

Digital Video Surveillance System

Engineering Service Manual

- ※ The picture might differ according to the specification and model.
- ※ Contents of this manual are protected under copyrights and computer program laws.

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1. HDD Installation

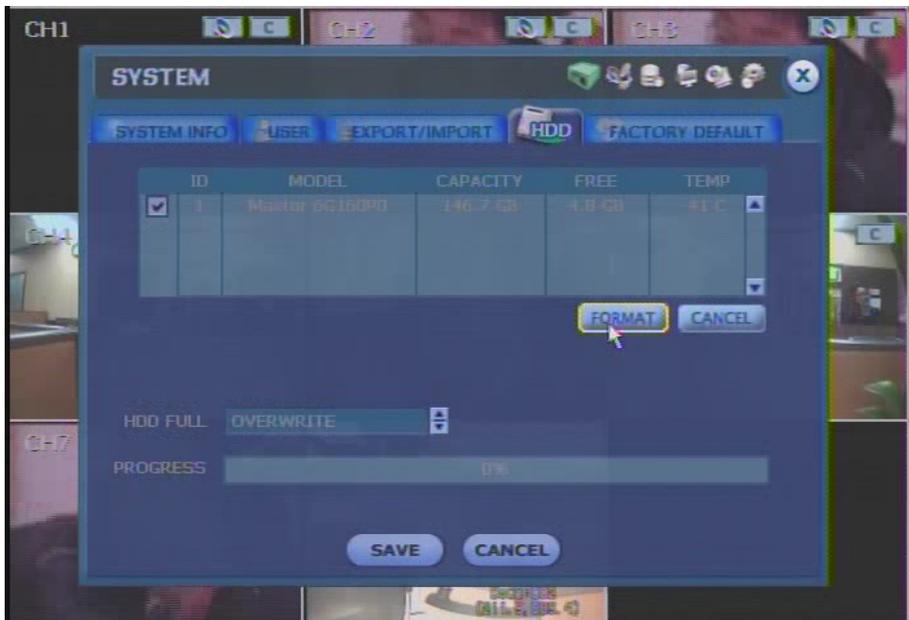
1.1 HDD Installation



1. Setting up Master/Slave jumper of HDD.
2. Secure HDD to bracket using secure screw.
3. Attach HDD bracket to its body using HDD bracket secure screw.
4. Connect the data & power cable.

1.2 HDD Format

1.2.1. Single HDD



1.2.1.1. In case of Lower than 500GB (EX. 500GB)

1. Install the 500GB HDD to Primary Master.
2. Tick on the HDD check box. (ID No. 1)
3. Click the "FORMAT" button.

1.2.1.2. In case of Higher than 500GB (EX. 750GB)

1. Install the lower than 500GB HDD to Primary Master (ID No. 1).
2. Install the 750GB HDD to Primary Slave (ID No. 2).
3. Format the lower than 500GB HDD first, as like "1.2.1.1".
4. Tick on the 750GB HDD (ID No. 2) and Click the "FORMAT" button.
5. Power Off and remove the all HDDs.
6. Install the 750GB HDD to Primary Master, which is formatted at "4".

Note | It takes around 2minutes for 250GB, 3minutes for 500GB, or 4minutes for 750GB each..

1.2.2. Multiple HDDs



1.2.2.1. In case of all HDDs are lower than 500GB (EX. 500GB)

1. Install the all HDDs to Primary Master, Primary Slave, Secondary Master and Secondary Slave.
2. Tick on the all HDDs check box. (ID No. 1 ~ 4)
3. Click the "FORMAT" button.
4. All HDDs will be formatted sequentially ID No. 1 to 4

1.2.2.2. In case of all HDDs are Higher than 500GB (EX. 750GB)

1. Install the lower than 500GB HDD to Primary Master (ID No. 1).
2. Install the 750GB HDD to Primary Slave (ID No. 2).
3. Format the lower than 500GB HDD first, as like "1.2.1.1".
4. Tick on the 750GB HDD (ID No. 2) and Click the "FORMAT" button.
5. Power Off and remove the all HDDs.
6. Install the 750GB HDD (formatted at "4") to Primary Master.
7. Install the others HDDs (750GB Each) to Primary Slave, Secondary Master and Secondary Slave.
8. Tick on the HDD Check box ID No. 2 to 4.
9. Click the "FORMAT" button.
10. All HDDs will be formatted sequentially ID No. 2 to 4.

Note The system always reserves maximum 5GB space in each built-in HDD to effectively utilize archiving memory.

Note Master HDD must be no larger than 500GB in format, while other slave HDDs are limitless in capacity each.

If user wants to format & install over 500GB HDD in the master HDD position, then user has to install & format a lower-capacity of HDD(lower 500GB) first in the master position, and then later, install & format an over-500GB HDD in slave position. Once after user formats both master HDD(lower 500GB) & slave HDD(over

500GB), then user can replace master HDD(lower 500GB) with slave HDD(over 500GB) to have larger HDD capacity(over 500GB) in the master position.

1.3 Recommended HDD & Backup Device (CD, DVD)

1.3.1. HDD List

No.	Manufacture	Capacity (GB)	RPM
1	Western Digital	80	7200
2		250	7200
3		500	7200
4			
5	Seagate	160	7200
6		320	7200
7		400	7200
8		500	7200
9		750	7200
10			
11			
12			

1.3.2. Backup Device List (CD, DVD)

Device	Manufacture	Model
CD-RW	LITE-ON	SHOR-5239V
DVD +/- RW	LG	GSA-H42L
		GSA-H42N

Note	Kinds of Supported DVD Media to Backup - DVD-R (O) - DVD+R (O) - DVD-RW (X) - DVD+RW (X)
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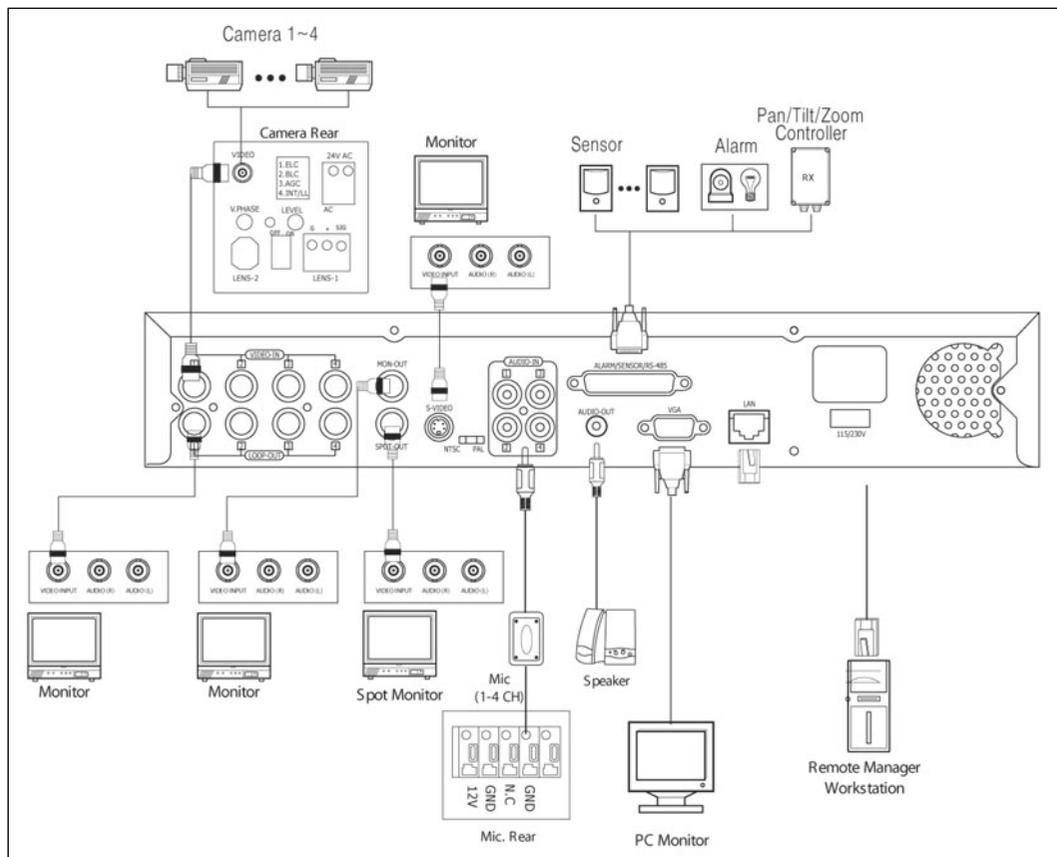
2. Connecting Peripheral Device & PIN Assignment

2.1 Connecting Peripheral Device

This section describes how to efficiently hook up peripheral devices with the DVR.

Install the DVR on flat surface. If required, attach a rubber mount for installation. In case that 19-inch rack is used, it is recommend to install the system on shelf and use 2.5~3U(1U=1.75 inch or 4.45 cm) space for proper ventilation

Note Install the system in location with good ventilation to prevent overheating.



Caution ※ The layout of the rear panel on the DVR might differ according to the models.
 ※ Depending on the grounding, the coaxial cable connecting to the camera has danger of electric shock. Shut down power of the system completely (unplug the power cable) before connecting video cable to BNC port.

3. Network Configure

3.1 Fixed Public IP



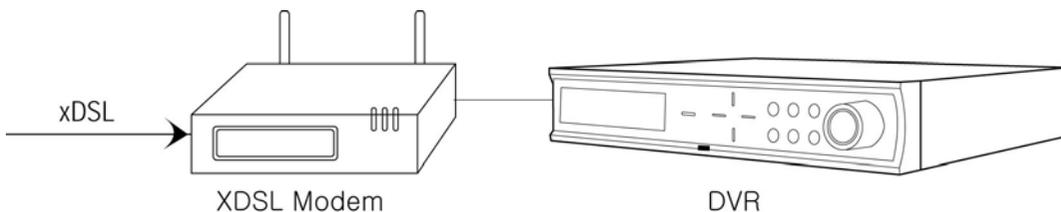
- 1) Set the network [Type] to LAN.
- 2) Enter the IP Address, provided by the Internet Company.

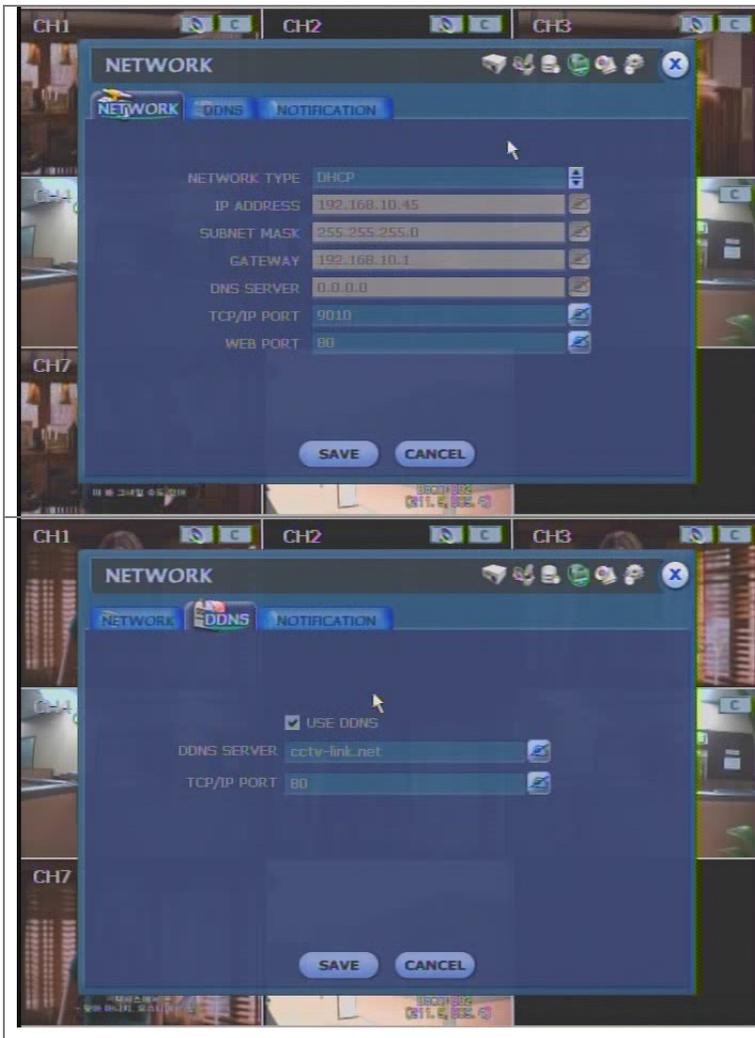
Note In case network cannot be connected after completing the settings, try connecting the cable to another PC. This is to check if the network (internet) connection is working properly.

3.2 Dynamic Public IP

3.2.1. In case only xDSL modem is used without Router

Note Does not support PPPoE modem





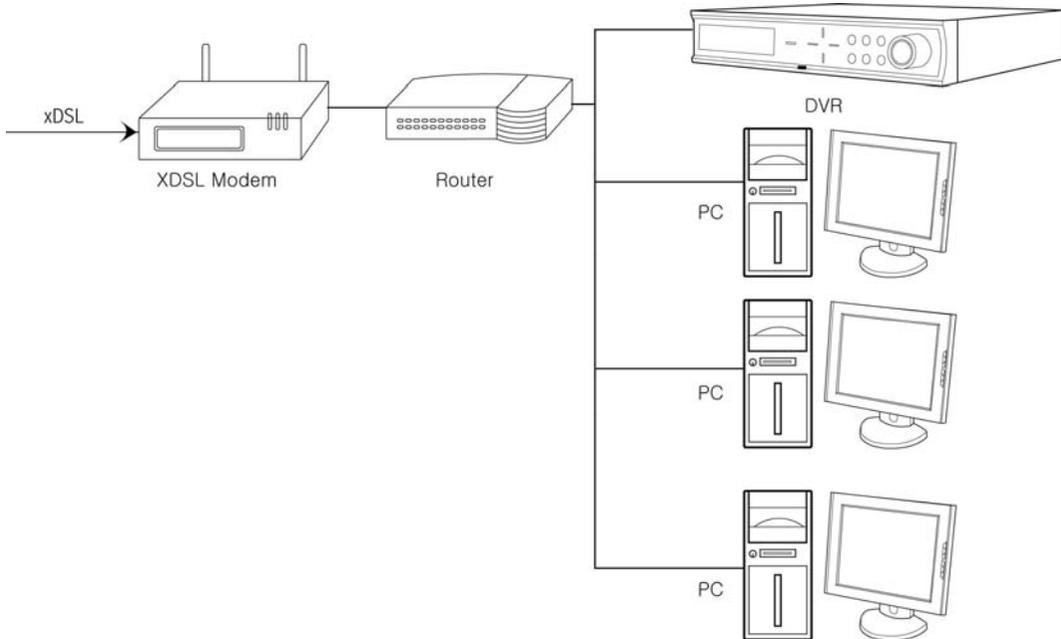
1) Set the network [Type] to DHCP.

- 2) Tick on [USE DDNS] category from DDNS.
- 3) Do not change the fixed setting value of the DDNS Server and the ports. If the value is changed, the network connection may not be possible.

DDNS Server : cctv-link.net
TCP/IP Port : 80

3.2.2. In case xDSL modem and Router is used

Note PPPoE modem can be used if Router that is compatible with the PPPoE function is used



In case Port Forwarding function of the Router had been used for connection



- 1) Set the network [Type] to LAN or DHCP.
- 2) Enter the value on IP Address, Subnet, and Gateway with the value that had been used to enter while setting DMZ function of the router.

**** For Port Forwarding, the TCP (UDP) / IP Port as below Port List will have to be opened.**



- 3) Tick on [USE DDNS] category from DDNS.

Do not change the values of the Dynamic IP Server and each port that are fixed. The network connection may not be possible if the inputted value is modified.

DDNS Server : cctv-link.net
TCP/IP Port : 80

DVR TCP & UDP Port List

Protocol	Port	Usage	Remark	Editable	Location
TCP	9010	Control port of Authorization service	TCP Base Port	Yes	Network/ Network
TCP	9011	Control port of VOD service	TCP Base Port +1		
TCP	9012	Data port of VOD service	TCP Base Port +2		
TCP	9013	Control port of Live service	TCP Base Port +3		
TCP	9014	Data port of Live service	TCP Base Port +4		
TCP	9017	System log service	TCP Base Port +7		
TCP	8002	DVR system time sync service		Yes	System Info/ Date/Time Setting
TCP	8003	Event notify socket(Requering port)		Yes	Network/ Notification
TCP	80	Web service		Yes	Network/ Network
TCP	80	DDNS server	Fixed	No	Network/ DDNS

Note User needs open or Port Forwarding the related-network ports in reference of above chart. (Both of DVR and Remote SW site.)

3.3 RemoteManager Setting

Remote Options

Receive Event
 System Alarm Video Record

OSD Display
 Name Date Resolution

Use DirectDraw for image display
 Use DeInterlace

Screen Switching Interval (sec) 3
 Alarm Pop-up (sec) 5
 Live Audio Monitoring Channel (for KE-7000 Series only) 1

DDNS
 IP cctv-link.net
 Port 80

Event Port 8003
 Storage Server IP

Saving Directory D:\

OK Cancel

- 1) From the RemoteManager, go to [Remote Options] and enter [DDNS IP] and [Port].

Server IP : cctv-link.net
Port : 80

Site Property

System

Name KE-8016MX
 IP Address(or URL) 211.187.141.253
 Port 9010
 Web Port 80
 User ID ADMIN
 Password ****
 Channel 1-16

- Input a channel number or range with comma,
 ex) 1-4,6,11,12-15

Ok Cancel

Incase the IP set on the DVR is Fixed IP, enter the IP, Port and Web port of the corresponding DVR while registering site on the RemoteManager.

Ex: 211.187.141.253

Site Property

System

Name	
IP Address(or URL)	001c84010021.cctv-link.net
Port	9010
Web Port	88
User ID	ADMIN
Password	****
Channel	1-4

- Input a channel number or range with comma,
ex) 1-4,6,11,12-16

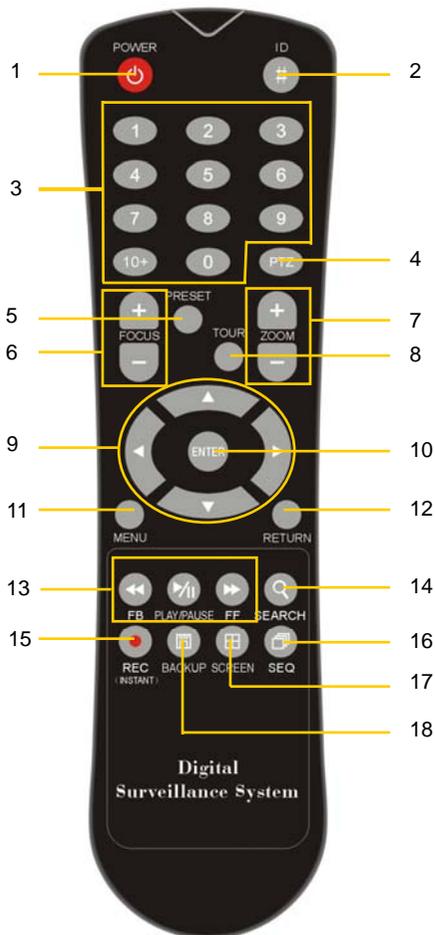
Ok Cancel

Incase the IP set on the DVR is Dynamic IP, enter the Mac Address of the corresponding DVR while registering site on the RemoteManager.

ex) 001c84010021.cctv-link.net

4. IR Remote Controller

The function buttons of the IR Remote Controller are as below.



No.	Functions
1	Power Button
2	ID Selection Button
3	Numeric Button
4	PTZ Button
5	Preset Button on PTZ Mode
6	Focus Button on PTZ Mode
7	Zoom (In & out) Button on PTZ Mode
8	Preset Tour Button on PTZ Mode
9	Direction Button (Left/Right/Up/Down)
10	Enter (Selection) Button
11	Menu Button
12	Return Button
13	Playback Button on Search Mode (Fast Backward/Playback/Stop/Fast Forward)
14	Search Button
15	Instant (Emergency) Recording Button
16	Auto-Sequence Button on Live Display Mode
17	Screen Mode Button
18	Backup Button

Note To use the IR Remote Controller, set the initial ID to be same as the ID in the DVR in the menu of ; SYSTEM > SYSTEM INFO > REMOTE ID.

All DVR(s) have same default ID when it is out from the factory. Therefore, when the default value is used, one IR Remote Controller can control several DVR(s) at once. To prevent this, it is recommended to set each different ID for each DVR.

Procedure How to setup the ID in IR remote Controller

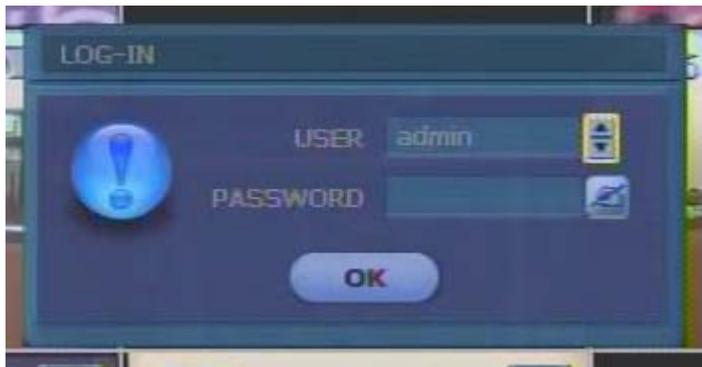
- 1) Keep pressing ID selection button for about 5 seconds.
- 2) Set the ID number by pressing numeric button on IR Remote Controller.
 - If you want to set one-digit number (up to 9), press "0" first and then the number you want.
 - If you want to set two-digit number (10 and over), press "10+" first and then the number you want.

5. To reset the Admin Password

If the user forgets the Admin password, please do as below.



1. Press the "ENTER" button until pop-up the LON-IN window. (About 5 sec.)



2. The Admin password will be initialized to Factory Default. (Default Password : 0000)
3. Change the admin password in the MENU\SYSTEM\USER.

6. To reset all the setting value

If the DVR has frozen even system rebooting, please do as below.



1. Press the "RETURN" button until system reboot. (About 5 sec.)
2. After reboot, the DVR will be worked to normal.

Note | If you use this function, all the setting value of the DVR will return to Factory Default.

7. Firmware Upgrade

1. Save the latest firmware files in **ROOT directory** of your USB memory stick, and connect USB memory stick to DVR's USB port. For your reference, there are three different firmware(s) by each model – 4, 8 & 16 Ch.



2. Turn on the DVR and login with relevant password. Default ID is "admin" and password is "0000"



3. Go to [Tool] > [Menu] > [System Info] in main menu.



4. Select [Upgrade]



5. Select "USB HDD/Stick" in [Method], and press [Scan]. Then, device name will be shown.



6. Press [OK] to proceed firmware upgrade.



7. Click [OK] to reboot DVR, after upgrade process is completed.

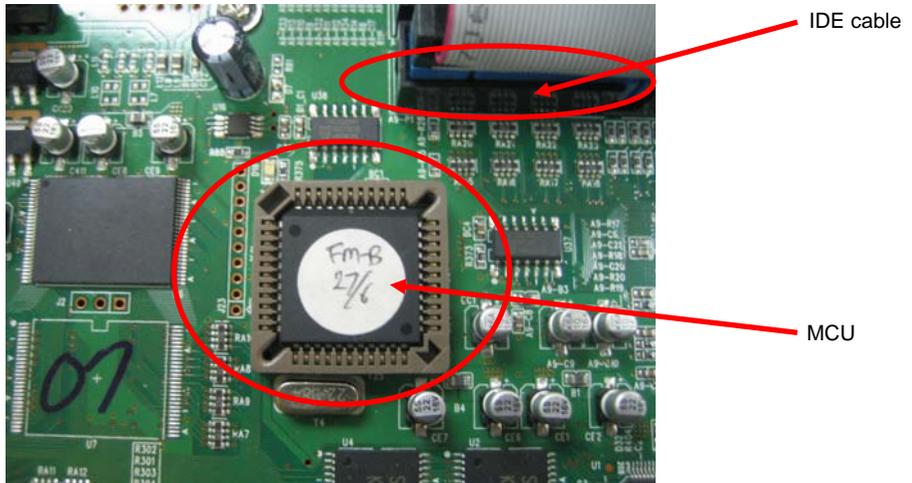


Note	The HDD have to be installed (Formatted) before Firmware. If not, the Firmware upgrade will not be worked properly.
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8. To Change MCU

If the DVR need to change MCU, please do as below

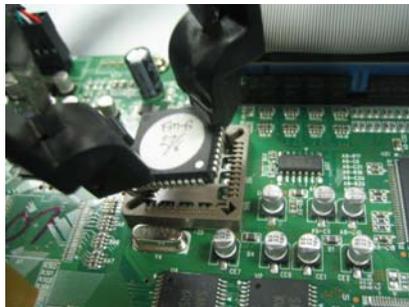
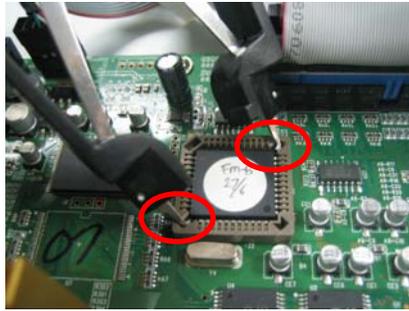
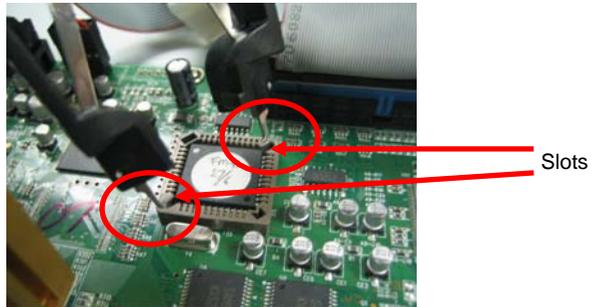
1. Turn off and un-plug power cable from DVR.
2. Open top cover of DVR. The MCU is located near the IDE cable.



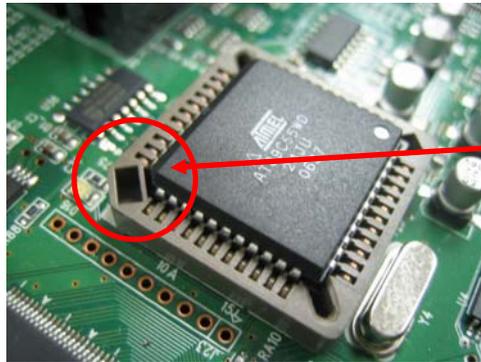
3. You have to use dedicated tool [PLCC Extractor] to remove MCU.



4. You have to put the Extractor into 2 slots of MCU socket as below pictures:



- Put the new MCU into the MCU socket.



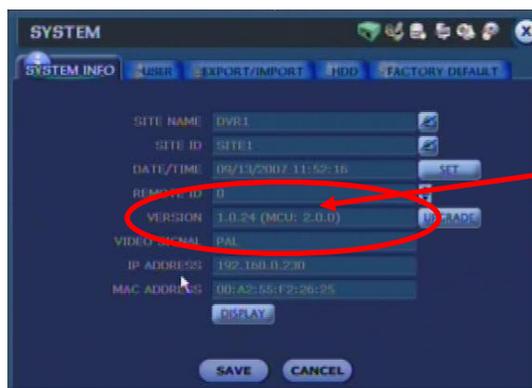
One of corner is in different shape

Please note one of corner is in different shape (i.e. fool proof design). The MCU should be put in right position on the socket.

- Press down the MCU to make sure it is firmly attached on socket.



- Turn on DVR, check MCU version in [SYSTEM] > [SYSTEM INFO].



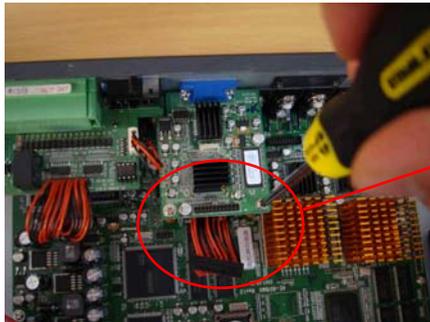
Check new MCU version

9. To Change VGA Board

1. Prepare the New VGA Board. (Old VGA : v1.00, New VGA : v1.10)



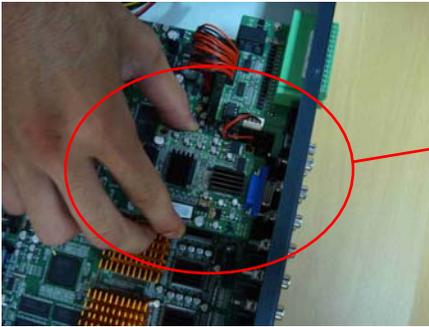
2. Take out the old VGA board which is installed the DVR. Please refer to the below process.



Pull out the cable & screws from the VGA board.

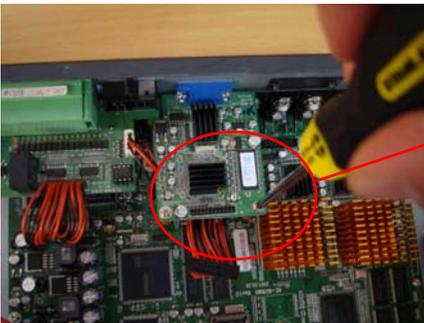
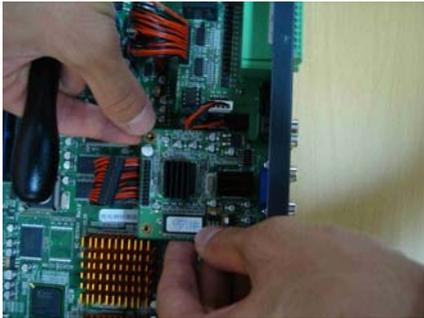


Pull out the screws from the rear plate of DVR.



Take off the old VGA board from the DVR

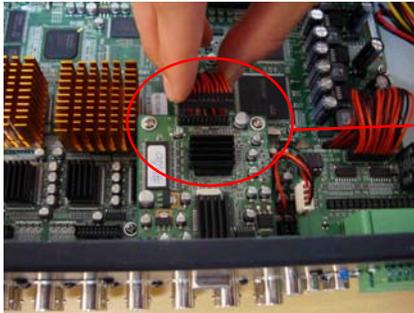
3. Install the prepared new VGA board as below process.



Install the VGA board using screws.



Secure the screws at rear plate.



Plug-in the cable to VGA board.

Note	Supported VGA Monitor Resolution. 1. Old VGA board (v1.00) - 640 x 480, 800 x 600 and 1024 x 678 2. New VGA board (v1.10) - 640 x 480, 800 x 600, 1024 x 678 and 1280 x 1024
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Note	User has to make sure of below MCU & Firmware to validate VGA Monitor Resolution changes in GUI. 1. MCU Version : Higher than v2.0.0 2. Firmware Version : Higher than v 2.x.x
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10. Trouble Shooting

10.1 SYSTEM

Problem	Solution
I cannot see anything on the monitor while power is on.	<ol style="list-style-type: none"> 1 Be sure that cable is connected between monitor and DVR 2 There might be problem with the cable. Recommend to change the cable 3 Be sure proper power is supplied through power cable
Front panel keys & IR Remote Controller doesn't work	<ol style="list-style-type: none"> 1 Be sure whether the batteries are included in the IR Remote Controller otherwise change the batteries if it is too old 2 Be sure front panel and main board are connected properly otherwise change the cable 3 Be sure IR Remote Controller's ID configured properly
HDD Icon comes out on display after power on	<ol style="list-style-type: none"> 1 Be sure HDD power & data cables are connected properly 2 Check the HDD partition & format condition

10.2 Live & Recording

Problem	Solution
Camera image doesn't come out	<ol style="list-style-type: none"> 1 Be sure camera and DVR connected properly 2 There might be problem with the cable. Recommend to change the cable 3 Change the camera or use another camera input port 4 Be sure main board and rear board are connected properly 5 Check whether 'camera input configuration' and 'NTSC/PAL switch' from rear panel are same
Screen is too bright	<ol style="list-style-type: none"> 1 Be sure color settings are configured properly
Recording is not available	<ol style="list-style-type: none"> 1 Be sure 'Camera -> Schedule' menu is not configured as 'off' 2 It won't record If the value of sensitivity in the menu 'MENU -> DEVICE -> CAMERA' is configured smaller than movement in camera screen 3 Check if the configuration in the menu 'MENU -> DEVICE-> CAMERA' is not configured as 'all' but 'selected area' (It won't record if there is no movement in selected area') 4 Be sure HDD is connected properly
Not able to play the recorded data	<ol style="list-style-type: none"> 1 Check if there is any recorded data using 'search' function 2 Be sure HDD is properly connected

10.3 Other

Problem	Solution
Audio playback is not available	<ol style="list-style-type: none"> 1 Be sure 'MENU -> DEVICE -> AUDIO' setting in the setup menu is not configured as 'off' 2 Be sure Camera & AUD-CH is matching properly in 'MENU -> RECORD -> CAMERA' setup menu 3 Be sure audio output and speaker is connected properly
Alarm input process doesn't working properly	<ol style="list-style-type: none"> 1 Be sure alarm input in the setup menu is not configured as 'off' 2 Be sure the schedule settings in 'MENU -> RECORD -> SECHDULE' menu is configured as 'SENSOR' 3 Be sure N/C, N/O settings are configured properly

Alarm output process doesn't working properly	<ol style="list-style-type: none"> 1 Be sure connection between alarm output and devices are properly connected 2 Be sure alarm output in the setup menu is not configured as 'off' 3 Be sure alarm output channel settings are configured properly
I cannot connect the remote site.	<ol style="list-style-type: none"> 1 Be sure network settings are configured properly 2 Be sure network cable properly connected 3 Be sure network LED working properly
Fan doesn't work.	<ol style="list-style-type: none"> 1 Be sure main board and power of fan is connected properly 2 Change the fan.
I cannot recognize USB backup devices	<ol style="list-style-type: none"> 1 Be sure USB backup device cable connected properly 2 Be sure USB backup device is on 3 If there backup device uses external power check the power supplier, otherwise check the power consumption whether is uses more than 1A or not (It doesn't support more than 1A and supposed to shut the USB power)
I cannot control P/T/Z	<ol style="list-style-type: none"> 1 Be sure P/T/Z protocol is identical with camera protocol 2 Be sure camera and cable is connected properly

11. FAQ

Question	Answer
Can I watch the recorded data outside DVR?	Recorded data is encrypted by SSF File format, so you cannot watch it through common movie players. Use the remote site program or exclusive viewer that supplied by 'Backup' function of system watching recorded data.
Does it support all USB devices?	Most of the USB backup devices are supported but some are not.
Is it possible to select the channel of Spot monitor?	It changes input screen in regular period, but not able to select specific channel. (Changing period is selectable)
Does it record while playback?	Not only recording, but also supports triplex functionality of network transmission
What happens if I connect the PAL camera on NTSC configuration?	It doesn't recognize as video input. (Handle as blue screen) Same result will be adopted incase of opposite situation
How do I get system upgrade?	Upgrade is available using USB, CD-ROM & DVD
I forgot the password	Please refer to the "5. To reset the Admin Password".