

User Manual For DS2 Mobile Digital video recorder kit

Notice

The information in this manual was current when published. The manufacturer reserves the right to revise and improve its products. All specifications are therefore subject to change without any notice.

The purpose of this manual is to kindly aid the user for the operation for our MDVR. The user should have a basic understanding of computer operation and basic knowledge of how to connect peripherals and make some settings.

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Guarantee & Warnings

1) Electrical Apparatus Safety

All installation and operation should comply with local electrical safety norms.

2) Transportation

In the process of transportation, storage and installation, please avoid heavy stress, violent vibration, impact and water splashing.

3) Installation

Install the equipment in accordance with the requirements, handle carefully. Do not heavily press the equipment before the MDVR installation is finished.

4) Requirements on Engineers & Technicians

All the work of checking and maintenance should be done by qualified technicians and engineers. We do not undertake any responsibility caused by unauthorized modifications.

5) Requirements on Environment

The equipment should be installed and stored in a cool and dry place, away from direct sunlight, flammable or explosive substances, etc. Keep gaps not less than 3cm around the device to facilitate ventilation for cooling.

6) Accessories

Make sure to use accessories from the manufacturer recommended in the attachment.

Insulate circuit ground and metal shell for all the peripherals.

Before installation, please open the package and ensure that all parts are included.

If there are any problems, please contact us as soon as possible.

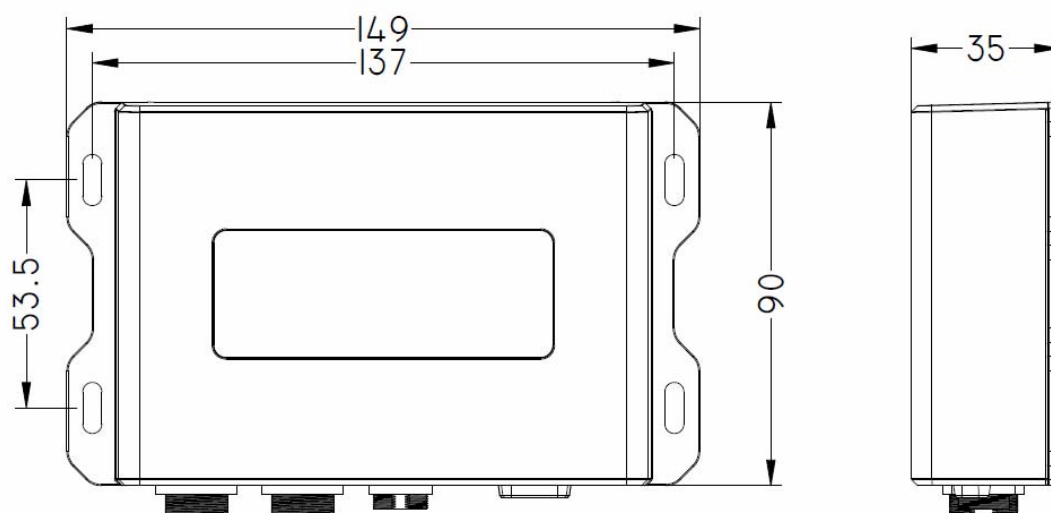
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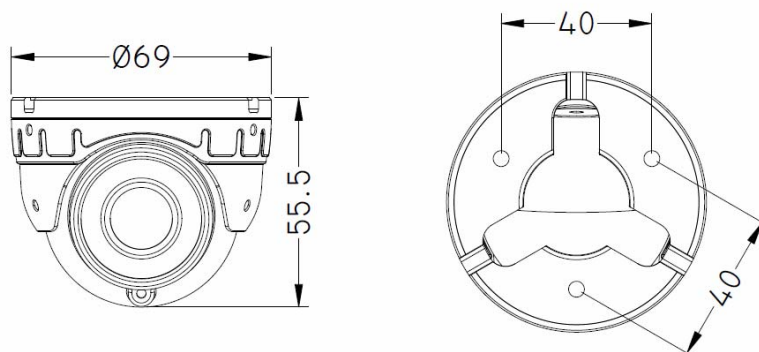
1. Product Characteristics

1.1. Effect Image

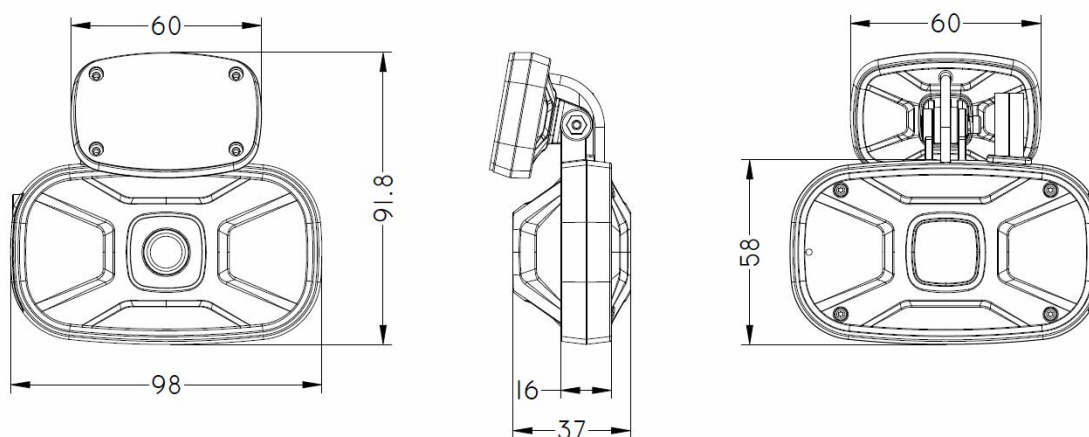
1) OBD Box



2) Second Camera



3) DS-2 Master Camera



1.2. Specifications

OBD Box

Items	OBD Box	
Power	Input	DC8V-DC36V
	Standard	ISO7637.2-2004
	Output	DC7.5V±10%
	Emergency backup	Super capacitance, support 5 seconds power supply
Connector	Power	9PIN aviation connector (include power、AAC、2 I/O)
	OBD	8PIN aviation connector
	IPC	6PIN aviation connector(Power for IP Camera+2 RS232)
	RS232	DB9 Connector
	IO	2CH I/O
OBD	OBD module	Support standard OBD protocol
RTC	High-precision RTC	±8 Second error, support GPS time sync
Other	Temperature	-40℃-+70℃
	Humidity	0% - 90%
	Power dissipation	<2w
	dimension	149MM(L)x90MM(W)x35MM(H)

DS2 Master Camera

Items	Master Camera	
Basic	Imaging device	1/3" CMOS SONY IMX225
	Effective pixel	1280(H)x720(V)
	Signal system	50/60 Hz
	Minimum illumination	0.05Lux(Color illumination),F1.2;
	Speed of shutter	1/25-1/1000 second
	White balance	Automatic/Outdoor/Indoor/Standard mode
	WDR	Digital WDR, ≥80db
	BLC	Support
	S/N	≥40db
Lens	Type	M12
	Aperture	F2.6 fixed
	Camera	Fixed 4mm
	Field angle	Horizon 73°,vertical 41°(16:9)
Video/	Compression	H.264 BP/MP/HP

Audio	Bitrate	32Kbps-6Mbps
	Resolution	Main stream:720p(1280*720) Sub stream:360P(640*360)
	Frame rate	Main stream:720P(1-30 FPS, default 30 FPS) Sub stream:360P(1-15 FPS, default 15 FPS)
	CBR/VBR	Optional
	Built-in MIC	Support
	Audio format	ADPCM、G.711A G.711U
Image	Resolution	1280x720(720P)
	Frame rate	30FPS
	Image settings	Chroma, Contrast, Saturation, Acutance
Network	Connector	6pin Din-jack, 10M/100M Self-adapting
	WIFI	Support 802.11b/g/n, support AP/Station Mode switch
	Protocol	HTTP, TCP, ARP, RTSP, UDP, RTCP, SMTP, DHCP, DNS, D DNS, PPPoE, IPV4, UPnP, NTP
	Client view	Built-in Web Server, support IE
	Configuration mode	Easy check
Location	GPS system	Support position, altitude, speed and time information to update data per second and video overlay
Inertia sensor	6-axis	Support data acquisition and recording of vehicle driving state acceleration
Connector	network	PON(DC12V+ Ethernet port)
	Expend interface	2 RS232 interface
	SD card	Max support 128G ,Class 10
LED	LED lights	3pcs; Power(Red): Light on: means power on, light off: means power off; Recording(Green): Light on means recording, light off means not recording; Alarm(Yellow): Light on means alarm triggered, light off means no alarms.
Storage	Attached SD card	1 Pcs SD card for recording
Others	Temperature	-40℃-+70℃
	Humidity	0% - 90%
	Power	PON(DC7V-DC14V)
	Power dissipation	<3w
	Dimension	98MM(L)x91.8MM(W)x37MM(H)

Second Camera

Item	Second Camera	
Basic	Sensor	1/4" CMOS OmniVision OV09732
	Effective pixels	1280(H)x720(V)
	Signal	50/60 Hz
	Minimum illuminance	0.1Lux(color mode),F1.2;
	Shutter speed	1/25 - 1/10000 Second
	Day/Night mode	IR-CUT
	WDR	Digital WDR, ≥60db
	BLC	Support
	S/N	≥38db
	IR Distance	<5m
Lens	Type	M12
	Aperture	Fixed F2.2
	Lens	2.6mm, 1/4"
	Filed Angle	Horizontal: 93°, Vertical: 52°(16:9)
Video/ Audio	Compression	H.264 BP/MP/HP
	Bitrate	32Kbps-6Mbps
	Resolution	Main stream:720p(1280*720) Sub stream:360P(640*360)
	Frame rate	Main stream:720P(1-15FPS, Default:15FPS) Sub stream:360P(1-12FPS, Default:10FPS)
	CBR/VBR	Optional
	Built-in MIC	Support
	Audio format	ADPCM、G.711A G.711U
Image	Resolution	1280x720
	Frame rate	15 FPS
	Image settings	Chroma,Contrast, Saturability, Acutance
Network	Connector	6pin Din-jack,10M/100M Self-adapting
	Protocol	HTTP,TCP,ARP,RTSP,UDP,RTCP,SMTP,DHCP,DNS,DDNS,PPPoE,IPV4,UPnP,NTP
	Client view	Built- in WEB Server, support IE
Others	Temperature	-40℃-+70℃
	Humidity	0% - 90%
	Power	PON(DC7V-DC14V)
	IP class	IP65, with audio
	Power dissipation	<1.5w (Day mode) <2.5w(B/W mode)
	Dimension	69MM(D)x55MM(H)

2. Quick Guide

2.1 Hardware Connection



2.2 Basic Operation

Attention: When devices power on, DS2 will work as wifi AP mode, and there are 10 minutes to connection, It will switch to client mode after 10 minutes, then it will be always working as wifi client mode until the next restart.

2.2.1 How to login on PC

- 1) Connect wifi AP via laptop.



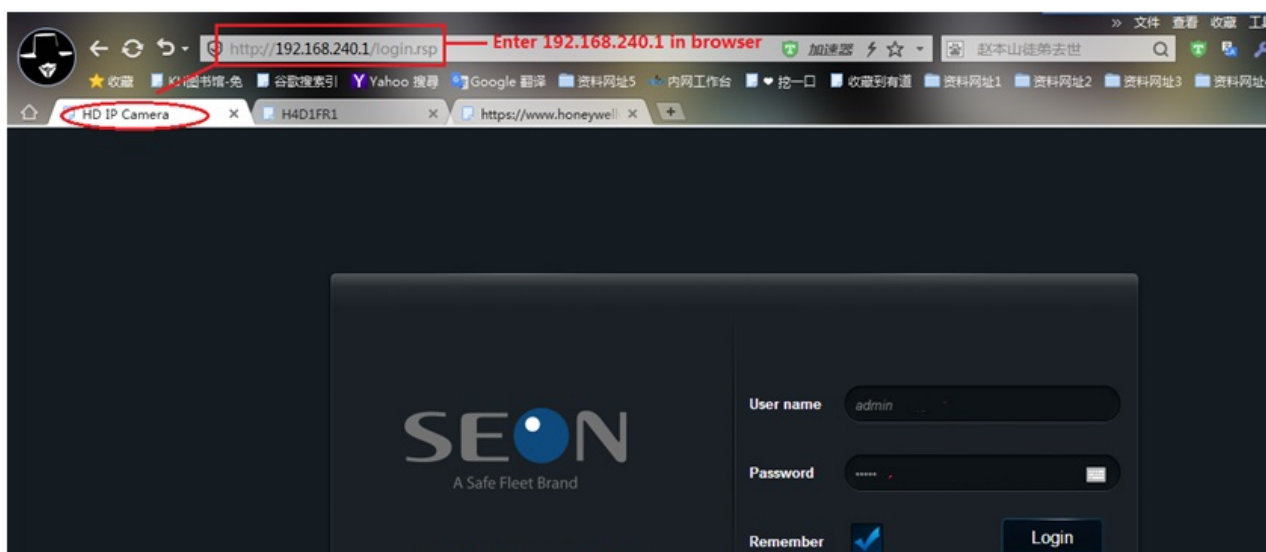
2) Connect DS2 via web browser

Defaults:

Ip address about wifi AP : 192.168.240.1

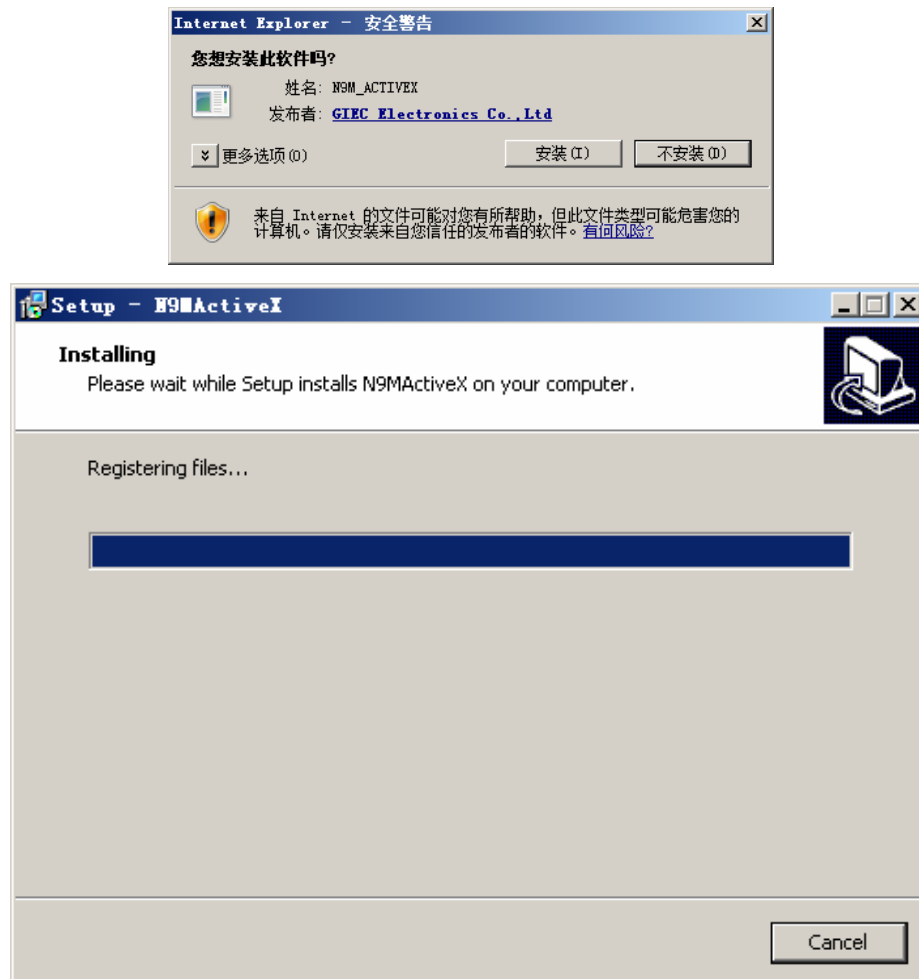
Username: admin

Password: 11111111



2.2.2 Install Activex

- 1) Interface will pop up a window to install N9M activex, click install.
- 2) Refresh the web page, enter default user name and password admin/admin or null to log in.

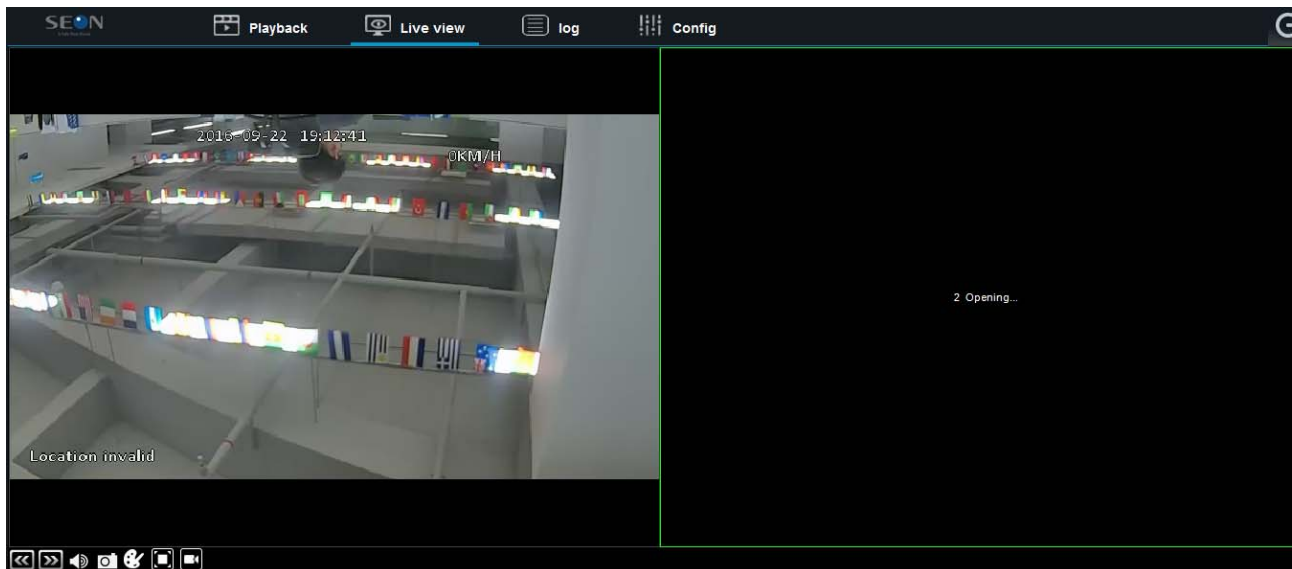


Please follow the steps below if Activex can not install normally:

- 1) Set the browser security level to "Low".
- 2) Enable all the active-x option in browser security settings.
- 3) Add the current site to the trust list of browser.
- 4) Use Internet Explorer instead of other browsers.

3. Web Features

3.1 Live View

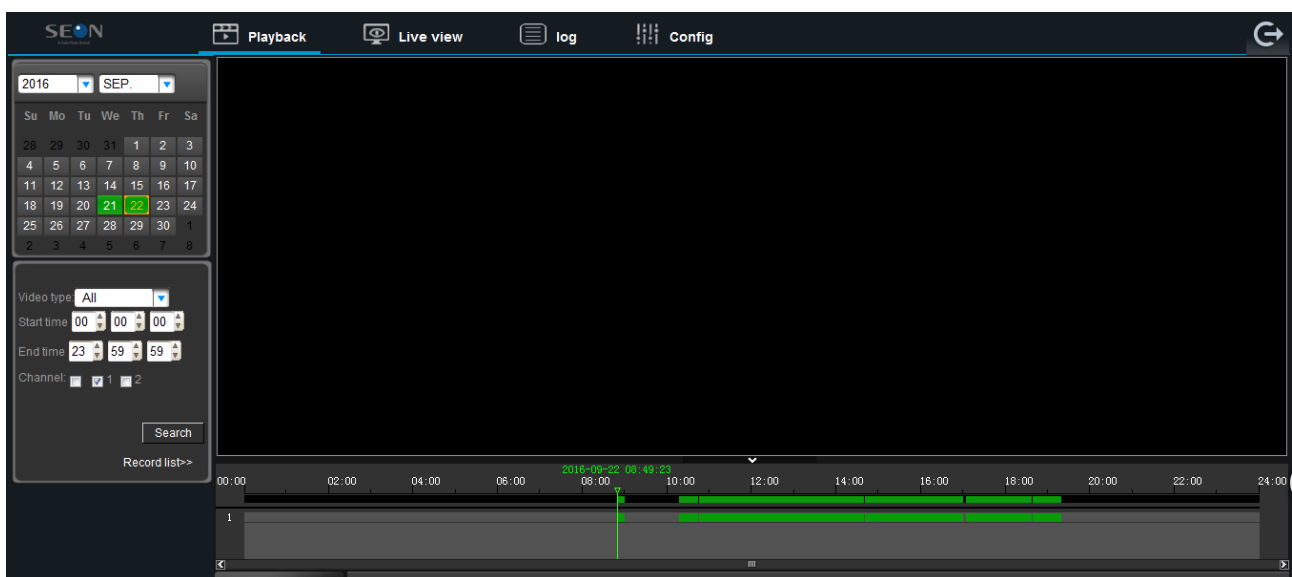


Icons: previous and next page, sound, capture, video parameters, original/full, record.



Log out: log out and come to the log in interface

3.2 Playback



2016 SEP.

Su	Mo	Tu	We	Th	Fr	Sa
28	29	30	31	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	1
2	3	4	5	6	7	8

Video type: All

Start time 00 00 00

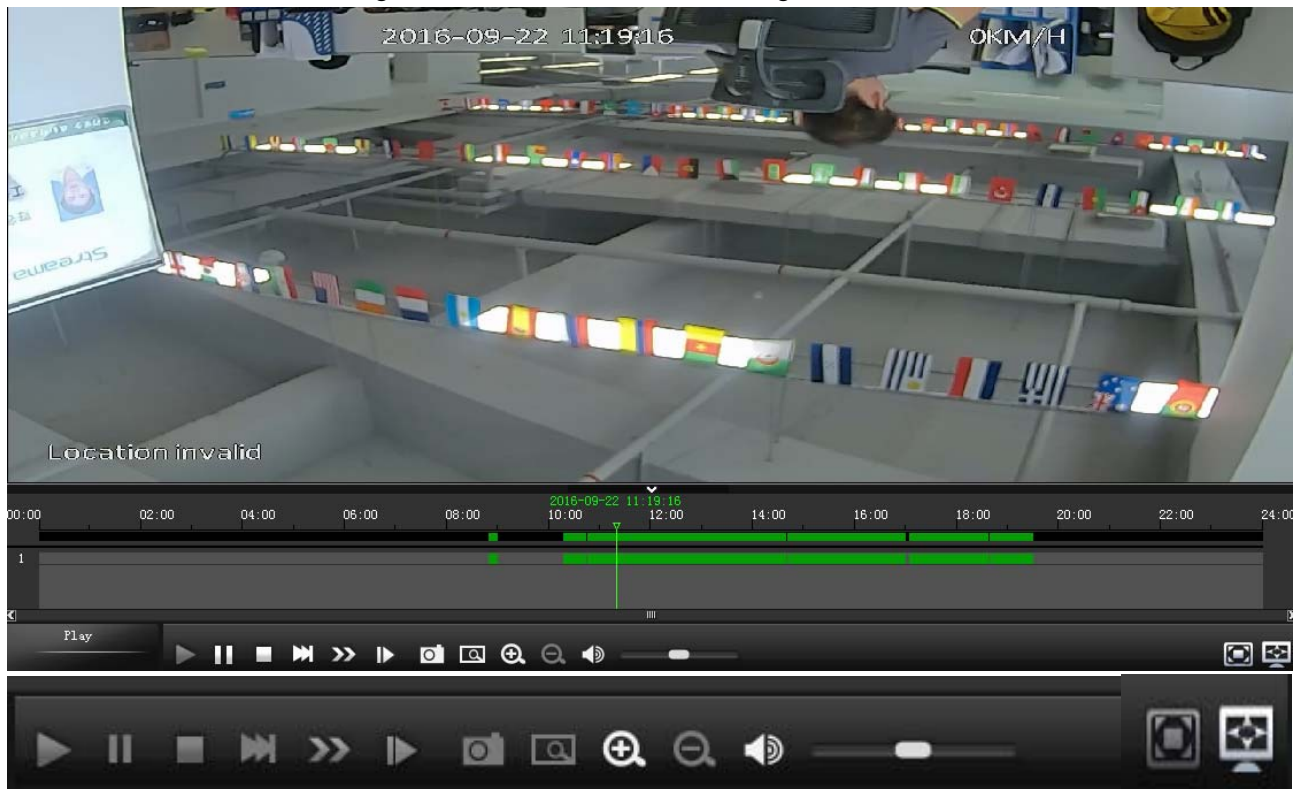
End time 23 59 59

Channel: ☐ 1 ☒ 2

Search

Record list>>

If the date is marked as color green, it means there is recording.



Recording playback window: Video window, play time-line, playback control button.

Channel 	Start time	End time	Video type:	Status
 1	08:49:23	09:00:14	Normal	
 1	10:16:46	10:44:13	Normal	
 1	10:45:58	14:39:29	Normal	
 1	14:40:22	16:59:53	Normal	
 1	17:04:37	18:37:28	Normal	
 1	18:38:15	19:20:06	Normal	

FirstPrevNextLastBackup

Page 1/1

Record list: It displays all the record. Click “backup” to download video file to local computer hard disk, as below:

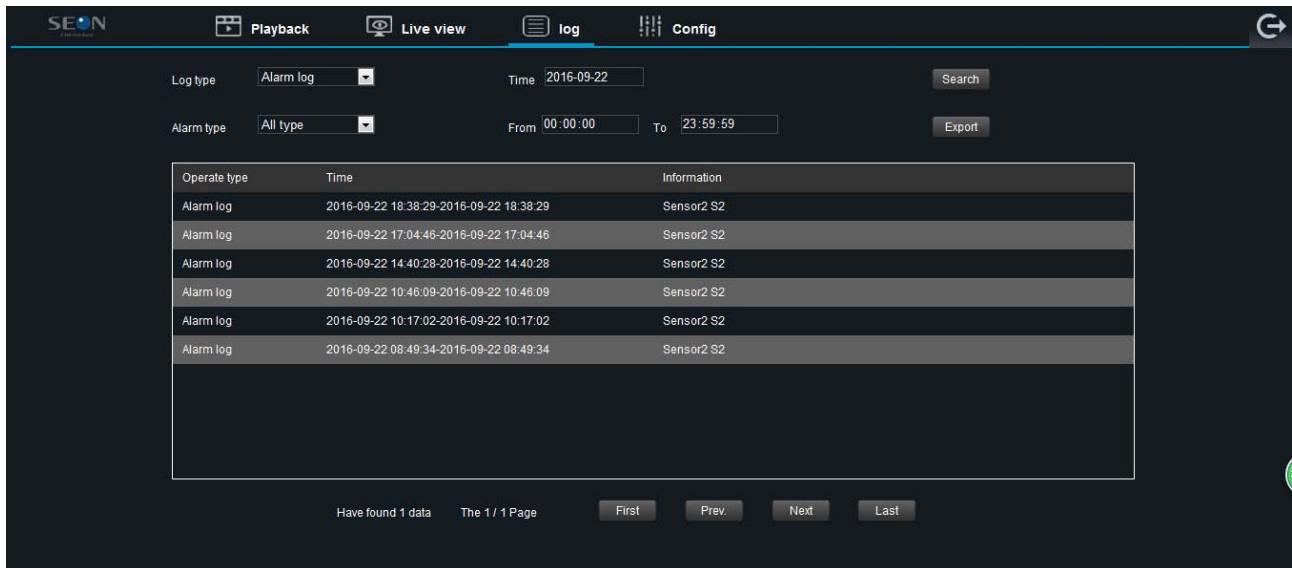
Channel 	Start time	End time	Video type:	Status
☒ 1	08:49:23	09:00:14	Normal	Cancel 20.72%
 1	10:16:46	10:44:13	Normal	
 1	10:45:58	14:39:29	Normal	
 1	14:40:22	16:59:53	Normal	
 1	17:04:37	18:37:28	Normal	
 1	18:38:15	19:28:18	Normal	

FirstPrevNextLastBackup

Page 1/1

Tip: when backup, you can open another same website to see live view without other operations.

3.3 Log

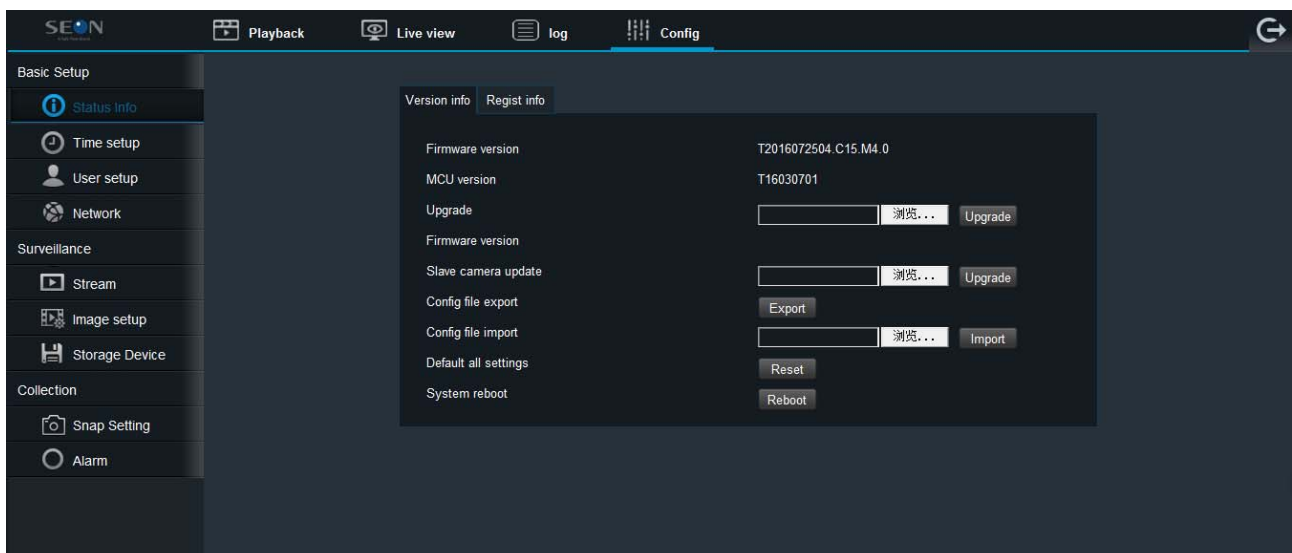


There are different types of log: Alarm log, Operation log, Locked log. Choose the target time and alarm type, then export the logs in ".xlsx" format.

3.4 Config

3.4.1 Basic Setup

3.4.1.1 Status info



Version info

Version info	Regist info
Firmware version	T2016072504.C15.M4.0
MCU version	T16030701
Upgrade	浏览... Upgrade
Firmware version	
Slave camera update	浏览... Upgrade
Config file export	Export
Config file import	浏览... Import
Default all settings	Reset
System reboot	Reboot

Features:

- 1) Shows the version & register info;
- 2) Upgrade DS2 firmware or slave camera firmware;
- 3) Import or export the config files;
- 4) Default all the settings;
- 5) Reboot.

Register info

Version info	Regist info
Device Info	
Serial number	0031000024
Device ID	0
Vehicle Info	
Vehicle Plate	
Vehicle Num	
Line number	
Driver Info	
Driver number	
Driver name	

This page contains the Device info, Vehicle info, Driver info.

3.4.1.2 Time setup

General:

General Time Sync DST

Date format YEAR-MONTH-DAY

Time format 24 Hours

Time Zone (GMT+08:00)BEIJING,CHONGQING,HC

Default Save

Date format: Setup the date format of device

Time format: 24 hours or 12 hours

Time zone: Range from -12th district ~ +13th district

Time Sync:

General Time Sync DST

Manually

Date/Time 2016-09-22 20:16:09

Change time Sync with PC

Auto

NTP sync ☐

Default Save

Manually: Adjust the system time manually.

Auto: Sync the system time with Network server, just like "time.windows.com", etc.

General Time Sync DST

Manually

Date/Time 2016-09-22 20:22:30

Change time Sync with PC

Auto

NTP sync ☒ time.nist.gov time.windows.com time.nist.gov time-nw.nist.gov time-a.nist.gov time-b.nist.gov User-Defined

Default Save

DST :

General Time Sync DST

Enable ☐

Offset One hour

Mode Week

Start MAR. 2ND Sunday 02:00:00

End NOV. 1ST Sunday 02:00:00

Default Save

Enable: Select to enable

Offset: After enabling DST, adjust the hour manually

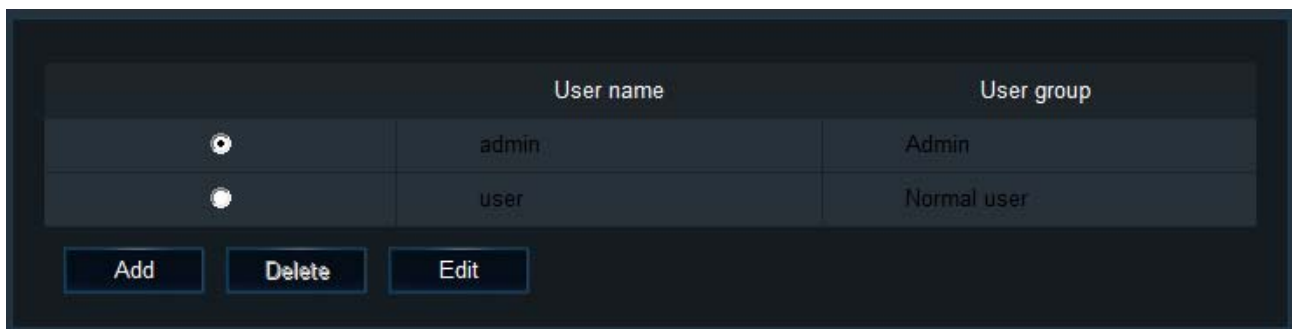
Mode: Setup DST according to week or date

Start: Time to start DST

End: Time to end DST

Don't forget to save the settings after configuration.

3.4.1.3 User setup

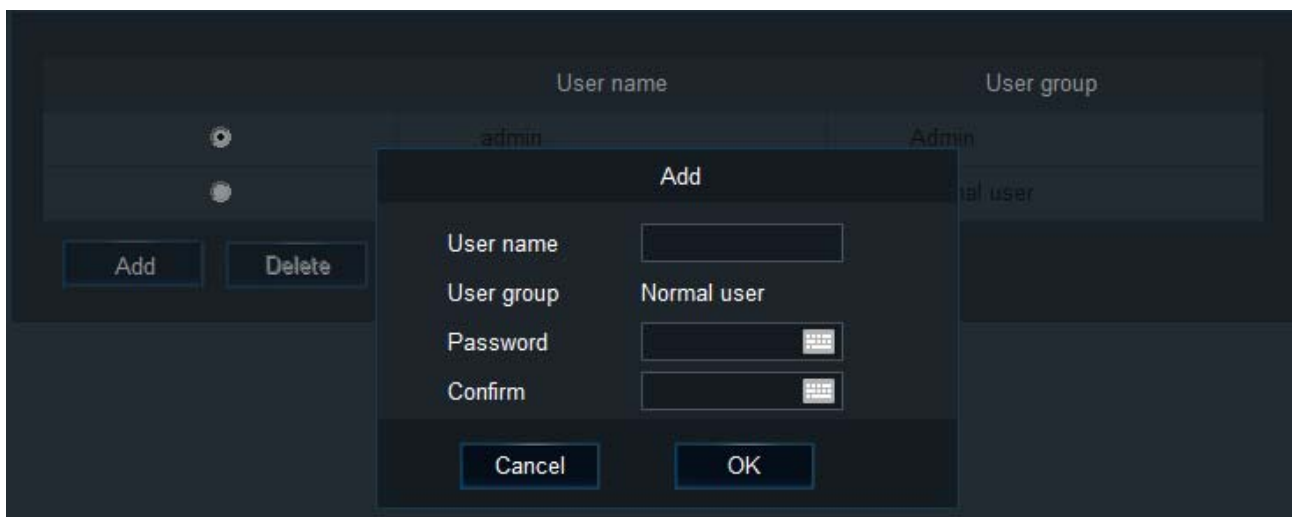


User name: admin and normal user are as default.

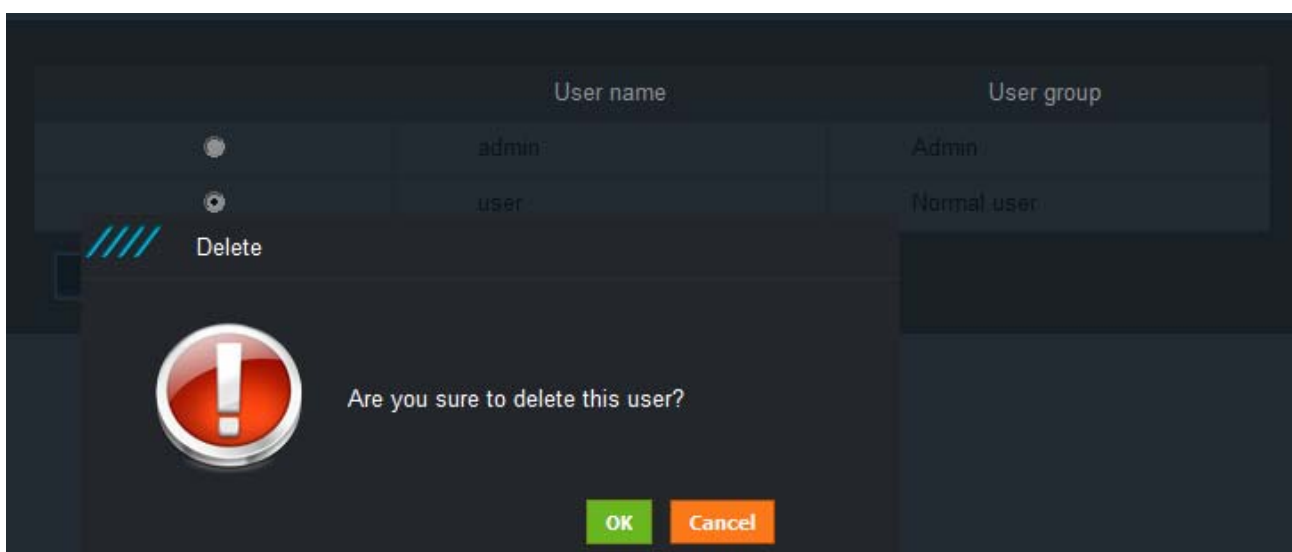
User Group: It is divided into administrator and normal user.

Supports delete user function. Select the user and click "Delete User" button. Please be noted that the administrator cannot be deleted.

Supports add user function. Click "Add" button, then enter the following interface.



Click "Delete" button, then the following interface will appear.

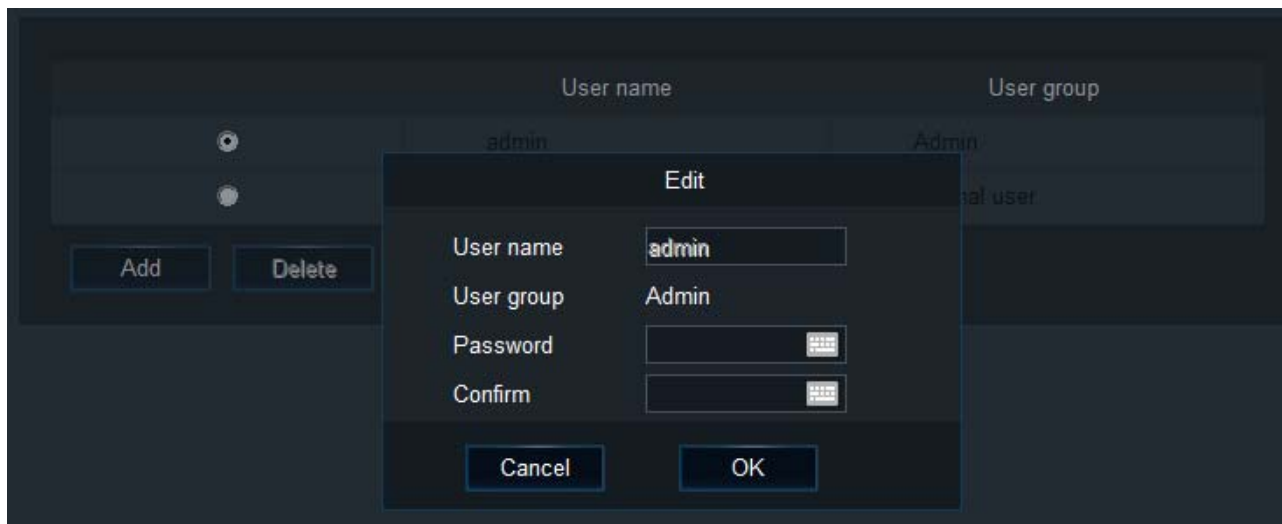


Note:

- 1) Only administrator is able to add users.

- 2) Maximum Users is 2.
- 3) User name cannot be empty, not the same with the existed user name while the user password can be empty.

User name and password can be modified. Select a user, click the "Edit" button, enter the following interface:



The screenshot displays a user management interface with a table of users. The table has columns for 'User name' and 'User group'. The first row shows 'admin' and 'Admin'. Below the table are 'Add' and 'Delete' buttons. An 'Edit' dialog box is open, showing fields for 'User name' (containing 'admin'), 'User group' (containing 'Admin'), 'Password', and 'Confirm'. The 'Password' and 'Confirm' fields have password icons. At the bottom of the dialog are 'Cancel' and 'OK' buttons.

User name	User group
admin	Admin

Buttons: Add, Delete

Dialog Box: Edit

Fields: User name (admin), User group (Admin), Password, Confirm

Buttons: Cancel, OK

3.4.1.4 Network

WIFI Server setup

Enable ☒

WIFI setup

ESSID

Encryption

Password

Static IP ☐

IP address

Subnet mask

Gateway

AP

ESSID

IP address

Station

Signal

IP address

Default Save

WIFI setup:

ESSID: Input the address of wifi AP manually.

Encryption: It supports NONE, WEP and WPA

Password: Manually input

Static IP: Connect wifi with a fixed ip address.

AP and station: fixed value.

Server setup:

WIFI Server setup

Server1 Add Delete

ON ☒

Protocol type N9M ▼

Enable network WIFI ▼

Register server IP 192.168.1.0

Register server port 5556

Media server IP 192.168.1.0

Media server port 5556

Save

ON: Enable the server.

Protocol type: The default one is N9M.

Enable network: There is local, WIFI and module optional.

Note: "Local" means cable network, "WIFI" means wifi works as client mode, "module" means 2G/3G/4G, there is no "module" for DS2 in phase 1, it is reversed for phase 2.

Register server IP: Registration server address.

Registration server port: register server port, defaulted as 5556.

Media server IP: Media server address.

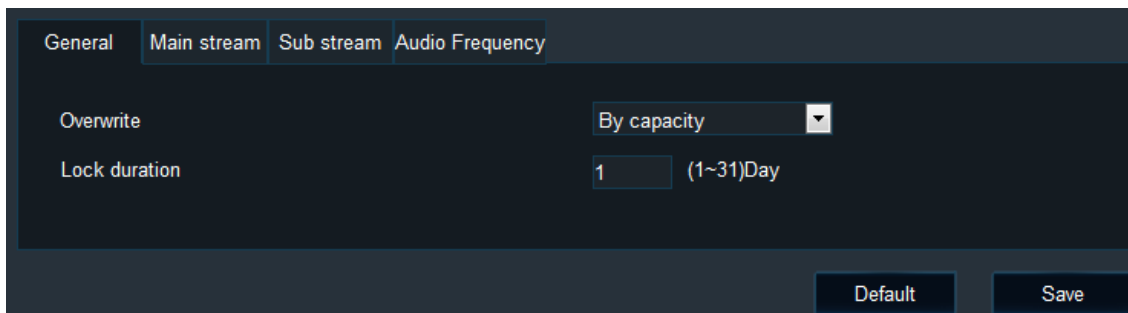
Media server port: Media server port, defaulted as 5556.

Note: There is no server running for DS2 for now, Seon didn't request any customized server from Streamax, so the whole server option here is reversed function only and it is not in normal use.

3.4.2 Surveillance

3.4.2.1 Stream

General



General	Main stream	Sub stream	Audio Frequency
Overwrite	By capacity		
Lock duration	1 (1~31)Day		
Default Save			

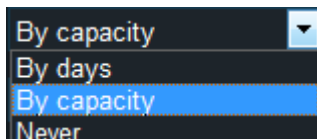
Overwrite: It means how to overwrite the data in SD card.

There are 3 options:

“By capacity” means when SD card is full then the the record will be overwritten from the beginning.

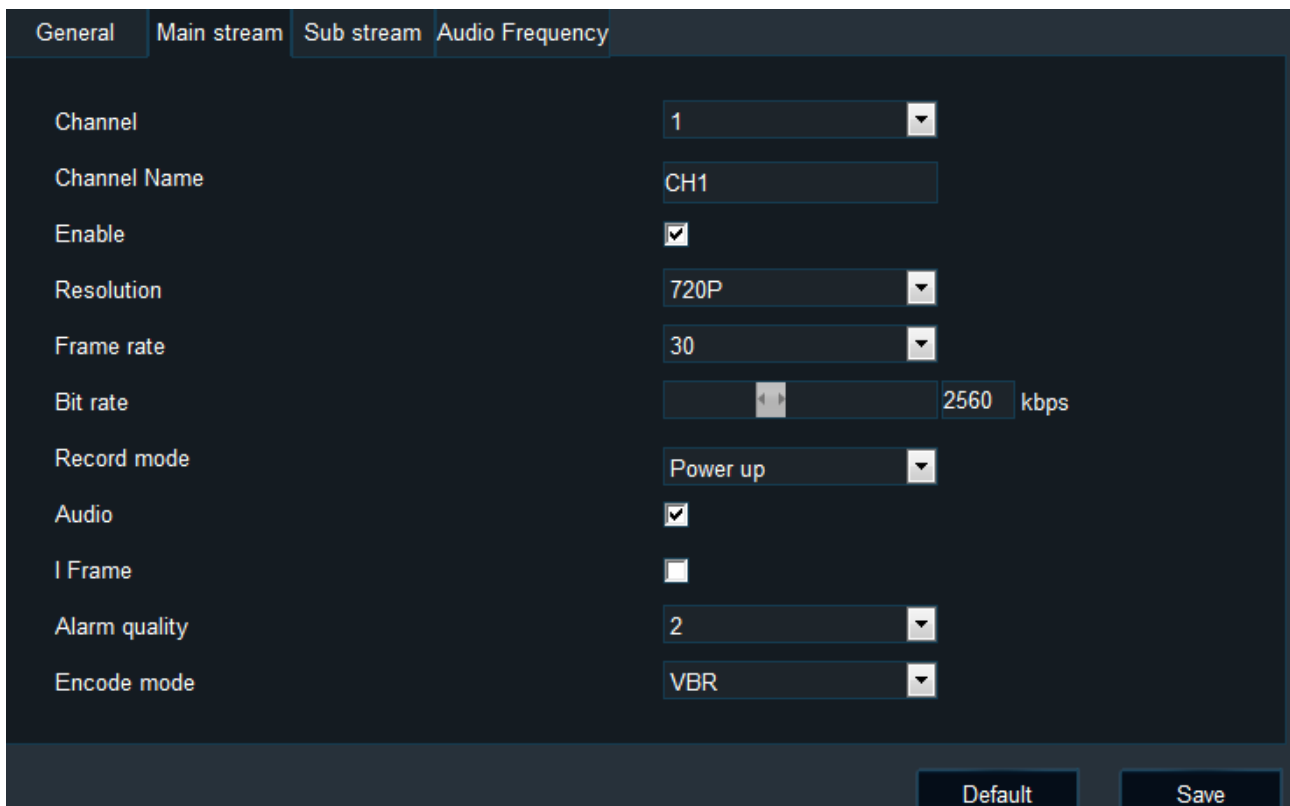
“By days” means SD card will start to be overwritten after the days being set here was passed,even the SD card is not full it will also start the overwrite.

“Never” means SD card will never being overwritten, when SD is full ,then recording will stop.



By capacity
By days
By capacity
Never

Main stream



General	Main stream	Sub stream	Audio Frequency
Channel	1		
Channel Name	CH1		
Enable	☒		
Resolution	720P		
Frame rate	30		
Bit rate	2560		kbps
Record mode	Power up		
Audio	☒		
I Frame	☐		
Alarm quality	2		
Encode mode	VBR		
Default Save			

Channel:There are 2 channels for DS2, master camera channel and second camera channel.

Channel name: The name of the channel.

Enable:Enable or disable the channel.

Resolution: There are 720P, 360P optional.

Frame rate: Record frame rate, range from 1 to 30.

Bit Rate: Record bit rate, range from 500kbps to 6000kbps.

Record mode: There are 3 options:

“power up”, means DS2 will start to record after boot up.

“Timer”, means user can set the record as schedule.

“Alarm”, means record when alarm triggered only.

Audio: Enable or disable to record audio.

I Frame: means DS2 will record I frame only when there is no alarm triggered.

Alarm quality: means what quality level of image will be recorded when alarm triggered.

Encode mode: there are VBR and CBR optional, VBR means record bit rate will adjustable from the environment, CBR means record bit rate will always the same.

Sub stream

General	Main stream	Sub stream	Audio Frequency
Channel	1		
Enable	☒		
Resolution	360p		
Frame rate	15		
Bit rate	1024 kbps		
Encode mode	VBR		
			Default Save

Channel: There are 2 channels for DS2, master camera channel and second camera channel.

Enable: Enable or disable the sub stream for the current channel.

Resolution: There are 360P, VGA optional.

Frame rate: Record frame rate, range from 1 to 15.

Bit Rate: Record bit rate, range from 150kbps to 1600kbps.

Encode mode: there are VBR and CBR optional, VBR means record bit rate will adjustable from the environment, CBR means record bit rate will always the same.

Audio Frequency

General	Main stream	Sub stream	Audio Frequency
Enable ☒ Audio Format g.711alaw Audio Gain 5			
			Default Save

Enable: Enable or disable the audio.

Audio Format: There are "g.711a","g.711u","adpcm","g726" optional.

Audio Gain: Different level of audio gain, from 1 (low) to 8 (high) optional

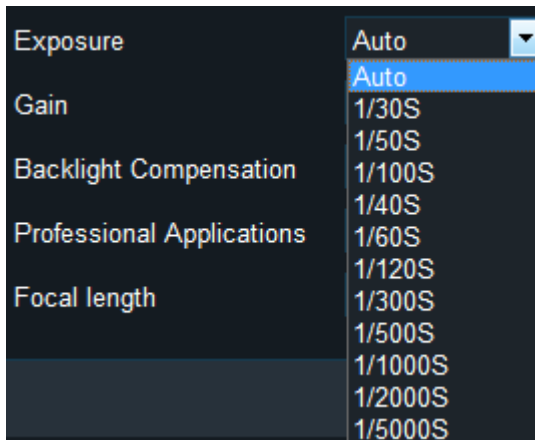
3.4.2.2 Image Setup

Video parameters	OSD
Channel 1 BRI 32 COL 32 CON 32 SAT 32 SHA 32	2016-09-22 21:33:54 0KM/H 22.8581881N 113.5960720E
Day/Night Mode Day Mode Infrared Light OFF Exposure Auto Gain (Auto) Backlight Compensation Low Professional Applications Inside the car Focal length 4.0mm	Profile Standard Anti-flicker OFF Mirror ☒able ☐Disable Flip ☒able ☐Disable HLC ☐able ☒Disable WDR Auto

Day/Night mode: Auto.

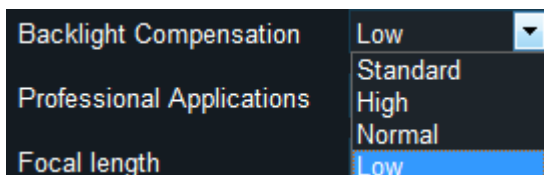
Infrared Light: Auto.

Exposure: Options as shown below, "Auto" mode is as default.

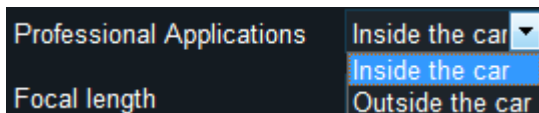


Gain: Auto.

Backlight Compensation: There are 4 options, as picture shows below:



Professional Applications: There are 2 options as below, "inside the car" means camera was installed inside of the car, "Outside the car" means camera was installed outside of the car. Camera will adjust to the light and moving speed to capture good image.



Focal Length: It is fixed.

Profile: There are 3 options as shown below:



Anti-flicker: There are 3 options as shown below, it adjust to the frequency of the lights.

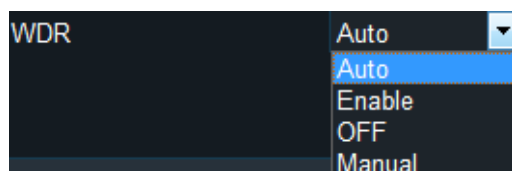


Mirror: Mirror the image.

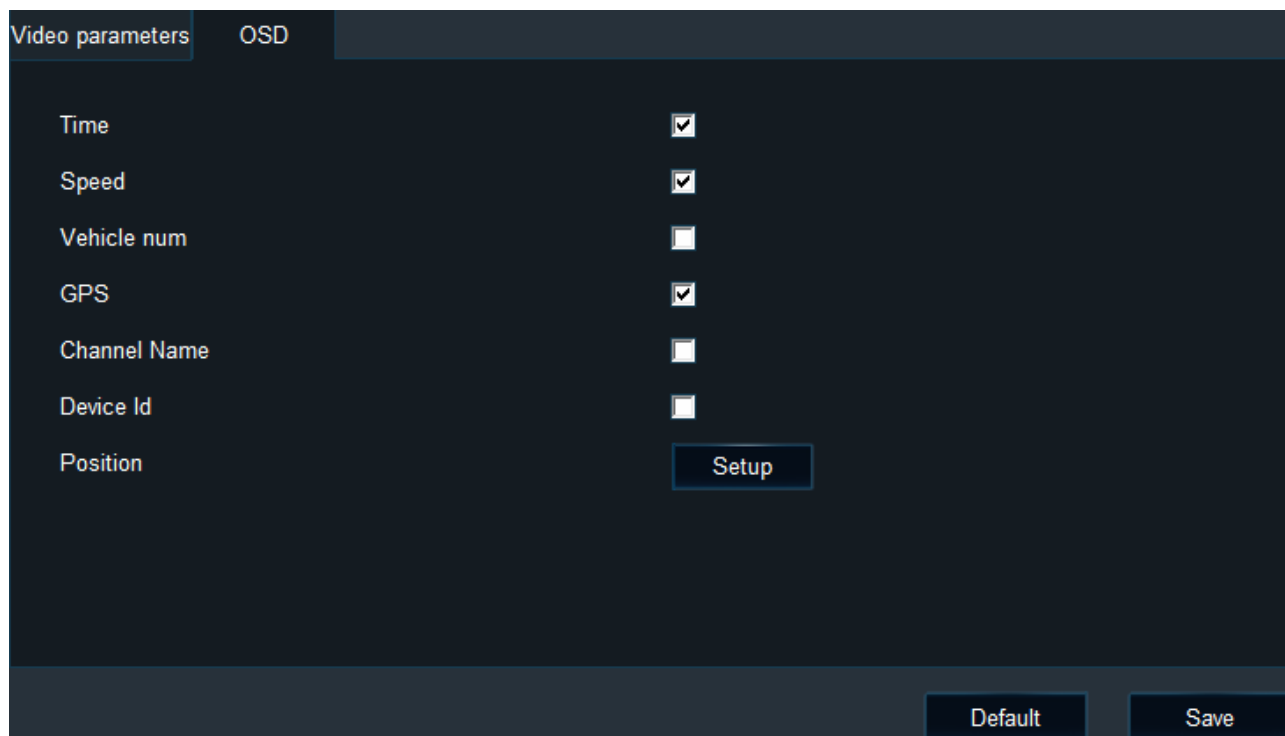
Flip: Reverse the image.

HLC: HighLight Compensation

WDR: Wide Dynamic Range, there are 4 options as shown below:

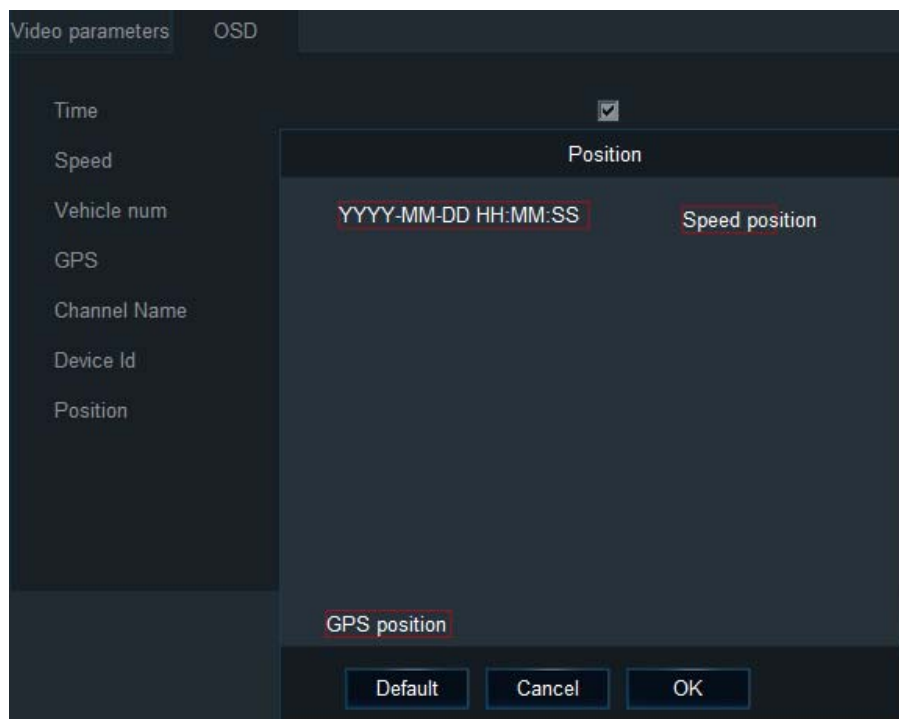


OSD

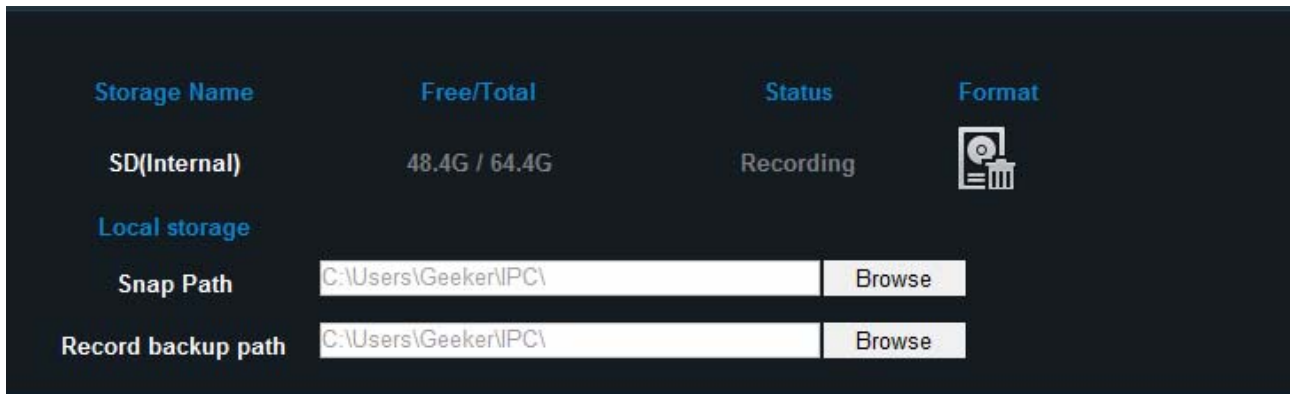


Choose to show the information on live view channel or not.

Click "Setup" button to adjust the position where the information will be shown.



3.4.2.3 Storage Device

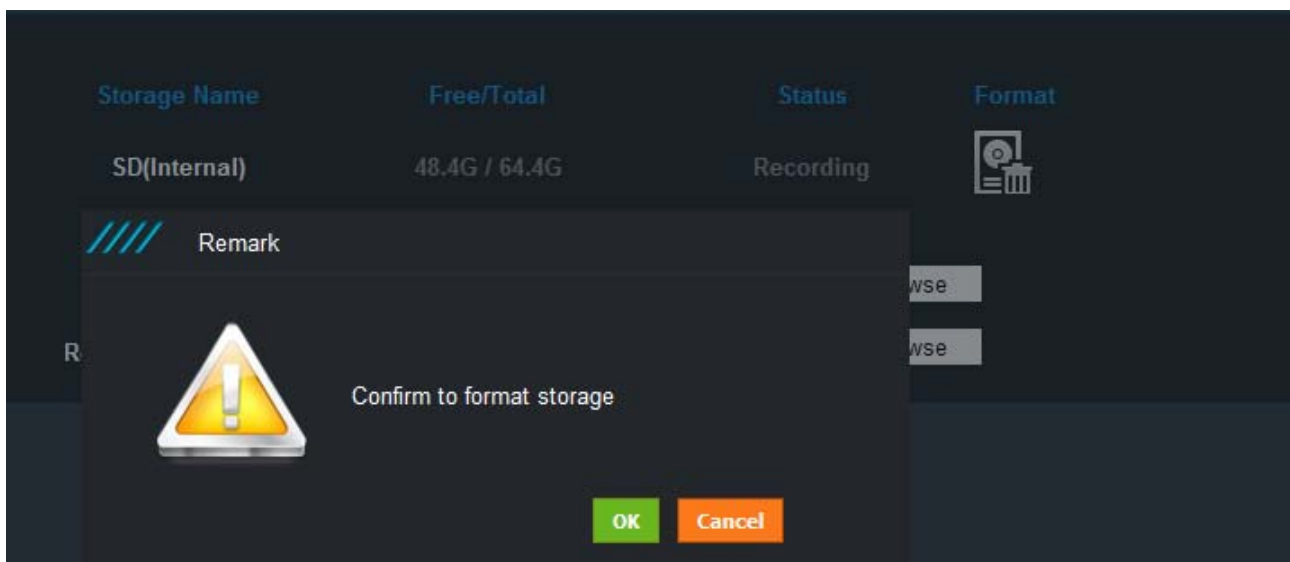


It shows the SD card status here.

Snap Path: It means where the snapshot will be saved.

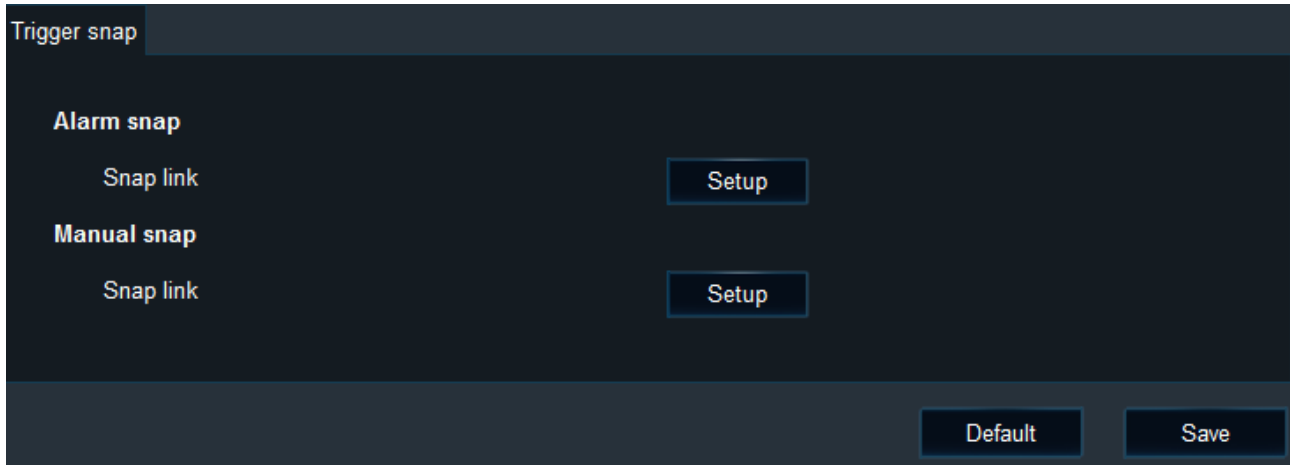
Record backup path: It means where to save the backup record.

Click the Format button to format the current SD card.



3.4.3 COLLECTION

3.4.3.1 Snap Setting



Trigger snap

Alarm snap

Snap link Setup

Manual snap

Snap link Setup

Default Save

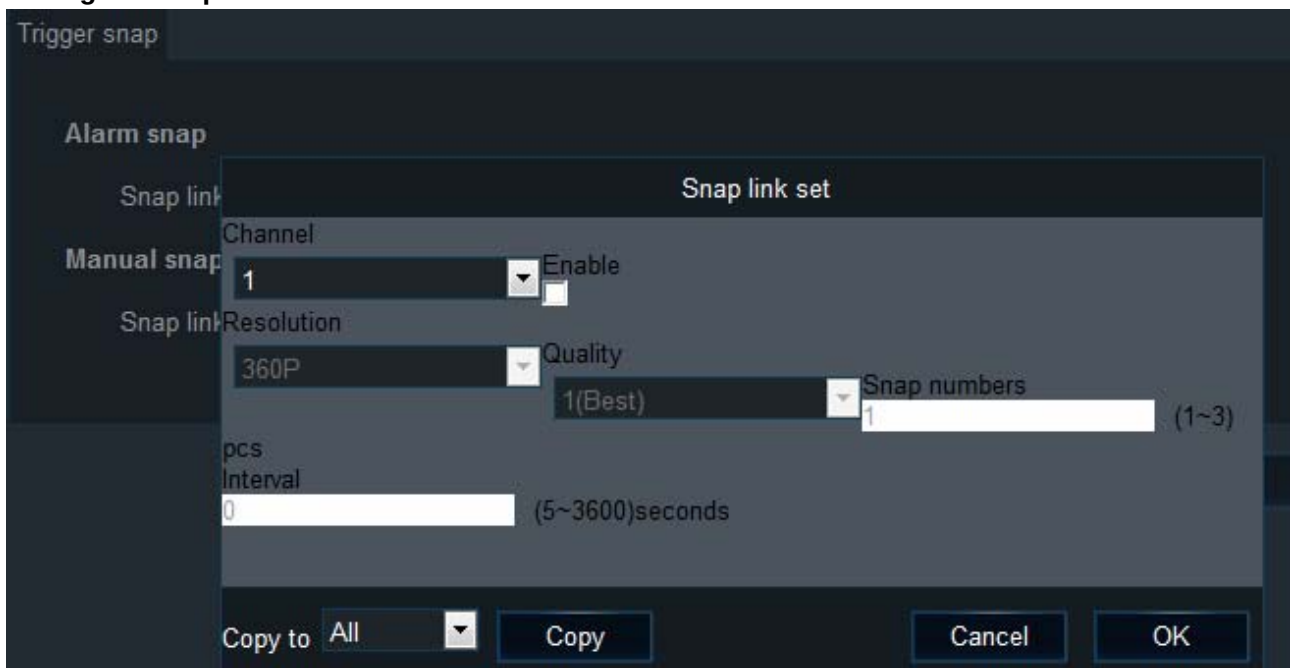
There are 2 kinds of snap:

Alarm snap: Means snapshot when alarm is triggered.

Manual snap: Means snapshot manually.

Note: The snapshot will be saved in second level cache in DS2, as the earlier discussion, Streamax save the snapshot to the device and provide the API to Seon, and Seon will get the snapshot from DS2 with the API and decide where to send the snapshot.

Linkage of snapshot



Trigger snap

Alarm snap

Snap link

Manual snap

Snap link

Snap link set

Channel

1

Enable

Resolution

360P

Quality

1(Best)

Snap numbers

1 (1~3)

Interval

0 (5~3600)seconds

Copy to All

Copy

Cancel

OK

Channel: Choose the snapshot channel.

Resolution: Choose the snapshot resolution.

Quality: Choose the image quality of the snapshot.

Snap numbers: Set the number for the snapshot when alarm is triggered.

Interval: Set the interval time for each of the snapshot.

3.4.3.2 Alarm

Name	Enable	Alarm type	Trigger	Linkage
Sensor1	☒	Event	Setup	Setup
Sensor2	☒	Alarm	Setup	Setup

Copy Sensor1 To All Copy

Default Save

Alarm type: There are 2 options, "Event" and "Alarm", event means DS2 will record the event in DS2 while alarm means DS2 will record event to DS2 and send the alarm to the server at the same time.

Note: Because Seon didn't customize server from Streamax, so there is no real difference between event and server.

Sensor1Trigger

Trigger High

Cancel OK

Trigger: The alarm will be triggered with "High" or "Low". High means when external voltage input is higher than 4V, then the alarm will be triggered, Low means when external voltage is lower than 4V, then the alarm will be triggered.

Name	Enable	Alarm type	Trigger	Linkage
Sensor1				Setup
Sensor2				Setup

Copy **Sensor1**

Sensor1Alarm linkage

Linkage recording

Channel ☐ 1 ☐ 2

Post recording 1Minute

Lock ☐

Alarm snap ☐

Save

Cancel OK

Linkage:

Linkage recording: Means enable the channel to alarm record mode when alarm is triggered.

Post recording: Means how long will the alarm recording will keeping after alarm is triggered, it ranges form 1 minute to 30 minutes,as the picture shows below:

Post recording 1Minute

Lock 1Minute

Alarm snap 3Minute

5Minute

10Minute

15Minute

30Minute

Lock: Means lock the alarm record in SD card, so it wont be overwritten.

Alarm snap: Enable it so alarm snapshot will happen when alarm is triggered.

Note: Alarm snap is saved in second level cache in DS2 only for now.Seon will decide where to send the snapshot.

4. FAQ

1) The system can't start?

Usually this problem results from the incorrect power connection.

2) The device is not recording?

Usually this problem results from the storage or camera. Please follow below steps to check it:

1. Check whether the SD card is installed, whether it is in good contact, and whether the SD card can be read normally in computer.
2. Check whether the storage is formatted. The storage disk should be formatted before normally storing record files.

3. Check whether there is video signal input into the device from camera, and whether there is video/image on the screen.
- 3) **Can not connect DS2 with wifi normally?**
Please check the wifi status, because there are AP mode and client mode, user can not connect to DS2 directly if wifi working as client mode.

5. FCC Statement

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the

instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

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 received, including interference that may cause undesired operation

This Product must be installed and operated with a minimum distance of 20cm between the radiator and user body.