User Manual
Verison 1.00

VMAX D1
Model : VMAX D1 8/16

DW DIGITAL WATCHDOG
Everything's Digital

PRECAUTIONS

Warning

Unauthorized reproduction of all or part of this manual is strictly prohibited.
The FIGURES in this manual are only for illustration purposes. They may differ from the actual product.
The specifications and design of the product are subject to change without prior notice for purposes of quality improvement.

Cautions

To get the best use out of the product, be sure to read the cautions before using the product.
For safety, please take note of the following:

Instructions Before Using the Product

To prevent electric shock when installing, moving, or opening the DVR and peripheral devices, connect and disconnect the cables as instructed. All cables must be connected to grounded power outlets.
If the product is installed near a power outlet, make sure it can easily be unplugged.
Do not use the DVR in water or in wet places.
Keep the plastic packing materials used for the DVR or other peripheral devices out of reach of children (may cause suffocation).

Installation Environment of the DVR

Maintain the following conditions: operating temperature of 5˚C ~ 40˚C, operating humidity of 10% ~ 80%.
Install the DVR in a safe place that is free from external vibration.
Install the DVR in a well-ventilated place.
To protect the hard disk from data loss and breakdown, install the DVR away from magnetic materials.
When using a rack other than the standard one, use a separate table with sufficient spacing, i.e., 60cm from the floor, 50cm from the ceiling, and 20cm from the side and back walls and other objects.

Safety Notes on the DVR

When installing additional boards and HDD, separate the power cable and completely turn off the power supplied to the DVR.
Keep the product away from heat-generating devices, such as heaters.
Do not use a damaged power cord.
To prevent problems due to magnetic interference and electric surge, use only grounded cables and power outlets.
If the power cord is connected, do not touch the power unit. If the power cord is connected, electric current is still flowing internally even after the switch is turned OFF.
Do not place a heavy object on top of the product.
Do not drop a conductive object in the ventilation holes.
Allot sufficient space for system cabling.
Use only the parts indicated in the manual. Do not disassemble, repair, or modify the product without permission.
Incorrect system setup may cause malfunction.
Shut down the system normally as instructed in the manual.

Safety Notes on the Lithium Battery

Replace lithium batteries as instructed to avoid danger.
Dispose used lithium batteries properly.

Warning and Caution are indicated as follows:

⚠ Warning	Possible Injury or Product Damage
⚠ Caution	Risk of Minor Injury or Product Damage
⚠	Cautions for the Usage of the Product
📖	Information for the Usage of the Product

TABLE OF CONTENTS

TABLE OF CONTENTS

1 INTRODUCTION
Specifications

		VMAXD1 16	VMAXD1 8
System		Full D1 Digital Video Recorder	
Format		16Ch – D1 480/400	8Ch – D1 240/200
OS		Linux Embedded - Built in Flash Memory	
Video Input		16 BNC	8 BNC
Video Output	Monitor	16 BNC, 1 VGA, 1 HDMI	8 BNC, 1 VGA, 1 HDMI
	Spot	4 BNC - Single or Quad	1 BNC - Single or Quad
Audio Input		Line Input : 16 RCA	Line Input : 8 RCA
Audio Output		Line Output : 1 RCA	
Compression Format		Video : Standard H.264 / Audio : G.723	
Recording Speed		1/8, 1/4, 1 ~ 30(25)fps, Total max. D1 480/240(400/200)fps	
Recording Resolution		CIF, 2CIF, 4CIF	
Recording Mode		Continuous, Event (Sensor, Motion, Audio, Pattern, Text), Schedule	
Alarm Interface		16 Sensor Input, NC/NO - Terminal Block 4 Relay Output, NC/NO - Terminal Block	8 Sensor Input, NC/NO - Terminal Block 2 Relay Output, NC/NO - Terminal Block
Video Output Resolution		HDMI : Full HD(1920x1080), WSXGA+(1680x1050), SXGA(1280x1024) VGA : WSXGA+(1680x1050), SXGA(1280x1024) BNC: SDTV(720x480(576))	
POS / ATM Interface		8 RS232C Simplex - Terminal Block	4 RS232C Simplex - Terminal Block
Backup & Copy Access		eSATA, DVD-RW, USB2.0, Network	
Network Access		Ethernet 10/100/1000 - RJ45	
PTZ / Controller Access		RS485 Half Duplex - Terminal Block	
Internal HDD / Internal ODD		SATA HDD Max. 4ea / SATA Type DVD 1ea(Without ODD, HDD 6ea)	
System Operation & Adjustment		Front Panel Button, Mouse, IR Remote Control, Keyboard Controller, Network	
System Upgrade		USB2.0 Memory Stick, Network	
Network		System Automation (Controlled by CMS)	
		NTP Supported	
		CMS / Monitoring by Web Browser / PDA	
Others		17 Languages Supported, Automatic E-mail	
		DC12V, 5A / Operating Temperature [5 ~ 40℃] Weight without HDD [8kg] / Dimension [435 x 4445 x 88 mm]	

Components

Make sure that you have the following items supplied with your DVR. If any of these items are missing or damaged, notify your vendor immediately. Do not dispose of the packing utilities in case of moving or storage purposes.

Items	Photo	Quantity
User Manual (DVR & Software) Quick Start Guide		1 1
CD (Manual & Software) Rubber Mount		1 1 Set (4 Pieces)
12V DC Adaptor and Power Cable		1 1
IR Remote Controller Batteries		1 2
USB Mouse		1

Major Features

- Advanced H.264 Linux Embedded DVR
- HEXAPLEX – Live, Playback, Recording, Backup, Network, Configuration
- Full HD Output for Playback and Live Display
- 240fps at D1 for 8 Channel
- 480fps at D1 for 16 Channel
- HDMI, Composite, & VGA Support
- Loop Output
- Zoom-in Live and Playback (Using the USB Mouse's wheel)
- Multi-Record Scheduling
- Pre- & Post-Event Recording
- Programmable Privacy Zones
- 8 Sensor Input, 2 Sensor Output for 8 Channel
- 16 Sensor Input, 4 Sensor Output for 16 Channel
- Time Server Function
- NAS (Network Attached Storage) Backup Over Ethernet
- Multi-User Access
- Network Bandwidth Control
- Watermark Verification (Digital Signature Verification)
- Go To, Multi-Date & Time, Calendar, Smart, Panorama, and Log Viewer Search
- Smart Web Viewer for Live, Playback, Backup, Configuration
- Remote Setup, Backup, and Relay Control
- Mobile Application for Blackberry, iPhone, Android
- Windows Mobile PDA Viewer
- RAID 1,5: Rack Mount Available
- DVD-RW Built-in
- USB 2.0 Built-in
- POS Support up to 8 Channels
- RS-485 and 4/8 RS-232C Built-in
- USB Mouse, IR Remote Control
- Up to 6 Internal HDD Supported

Front Panel View
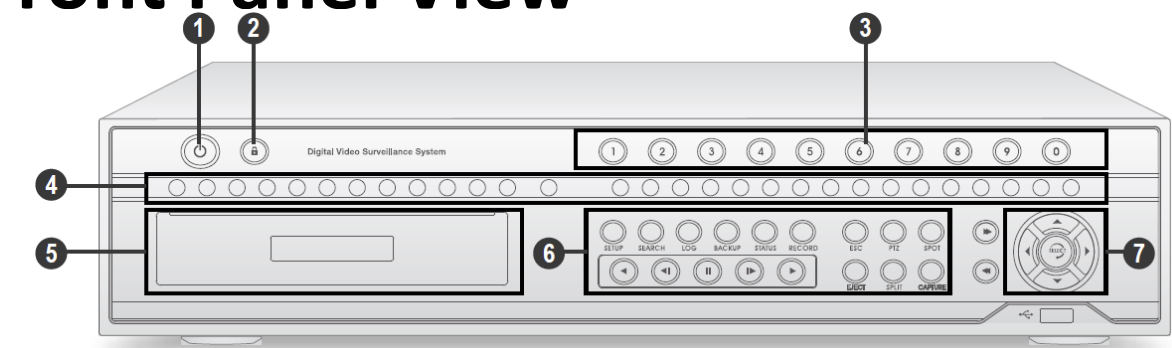
| No	Name	Description
1	Power Button	Turn ON or OFF. Authorization is required.
2	Lock Button	Lock your system. Authorization is required.
3	Number Buttons	Select channel.
4	Status Indication	Indicates each functional status.
5	DVD-RW Door	Door for CD-ROM
6	Functional Buttons	Shortcut keys for the indicated function.
7	Directional Button and Select Key	Use instead of mouse control.

Rear Panel View
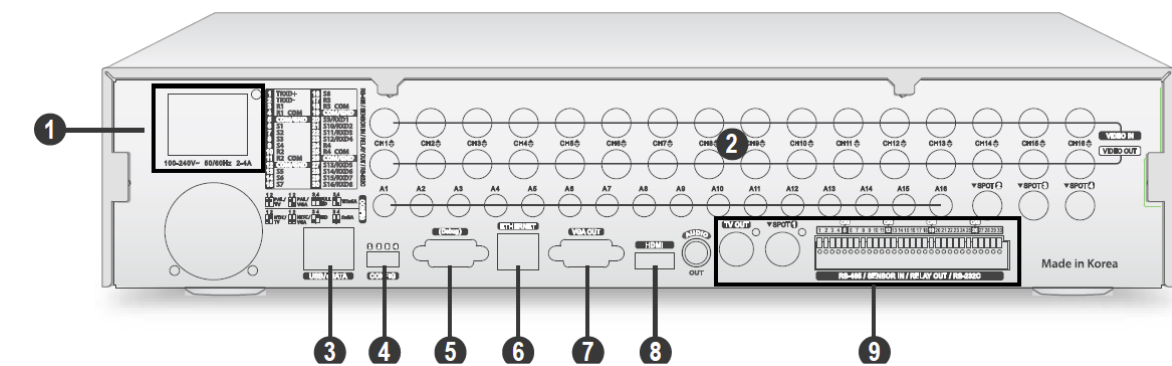
| No	Name
1	Power Supply
2	Camera Input, Loop Output, Audio Input, Spot Output
3	USB Connection (USB2.0, e-SATA)
4	Configuration Dip Switch (NTSC/PAL, Monitor Out)
5	RS232C for Console Output (For debugging purposes only)
6	Ethernet Port
7	VGA Output
8	HDMI Output for Full HD Display
9	Audio Out, TV Out, Terminal Block (Sensor & Relay Output)

2 INSTALLATION & CONNECTION
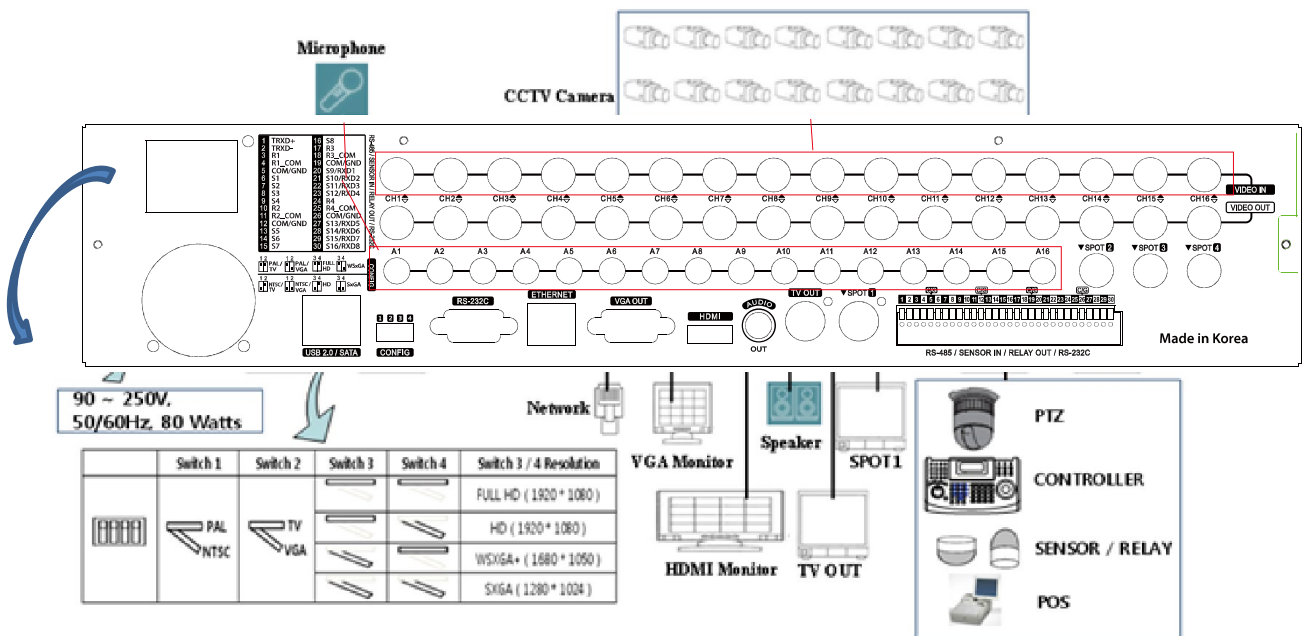
Figure 2-1

Connection Orders

- By referring to the diagram above **[Figure 2-1],** make a connection accordingly.
- Connect CCTV Camera Signal to BNC Input on rear panel.
- Set video configuration with combination of dip switch.
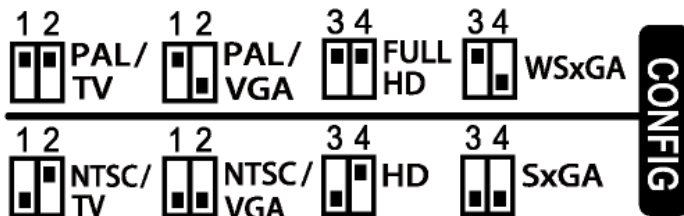
- Connect display monitor to TV OUT on rear panel. No GUI is displayed through TV Out port.
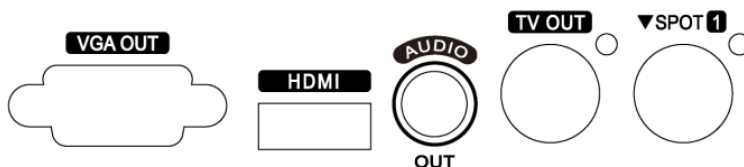
- Connect VGA monitor to VGA OUT on rear panel and HDMI monitor to HDMI on rear panel.
  On VGA and HDMI Output, only the channel title is shown.
  For higher resolution (greater than HD), only VGA Output is available.
- Connect Spot Monitor to SPOT # on rear panel.
- The following devices can also be connected:

Connection Orders

- The following devices can also be connected:

Devices	DVR Terminal
Internal Hard Drives	6 SATA
Spot Monitor	4 BNC for 16 Channel 1BNC for 8 Channel
Audio	Each Channel
Sensor	Each Channel
Relay	4 for 16 Channel 2 for 8 Channel
POS	8 Connections for 16 Channel 4 Connections for 8 Channel

Terminal Block

The terminal blocks located in the rear of the VMAXD1 are for the connection of the PTZ, Sensor, Relay, and POS. The number of terminal blocks may vary depending on the model.
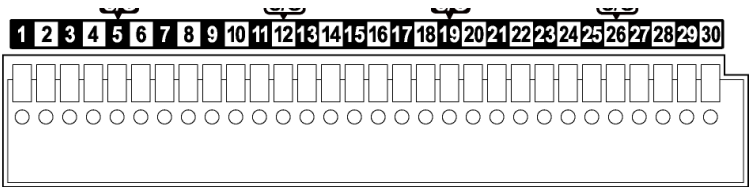
RS-485 / SENSOR IN / RELAY OUT / RS-232C

1	TRXD+	16	S8	
2	TRXD-	17	R3	
3	R1	18	R3_COM	
4	R1_COM	19	COM/GND	
5	COM/GND	20	S9/RXD1	
6	S1	21	S10/RXD2	RS-485 / SENSOR IN / RELAY OUT / RS-232C
7	S2	22	S11/RXD3	
8	S3	23	S12/RXD4	
9	S4	24	R4	
10	R2	25	R4_COM	
11	R2_COM	26	COM/GND	
12	COM/GND	27	S13/RXD5	
13	S5	28	S14/RXD6	
14	S6	29	S15/RXD7	
15	S7	30	S16/RXD8	

PTZ Camera & Keyboard Controller

Connect the PTZ control cable to the Terminal Block, TRXD+ and TRXD-, in the rear panel of the DVR. See **"APPENDIX"** for supported PTZ cameras.
A keyboard controller has the same connection as a PTZ camera.

Sensor Connection

- Depending on the model, connect the sensor to the terminal blocks S1 ~ S16.
- Each input terminal is connected relatively with the channel number.

> **Sensor and Relay Type**
> NC (Normal Close): Normally Closed; opens when a signal is received.
> NO (Normal Open): Normally Open; closes when a signal is received.

Relay Connection

- Relay the output signal to external devices, such as Alarm and Siren.
- Connect the relay to R1, R2, R3, or R4 terminal block, depending on the model

> **Caution**
> Depending on its type, the external alarm device may require a power supply. Please be cautious.

POS Connection

1. Connect the POS Device.

> **Caution**
> Before connecting POS Box, adjust all necessary configurations using the included CD. Consult your POS box manual for additional information.

2. Modify the RS232 cable to be connected to the back of the VMAX D1. Expose the wires and isolate the TxD (Transmitter) and GND (Ground) cables (corresponding to Pinouts 3 & 5, accordingly).

RS-232 DB-9 Male Pinout

GND (5)
DTR (4)
TxD (3)
RxD (2)
DCD (1)
(9) RI
(8) CTS
(7) RTS
(6) DSR
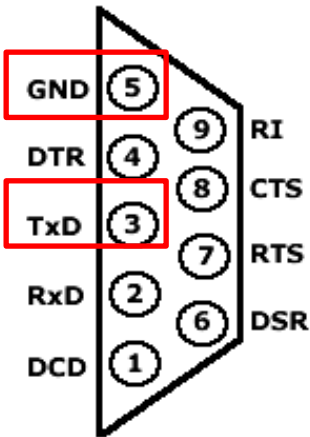
PIN 1: Data Carrier Detect
PIN 2: Receive Data
PIN 3: Transmit Data
PIN 4: Data Terminal Ready
PIN 5: Signal Ground
PIN 6: Data Set Ready
PIN 7: Request to Send
PIN 8: Clear to Send
PIN 9: Ring Indicator

POS Connection

3. Connect the TxD (Transmitter) to the RxD (Receiver) Terminal Blocks in the back of the D1.

4. Connect the GND (Ground) cable to the COM/GND Terminal Blocks in the back of the D1.
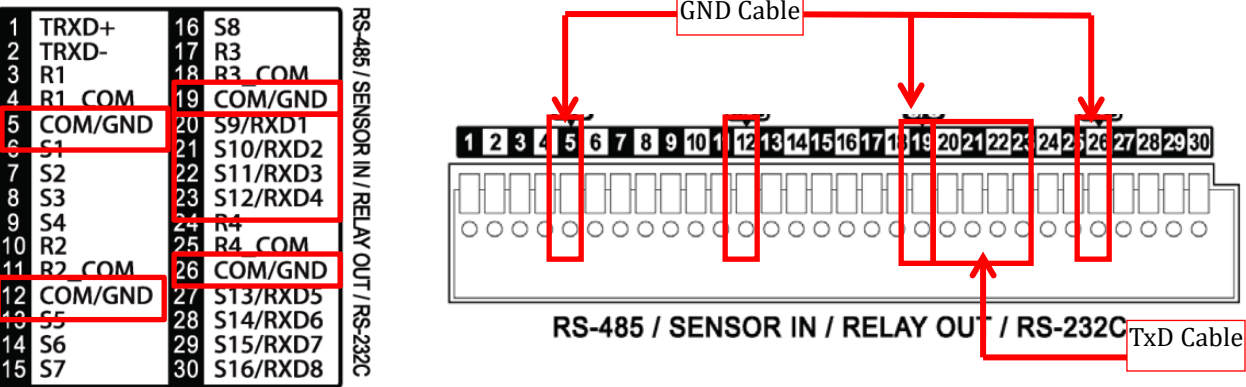
5. For recording setup, see page 19.

3 SYSTEM CONTROL

The VMAXD1 series can be controlled easily by using the front panel buttons, front panel jog/shuttle, remote controller, and/or the mouse.

Remote Controller

No	Name
1	Power Button
2	Number Buttons in Input Number
3	DVR ID Button
4	System Operation and Setup Menu: Enter Menu Esc: Exit to Previous Mode Search: Search Recorded Image Select: Select Category or Execute Sequence Copy: Copy Recorded Videos Direction: Move within the Menu and Submenu
5	Up & Down: Move Up and Down on Log Page PTZ: Shift to PTZ Camera Control Mode
6	Record Button
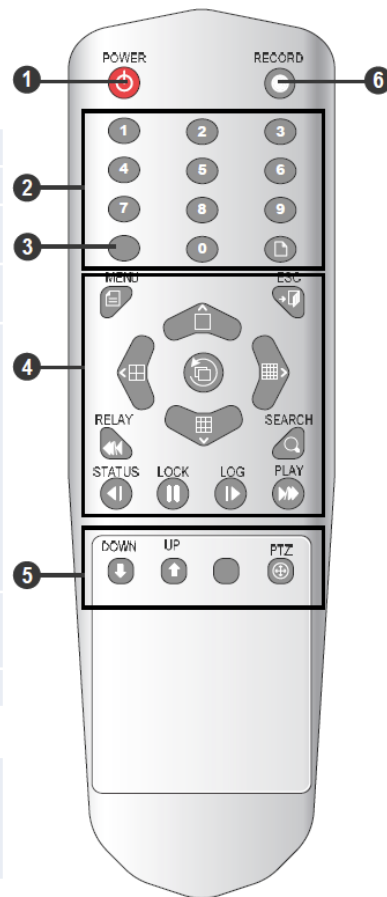
Sensor and Relay Type
NC (Normal Close): Opens when a signal is received.
NO (Normal Open): Closes when a signal is received.

USB Mouse

The mouse pointer, as shown below, appears if a mouse is connected to the USB terminal located at the front panel.

MOUSE CONTROL FUNCTIONS		
	Click Right Button	Move from Monitoring Mode to Monitoring Setup Open/ Hide Play Menu Show Submenus in the Setup window
	Click Left Button	Select Setup
	Double-Click Right Button	Select Setup
	Double-Click Left Button	Move a certain window

Power ON

- Check the VMAXD1 (100-240V, 50/60Hz) and connect the power.
- Booting will be initiated by pressing the power button in the front panel.
- After booting is finished, the Monitoring Screen, Channel Indication, and Clock will be displayed.

4 SETUP

- For Setup menu, click the right button of the mouse or press [Setup] button on the front panel.

- ID and Password are required for initial installation. Default ID and Password are shown below.
- Local Admin: 0000000, User1 : 1111111, User2 : 2222222, User3 : 3333333, User4 : 4444444

> ⚠ ※ To change the password, right click on mouse, and click [Setup] > [System] > [Admin. Password].

Time

- Right-click the mouse button; then select **[Setup] > [Time]**.

Time Sync

- Synchronize the time with the NTP (Network Time Protocol) server. The time will be synchronized with the NTP once every hour.

- If synchronization with the NTP server fails, synchronization with RTC will be established.

- Set the Time Sync to NTP or OFF.

- If NTP is selected, input the Server Type and Server URL.

- For automatic NTP setup, set Server Type to NTP and Server URL as Auto.
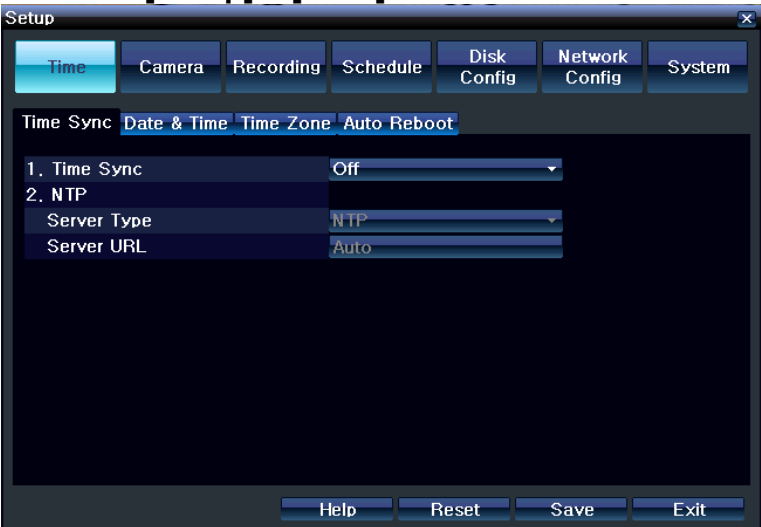
> ⚠ NTP setup is only available when Time Sync has been set to NTP.
> The user can enter the IP only when the server type is DVR.

Date & Time

- If Time Sync is set to OFF, set the date and time manually.

- Use the mouse or the arrow keys and the SELECT button to set the Year, Month, Day, Hour, Minute, and Second on Date & Time.

- To complete the setting, click the SELECT button or click the right button on mouse.

- Select the format you wish to display the date at Date Display Type. Select from DD/MM/YY, MM/DD/YY, and YY/MM/DD.
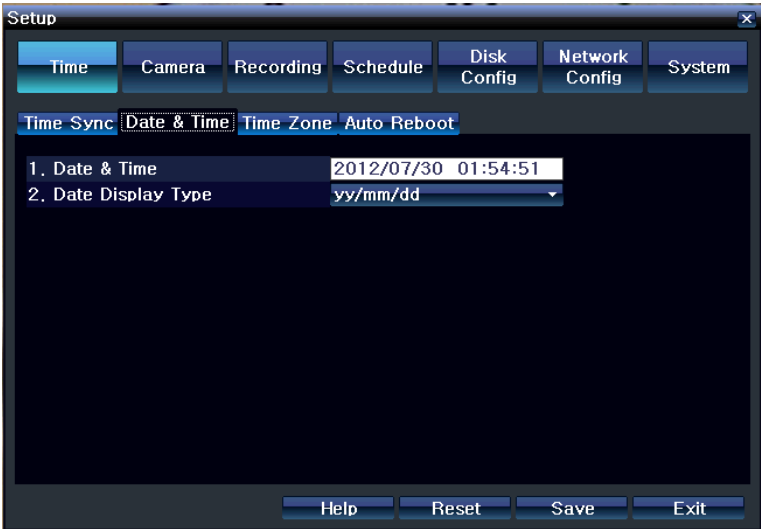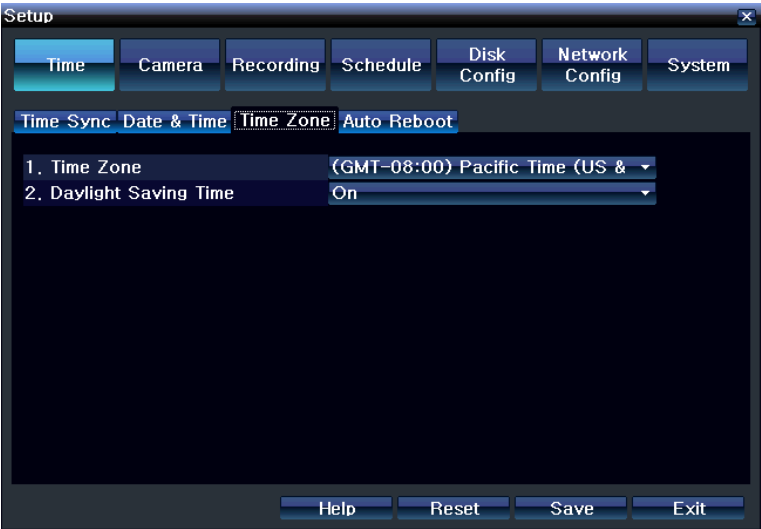
> ⚠ Available when Time Sync is off.

Time

Time Zone

- Select your local Time Zone.
- Turn ON or OFF the daylight savings time (DST).

※ After the DST has been selected, the existing data will display as "OLD_" in the search and log list.

Auto Reboot

- To help keep your system healthy, configure your VMAXD1 to reboot automatically.
- Use your mouse to set the Auto Reboot to ON or OFF...
- Select the exact time for Auto Reboot, and select the day of the week you wish to perform Auto Reboot.
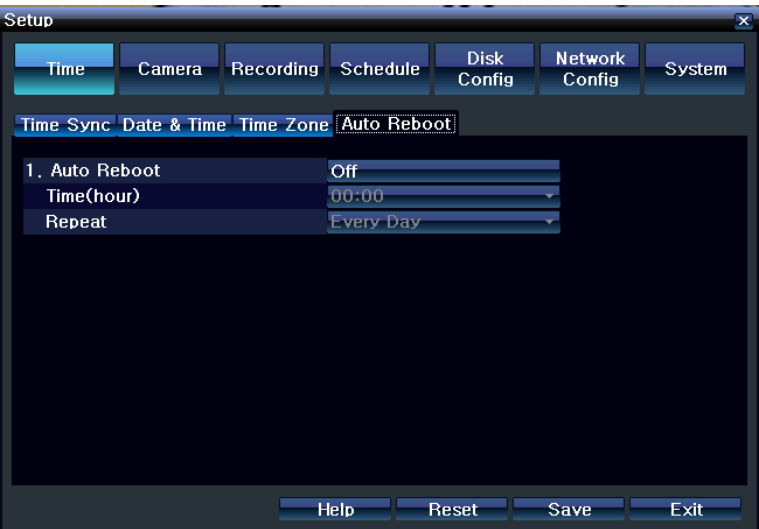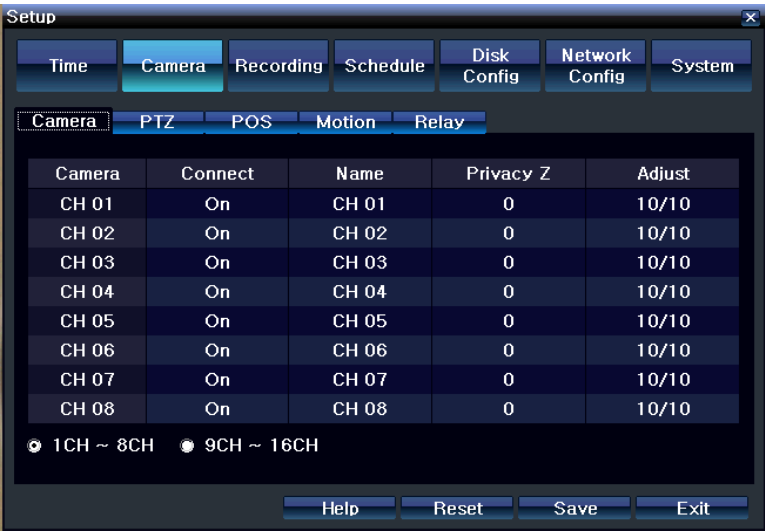
Camera

- Right-click mouse button; then select **[Setup] > [Camera]**.

Camera

- To setup a camera, select the Camera tab.
- Connect: Connect or disconnect the camera channel. ON means cameras are connected. To disconnect, turn camera OFF.

Setup						
Time	Camera	Recording	Schedule	Disk Config	Network Config	System

Camera	PTZ	POS	Motion	Relay

Camera	Connect	Name	Privacy Z	Adjust
CH 01	On	CH 01	0	10/10
CH 02	On	CH 02	0	10/10
CH 03	On	CH 03	0	10/10
CH 04	On	CH 04	0	10/10
CH 05	On	CH 05	0	10/10
CH 06	On	CH 06	0	10/10
CH 07	On	CH 07	0	10/10
CH 08	On	CH 08	0	10/10

◉ 1CH ~ 8CH   ◉ 9CH ~ 16CH

Help	Reset	Save	Exit

> ⚠️ ※ When the camera channel is set to disconnected, the video contents will not be displayed even if the camera is actually connected.

- *Name:* Name each camera.
    1. Move mouse cursor above the name field and double click the left mouse button.
    2. Input camera name on input panel. Up to 20 letters are allowed.
- Privacy Zone: Used to hide a certain area of the real-time monitoring screen.
    1. To setup the PZ Mask Area, move cursor above the PZ Mask field for the channel you wish to set and click the left mouse button.
    2. The channel will be displayed with grid lines. Select the blocks you wish to mask by clicking and dragging the mouse.
    3. Right click mouse button when setup has been completed.
- Adjust: Select to adjust the camera's Brightness, Contrast, Color, Saturation, Sharpness, and Camera Position. When clicked, the single channel mode appears with the Adjust window.

| Adjust	
Camera	CH 01 ▾
■ All Channel	− I +
Brightness	
Contrast	
Hue	
Saturation	
Sharpness	
Camera Adjust..	▲ ▼ ◀ ▶
	Exit

> ⚠️ Excessively moving the camera up, down, right, or left may cause black or gray areas to appear on the display screen. The level at which such condition does not occur is based on the proper control range for the camera.
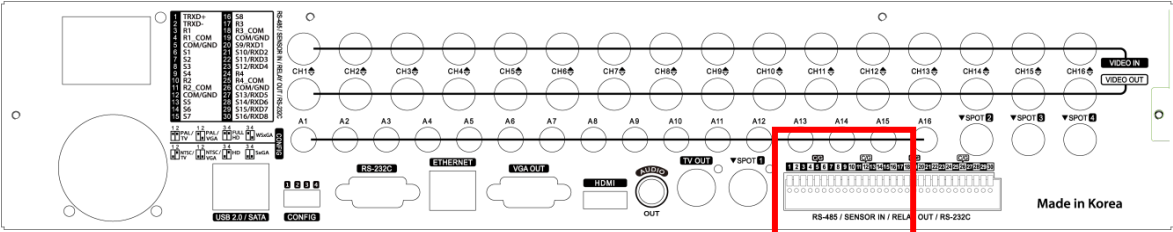
Camera

PTZ

- To setup a PTZ camera, select the PTZ tab.
- Select the Protocol for the PTZ camera you are using.
- Setup Camera ID and Baud Rate. Check your camera manual for the information.
- Set a Tour, so camera can automatically move between different presets. Configure up to two Tours, and each tour can have up to 8 presets.

- If a tour has been set, set the Duration for the staying time when the tour is activated.
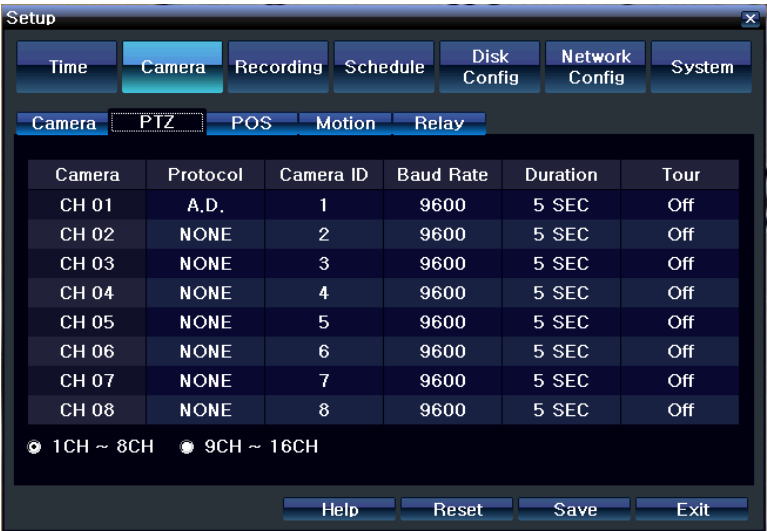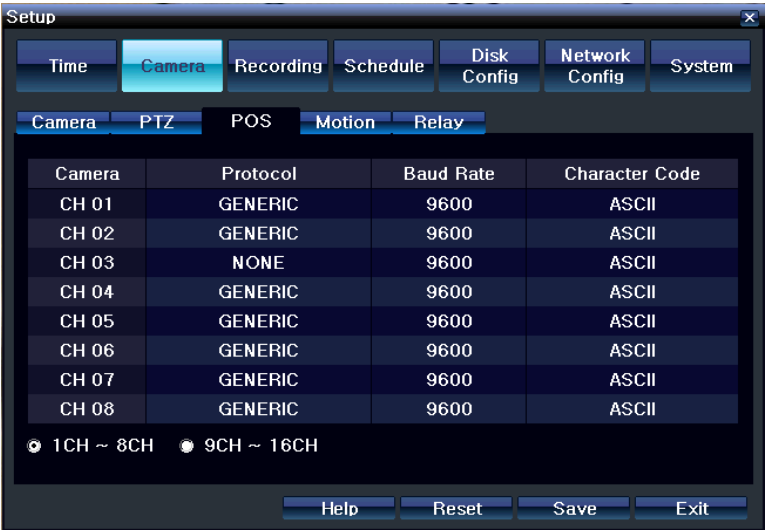
POS

- To setup a Point-of-Sale (POS) device, connect the POS device to the Terminal Block connection for RS232C.

- Go to **[Setup] > [System] > [Sensor/POS Port]**, and select POS (1-8).
- Go to **[Setup] > [Camera] > [POS]**, and select the protocol, baud rate, and character code for your POS device.
  ※The VMAXD1 only indicates ASCII Characters.

- When the POS device has been configured, setup the VMAXD1 to record any transactions sent from the POS device. Go to **[Setup] > [Recording] > [Recording]**, and make sure Text is set to ON.


- User can perform a search by looking up an item on the POS transaction.
- To perform a search based on POS transactions, click the right mouse button during Playback Mode, and click **[Text Search] > [CH##].**
- A Keyboard will appear. Using the mouse, type in the item you wish to search; then click Search button.
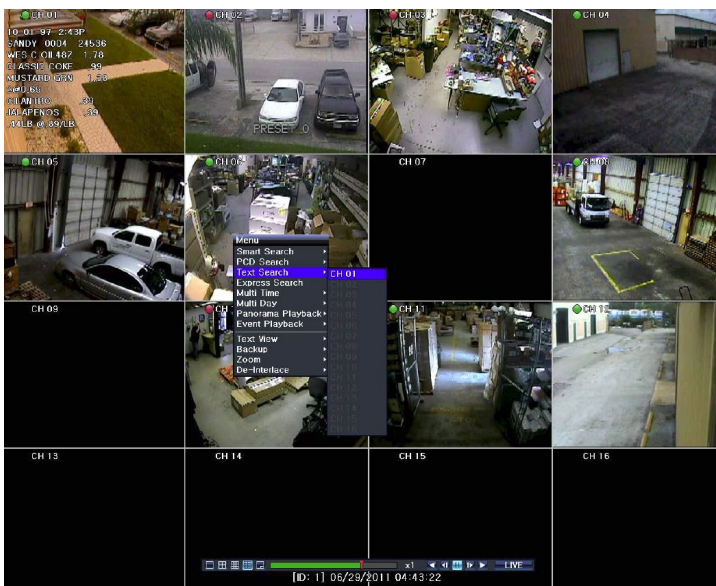
⚠ The keyboard is case sensitive.

- The first recorded image with the item will appear. Use the Playback Control Bar to playback the video.
- To move to the next or previous POS search result, use directional keys on the front panel or use the mouse and the control bar.
- During playback, user can choose to display or hide the POS transaction on the recording video.
- To hide the POS transactions, click the right mouse button during Playback Mode, and move the mouse cursor above **[Text View]**.
- Click the **[CH##]** you wish to hide the POS transactions.
- The check mark next to the **[CH##]** will disappear, and the text on the playback video will also disappear.
- To display the POS transaction, just repeat the previous steps.
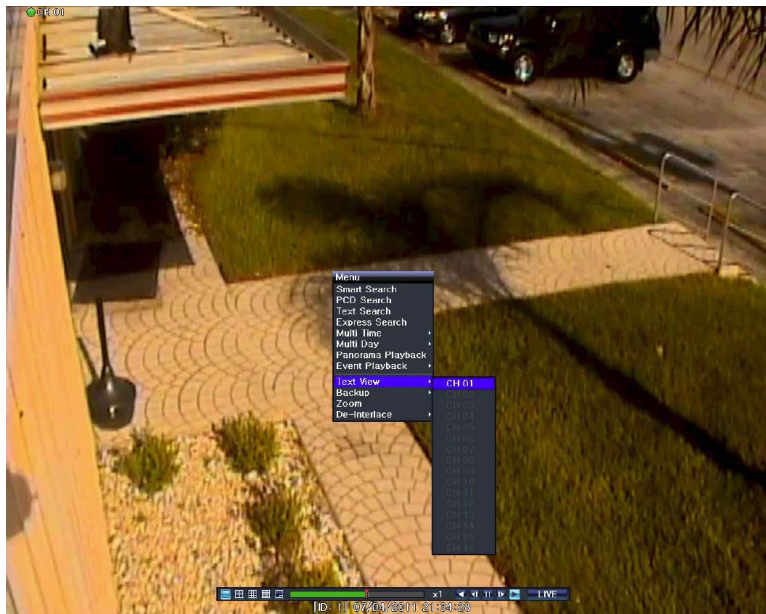
MOTION

- Select the Motion tab to configure the motion detection settings.
- Select Motion Area of each channel.
- When clicked, the single channel mode composed of square boxes appears on the screen. Use the mouse to select areas you wish to disable motion detection. Areas where motion detection is disabled will be indicated by showing just the gray grid lines (Blue Box will indicate motion is enabled on that area).
- Once motion area has been set, set the Motion Sensitivity, Sensor Type, and/or Sound Sensitivity.
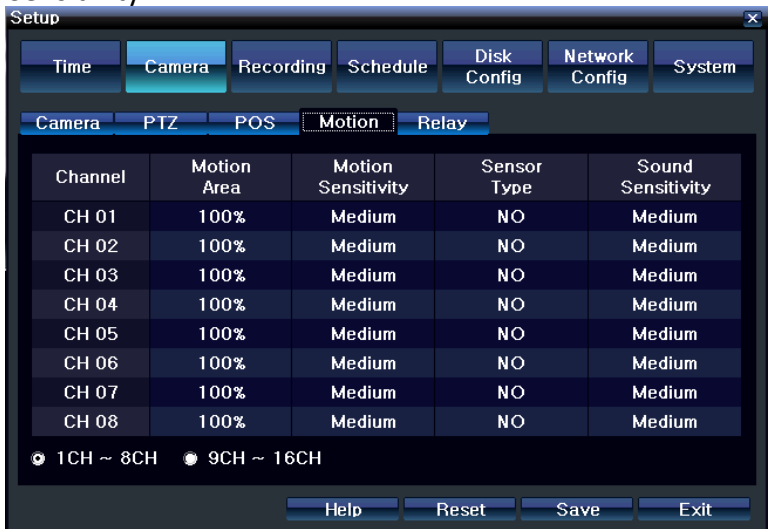
- Once the motion area has been set, set the Motion Sensitivity, Sensor Type and Sound Sensitivity accordingly.
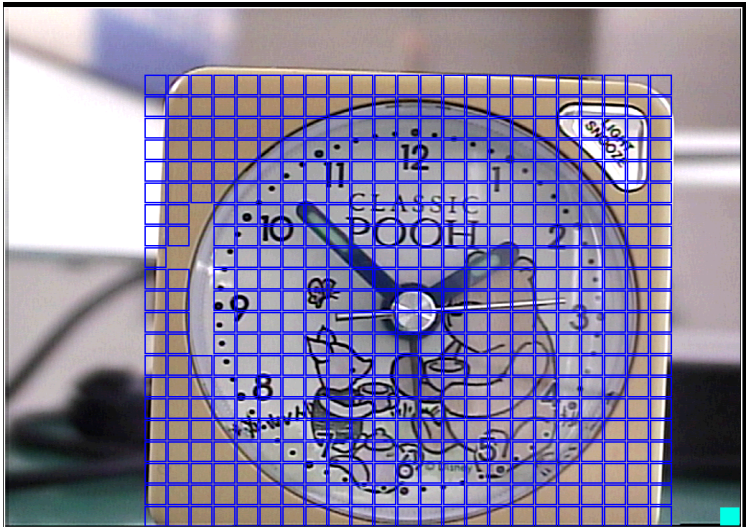
Relay

- Select from NO (Normally Open) or NC (Normally Closed).
- If the wrong type is selected, relay will not work.
- NO (normally open) closes when a signal is received.
- NC (normally closed) opens when a signal is received.

- Relay Output Connections:

- Relay output signal to external device such as Alarm or Siren.
- Connect relay to R1, R2, R3, and/or R4 of the terminal block, located on the rear side with R#_Com Port

⚠ ※ Number of relay varies depending on the model of the DVR.

Recording

The Recoding setup is to configure the environment of the system's record configuration and major functions.

VMAXD1 allows you to create a more detailed recording schedule by setting four unique record configurations.

Right-click mouse button; then select **[Setup] > [Recording]**.

Select the specific schedule (Schedule1, Schedule2, Schedule3, Schedule4) you wish to configure, and change the settings for the selected recording schedule.

Event

- Configure the camera to record for the different types of event— Motion, Sensor, Sound, POS/ATM.
- Set the event as ON to record when the type of event occurs. If you do not wish to record, set it OFF.
- All Event recording follows the Event Speed which can be configured at [Setup] > [Recording] > [Event Speed]. See "5.3.2 Recording
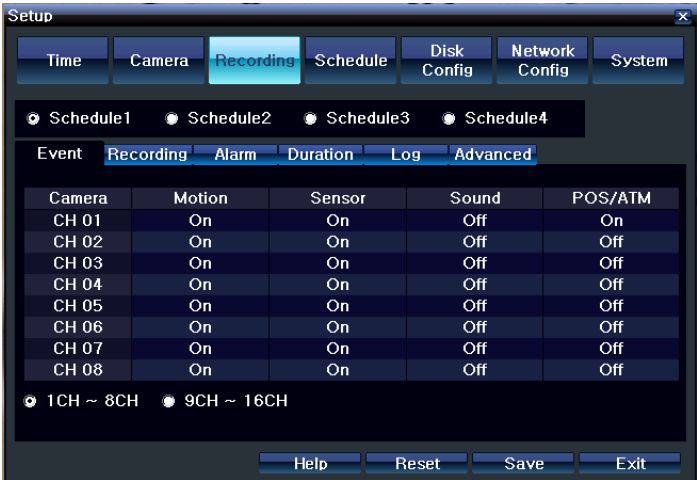
※ If none of the event options are turned ON, the VMAXD1 will record continuously.

Event Type	Description
Continuous	The VMAXD1 will record continuously at the Normal Speed.
Motion	When the VMAXD1 detects motion, it will begin recording at the Event Speed.
Sensor	When an input signal from an external sensor is generated, the VMAXD1 will begin recording the event.
Sound	When audio is detected, the VMAXD1 will begin recording the event.
POS/ATM	When the POS device sends a transaction to the DVR, VMAXD1 will begin recording the event.

Recording

▪ Set the details for the recording image and the recording speed.

▪ *Recording Resolution*: Set the resolution of the recorded channels. Select from CIF, 2CIF, and 4CIF.

Recording Resolution	NTSC	PAL
CIF	352*240	352*288
2CIF	704*240	704*288
4CIF	704*480	704*576

▪ Recording Quality: Set the quality of the recorded channels. Select from Lowest, Low, Middle, High, and Highest

📖	※ The higher the quality, the larger the file size will be.

• *Normal Speed:* When there is no event, the VMAXD1 will record with this frame rate.
• *Event Speed:* This will be the recording frame rate for Event Recording, Sensor, and Audio.

MODEL	CIF (NTSC/PAL)	2CIF (NTSC/PAL)	4CIF (NTSC/PAL)
VMAXD1 16	480/400fps	480/400fps	480/400fps
VMAXD1 8	480/400fps	480/400fps	480/400fps

▪ *Audio:* Set the recording of the external audio input connected to the VMAXD1. If you wish to record sound, set to ON. If not, set to OFF.

Alarm

- This feature is used to generate alarms through the PTZ Preset, E-mail, Spot 1, Popup, and/or Callback in case of an event. You can configure up to eight presets (1-8).

⚠️ ※ Popup function is to inform event occurrence to the user through a warning window in the real-time monitoring mode.


- *Buzzer:* Makes a beep sound when event is triggered*.*
- *PTZ Preset:* Set preset number. When event is triggered, PTZ camera will move to the selected preset.
- *E-mail:* When an event is triggered, the VMAXD1 will send user an e-mail*.*
  Setup your email at [Setup] > [Network Config] > [E-mail].
- *Relay:* When an event is triggered, relay out will be activated*.*
- *Spot:* When an event is triggered, user will receive popup on spot monitor.
- *Popup:* In real time recording mode, a Warning window will appear. This window will inform the user when an event occurs.

Duration
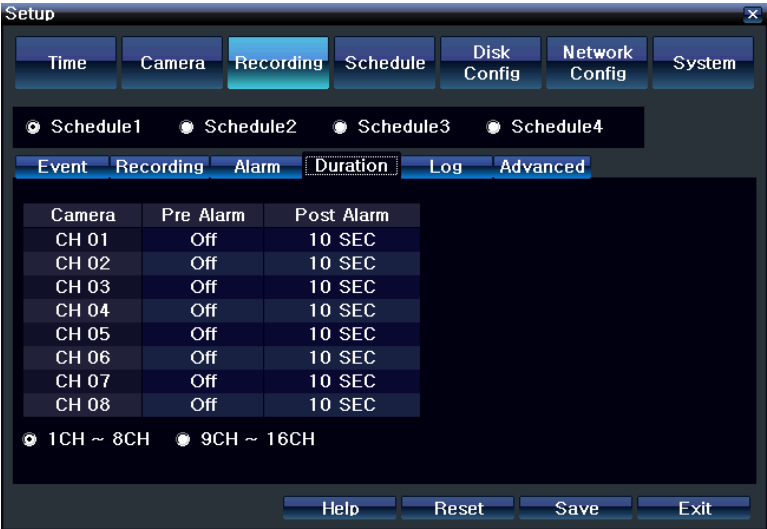
- Pre Alarm: Set as ON or OFF. If ON is selected, the VMAXD1 will record the frames of the last 7 seconds before the event occurrence.
- Post Alarm: Set the duration you wish the VMAXD1 to record immediately after the event has ended. Select from 5, 10, 15, 20, 50, 100, and 300 seconds.

Log
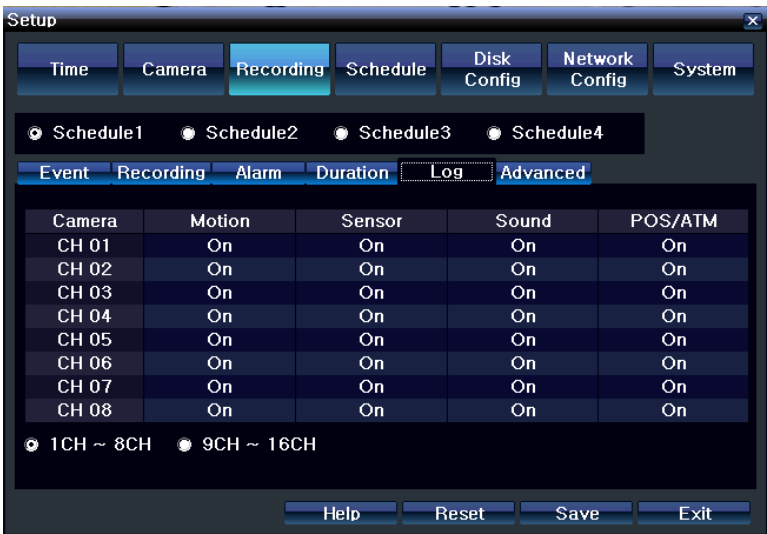
- Set the VMAXD1 to generate and save specific log categories—Motion, Sensor, Sound, Pattern, and POS/ATM. If set as ON, the VMAXD1 will save the logs of that category.

Advanced
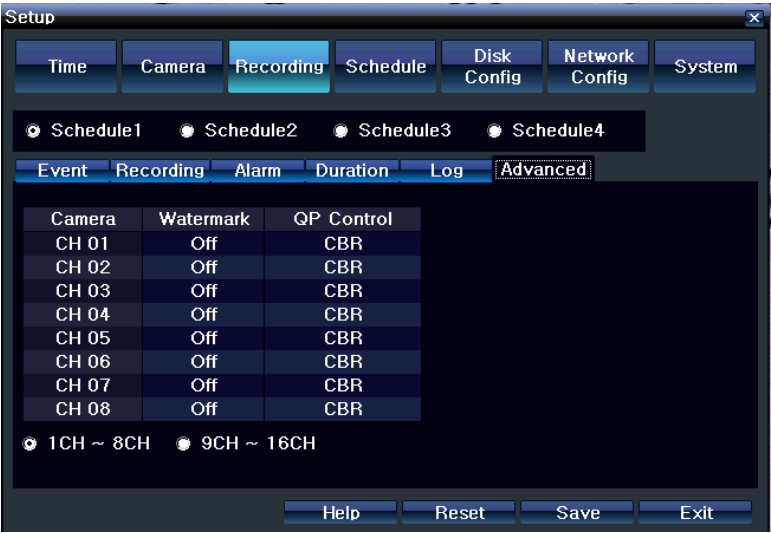
- *Watermark:* Set as ON or OFF.
- *QP Control:* This will help adjust the size of the files that need to be saved by adjusting the quality of the image. Select from CBR or VBR.
- CBR will give you consistent file sizes but different image qualities.
- VBR will give you consistent image qualities but different file sizes.

> ⚠️ CBR and VBR can be set in 5 different levels, depending on the recording quality.

Schedule

VMAXD1 allows you to create a more detailed recording schedule by combining four unique record configurations on a weekly 24 hour basis.

Right-click mouse button; then select [Setup] > [Schedule].

Select the specific schedule configuration (Schedule1, Schedule2, Schedule3, Schedule4) you wish to apply to the schedule, and use your mouse to select the time block(s) you wish to apply the configuration to.

Hour Button: Select all days and time.

Day (Mon~Hol) Button: Select Horizontal Line

Time (0~23) Button: Select Vertical Line

Holiday

▪ This feature enables the user to set the holidays and schedule independently.

    o Select [Schedule] > [Holiday].

    o On the Holiday Registration window, select the date by using the arrow keys; then, press the SELECT button.

    o After setting the holiday, click [Save] at the bottom of the menu.

If the holiday and day of the week are the same in the Schedule menu, the holiday will have priority over ordinary day in the weekly schedule.
Designated holidays are indicated with a red tag.

Disk Configuration

	In the Storage menu, remember to save the new settings after making changes. If not, the new settings will not be applied to the system. The system initializes the menu to the basic setting.

Auto Detection

- This feature enables the user to set the holidays and schedule independently.
  - o Select [Schedule] > [Holiday].
  - o On the Holiday Registration window, select the date by using the arrow keys; then, press the SELECT button.
  - o After setting the holiday, click [Save] at the bottom of the menu.

HDD Overwrite

- Turn ON or OFF.

	If ON is selected and the HDD runs out of free space, the VMAXD1 will overwrite the existing files beginning with the oldest data. If OFF is selected, the VMAXD1 will not record.

Local Storage Management

- Local Storage Management is where the internal hard disk and storages connected to the system via USB are managed. Local Storage Management classifies the different storage devices into the three categories—New, Recording, and Backup.
- New: All storages, initially detected, are directly managed into [New], but they can be transferred into [Recording] or [Backup].
- Select storage in the New category, and click the left mouse button. Then select Record-Init or Backup-Init.
- Record-Init: Transfers the selected storage from New to Recording
- Backup-Init: Transfers the selected storage from New to Backup.

⚠ Caution	At least one of the storage should be sent to [Recording]. Otherwise, recorded data will not be stored in real-time.

Recording: Storage devices place in Recording will only be used to store recorded data. The recorded data will be saved in real-time. In the Recording category, five commands can be executed. However, depending on the software status, some commands may not work.

The commands are as follows:
New: Returns the selected storage device back to the New category.
Online: Changes the selected storage device to Online state.
Offline: Changes the selected storage device to Offline state.
Format: Format the selected storage.
Eject: Completely removes the selected storage from the software.

📖	When the VMAXD1 is in Healthy or Warning state, the above commands will be executed. However, if the VMAXD1 is in a Fault state, no commands will be executed.

⚠	When removing a HDD installed to the VMAXD1 or a storage device connected to the VMAXD1 through a USB port, the user must execute the [Eject] command first.

Backup: The storage devices placed in Backup will only be used for backing up data. They can never be used to store data.

⚠	Depending on the storage type, the storage can only be used for Recording or Backup purposes.

Status Types of the Local Storage Device

	Software Status Types
Active	Connected to storage or backup device. It is currently saving the recorded data.
Online	Only connected to storage or backup device.
Offline	Not connected to storage or backup device.

	Hardware Status Types
Healthy	Connected to storage or backup device, and it functions normally.
Warning	Connected to storage or backup device, but an error was detected. In this state, recorded data cannot be stored or backed up. The storage device has a physical error that can be corrected by the storage device or by the DVR. If the error is not taken care of, the storage device has likely been damaged and shifted to the fault state. Replacing the device with a normal one is strongly recommended.
Fault	Not connected to storage or backup device, and it cannot record or backup data. The storage device is completely damaged, and none of the software operations can be performed. The fault state is not related to a DVR problem. The DVR has detected the fault and stopped the recording.

⚠	If there is an active storage device with a warning or a fault, a message is displayed on the upper left corner of the screen.

Status Types of the Local Storage Device

- Open the system body and install a new disk. Connect the data cable and the power cable.
- Connect power to the system and boot the system.
- Go to [Setup] > [Storage] by using the arrow keys and the SELECT button.
- A newly displayed disk will then be displayed in the New category.
- Select a newly installed disk by using the arrow keys and the SELECT button; then, initialize the disk as a Recording or a Backup disk. The following describes how to set the Recording storage.
- Recording shows the status of the newly installed disk online.

⚠ Caution	※ Selecting [Direct-Init] or [Backup-Init] causes all data in the device to be erased. Therefore, caution is required.
	※ While [Direct-Init] or [Backup-Init] is being set, do not remove the device, for it may cause an error when detecting the device.
	※ To use the external or portable storage device for system upgrade, send New storage device to [Backup-Init] at [Setup] > [Storage] > [Local Storage Management].
	A USB device that has gone through this procedure will be detected in the Backup category automatically, when used again in the DVR equipment.

HDD Format for Direct Backup

- Select the model first.
- As shown below, proceed with the following order: [Online] > [Format] > [Online]

> ⚠️ It may take some time during formatting.
> After formatting, select the model again and set as Online.

Network Configuration

Ethernet

Select TCP/IP or ADSL and input the necessary information to connect your VMAXD1 to the network.

TCP/IP: Uses a fixed IP in the Local Area Network environment.

Go to [Setup] > [Network Config] > [Network].

- Check the box to use TCP/IP.
- Enter the IP Address, Subnet Mask, Default Gateway, Primary DNS, and Secondary DNS.
- Click [Save].
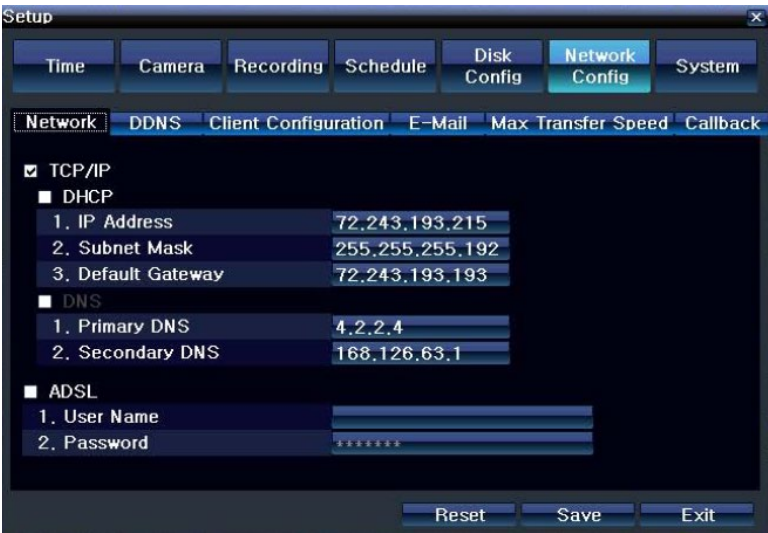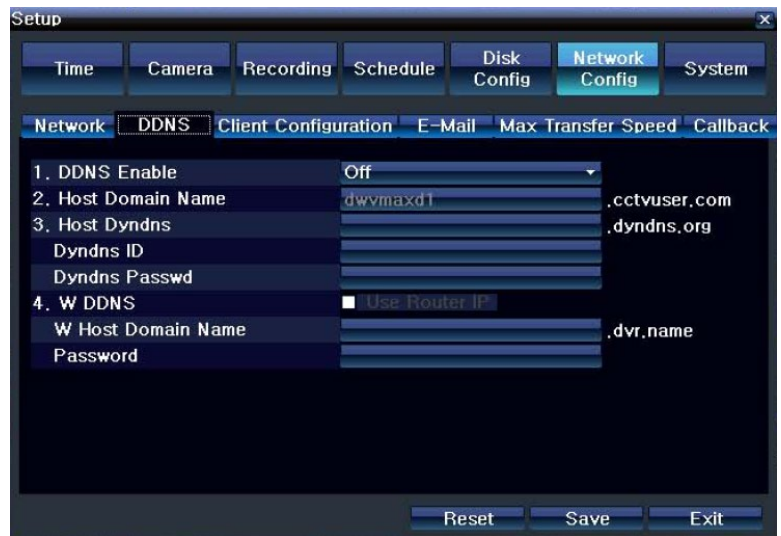
ADSL: Uses the user authentication-type ADSL communication environment.

- Check the box to use ADSL.
- Enter the Username and Password.
- Click [Save].

DDNS

As part of the DNS system, the Dynamic Domain Name Server (DDNS) updates IP addresses of the host name in real-time and assigns fixed domain names to the systems linked to that DNS server, allowing users to use the same DNS name regardless of the change in the IP address. DDNS provides dynamic IP addresses to ensure URL access.

User can monitor the VMAXD1 from a remote location, using the built-in web server.

- Select from OFF, DDNS ON, DYNDNS ON, and W DDNS ON.
- If DDNS ON is selected, enter the Host Domain Name.
- The registration procedure of the DDNS host domain name proceeds automatically. You can enter a host name that consists of 4-20 letters.
- If the host name you enter has been pre-registered in the DDNS server, it will not work. The basic host name is the MAC address of the DVR.
- If the host name you entered begins with "000c28", none of the MAC addresses will work except those pertaining to that IP address.
- If DYNDNS ON is selected, enter the DynDNS Username and the DynDNS Password.
- If W DDNS ON is selected, enter the W DDNS host domain name and W DDNS Password.
- Click [Save].

> ※ Access to DynDNS sever (http://www.dyndns.org) and apply for the user account. Then, register the domain name to use, and enter the URL.
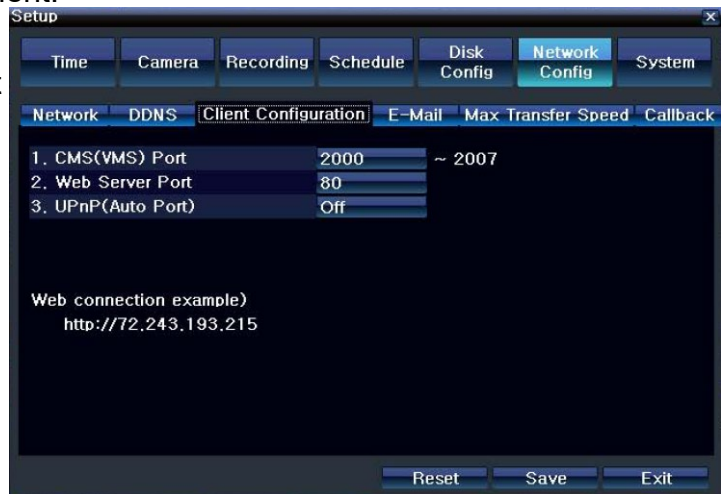> ※ For more information, please access the DynDNS site.

Client Configuration

Go to [Setup] > [Network Config] > [Client Configuration].

The Ports need to be set in order for the VMAXD1 to connect to the client software(s) properly. CMS (VMS) Port: This is used to connect the VMAXD1 to a CMS or VMS software. The default value is between 2000 and 2007. A randomly chosen value can be used depending on the network environment.

Web Server Port :This is used to connect the VMAXD1 to a remote software. The default value is 80. If 80 is blocked, use a random number over 2000.

UPnP (Auto Port): This is used to connect the VMAXD1 to the network using a router.

E-mail

Set your VMAXD1 to send e-mail notifications automatically when an event occurs.

Go to [Setup] > [Network Config] > [E-mail].

- Check [Address#] field, and enter e-mail address.
- To attach an image with the e-mail, check Still Image Attachment.
- Enter sender's email address in the [From] field.
- To use another e-mail server, set the [Relay SMTP] field.

To use this feature, go to [Setup] > [Recording] > [Alarm] and make sure E-mail is set to ON.

Also go to [Setup] > [Network Config] > [Network] and make sure the Primary DNS and/or Secondary DNS are configured.

Client Configuration

Go to [Setup] > [Network Config] > [Client Configuration].

The Ports need to be set in order for the VMAXD1 to connect to the client software(s) properly. CMS (VMS) Port: This is used to connect the VMAXD1 to a CMS or VMS software. The default value is between 2000 and 2007. A randomly chosen value can be used depending on the network environment.

Web Server Port :This is used to connect the VMAXD1 to a remote software. The default value is 80. If 80 is blocked, use a random number over 2000.

UPnP (Auto Port): This is used to connect the VMAXD1 to the network using a router.

E-mail

Set your VMAXD1 to send e-mail notifications automatically when an event occurs.

Go to [Setup] > [Network Config] > [E-mail].

- Check [Address#] field, and enter e-mail address.
- To attach an image with the e-mail, check Still Image Attachment.
- Enter sender's email address in the [From] field.
- To use another e-mail server, set the [Relay SMTP] field.

To use this feature, go to [Setup] > [Recording] > [Alarm] and make sure E-mail is set to ON.

Also go to [Setup] > [Network Config] > [Network] and make sure the Primary DNS and/or Secondary DNS are configured.

Max Transfer Speed

This configures the settings for the data sent over the network.
Go to [Setup] > [Network] > [Max Transfer Speed].

Select the settings of the picture(s) that you wish to send over the network.

Picture Resolution: Adjust the resolution of the picture(s) that are sent over the network.

Picture Quality: Adjust the quality of the picture(s) that are sent over the network.

Bandwidth Limitation: Set a limit to the bandwidth that is used when sending data over the network. The VMAXD1 will meet this limit by adjusting the image resolution and image quality.

Image Resolution	Adjust the resolution of the image. Select from CIF, 2CIF, 4CIF, HCIF, QCIF.
Image Quality	Adjust quality of the image. A higher value has a higher compression and transmission rate but a lower image quality.
Bandwidth Limit	You can set the network bandwidth between 40 ~ 4000kbps. As the value increases, the network transmission speed gets faster. Select OFF if you do not wish to limit the network bandwidth.

System

DVR Name

The default name is the MAX Address of the VMAXD1, but the name can be changed. The new name can consist of up to 20 letters.

ID for Remote Controller

To use remote controller, this ID must match the Remote Controller ID. If not, the remote controller will not be able to send input singles to the VMAXD1. The numbers 1 ~ 255 can be used as the ID.

- Go to [Setup] > [System]
- In the ID for Remote Controller selection window, enter ID by using the arrow keys and the SELECT button. The numbers 0 ~ 99 are available for ID.

	If you forget the DVR ID, set the remote controller ID to 999 to start the DVR. However, note that the DVR ID should be the same as the remote controller ID.
	※ Configure remote controller ID as 3. 1) Press [ID] button on the remote controller. 2) Press the [0] key and [3] key. 3) Press [ID] button again.

System

ID For Key Controller

To use keyboard controller, this ID must match the Keyboard Controller ID. If not, the keyboard controller will not be able to send input signals to the VMAXD1. The numbers 1 ~ 255 can be used as the ID.

- Go to [Setup] > System].
- In the ID for Key Controller selection window, enter ID with the arrow keys and the SELECT button. The numbers 1 ~ 255 are available for ID.

Users

Add, Modify, or Delete the users who will be given permission to operate the VMAXD1. Up to 15 users can be created, and the administrator can limit the access authorizations of each user.

SYSTEM ACCESS AUTHORIZATION	
Network Live	View the real-time videos upon network access.
Playback	View the recorded images.
Copy (Download)	Copy and download files.
PTZ Camera	PTZ Camera Control
Setup	Recording, Schedule, System, Storage, Time, PTZ, Network, Screen Setup
Network Upgrade	Remote Network Upgrade
Covert Channel Monitoring	View the covert channel in the network.

System

Admin. Password

Setup the password of the administrator account. The password consists of a maximum of five digits.

Upgrade

Easily upgrade your VMAXD1 firmware or the VMAXD1 firmware or the Setup Menu Settings using an external or portable storage device. Make sure the storage device that contains the upgraded file is connected to the VMAXD1. Click Firmware to upgrade the VMAXD1 firmware. Click Setup to upgrade the setting values of the Setup Menu.

※ Find and copy the upgrade file to the highest folder in the external storage device or portable storage device that supports USB 2.0.

※ Connect the storage device with an upgrade file stored to the USB 2.0 port located on the left and right of the front panel.

⚠️	1) When copying an upgrade file from the PC, delete the USB device properly from the PC or disconnect it from the USB port. 2) If the USB device is disconnected from the USB port while the upgrade file is being copied, the DVR system may not automatically detect the file. 3) Upgrading is impossible if the HDD is not mounted.
⚠️ Caution	Removing a USB device during the upgrade may cause damage to the system. The system starts over when the upgrade is completed.

System

Upgrade

Firmware Upgrade

- Select [Firmware] and the upgrade file list stored in the selected device with a simple description of the selected file are displayed. Select a file and Firmware Upgrade window will appear.

> ⚠️ ※ Downgrading to a previous version is not supported.
> ※ The Upgrade Information window will then appear within 15 seconds.

- Read the information and select [Yes] to start the upgrade gradually. Select [No] to return to the System Mode.
- After the upgrade is completed, the system reboots.
- To check the Firmware Version, right-click mouse button, and go to [Information] > [Version].

Setup Upgrade

- Select [Setup] and the upgrade file list stored in the selected device with a simple description of the selected file are displayed. Select a file and Firmware Upgrade window will appear.
- Select a file and the upgrade will start immediately.

> ⚠️ Caution
> Select a file and then the upgrade starts immediately. All setting values of the current menu will be changed to the upgrade setting values.

Factory Setup

This will initialize all setting values, meaning all values will go back to the factory default value.

- Go to [Setup] > [System].
- Click the [Reset] button.
- Select [Yes] when Initialization window appears.
- To cancel, click [No] or [Cancel].

> ⚠️ Caution
> Note that all setting data will be initialized.
> ※ All values go back to Factory Default Value.

Sensor/POS Port

Select the device that will be connected to the VMAXD1 through the RS232C Port.

- Go to [Setup] > [System].
- On the Sensor/Pos Port selection window, Choose from Sensor (9~16) or POS (1~8) by using the arrow keys and the SELECT button.

Error Alarm Action

Select how you wish to be notified of any alarm errors (Video Loss Signal, HDD Full, Fan Failed, HDD Failure, and Storage Warning).

- Go to [Setup] > [System].
- On the Error Alarm Action selection widow, select how to be notified of the alarm. Select from Off Buzzer, E-mail, Relay01, and Popup Window.

※ Warning Window (Popup)
If Popup is selected, this Warning window will appear on the real-time monitoring screen. It will indicate Video Loss, HDD Full, Fan Failed, Storage Failure, and Storage Warning in white.

Error Alarm Duration

Set the duration of the alarm triggered by a system error.

- Go to [Setup] > [System].
- In the Error Alarm Duration selection window, set Alarm Duration by using the arrow keys and the SELECT button.
- Select from Latch, 5 SEC, 10 SEC, and Custom (5-60).

Auto Log Off

- This is used to set a time for when the DVR automatically exits the Setup Menu and displays the real-time monitoring screen due to inactivity.
- Go to [Setup] > [System].
- In the Auto Log Off selection window, select the time you wish to set, using the arrow keys and the SELECT button.
- Selecting the Custom causes the Input window to appear.
- Enter the time by using the numeric buttons or the arrow keys and the SELECT button.

Off	Auto Log Off is not used. ※ The user can exit the menu by pressing the [ESC] button in the System menu.
1/2/3 MIN	If there is no input from the front button, remote controller, or mouse, the system will shift to the real-time monitoring mode after 1, 2, or 3 minute(s).
Custom	The user can enter the time directly. ※ The time can be set to 1-60 minute(s).

Language

Select the language for the VMAXD1 OSD Menu. 17 languages are supported

5 LIVE

Real Time Live View

After booting is finished, Audio, Recording Status, Channel Title, Connection Status, Time, and HDD Status are all displayed.

Status Icons

Recording Event	
M	Motion Detection Recording
S	Sensor Recording
A	Audio Recording
P	Pattern Change Recording
T	Text Recording

※ Recording Event Icons are still displayed even when recording has been stopped.

Recording Mode	
V	Video Recording
A	Audio Recording
T	Text Recording

※ Recording Mode Icons distinguish recording status.

Monitoring Mode	
(camera icon)	Video is not connected or Video is covert.
(speaker icon)	Audio is set activated.
(muted speaker icon)	Audio is set as silent.
No Signal	Camera has been disconnected.

Control Bar

ID:1 □ ▦ ▦ ▦ ▢ ▢ 06/28/2011 23:31:30 | OverWt. | PLAY

- ▪DVR ID
- ▪Full Screen
- ▪4 Channel Screen
- ▪8 Channel Screen
- ▪16 Channel Screen

- ▪Zoom
- ▪Auto Sequence Mode
- ▪Date & Time
- ▪Hard Drive Status
- ▪Playback

System Login

System users are divided into local administrators and general users. The local administrator can use all functions of the VMAXD1.

Local Admin	The local administrator can use all functions: System Power On/Off, Setup, Live View, and Playback. However, remote access is not available.
User	Up to four users are allowed. Each user can access the functions depending on the given authorities. For Authorization Setup, go to [Setup] > [System] > [Users].

Authorization Setup Features

Network Live	View the real-time image by network access
Playback	View the recorded image
Copy (Download)	Copy and download the file from the network
PTZ Control	PTZ camera control
Setup	Recording, Recording Schedule, System, Storage, Time, PTZ, Network Setup, Screen Setup
Network Upgrade	Remote network upgrade
View Covert Channels	Enable viewing Covert channels

For security purposes, user must first log in to use the Setup menu for Monitoring Mode.

- On the Monitoring window, click the right mouse button.
- Select the SETUP button and the Login window should appear.
- Select the ID and enter the Password. To exit, click CANCEL.
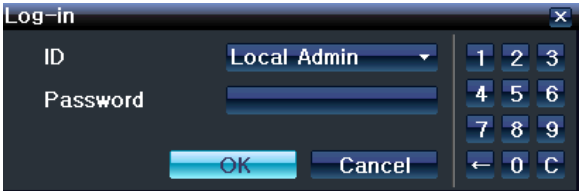
System Logout

- After logging out, the user cannot use the Setup menu.
- On the Monitoring window, right click the mouse button.
- Click the ▢ icon and click YES when the Log-out window appears.
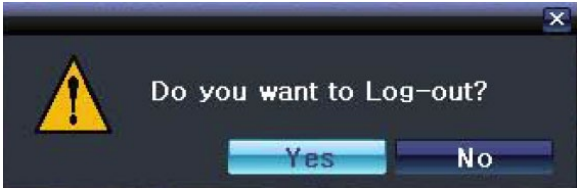
Screen Division & Auto Sequence

After the system has booted, images will be displayed on a 9 or 16 Screen Division Mode, depending on the model. The system follows user's setting for the screen division, once the DVR has been rebooted.

VMAXD1 Series provides the following screen division modes: 1, 4, 9, Big, 16, Biggest, and Auto Sequence.

1, 4, 9, and 16 are Basic Screen Division Modes. Big, Biggest, and Auto Sequence are Special Screen Division Modes.

In Basic Screen Division Modes, clicking the same Screen Division button as the one displayed will lead to the next camera or sets of cameras as shown below.

1 Screen Division Mode (16 Group)	
4 Screen Division Mode (4 Group)	
9 Screen Division Mode (3 Group)	
16 Screen Division Mode (2 Group)	

※ User can view an image as full screen by double-clicking a desired channel in the 4, 9, or 16 Screen Division Mode.

※ Mouse: Double-click on a channel to move to Big or Biggest Screen Division Mode of the selected channel number.

Auto Sequence is used to rotate images in 1, 4, 9, Big, or Biggest Screen Division Mode after a certain period of time.

Auto Sequence is not available in the 16 Screen Division Mode.

- Go to [Setup] > [Information] > [Monitor Configuration] to select a duration time (1-10 seconds) for Auto Sequence.
- Pressing SELECT button on front panel, SELECT button on the remote controller, or click the Auto Sequence Mode icon on the GUI with your mouse to initiate Auto Sequence.
- Auto Sequence in 1, 4, or 9 Screen Division Mode.