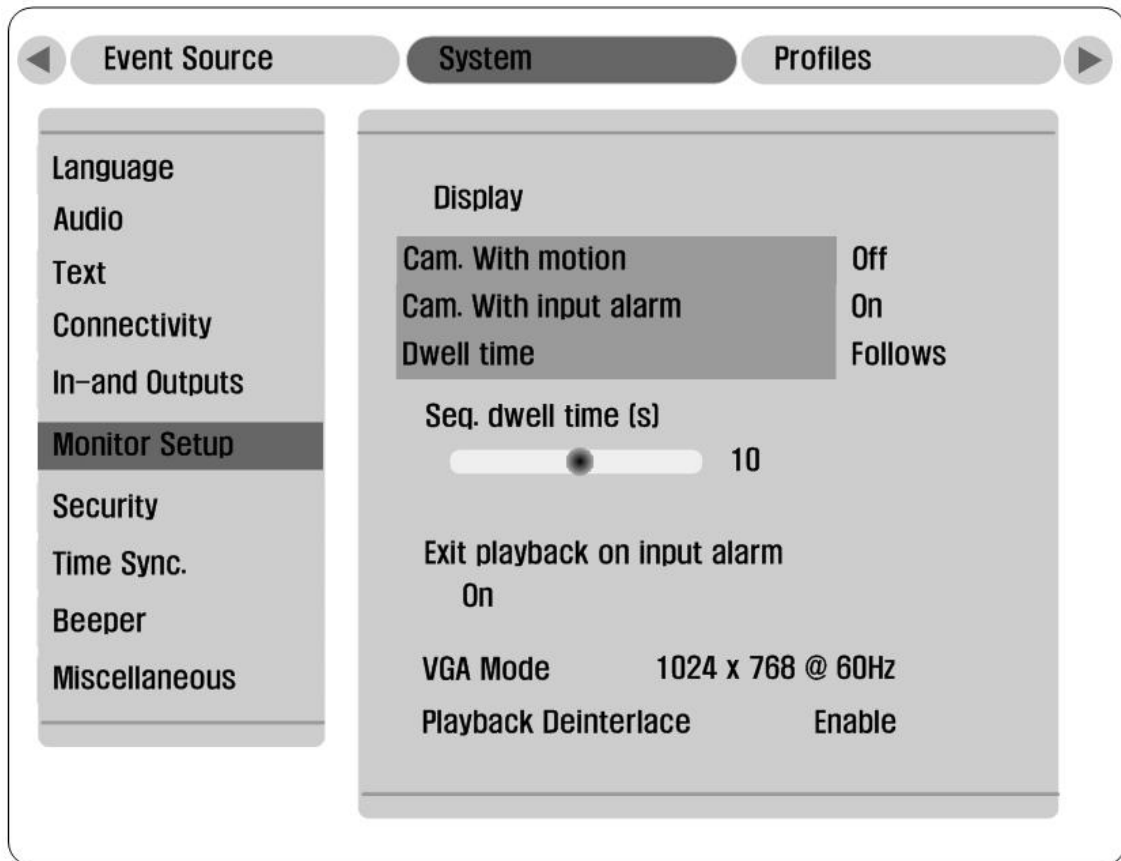
>> INPUTS AND OUTPUTS

Inputs and outputs can be configured in this menu as Normally Closed (NC) or Normally Open (NO).



- Select either NC or NO with the up/down scroll keys. Press the play key to confirm.
- Outputs have the following fixed purpose:
- The selection of Relay Dwell time can be Off, Follows, or 1 ~ 60 seconds. When Follows is selected, the output relay is active until the event causing it ceases to be active

>> MONITOR SETUP



>>> DISPLAY CAMERA WITH MOTION

- Select if the C-MAX 4 CHANNEL DVR switches automatically to a full screen image of the camera when motion is detected on that camera.
- With multiple motion detections shortly after each other, the last camera where motion was detected is used for display.

>>> DISPLAY CAMERA WITH INPUT ALARM

- Select if the C-MAX 4 CHANNEL DVR switches automatically to a full screen image of the camera when an input alarm becomes active for that camera.
- In case of multiple input alarms shortly after each other, the last input alarm is used for display.

>>> DISPLAY DWELL TIME

- Specify the dwell time for displaying the camera with an input alarm or motion. The interval can be configured with a slider from 5 to 10 seconds.
- If Follows is selected, the camera of the channel in alarm or with motion is shown for as long as the alarm is present or motion is detected.

>>> SEQUENCE DWELL TIME

- Specify the sequence dwell time that is used when the SEQ key is pressed.
- The interval can be configured with a slider from Off (disable) to 60 seconds (default 10 seconds).

>>> EXIT PLAYBACK ON EVENT

- When set to On, the C-MAX 4 CHANNEL DVR exits playback to display a live event.

>>> VGA MODE

- VGA mode can be changed to 4 different modes. 800 x 600 @ 56 / 800 x 75 @ 75 / 1024 x 768 @ 60 / 1280 x 1024 @ 60

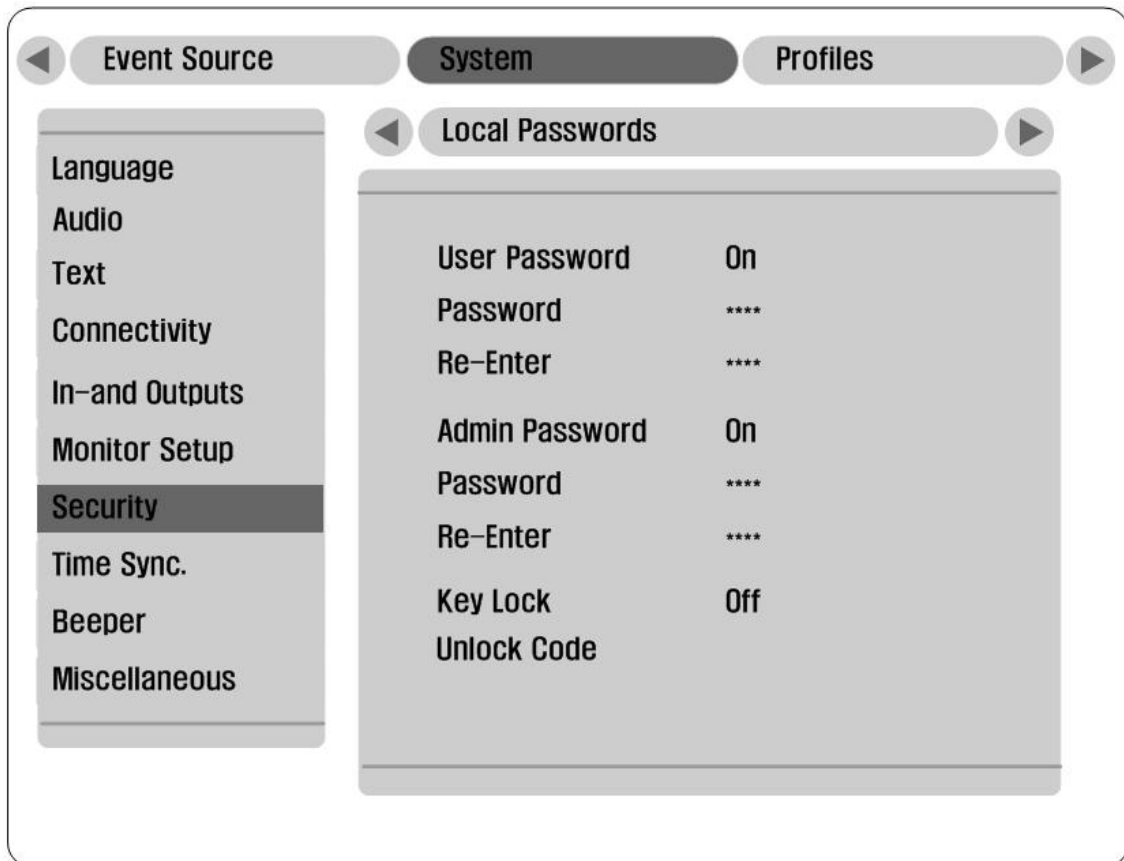
>>> Playback Deinterlace

- Deinterlace enable / disable
 - The “Deinterlace Mode” only runs when the recording resolution is in Full D1.

In case of enable it, the Full D1 image with Pause condition the picture will have less tremor.

In case of keep press the Pause button continuously from Pause condition, the “Deinterlace Mode” can be On/Off in Toggle condition.

>> SECURITY



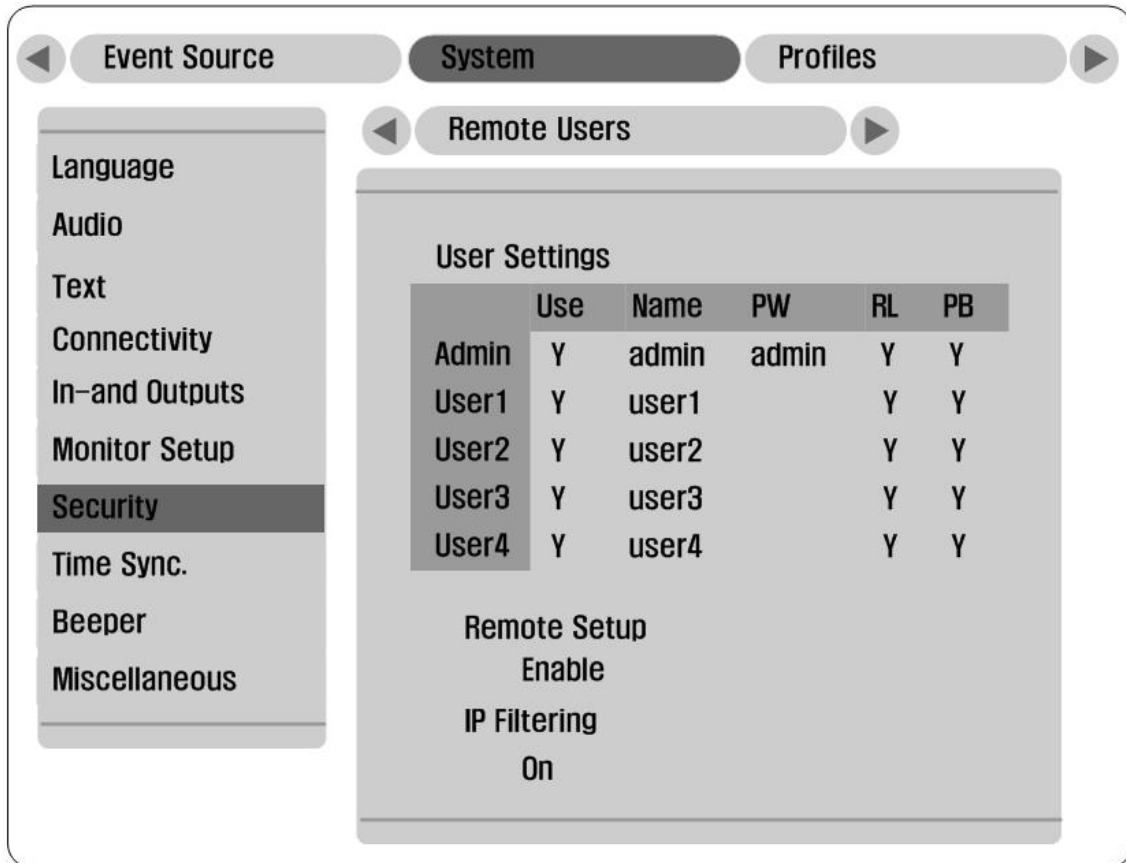
>>> LOCAL PASSWORDS

- Set a local user password to allow a user limited access rights only for monitoring, monitoring control (Auto Seq., digital zoom), copy and playback control. Configuration is not allowed.
- A password consists of 1 to 4 digits (0-9), entered by using the up and down keys.
- To confirm the input, the user has to enter the same password again.
- The configured password is only valid for local users. The password is shown in the menu using * characters.
- If a password is set, a user without the correct password can only view live video and switch between full screen or quad views.
- Set a local administrator password. An administrator is allowed to enter all menus and configure all settings.
- A password consists of 1 to 4 digits (0-9), entered by using the up and down keys.
- To confirm the input, the administrator has to enter the same password again.
- The configured password is only valid for the local administrator. The

password is shown in the menu using characters.

- To lock the keys on the front of the C-MAX 4 CHANNEL DVR, set key lock to On and enter a four-digit password. (To unlock all the keys on the front panel, use Keys 1 to 4 to enter the password.)

>>> REMOTE USERS



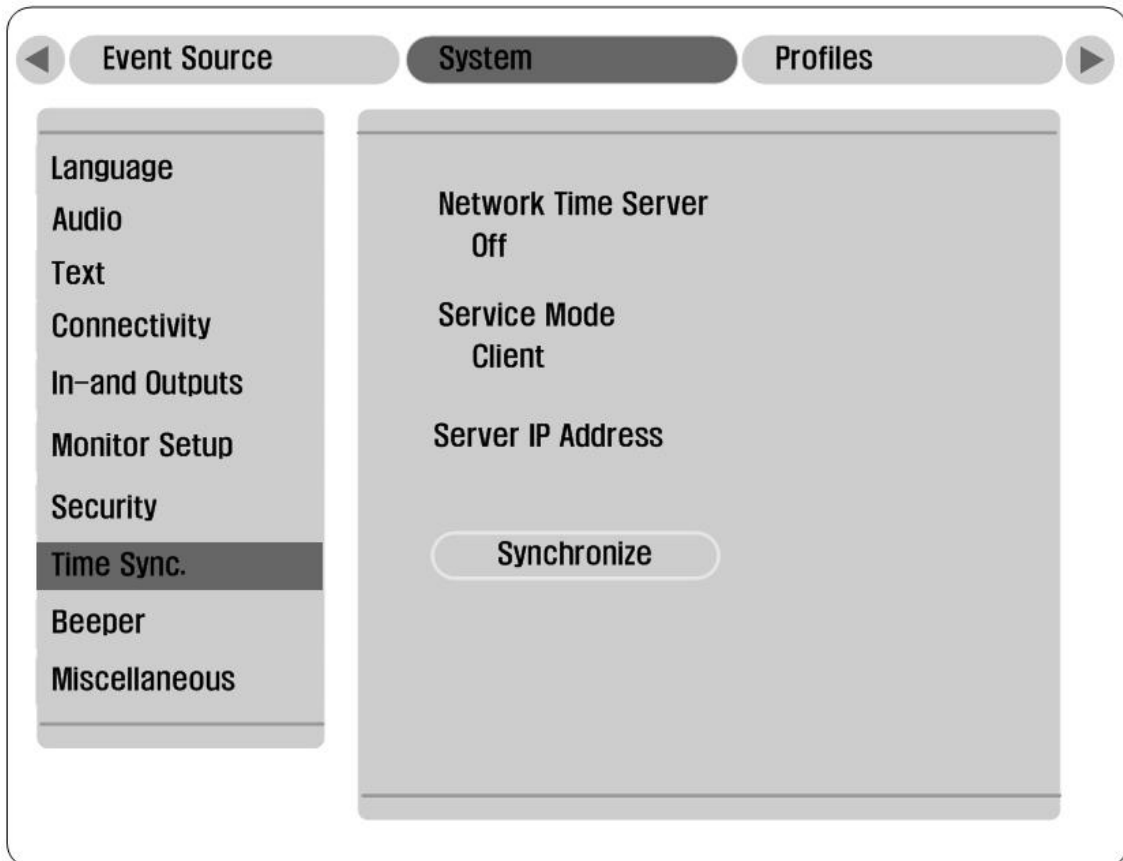
- Login names and passwords for the remote users(4) and administrator can be specified here.
- The administrator login name is always "admin" and cannot be changed.
- The remote user login name can be up to 16 characters long. The remote user password can be up to 12 characters long.
- Access to playback (PB) and relay control (RL) is set for each remote user by placing a Y (allowed) or a N (not allowed).
- Even if remote relay is enabled, relays 1 and 2 cannot be controlled via the remote software as they are already used for input alarms, motion and system failures
- Set Remote Setup to Enable (default) or Disable. When set to Disable, configuration is possible only via the front panel. PC users cannot configure the C-MAX 4 CHANNEL DVR with the remote configuration software. When set to Enable, both local and remote users can configure the C-MAX 4

CHANNEL DVR.

- Set IP Filtering to On to restrict access to the IP address list set up by the Configuration Tool application

>> TIME SYNC

This setting is used for time synchronization over the network. C-MAX 4 CHANNEL DVR can be synchronized by setting them up as a client for an SNTP server. The C-MAX 4 CHANNEL DVR can also be set up to act as a local time server, when it is configured in SNTP server mode



>>> NETWORK TIME SERVER

- Select On to allow the C-MAX 4 CHANNEL DVR to synchronize time either as a client or as a master.

>>> SERVICE MODE

- Select Client to allow the C-MAX 4 CHANNEL DVR time setting to be synchronized by a network time server.
- Select Master to allow the C-MAX 4 CHANNEL DVR to act as a network time server and send its time to other C-MAX 4 CHANNEL DVR to synchronize them.

>>> SERVER IP ADDRESS

- Enter the IP address of the network time server.
- This network time server can be either a different C-MAX 4 CHANNEL DVR, a computer or a server in the network. The time is checked and synchronized with the network time server once every hour.

>>> SYNCHRONIZE

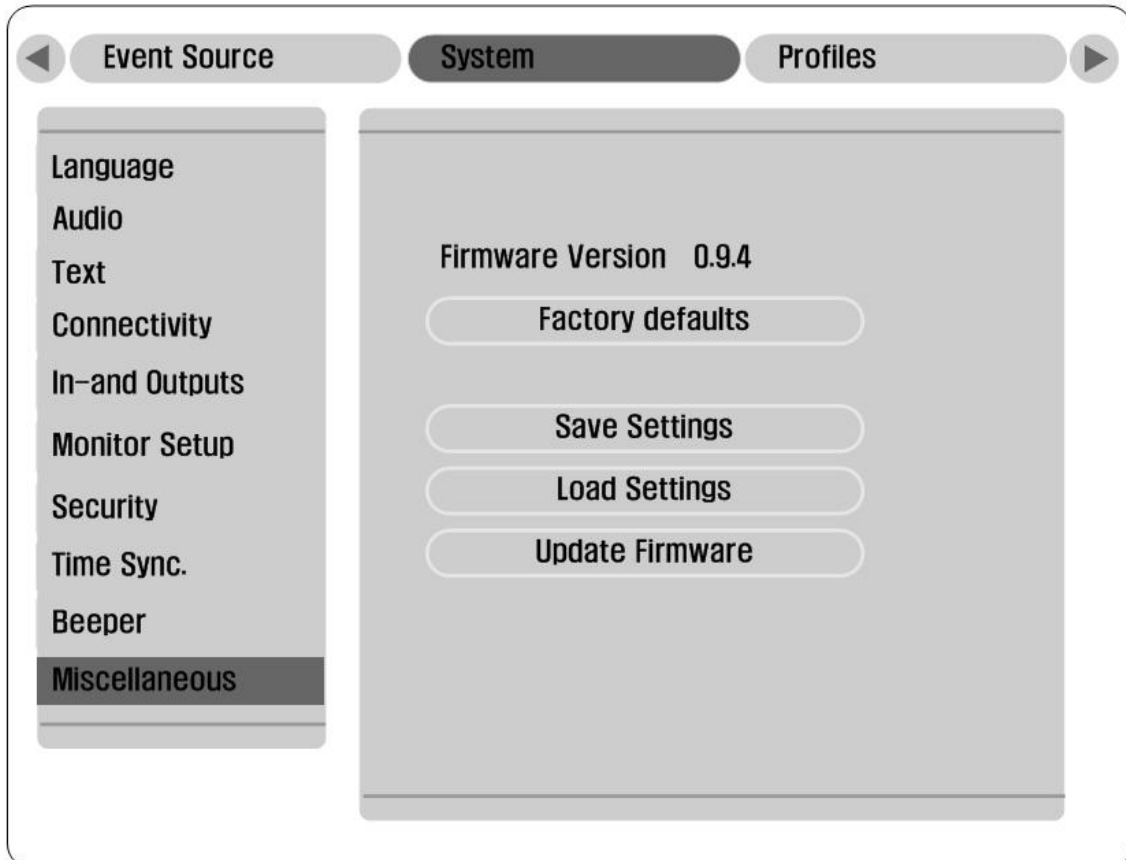
- When this button is pressed, the time is synchronized with the network time server and other C-MAX 4 CHANNEL DVR immediately

>> BEEPER

- Select whether the beeper should sound when video loss is detected or an input alarm is activated. Select On (default) or Off. When an input alarm or video loss occurs, it sounds for as long as the specified relay dwell time.

>> MISCELLANEOUS

The C-MAX 4 CHANNEL DVR firmware version is shown here. Select Factory defaults to set all parameters, except IP address, subnet mask, default gateway and disk setup, to their default values.



>>> SAVE SETTINGS

- Select Save Settings to save the current settings to a USB memory stick.

>>> LOAD SETTINGS

- Select Load Settings to load previously saved settings from a USB memory stick into the C-MAX 4 CHANNEL DVR.

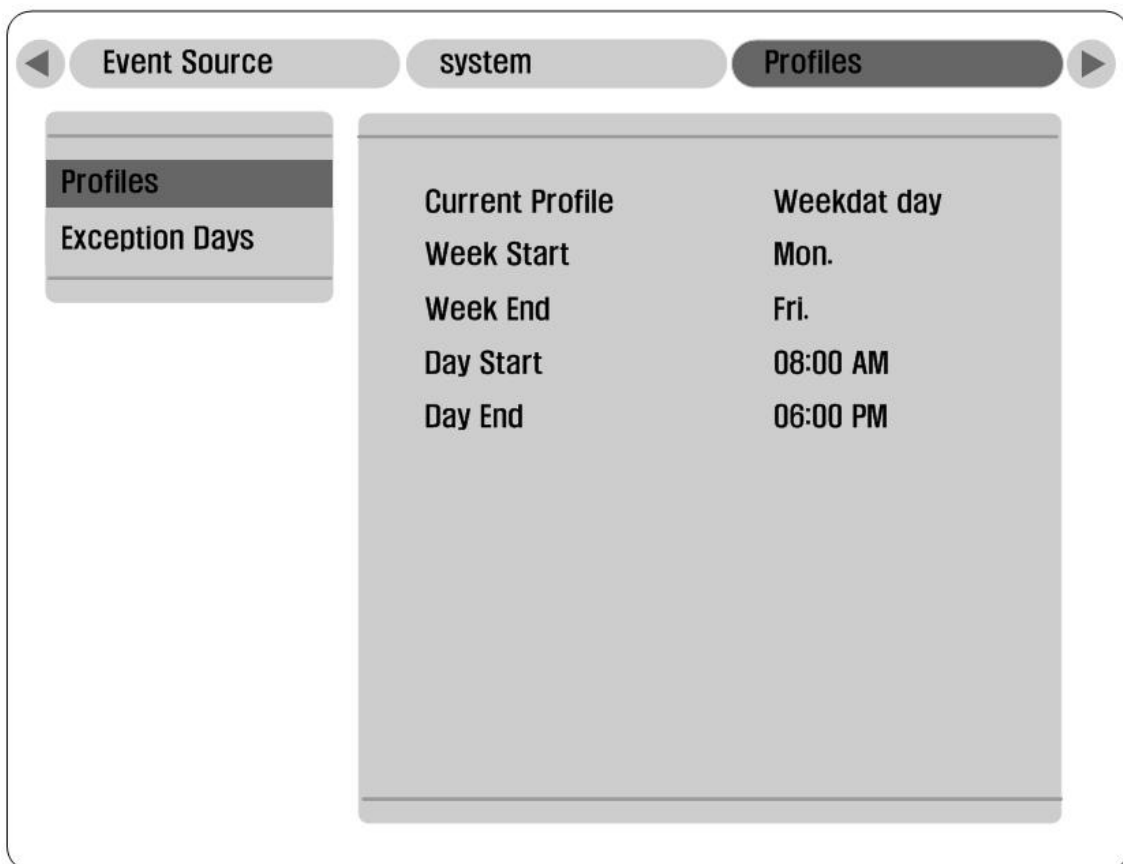
>>> UPDATE FIRMWARE

- For authorized personnel only! Select Update Firmware to load new firmware from a USB memory stick into the C-MAX 4 CHANNEL DVR. The new firmware overwrites the current firmware

Profiles

The recording schedule is divided by weekday day, weekday night, weekend day and weekend night. Users can configure start and end time of each schedule.

>> PROFILES



>>> CURRENT PROFILE

- Shows the profile (Weekday - Day, Weekday - Night, Weekend - Day, Weekend - Night) that is currently active.

>>> WEEK START AND WEEK END

- Any day from Monday to Sunday can be used as a start date or end date of a week.

>>> DAY START AND DAY END

- Any time from 00:00 to 23:59 can be used as a start time or end time of a day.
- If the begin time is later than the end time, then the profile is active from the end time until the begin time on the next day.

>> EXCEPTION DAYS

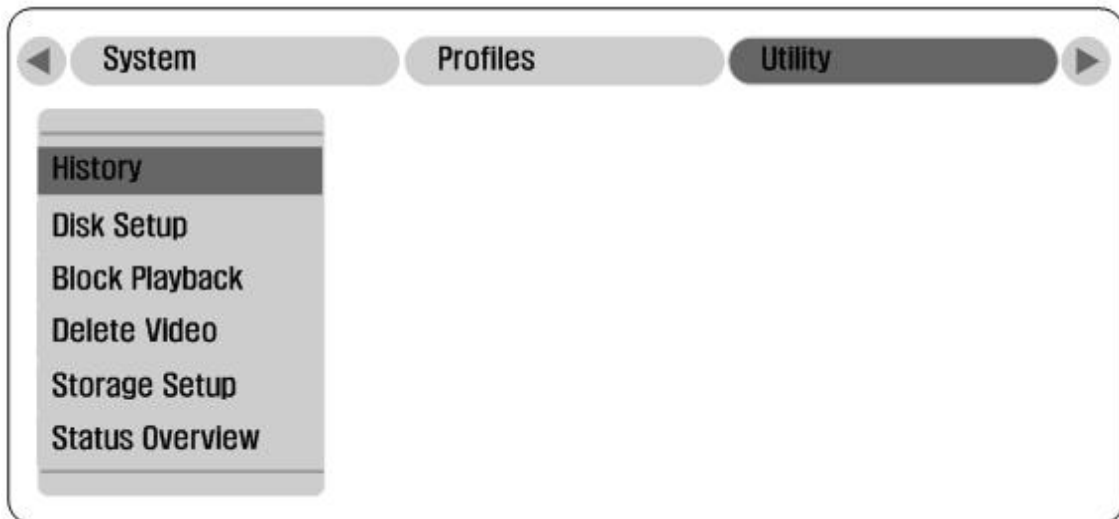
	Start Date & Time	Duration	Profile
1	01/01/12:00 AM	00:00	WkD
2	01/01/12:00 AM	00:00	WkD
3	01/01/12:00 AM	00:00	WkD
4	01/01/12:00 AM	00:00	WkD
5	01/01/12:00 AM	00:00	WkD
6	01/01/12:00 AM	00:00	WkD
7	01/01/12:00 AM	00:00	WkD
8	01/01/12:00 AM	00:00	WkD
9	01/01/12:00 AM	00:00	WkD
+10	01/01/12:00 AM	00:00	WkD

Exception days can be set, apart from the four standard periods, e.g. Christmas. Start time and date, and duration of the Exception days can be configured.

- Up to 30 exception days can be set that override the calendar list.
- Use the up/down keys to move to an exception entry and press the select key to start editing

UTILITY

The Utility menu gives access to information on the internal hard disk(s). The status of the recorded video and associated data is also accessed via this menu.



>> HISTORY

- All system events are listed on a History log which cannot be deleted or changed.
- Select a time frame to search by entering the start and end time.
- To search for a specific type of event, select a filter option: All, Input Alarm, Motion, Text, Error or Status.
- Select Start to start the search.
- The history log includes remote login/logout, record start/stop, time/date change, hard disk format, Video loss, Fan fail, Disk full, Disk fail, Power On/Off.

DISK SETUP

>>> RECORDING MODE

- When set to Continuous (default), the C-MAX 4 CHANNEL DVR overwrites older images when the hard disk is full.
- When set to Linear, the C-MAX 4 CHANNEL DVR stops recording when the hard disk is full and the administrator has to delete video manually.

>>> DISK FULL ALARM WARNING

- A warning message is generated when the used disk space exceeds the disk full warning percentage set.
- Select from 1 to 100% (default 95%).

>> BLOCK PLAYBACK

- Block playback of video that is older than a certain time.
- Select from "No block" (default), "24 hours", "2 days", "3 days", "4 days", "5 days", "6 days", "7 days", "14 days", "21 days", "28 days" or "31 days".

>> DELETE VIDEO

- Data can be deleted from a designated time frame. This can be set from the beginning of the recorded data (fixed) to a user defined time.
- Select the date and time up to which the recorded data is to be deleted and then select Delete.

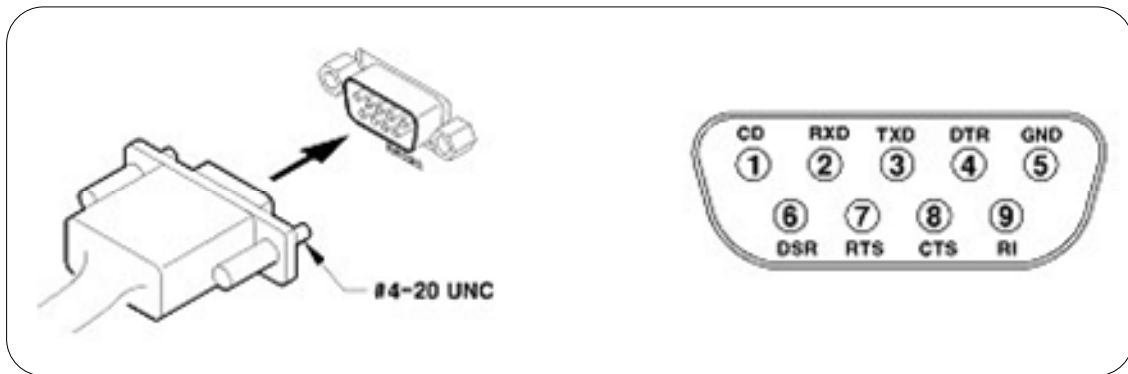
>> STORAGE SETUP

- The storage setup menu provides a way to enable or disable internal hard disks and to view the status of connected hard disks.
- Disk shows the internal disk that has been detected.
- Size indicates the disk size of each disk in GB.
- Set Enabled to either Yes and No to enable or disable a disk. If a disk is disabled, a message warns you that disabling a disk causes data loss. A new hard disk can be formatted if Enabled is set to Yes.
- Status indicates the status of the disk. OK indicates that the disk is operating correctly and can be used for recording; Fail indicates a problem

>> STATUS OVERVIEW

- The status overview menu provides information on the status of the connected hard disks.
- Earliest/Latest Recording indicates the times of the earliest and latest recordings on the disk.
- Disk capacity indicates the total hard disk size in GB.
- Used space indicates the hard disk space that has been used by recordings.

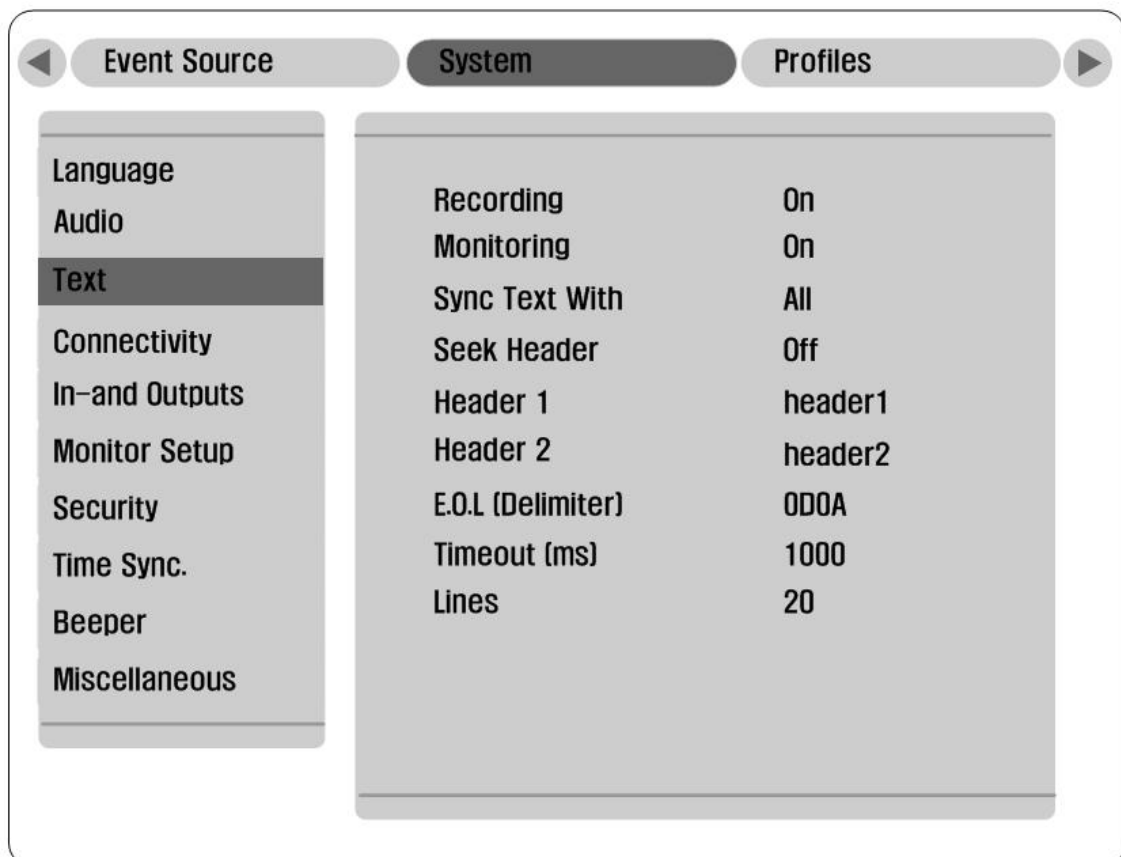
Connecting external device with serial port



Connecting text input device

In addition to images, the C-MAX 4 CHANNEL DVR can record text data received from POS/ATM through the RS232 serial port.

Connect RS232 to 9pin D-sub of C-MAX 4 CHANNEL DVR, and configure the “Text” sub-menu under the “System” tab.



Set “Serial Setup” under the “System / Text” menu tab to “RS232” and “Device” to “Text.” Please be careful to set [Baud Rate].

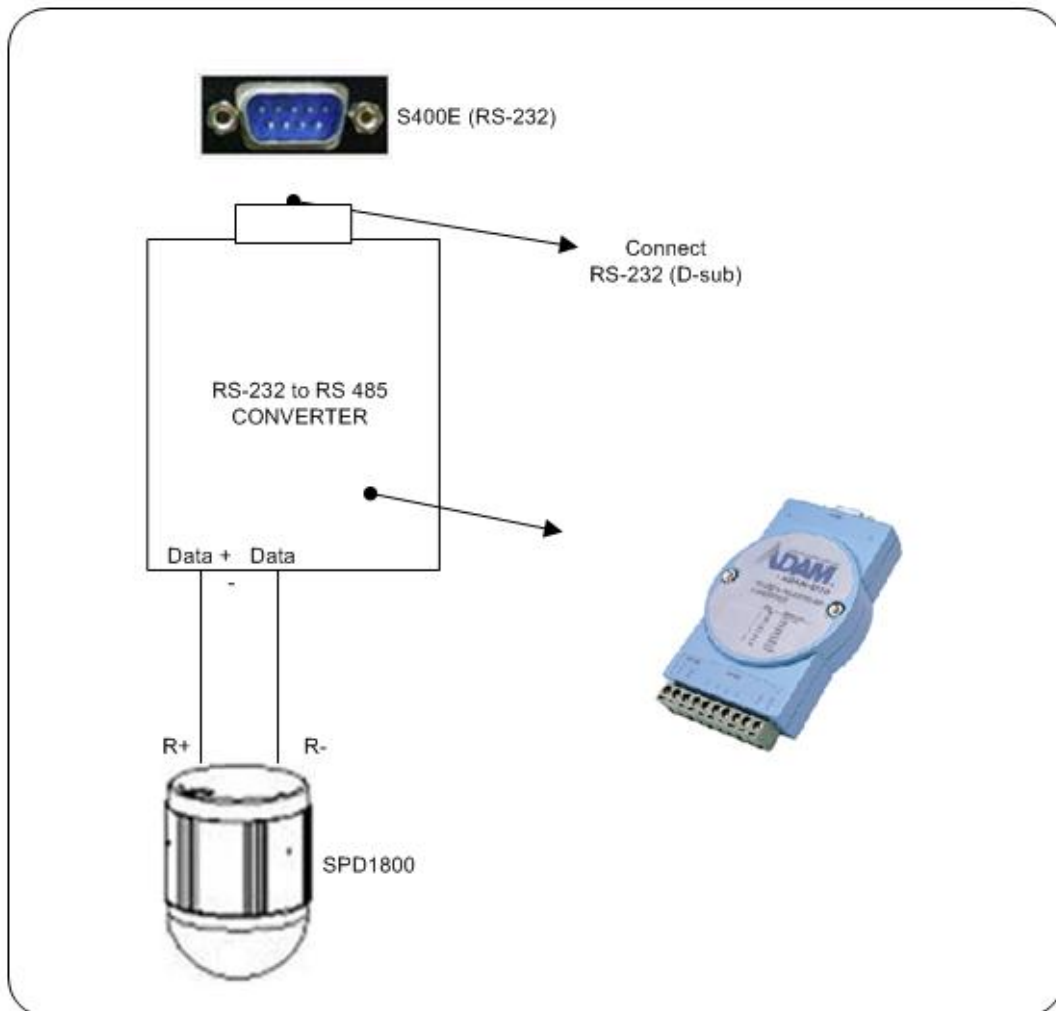
NOTE: Before installing any external device, consult with the local distributor. Some external devices may not be compatible with the C-MAX 4 CHANNEL DVR.

Connecting PAN/TILT/ZOOM

The C-MAX 4 CHANNEL DVR has most major PTZ protocols already pre-programmed. Makes and models not supported can still be controlled using the Transparent Protocol. For a list of supported protocols, refer to the list on the OSD Configuration menu.

Following explains how to connect C-MAX 4 CHANNEL DVR and SPD1800.

Connecting between C-MAX 4 CHANNEL DVR and SPD1800

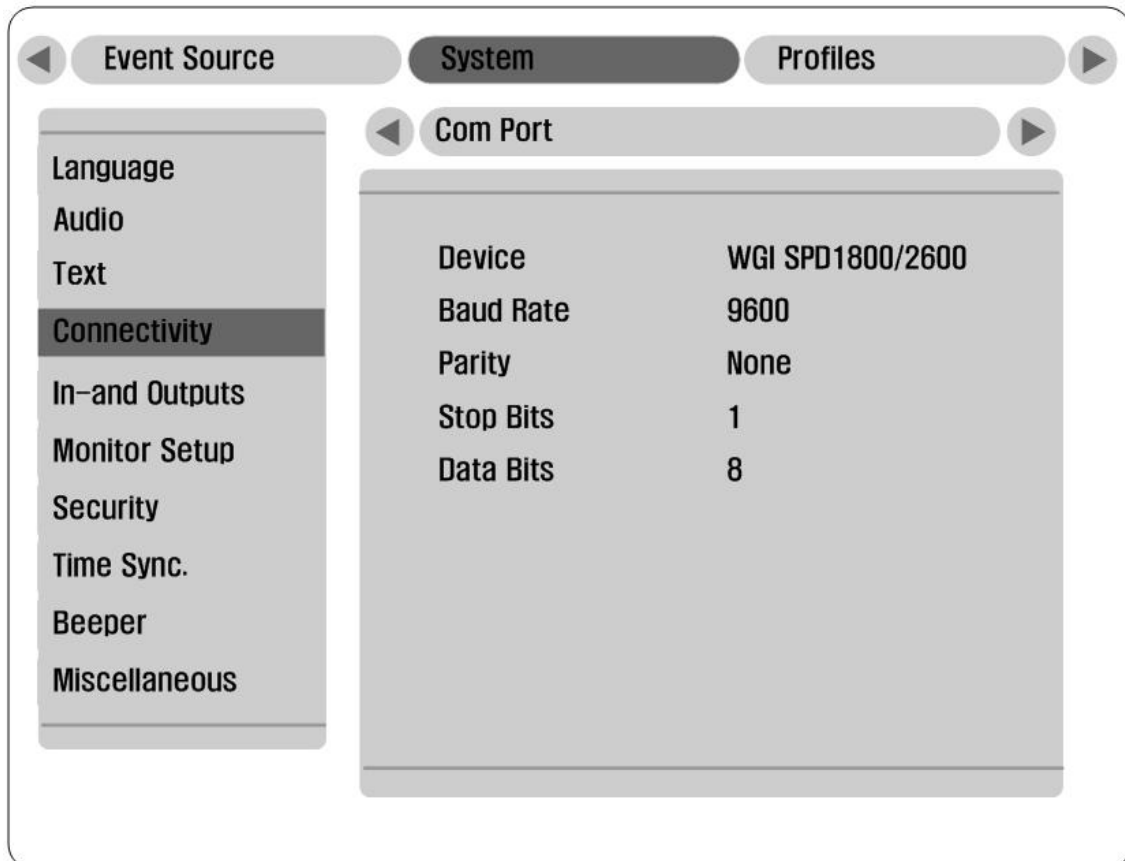


- Connect COM Port RS-232 of 'RS-232 to RS-485 Converter' to COM Port RS-232 of C-MAX 4 CHANNEL DVR.
- RS-232 to RS-485 Converter: ADAM-4520 (Data Acquisition Modules).

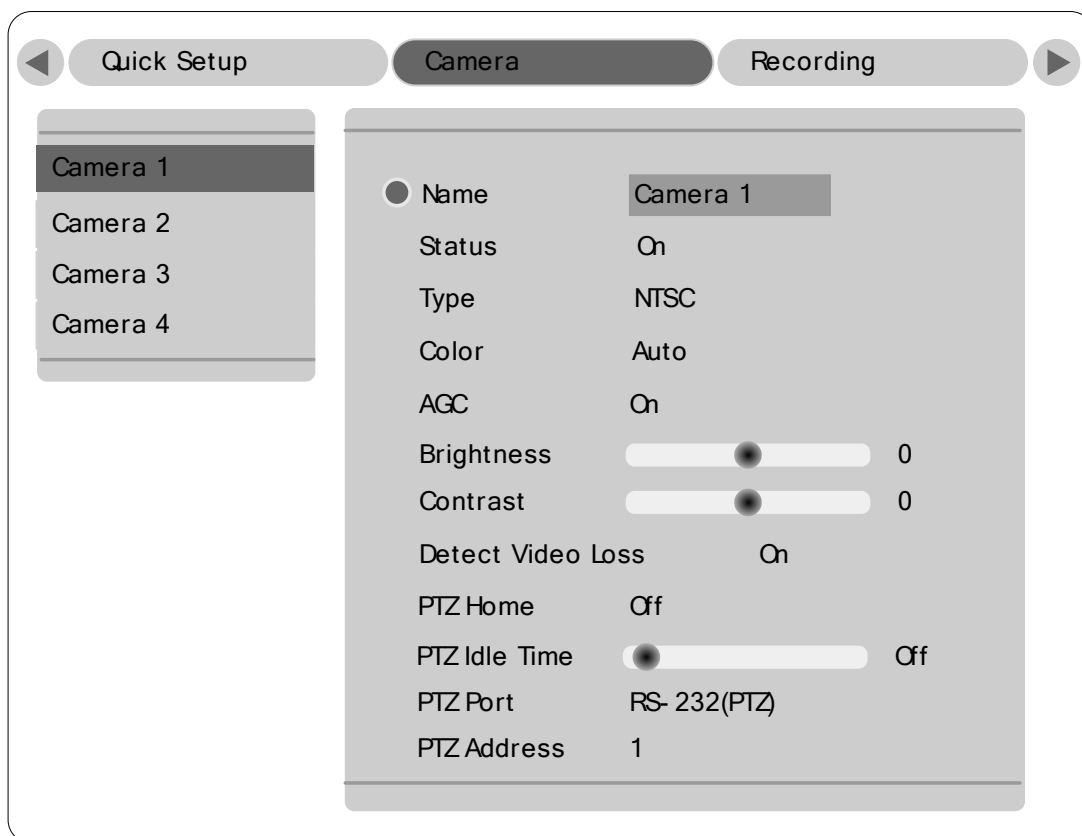
- In case of SPD1800, use 'RS-232 to RS-485 Converter' to convert for communication of COM Port RS-232.
- Connect Data +, Data- of 'RS-232 to RS-485 Converter' to R+, R- of SPD180 (RS-485).

Set PTZ on C-MAX 4 CHANNEL DVR

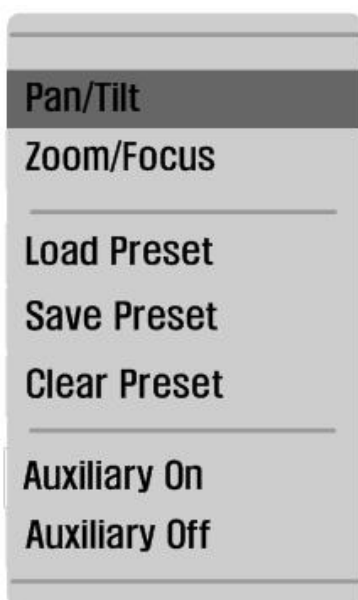
Please connect PTZ available device to RS-232 port and set Device, Baud Rate, and so on at Connectivity -> Com Port of system tab.



After completing Com Port setup, configure PTZ address and PTZ port for each channel under the "Camera" menu tab. When connecting PTZ devices to several cameras, be sure the PTZ address matches the address for the camera.



Viewing with connected PTZ



Pan/Tilt/Zoom (PTZ) devices can be controlled through the C-MAX 4 CHANNEL DVR series, when PTZ device is connected and properly configured under "Serial Setup."

- First, press the [SELECT] button.
- Channel selection icon will be displayed.
- Move the icon to the channel to control with the [Arrow] button. (When controlling in single full screen, select the [SELECT] button.)
- Press the [MENU] button with the selected channel selection icon, then PTZ menu (Pan/Tilt, Zoom/Focus, Load Preset, Save Preset) will appear.
- Press the [ENTER] button after selecting the desired function.

Controlling pan / tilt

To control Pan and Tilt during live monitoring mode.

- Press the [SELECT] button. Move the “Select” icon to the desired channel.
- Press the [MENU] button.
- Select ‘Pan/Tilt’ from the PTZ Menu.
- Control pan and tilt function using the arrow keys.

Controlling zoom / focus

To control Zoom and Focus during live monitoring mode.

- Press the [SELECT] button. Move the “Select” icon to the desired channel.
- Press the [MENU] button.
- Select ‘Zoom/Focus’ from the PTZ Menu.
- Control zoom and focus functions using the arrow keys of front panel.

Using load preset

To move preset point for dome camera during live monitoring mode.

- Press the [SELECT] button. Move the “Select” icon to the desired channel.
- Press the [MENU] button.
- Select ‘Load Preset’ from the PTZ Menu.
- Press number button for desired preset.

Using save preset

To set a new preset point for dome camera during live monitoring mode.

- Move dome camera to the desired position using the ‘Pan/Tilt’ and ‘Zoom/Focus’ menus.
- Press the [SELECT] button. Move the “Select” icon to the desired channel.
- Press the [MENU] button.
- Select ‘Save Preset’ from the PTZ Menu.
- Designate a number for the preset position by pressing a number button.

Using clear preset

To initialize a preset point for dome camera during live monitoring mode.

- Press the [SELECT] button. Move the “Select” icon to the desired channel.
- Press the [MENU] button.
- Select ‘Clear Preset’ from the OSD Menu.
- Press number button for initialized preset.

Using auxiliary on

To use special functions for PTZ device during live monitoring mode

- Press the [SELECT] button. Move the “Select” icon to the desired channel.
- Press the [MENU] button.
- Select ‘Auxiliary On’ from the OSD Menu.
- Press number button for its special functions.

Using auxiliary off

To stop special functions for PTZ device.

USING THE CONTROL CENTER LITE

The Control Center Lite is a software application that makes the installation and configuration of a unit faster and easier. The Control Center Lite runs on a PC that is connected to the C-MAX 4 CHANNEL DVR via an Ethernet network connection. Although all settings can also be configured with the on-screen display menu of the C-MAX 4 CHANNEL DVR itself, the Control Center Lite offers a very user-friendly alternative. Refer to the Remote Viewer user manual for more information on the PC software

Getting Started

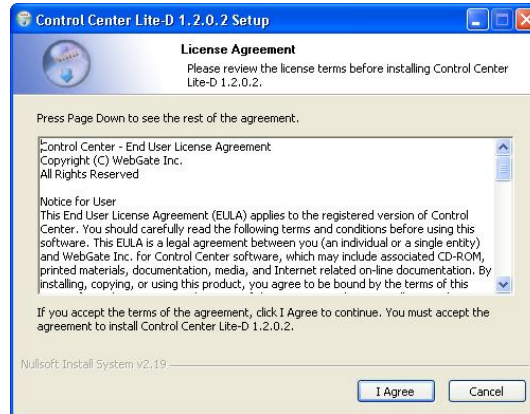
To use the Control Center Lite to change settings, the unit must be physically connected to a PC via a network connection. The Control Center Lite application must be installed on the PC.

System requirements

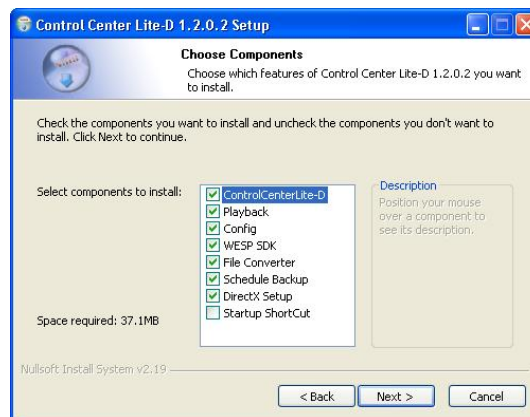
	<i>Recommended</i>
CPU	Intel Pentium4 3Ghz(Hyper-Thread)
Memory	512MB
Video Card	128MB
Resolution	1280•1024
HDD storage space	1GB or higher
OS	Windows XP SP2
Others	DirectX 8.1 or higher

Installing the Program

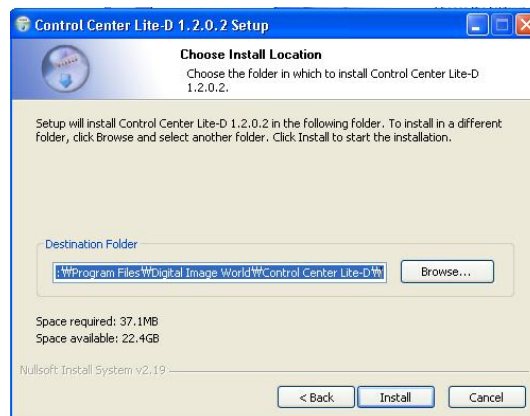
1> Run “1.x.x.x Setup.exe” file in Control Center Lite Setup CD. In order to install Control Center Lite, user account on local PC should be Administrator.



2> Click on “I Agree” button.



3> Choose components and press “Next” button. WESP SDK should be installed.



4> Select folder and press “Install” button.

How to Log in

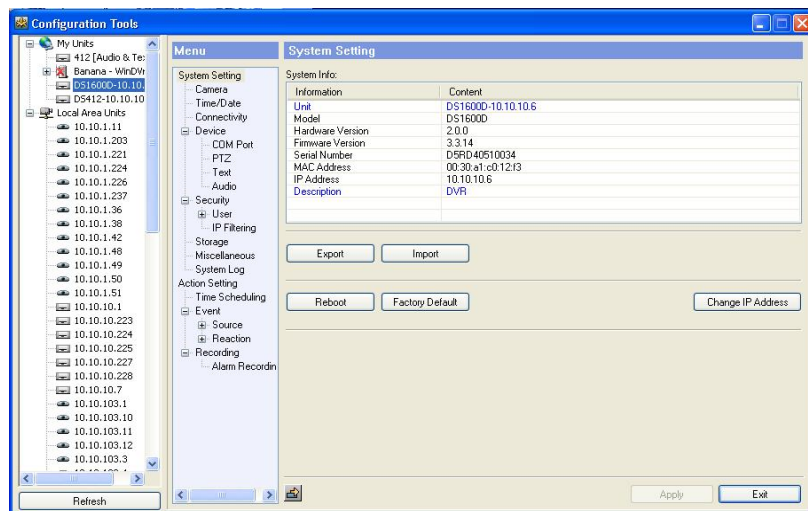


Click the “OK” button after inputting ID and Password. When login becomes correct, Control Center Lite program will run. The default user is “Administrator” and password is “admin”. The user’s authority to run program is restricted respectively.

Configuration Tool



Click icon on desktop to run “Control Center Lite Configuration Tool” program.

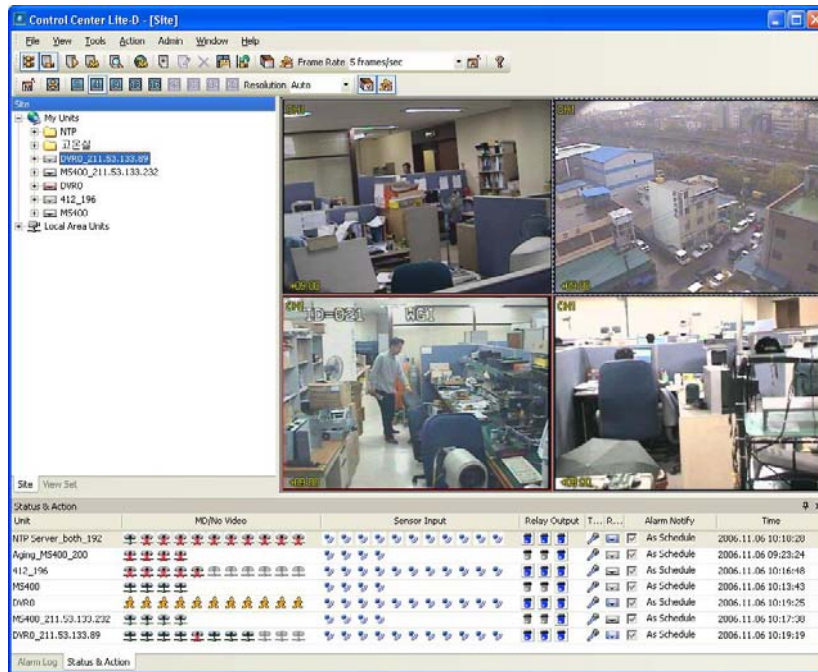


Monitor

* For one unit of C-MAX 4 CHANNEL DVR, maximum 3 users can simultaneously access to Monitoring.



Click icon on desktop to run "Control Center Lite Monitor" program.

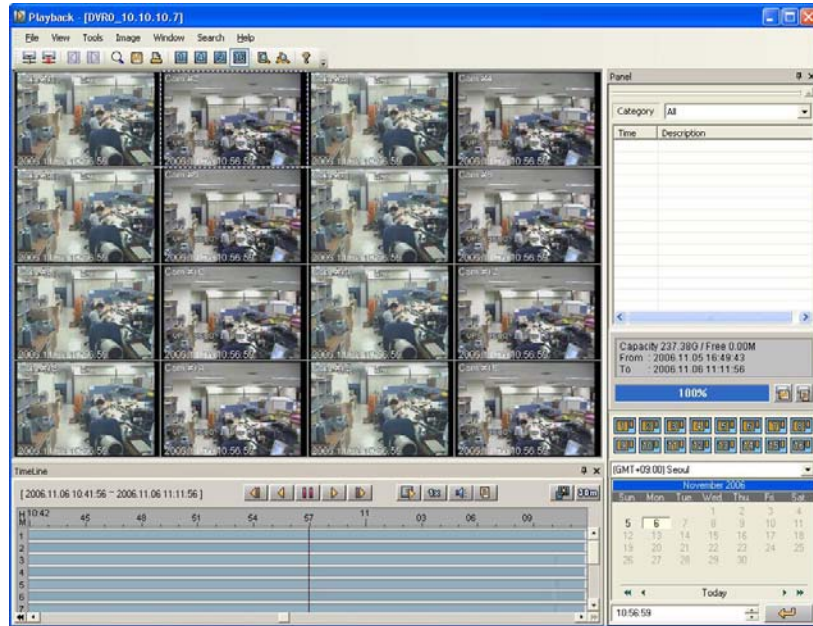


Playback

* For one unit of C-MAX 4 CHANNEL DVR, maximum 1 user can access to Playback.



Click icon on desktop to run “Control Center Lite Playback” program.



Adding or Replacing of HDD at Removable HDD-Rack

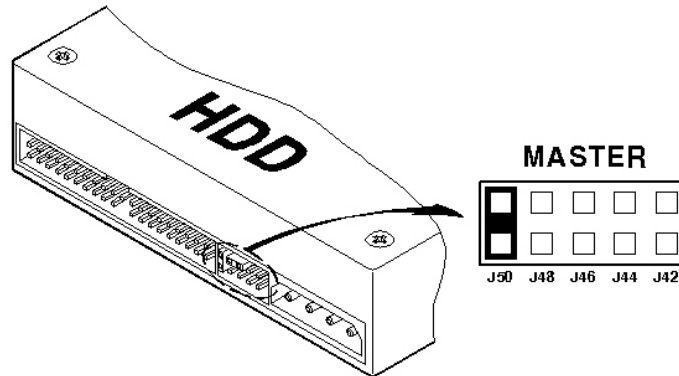
NOTE: C-MAX 4 CHANNEL DVR can install maximum two HDD and one CD-RW.
C-MAX 4 CHANNEL DVR won't be run correctly for the below HDD combination.

- CD-RW + Internal (2 HDD)
- Removable HDD-Rack (1 HDD) + Internal (1 HDD)
- Removable HDD-Rack (No HDD) + Internal (2 HDD)

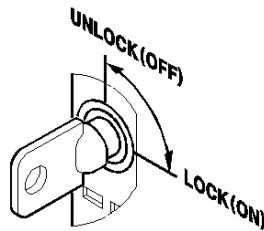
REMOVING THE HARD DRIVE

NOTE: When installing and removing HDD, the C-MAX 4 CHANNEL DVR power should be turned off.

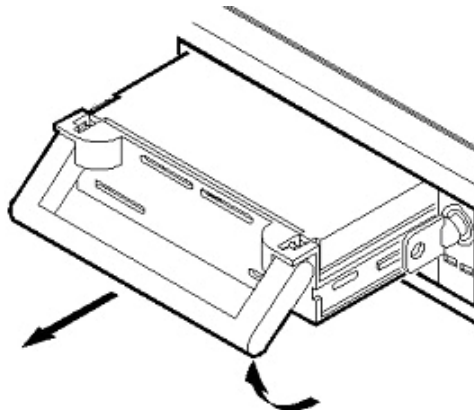
- (1) Check that dip switch of HDD is set to “**Master**” mode.



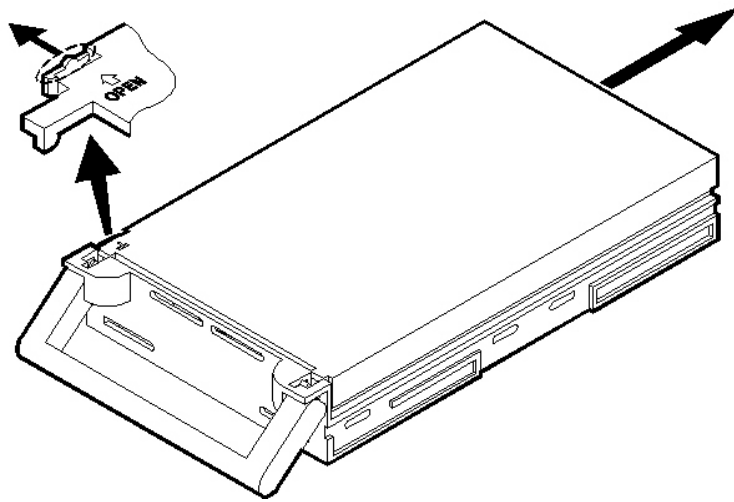
- (2) The C-MAX 4 CHANNEL DVR power should be turned off.
- (3) Insert the key into the key hole of HDD rack and turn it anti-clockwise to release.



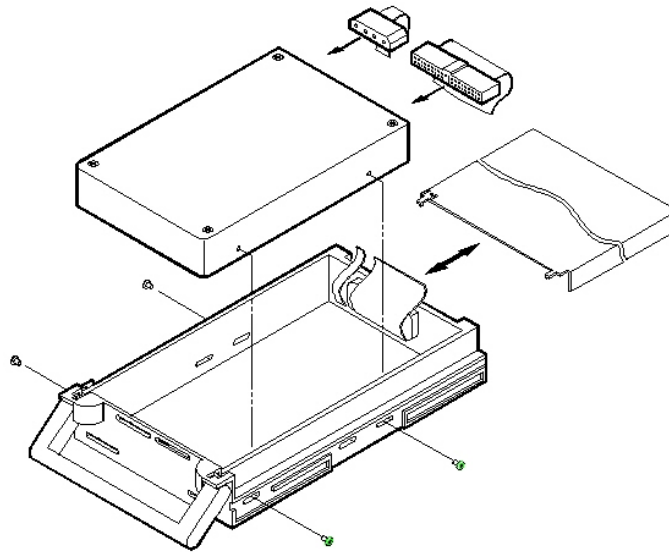
- (4) Pull the handle of HDD rack and remove the HDD case completely from C-MAX 4 CHANNEL DVR rack.



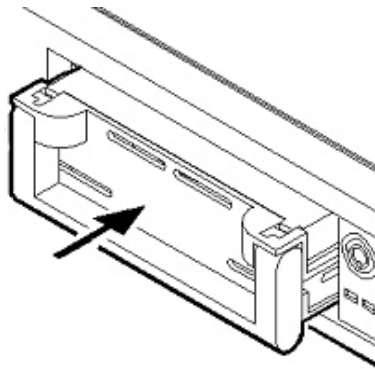
(5) Release the hook and open the cover by pulling lock as indicated in figure below.



(6) Connect data and power cables to HDD and screw down the HDD to rack. Then close the cover. (HDD needs to be fixed tightly with screws so that vibration does not damage hard drive.)



(7) Pull handle down and push the HDD case into the rack completely.

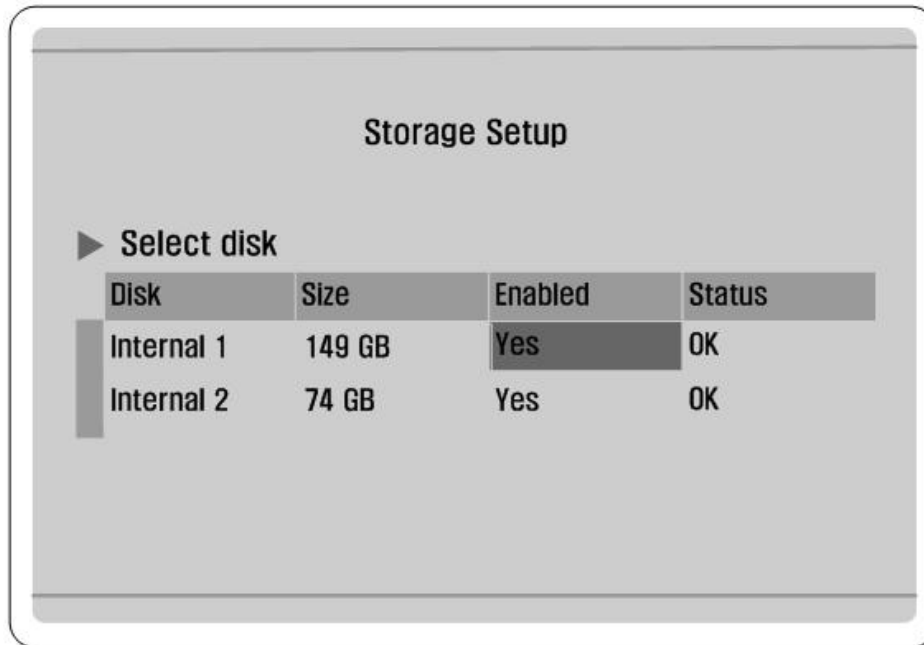


(8) Insert the key and turn it clock wise to re lock the rack.

HDD Registration and Format

After completing HDD install and turning on power, “Storage Setup” menu automatically will be displayed shown as below figure.

Please check HDD installation again in case of not showing the below figure.



Storage Setup			
▶ Select disk			
Disk	Size	Enabled	Status
Internal 1	149 GB	Yes	OK
Internal 2	74 GB	Yes	OK

- Press [ENTER] key selected “Select disk”
- Select ‘No’ of Enabled HDD using arrow key and press [ENTER] key.
- In case of showing “Notice! Disk will be formatted”, select “Yes” and press [ENTER] key.
- Verify whether HDD Enabled is correctly changed as ‘Yes’ or not.
- Press [EXIT] key to exit “Storage Setup”.

SPECIFICATIONS

Video Input	Analog Ch.	4 BNC Connectors (NTSC/PAL Auto-Detect)
Video Output	Monitor (Mux)	1 BNC Connector & 1 VGA
Video Compression		Standard MPEG4
Display	Speed	120/100ips (NTSC/PAL)
	Resolution	720x484(NTSC), 720x576(PAL)
	Multi Screen	1, 4ch
Recording	Speed	120/100ips (NTSC/PAL)
	Resolution	320x240(NTSC), 352x288(PAL)
	Internal	Max. 2 IDE HDD (3.5")
Backup		HDD & CD-RW
Copy		USB Memory
Text Data Recording		1 RS-232
Pre/Post Alarm		10sec / 60sec
PTZ Control		RS-232C
External Interface		USB (v1.0)
Alarm		4 Sensor Inputs / 4 Alarm Outputs
Audio	Input	4ch RCA
	Output	1ch RCA
	Compression	ADPCM (32kbps, 8kHz sampling)
Network		1 RJ-45 (10/100 Ethernet)
Remote Control		Software : Control Center Lite Function : Monitor, Search, Playback, Backup, Event Monitor
Protocol		TCP/IP, ARP, ICMP, DHCP, PPPoE, NTP, WESP
Operating System		Embedded Linux
Temperature Range	Operation	+5C ~ +40C (+41F ~ +113F)
	Storage	-25C ~ +70C (-13F ~ +158F)
Relative Humidity	Operation	93% RH Below
	Storage	95% RH Below
Dimensions (mm)		420(W) x 310(D) x 94(H)
Weight (kg)		5.0
Power Consumption		12Vdc 5A



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