



10-8 HD4SD

4-Ch Dual SD HD MDVR

Installation / User Manual

Warranty & Return Information

All Products

- Three (3) year free replacement of any failed component.

Car Camera Components

1. Call 1-888-788-1048 and ask for Technical Support.
2. Visit 10-8video.com and click on the *Support Section* to request a RMA.

Copyright © 2011-2017 10-8 Video Digital Evidence Solutions. • All rights reserved.

Disclaimer: 10-8 Video Digital Evidence Solutions reserves the right to make changes in specifications at any time and without notice. The information provided by this document is believed to be accurate and reliable. However, no responsibility is assumed by 10-8 Video Digital Evidence Solutions for its use; nor any infringements of patents or other rights of third parties resulting from its use. No license is granted under any patents or patent rights of 10-8 Video Digital Evidence Solutions.

Other company and product names mentioned herein may be trademarks of their respective companies.

10-8 Video LLC
1423 Huntsville Hwy. Suite F
Fayetteville, TN 37334
Tel: (888) 788-1048 • (931) 233-8550
Fax: (931) 233-1263
World Wide Web: www.10-8Video.com

Shipping Address

10-8 Video LLC
1423 Huntsville, Hwy. Suite F
Fayetteville, TN 37334

Phone Numbers

(888) 788-1048 • (931) 233-8550
(931) 233-1263 (FAX)

Contents

Safety

Installation Safety.....	8
Avoid Electric Shock and Fire.....	9
Transport & Handling.....	9
Daily Operation.....	9

Product Overview

Product Description.....	10
Features.....	10

Specifications

Technical Specifications.....	11
-------------------------------	----

Specifications

Front Camera Specifications.....	12
Rear Camera Specifications.....	13
Electrical Specifications.....	15

System Schematic

Introduction to Mainframe.....	16
--------------------------------	----

Hardware: Installation

DVR Remote Control.....	18
Device and Installation.....	19
900mhz Mic Installation.....	29
900mhz Mic Antenna.....	29
Mirror Monitor.....	30
Camera Mount.....	32
Front Camera.....	34
Rear Camera.....	36
G-Force Sensor.....	37
GPS System.....	37
Setting the GPS Speed Trigger.....	37

DVR: Setup

Software Settings Overview.....	38
---------------------------------	----

Software General Setup.....	39
-----------------------------	----

Step 1: Basic Setup.....	39
--------------------------	----

Step 2: Set Date & Time.....	40
------------------------------	----

Step 3: Set Vehicle Info.....	41
-------------------------------	----

Step 4: User Setup.....	42
-------------------------	----

Step 5: Display Setup.....	43
----------------------------	----

Software Recording Setup.....	44
-------------------------------	----

Step 1: Enter the Recording Setup Interface.....	44
--	----

Step 2: Record Basic Setup Interface.....	45
---	----

Step 3: Channel Mode.....	46
---------------------------	----

Step 4: Sub-Stream Setup (WiFi Option Only).....	48
--	----

Step 5: Recording Schedule.....	49
---------------------------------	----

Alarm Setup.....	50
------------------	----

Step 1: Enter the Alarm Setup interface.....	50
--	----

Step 2: Sensor Setup.....	51
---------------------------	----

Step 3: Speed Setup.....	52
--------------------------	----

Step 4: G-Sensor Setup.....	53
-----------------------------	----

Step 5: Temperature Setup (NOT currently used).....	54
---	----

Step 6: Motion Detection Setup (NOT currently used).....	55
--	----

Step 7: Linkage Setup.....	56
----------------------------	----

Software: Configuration

Configuration.....	58
--------------------	----

Step 1: Configuration Management.....	58
---------------------------------------	----

Step 2: Formatting SD Cards.....	59
----------------------------------	----

Step 3: Log Search.....	60
-------------------------	----

Search and Replay Recordings.....	61
-----------------------------------	----

Software: System Information

System Information	62
---------------------------------	----

Appendix

FAQ - Frequently Asked Questions	64
---	----

Reference Tables	68
-------------------------------	----

10-8 HD4SD Memory Space Reference.....	68
--	----

Tools Required for 10-8 HD4SD Installation.....	69
---	----

10-8 HD4SD Additional Parts Needed.....	70
---	----

Revision History.....	71
-----------------------	----

This page left intentionally blank.

Installation Safety



WARNING: This product utilizes high voltage. Any unauthorized modifications or damage to the products may result in electrical shock.

1. To extend the life of the product, install it in a place free of, or with minimal vibration.



10-8 Video, or its branches are not liable in full or in part for improper installation resulting in loss or damage to your property, or for voiding all or part of the vehicle manufacturer's warranty.

2. To ensure proper heat dissipation, install the DVR in a well ventilated area (such as the vehicle's center console).
3. Handle all components with care. Inspect regularly for damage to components and cabling.
4. Install the device horizontally and protected from water, humidity and lightning.
5. Do not drop the device.
6. Do not apply excessive force to any of the components contained within this kit.
7. Please follow the procedures from this installation manual.



Improper installation or modification of this product shall void all warranties.

Excessive force used before, during or after installation that results in a damaged or non-functional part shall void all warranties.

Avoid Electric Shock and Fire

1. This device uses a 8V-36V DC power supply. Please note the positive and negative terminals during installation to prevent a short circuit.
2. Power off the device before connecting any peripheral.
3. Do **NOT** touch the power supply or device with wet hands.
4. Do **NOT** spray any liquid on the device to prevent an internal short circuit or fire.
5. Do **NOT** place any other device directly on top of the camera(s).
6. Do **NOT** disassemble the housing without authorization to avoid damage, electrical shock or possible death.

Transport & Handling

1. To prevent damage to the device during transport, handle the device with care. The original packing materials and box are suggested.
2. Power the device off before handling or replacing a part to prevent any damage.

Daily Operation

You, as the driver, are solely responsible for the safe operation of your vehicle and the safety of your passengers according to the US and local traffic regulations.



WARNING: Do not use any features of this system to the extent it distracts you from safe driving. Your first priority while driving should always be the safe operation of your vehicle.

10-8 Video cannot accept any responsibility whatsoever for accidents resulting from failure to observe these precautions or safety instructions.

Product Description

The 10-8 HD4SD is a dual SD card HD MDVR especially designed for use in vehicles. It features four (4) channels of D1/960H/720P video and audio recording and playback, four (4) channels of AHD 720P and one channel of IPC HD video via a full frame recording camera. It also utilizes one of the most advanced H.264 video encoding/decoding codecs in the industry today.

The mobile MDVR is powered by an ARM DSP fast dual-core processor running on an embedded Linux OS. It also features 3G/4G network capabilities, GPS, WiFi, fail-safe protection, HDD shock absorption, HDD heating and a wide voltage range.

All of these features, along with its easy-to-use and powerful interface software, gives the 10-8 HD4SD excellent functionality, scalability, stability and makes it a great value. Proof of this is its extensive use in public buses, logistic vehicles, school buses, police cars, financial convoy trucks and fuel tankers.

Features

- H.264 video compression encoding supported, PAL: 100fps@AHD 720P
- 4 Channels of D1/960H/AHD 720P simultaneous audio & video recording /replay.
- 4-way AHD 720P & 1-way IPC 1080P HD camera with full-frame recording.
- Air cushioning system providing reliability and strong anti-shock properties.
- 8-second delay recording in case of power failure.
- Built in 3G/4G network, GPS WiFi (optional)
- Supports two (2) SD cards - each 128 GB capacity.
- Scales well with 1 RS485 interface and 2 RS232 interfaces.
- 8V-36V wide voltage supply, 12V POE power supply supported
- Good shock resistance, easy installation and 360° installation supported.
- High/low temperature resistant, operates from -13°F to +158°F.

Technical Specifications

Item	Parameter	Description
System	Language	English
	Operating Interface	OSD Menu
	Password & Security	Permissions setting of administrator & user
	Video System	NTSC or PAL
	Operation	IR remote control
	GPS	Yes - with on-screen display speed/coordinates
	Google Map on Playback	Yes - Moving map synced to video
	On-screen Display	Date/time, Officer, Speed & Coordinates
	Crash Sensor	Yes - with pre/post record and user selectable G-limits
	Signal Loss Alarm	Yes
	Power Shutdown Recover	Yes
	Security Protection	Yes - Locking SD Cover
Pre/Post Alarm Recording	Yes - User-defined limits	
Video	Video Input	<ul style="list-style-type: none"> • 4 channels support CIF/HD1/D1/960H/720P AHD camera • RJ45 x 1 for IP camera connection
	Video Output	2 Video outputs (1 - φ3.5 phone jack & 1 - 24PIN connector)
	Video Display	Single screen to five (5) screens
	Video Standard	PAL or NTSC
	Image Compression	H.264 Main Profile

Specifications

Front Camera Specifications

Key Features:

- Latest SONY IMX225 1/3" CMOS image sensor
- 1.3MP 720p max resolution
- Powerful NextChip 2431H DSP with wide dynamic range for strong light suppression
- Built-in removable IR-Cur filter for 100% color reproduction and low light sensitivity
- Auto switching to B&W at low light for better image quality
- 3.0 MP HD crystal 6mm lens
- All-in-one round type waterproof connector for video, audio and power
- Die cast compact metal case with top mount screw hole, easy to install

Item	Description
Sensor	SONY IMX225 1/3" CMOS Sensor
Minimum Illumination	0.001Lux / (F1.2, AGC ON) / 0 Lux when IR is on
Shutter	1/25 seconds - 1/100000 seconds
Camera Lens	6mm HD Lens (3MP)
IR-Cut	Built-in removable IR-Cut filter
Day/Night	Automatically switches to black & white at night
Max Image Resolution	1280 x 720
Number of Pixels	1.3MP or 720P
Frame Rate	30fps
Wide Dynamic Range	Digital wide dynamic range
Interface	Waterproof metal round type all-in-one AV+power
Case	Zinc die cast body

Rear Camera Specifications

Key Features:

- Latest SONY IMX225 1/3" CMOS image sensor
- 1.3MP 720p max resolution
- Powerful NextChip 2431H DSP with wide dynamic range for strong light suppression
- Built-in removable IR-Cur filter for 100% color reproduction and low light sensitivity
- Auto switching to B&W at low light for better image quality
- 12 x IR LED for totally dark environment night-vision view
- Built-in high sensitivity microphone for audio picking-up
- Super wide angle 1.8mm lens for large area coverage
- All-in-one round type waterproof connector for video, audio and power
- Die cast compact metal case with metal bracket

Item	Description
Sensor	SONY IMX225 1/3" CMOS Sensor
Minimum Illumination	0.001Lux / (F1.2, AGC ON) / 0 Lux when IR is on
Shutter	1/25 seconds - 1/100000 seconds
Camera Lens	6mm HD Lens (3MP)
IR-Cut	Built-in removable IR-Cut filter
Night-vision	12 x Dark Blue IR LED
Max Image Resolution	1280 x 720
Number of Pixels	1.3MP or 720P
Frame Rate	30fps
Wide Dynamic Range	- None -
Audio	Built-in Microphone
Interface	Waterproof metal round type all-in-one AV+power
Case	Zinc die cast body

Specifications

Technical Specifications (Continued)

Item	Parameter	Description
Audio	Audio Input	4 Channels
	Audio Output	2 Channels (1 - ϕ 3.5 phone jack & 1 - 24PIN harness connector)
	Recording Mode	Synchronous video & audio recording
Recording and Storage	Video Resolution	<ul style="list-style-type: none"> Supports 4 channels CIF/HD1/D1/960H/720P AHD camera video input Supports 2 channels 720P AHD + 2 channels 960H analog mixing video inputs Supports 1 channel 720P/1080P IPC + 4 channels 960H/D1/CIF video inputs <p>Note: 4 channels 720P AHD or 1 channel 720P/1080P IPC + 4 channels 960H video inputs (Need high speed SD card(s) (> 80MB/s) for HD recording)</p>
	Video Coding	ISO14496-10
	Video Bit Rate	<ul style="list-style-type: none"> CIF: 1536Kbps~128Kbps D1: 2048Kbps~400Kbps 960H: 2048Kbps~400Kbps 720P: 4096Kbps~400Kbps <p>Eight(8) image quality levels are available with Level 1 = Best and Level 8 = lowest.</p>
	Audio Bit Rate	8Kb/s
	Storage	Two (2) SD card storage slots, supports up to 128GB / card.
Alarm	Alarm Input	Eight (8) channels. Alarm activated by low voltage (\leq 1V) or high voltage (\geq 5V)
	Alarm Output	One (1) channel, 12V output
Communication Ports	RS485 Interface	One (1) RS485 interface
	RS232 Interface	Two (2) RS232 interfaces
Wireless Communication	3G	Built-in 3G (HSUPA/HSDPA/WCDMA/EVDO/TD-SCDMA) module (optional)
	4G	Built-in 4G (FDD-LTE/TDD-LTE) module (optional)
	WIFI	Built-in WiFi (2.4 / 5.8 Ghz) module (optional)
GPS	Built-in GPS module. Real time geographic coordinates, speed information.	
Acceleration Sensor	External and built-in acceleration sensor G-sensor (optional)	

Item	Parameter	Description
Software	Operating System	Windows XP / Vista / 7 / 8 / 8.1 / 10
	Playback	Play back video file in PC and analyze vehicle status.
	IVMS (Server & Client)	Wireless real-time video & audio streaming playback, including triggered by GPS, alarm, etc.
	Maps & G-Sensor Data	On-screen Google Maps with speed & G-sensor readings
	Searchable	Searchable by event date/time
	Export	Export from proprietary format to common AVI
	CMS	The central management software can preview, upload and center command issuance and parameter configuration.
Dimensions	Software Upgrade	This device can be upgraded through SD card.
	Mainframe	6-11/16in.(w) x 2in.(h) x 5-5/8in.(l) 170mm(w) x 50mm(h) 142mm(l)
	Including Cover	6-11/16in.(w) x 2in.(h) x 7-3/8in.(l) 170mm(w) x 50mm(h) 187mm(l)

Electrical Specifications

Item	Parameter
Power Supply	+8~+36V
Power Output	12V
ACC Detection	\leq 4V - Power off
	\geq 5V - Power on
Video Input Impedance	75 Ω
Video Output Voltage	2Vp~p
I/O Interface	1V or below - Low Level Alarm
	5V or above - High Level Alarm
Working Temperature	-13°F~158°F In a well-ventilated place

System Schematic

Introduction to Mainframe



FIG. 1
DVR Mainframe

NOTE: Actual camera appearance may vary from illustration.

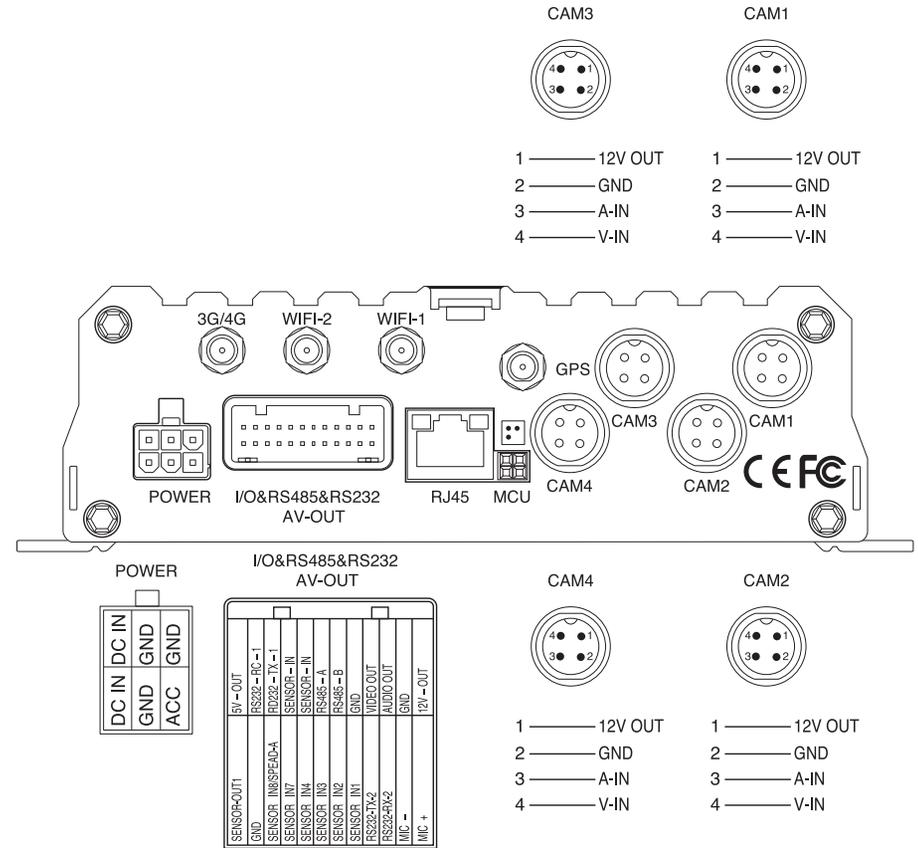


FIG. 2
DVR Mainframe Schematic

DVR Remote Control

-  Menu
-  2 Camera Split Screen
-  Up
-  Cancel
-  Left
-  SD Card Info
-  Right
-  Play
-  Down
-  Pause
-  Return to Previous Menu
-  Stop
-  Information
-  Fast Forward
-  Enter/Select
-  Rewind



FIG. 2
DVR Remote

Button	Function
Info	Check Information
Quad 1,2,3,4	While in the monitor view use the Quad button to switch between the quad (4) view(four views at once) and a single view. You can press 1/2/3/4 to display channel 1,channel 2, channel 3, and channel 4 respectively while in single view mode.
Retrn	Return to the previous menu and finally exit from the setup menu to the monitoring interface.
PLAY	Press this button to start playing (search the video file to be played and select, then press the button to play it)
Fast Forward	Forward in four (4) modes: 2X, 4X, 8X, 16X
Rewind	Rewind in four (4) modes: 2X, 4X, 8X, 16X
F1	The F1 button starts a functionality test

Device and Installation

1. Installation

Step 1: Open the protective cover.

Turn the electric lock located on the front panel counter-clockwise to unlock it and open the protective cover.



As indicated on the panel, use the supplied key to turn the electric lock clockwise to unlock and open the protective cover.

FIG. 3
Electronic Lock

Hardware: Installation

Step 2: Install SIM and SD card (FIG. 4)

As indicated on the panel, install SD card with its face up into its slot. Two SD cards are supported (maximum 128GB for each). Then insert the SIM card (if equipped) with its face up and the “cut” forward into the SIM slot and press it into place. Note the front and back face when inserting the SIM card.

Depending upon the device’s communication configuration, install the related SIM card for either the 3G or 4G capabilities if you have purchased one of these options.

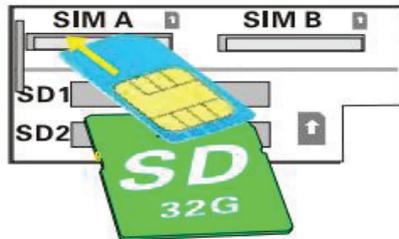


FIG. 4
SIM and SD Card Insertion

Step 3: Lock the electronic lock. (FIG. 4)

After all the SD cards and SIM cards are installed, pull the protective cover to the right side and close it. Then turn the electronic lock counter-clockwise to lock it. The device can now be powered on.

 The device will not power on unless the protective cover is closed and the electronic lock is in the locked position.



FIG. 5
Closing The Protective Cover

 **Caution:** Do not remove SD cards while the device is still on. **Data loss could occur.**

Hardware: Installation

Step 4: Installing the MDVR

The MDVR can be installed in any direction; there is no need for any part of the device to be pointed in a specific direction.

Install the MDVR into a convenient location inside your vehicle noting the mounting hole positions in the diagram below (FIG. 6).

Even though the device can be mounted in any direction, mounting the device horizontally will ensure it will work even under extreme conditions. A horizontal mounting will help protect it against water, humidity and condensation collecting in the housing and causing a motherboard short circuit.

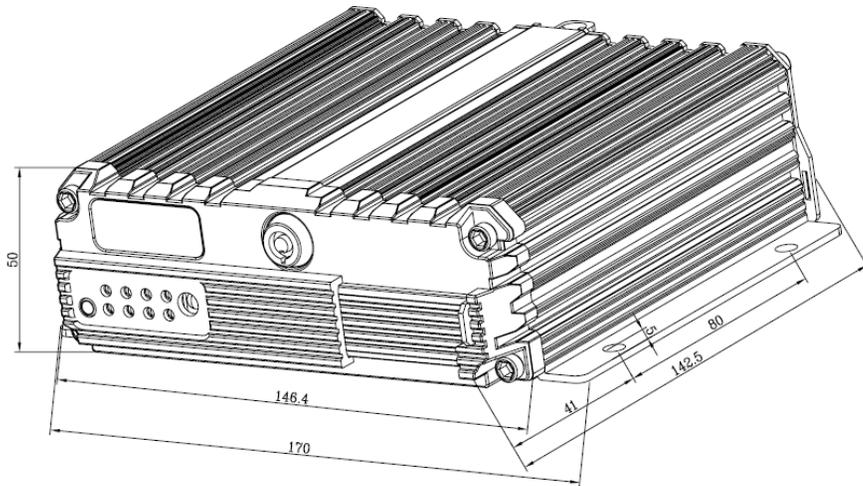


FIG. 6

Mainframe Dimensions and Mounting Hole Positions

Step 5: Install the GPS, 3G/4G and/or WiFi Antenna (if equipped)

Depending upon your device's options, connect the corresponding GPS, 3G/4G and or WiFi antenna(s) to their corresponding interface(s) (see FIG. 2) on the rear panel of the MDVR. Keep your wires organized and arranged properly to maintain the most optimal signal conditions and to protect the signal from external interference.



GPS



WiFi



4G

Hardware: Installation

Step 6: Connect the power cord.

Connect the 6-pin white plug to the 6-pin power input port on the rear panel of the MDVR. The red and black cables are directly connected to the battery of the vehicle, i.e. positive terminal and negative terminal respectively, or to the main power.

The yellow cable is connected to ACC, the vehicle control circuit switch (used to start the vehicle's motor). The unit will automatically power on when the car key is in the ON position and power off when the key is in the OFF position.

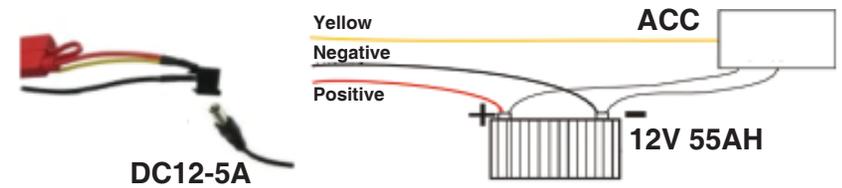
When the device is not installed in a vehicle (such as monitoring systems in a bus station, logistics transfer) or under testing conditions, you can use a switching power above DC12V-5A to supply the MDVR the proper signal. In this case, twist the red and yellow cables together into a single cable and connect it to the positive terminal. The black cable is then connected to the negative terminal separately.



This terminal is connected to the 6-pin power interface on the rear panel of the MDVR.

See FIG. 2 for its location.

FIG. 7
Power Supply Connector Cable



1. Check that the battery provides voltage between 8V~36V before connection to prevent damage to the device.
2. Be aware of where each of the ends of each wire are after you have connected it to the battery to prevent the cable damaging the device from a short circuit.
3. We recommend connecting the yellow wire to the ignition cable, otherwise the shutdown feature will not function correctly.
4. We recommend connecting the device directly to the vehicle's battery. If this is not possible, connect to the vehicle's fuse box, bypassing the ground connection which may influence the normal operation of the MDVR due to negative pulses.
5. The wire that connects the power cable harness to the vehicle's battery should be a minimum diameter of $\phi 1.5\text{mm}$ or above.

Hardware: Installation

Step 7: Connect the A/V Output Cable

This product features two video outputs (one is a $\phi 3.5$ phone jack on the front panel and the other is a 4PIN BNC connector in the rear).

Use the rear A/V cable for most mobile installations.

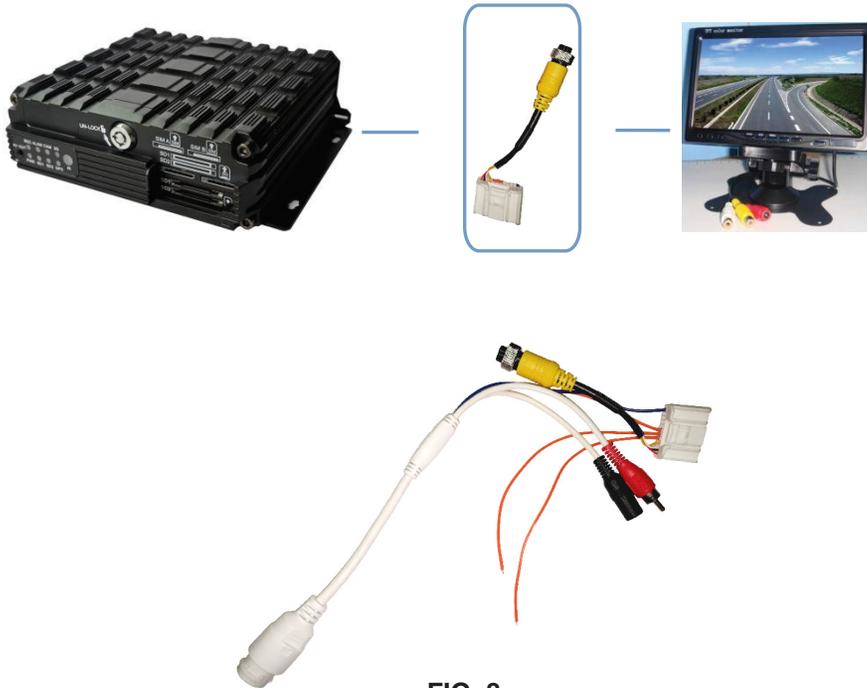


FIG. 8
Sensor I/O Cable Harness

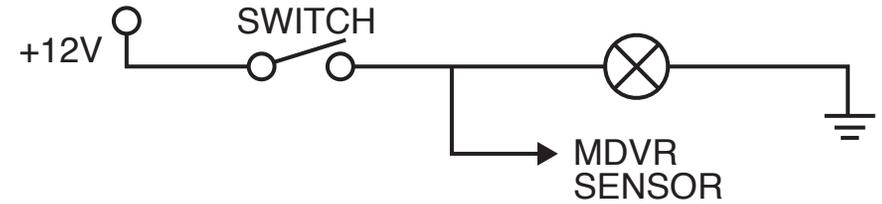


FIG. 9
High Level Alarm Block Diagram

Step 8: Connect the alarm input and output cables.

Note that the input alarm wires are labeled as to where they will be used in a typical installation:

Blue '*Mic Trigger*': Blue wire from wireless mic cradle already connected to harness.

Orange '*Lights*': Connect to 12v wire that will be 'Hot' when emergency lights are activated.

Orange '*Manual SW*': Connect to an unused switch in the controller box, or if needed a manual switch with 12v. This is to allow the officer to activate recording, as needed, without emergency equipment activated.

Orange '*Wireless Mic*': Already connected to wireless mic charge cradle via harness.

The over-speed alarm feature can be enabled by simply configuring settings via the *Setup Menu* → *Alarm* → *Speed*. A GPS signal is required to produce a reading to trigger the alarm.

Hardware: Installation

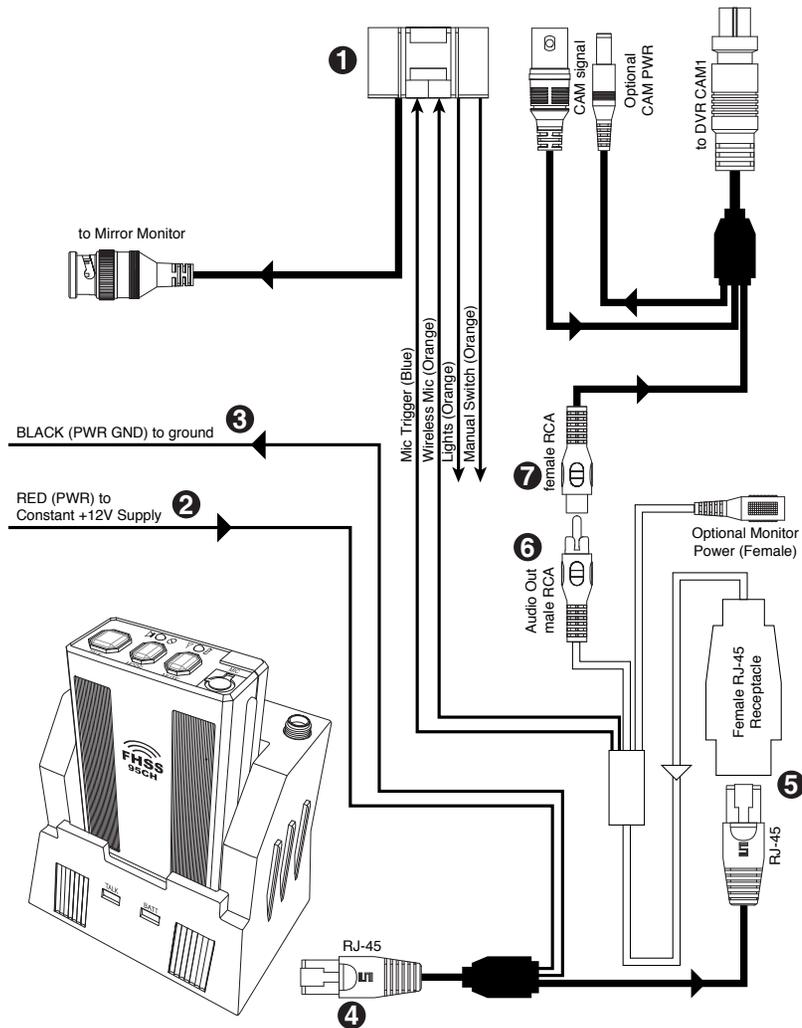


FIG. 3
900MHz Wireless Mic Installation

900MHz Mic Installation

- 1 Connect the large white connector (#1) of the DVR alarm harness to the matching receptacle in the rear of the DVR.
- 2 Connect the Red power lead (#2) from the 900MHz harness to an Always ON power source.
- 3 Connect the Black GND lead (#3) to a vehicle ground terminal.
- 4 Connect the RJ-45 connector (#4) that is closest to the large black junction block to the female RJ-45 receptacle on the side of the mic cradle.
- 5 Connect the other RJ-45 plug into the female RJ-45 receptacle (#5) of the DVR Alarm Harness.
- 6 Connect the red RCA male lead (#6) from the DVR Alarm Harness to the RED female RCA lead (#7) of the Camera 1 Harness.

900MHz Mic Antenna

- 1 Plug the antenna into the gold plug on the top of the cradle.
- 2 Secure by tightening the lock nut.
- 3 Run the wire down under the dash or other hidden location, somewhere toward the front of the vehicle.



Velcro or double-sided tape works great for securing the antennae end to a flat surface on the vehicle.

Hardware: Installation

Mirror Monitor

- 1 Mount the mirror/monitor over the existing mirror.
- 2 Run wires to DVR and connect the 4-pin male connector to the corresponding female 4-pin connector on the large white connector.



A good place to run the wires for the mirror is to tuck them in the front edge of the headliner and down the passenger side pillar post. The covers on most modern pillar posts snap in to place and are easily removed with plenty of room.

- 3 Run the wires down along the door edge and under the glove box to the location of the DVR.

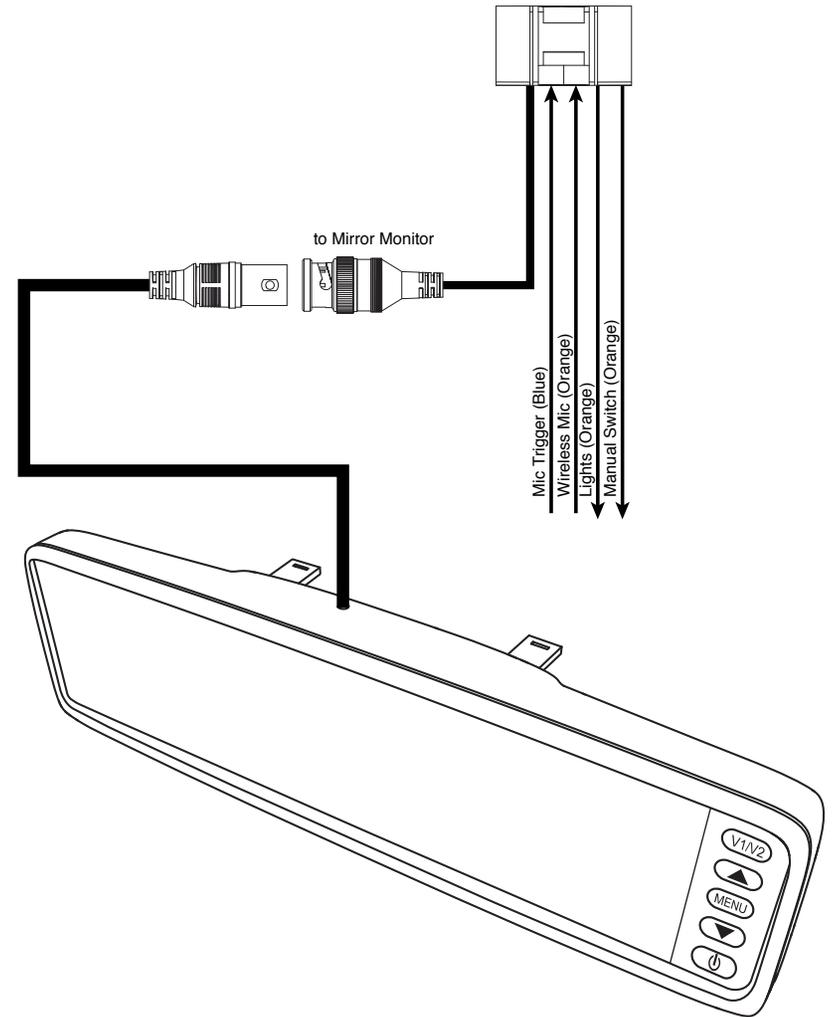


FIG. 10
Mirror Installation

Hardware: Installation

Camera Mount

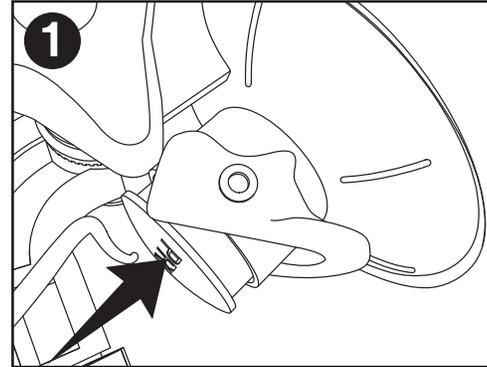
The mount is an excellent commercial mount and is very strong when properly attached to the windshield.

- 1 Locate the mounting location of the camera - high and just right of center on the windshield.

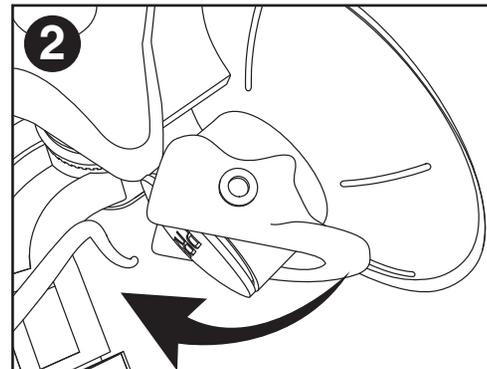
i This is normally to the rear and slightly to the right of the rear view mirror/monitor.

i Leave just enough room for the camera to rotate 180 degrees in either direction.

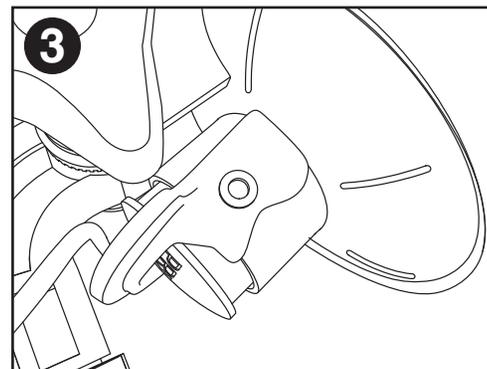
- 2 Clean the glass where the mount is to be placed.
- 3 Press in on the center button of the mount and pull the locking lever up and over the center button to lock it in place.



Press in button.



Pull lever over button.



Locked position.

Hardware: Installation

Front Camera

- 1 Run the included cable along side the mirror/monitor cable to the DVR.
- 2 Plug the *BNC video connector* from the camera to the *BNC video-in cable* from the DVR.
- 3 Adjust the large locking wheel (FIG. 9) above the camera so that the camera can be rotated easily, yet stay in place while driving.

i Hold the camera firmly while adjusting the wheel.

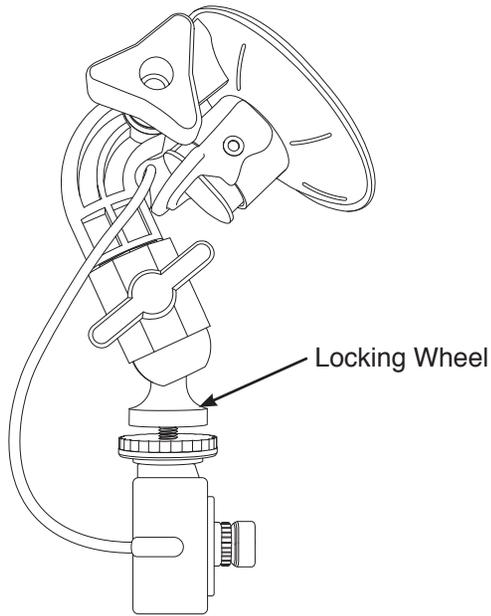


FIG. 11
Front Camera* Mount System

* NOTE: Actual camera appearance may vary from illustration.

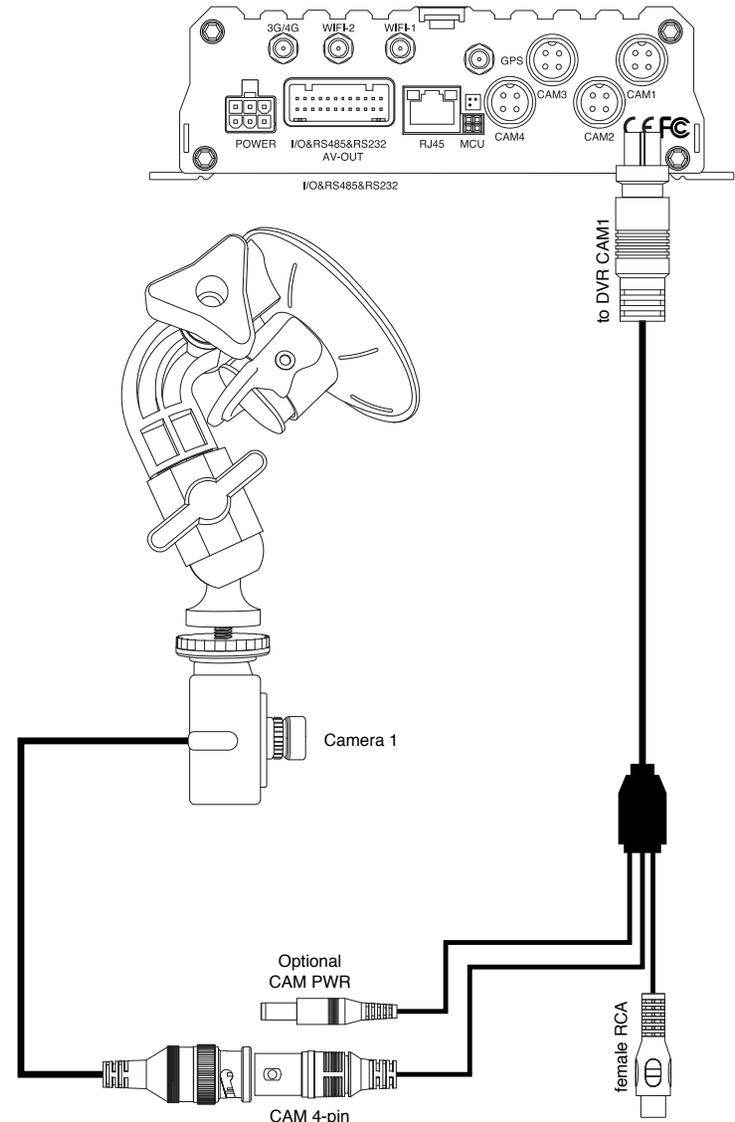


FIG. 12
Front Camera Installation

Hardware: Installation

Rear Camera

The 10-8 rear camera is a true Day/Nite camera with automatic infrared and B/W functions. It also features a separate external microphone to capture sounds and conversations in the interior of the vehicle. The microphone can be placed in the console or any other convenient location for recording interior audio.

Mounting options for this camera will vary greatly from vehicle to vehicle and will depend on type of vehicle and if there is a rear divider in the vehicle. The camera is supplied with a fully articulating universal mount.



The location of the camera should give the best view of the rear/transport area of the vehicle.



If the vehicle has a cage, we suggest the camera be mounted high as possible and to one side pointing across the rear area to be viewed. If there is no cage, another choice would be high in the center of the vehicle in the front and pointing rearward, mounting just to the rear of the windshield.

Once a location has been found, run the supplied cable from the camera to the DVR. The cable will differ from the front camera as there are four (4) connections on each end instead of two (2). These additional connections (Power & Audio) are for the external microphone. Connect the cable to the 'Rear Cam' section at the rear of the DVR.



IMPORTANT: The ball mount on the rear camera has been attached at the factory. Do not attempt to tighten further. If necessary to remove and re-attach, the ball mount should be tightened only to the point where it stops in the bottom of the camera.

G-Force Sensor

The G-Force sensor is integrated into the DVR and configured at the factory.

GPS System



As long as the vehicle is in a location with a clear view of the sky and GPS satellites, you will get a reading from the GPS receiver. It can be mounted inside or outside of the vehicle.

The magnet backing is very strong for mounting on the roof. It can also be mounted in the vehicle, under the windshield.

- 1 Mount the antennae.
- 2 Route the cable back to the DVR and attach to the port labeled GPS.

The GPS receiver will display your vehicle speed and coordinates at all time on the system monitor. In addition, GPS coordinates are imbedded in all recordings made on the system. During playback on a computer, the user can elect to display a map show the actual location of the vehicle as the video is played.



After installation the G Sensor needs to be 'zeroed'. Do this by going to Menu > Vehicle > G Sensor. Highlight 'Adjust' to zero out the sensor.

Setting the GPS Speed Trigger

Locate the GPS settings by pressing the **Menu button** on the remote then selecting **Alarm > Max Speed**. It is preset to 80 MPH. When the vehicle is travelling at a rate greater than this setting, the DVR will begin to record and record as long as the vehicle is over this speed setting.

Software Settings Overview

After the power supply is connected to the vehicle's start circuit, ensure the device will automatically start when the vehicle is started. This verifies the power supply is properly connected to the peripherals.

After the vehicle starts, the system will enter the *Quad View*. Here you can press the *Login* button on the remote control to input the Admin password (888888 by default) to enter the setup menu and configure related settings.

The setup has seven (7) options including: General, Record, Alarm, Tools, Peripherals, Search and System Info (as shown in FIG 13). The following section will individually introduce individual settings.



The 10-8 System will come pre-configured and suitable as-is for most departments. The only settings that will need to be set is the date/time for your area and the Vehicle Info screen.

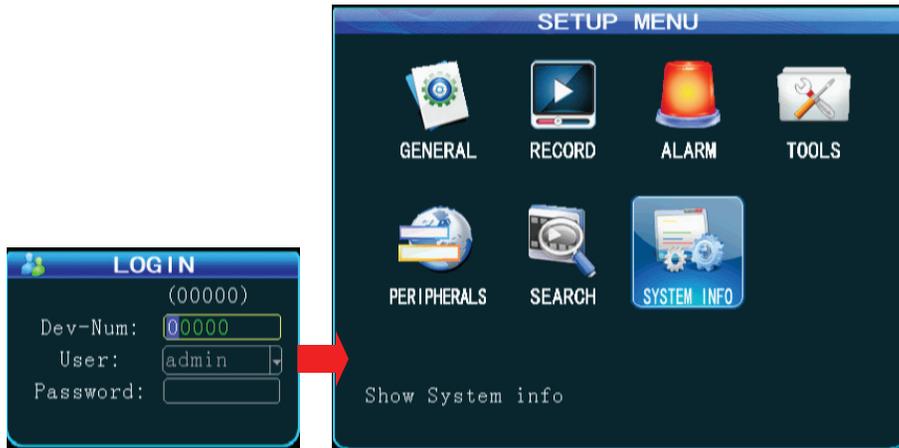


FIG. 13
Setup Menu

Software General Setup

Step 1: Basic Setup

From the *Setup* menu, select the *General* option and press the "ENTER" button to enter the *General* interface, where you can set your desired date and time, vehicle information, user management, network and display.

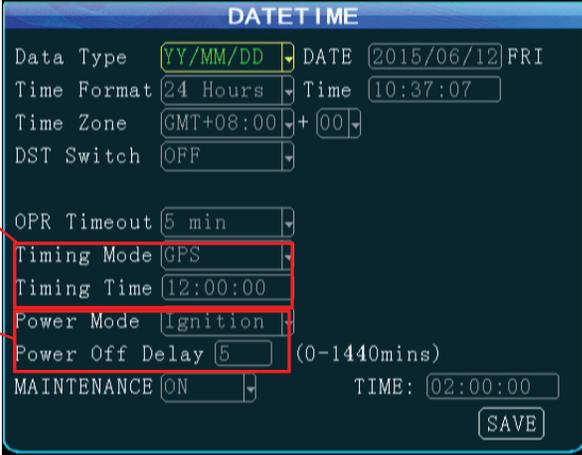


FIG. 14
Basic Setup (*General Options*) Menu

DVR: Setup (General)

Step 2: Set Date & Time

From the *General* menu, select “Date & Time” to enter its interface.



The screenshot shows the DATETIME menu with the following fields: Data Type (YY/MM/DD), DATE (2015/06/12 FRI), Time Format (24 Hours), Time (10:37:07), Time Zone (GMT+08:00 +00), DST Switch (OFF), OPR Timeout (5 min), Timing Mode (GPS), Timing Time (12:00:00), Power Mode (Ignition), Power Off Delay (5) (0-1440mins), and MAINTENANCE (ON). A SAVE button is at the bottom right. Two callout boxes are present: one pointing to the Timing Mode field stating that time will be updated if GPS mode is selected, and another pointing to the Timing Time field stating that ignition mode is the default and allows setting a recording delay.

If GPS timing mode is selected, the time will be updated at the “Timing Time”.

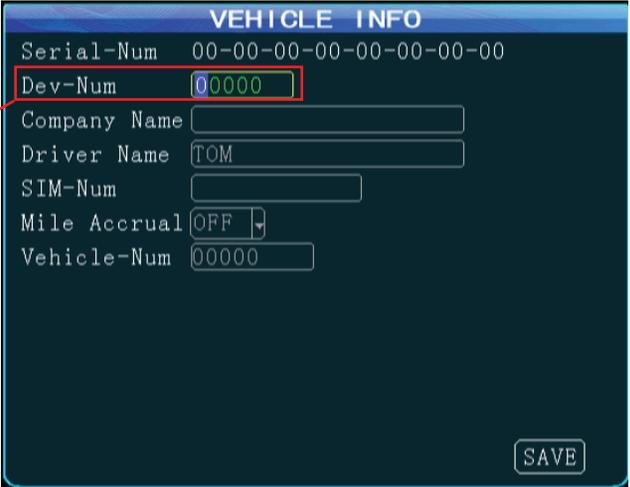
You can select timing mode/ignition mode. By default, ignition mode is used, where you can set the recording delay time after shutdown.

FIG. 15
Date/Time Setup Menu

 To ensure your option changes are saved when you are done, move your cursor to the “Save” button and then press the “Enter” button.

Step 3: Set Vehicle Info

Press the “Return” button to return to the *General* menu to the enter the *Vehicle Info* menu. To facilitate unified management of vehicles on the server, it is recommended to completely fill in vehicle information.



The screenshot shows the VEHICLE INFO menu with the following fields: Serial-Num (00-00-00-00-00-00-00-00), Dev-Num (00000), Company Name, Driver Name (TOM), SIM-Num, Mile Accrual (OFF), and Vehicle-Num (00000). A SAVE button is at the bottom right. A callout box points to the Dev-Num field, stating that the server will monitor and manage vehicles through device number and that uniqueness must be ensured for 3G/4G networks.

The server will monitor and manage vehicles through device number. When vehicles are managed via a 3G/4G network, please ensure the uniqueness of the device number.

FIG. 16
Vehicle Info Setup Menu

- 
1. The report can be found in the CMS client only when the mileage statistic is enabled.
 2. To ensure your option changes are saved when you are done, move your cursor to the “Save” button and then press the “Enter” button.

DVR: Setup (General)

Step 4: User Setup

Press the "RETURN" button to return to the *General* menu to enter the *User Setup* menu and to enable the password feature. **The original admin password is 888888.** If the password is changed the password will be required when re-entering the system setup menu.

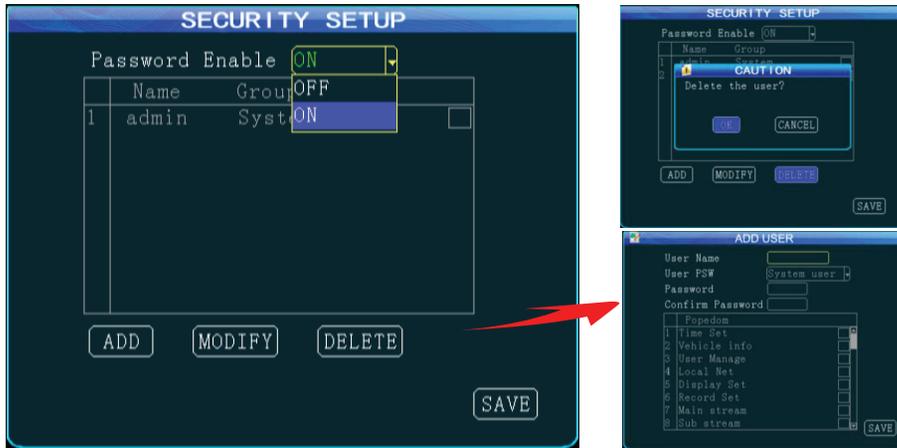


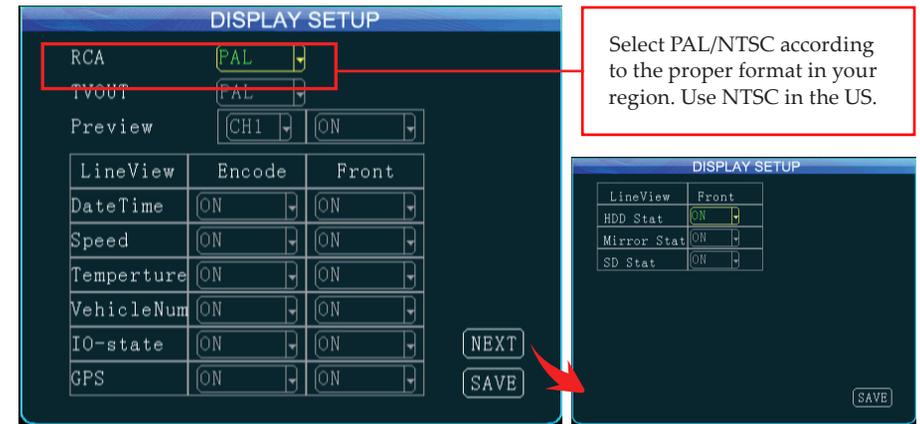
FIG. 17
Security Setup Menu



1. You can add or delete a user or set user permissions.
2. To ensure your option changes are saved when you are done, move your cursor to the "Save" button and then press the "Enter" button.

Step 5: Display Setup

Press the "RETURN" button to return to the *General* menu to enter the *Display Setup* interface.



Select PAL/NTSC according to the proper format in your region. Use NTSC in the US.

FIG. 18
Display Setup Menu



1. When viewing videos on the screen you can choose whether to have the date & time, speed, HDD temperature, vehicle number, I/O alarm state and GPS information on or off during video recording or playback.
2. Select PAL/NTSC for the output format as required. To ensure your option changes are saved when you are done, move your cursor to the "Save" button and then press the "Enter" button.

DVR: Setup (Recording)

Software Recording Setup

Step 1: Enter the Recording Setup Interface

Press the "RETURN" button twice to return to the *Setup Menu*, where you can configure recording settings, including general settings, main code, sub-stream, recording schedule, mirror recording, SD recording and alarm recording.



FIG. 19
Recording Setup Menu

Step 2: Record Basic Setup Interface

From the *Record Setup Menu*, select the **General** options and press the "ENTER" button to enter the *Record Basic Setup* interface. Here you can select the desired recording method.

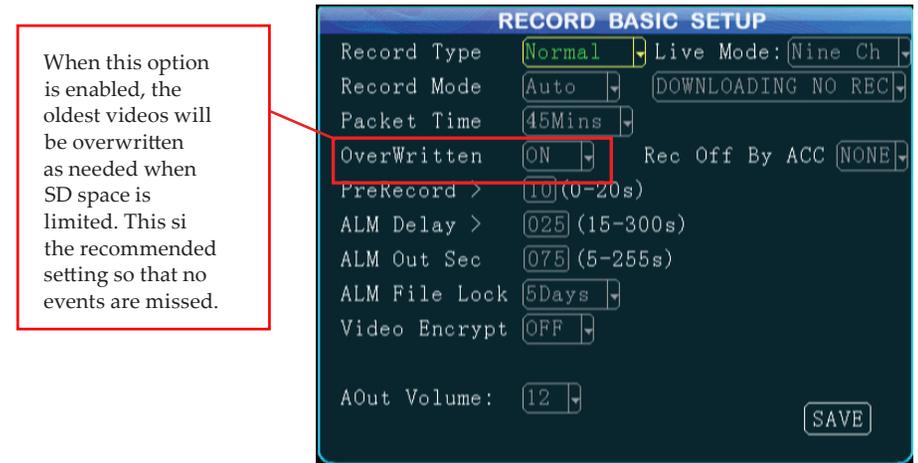


FIG. 20
Recording Basic Setup Interface



1. When the alarm record option is selected, you can set the pre-record time, alarm record delay time, alarm output time and alarm lock time. When timing record is selected, you **MUST** set the recording schedule (for details see Step 5).
2. It's recommended to set the record segment time to 15/30 minutes due to read/write speed limitations of the SD card.

DVR: Setup (Recording)

Step 3: Channel Mode

This product is a hybrid HD vehicle MDVR allowing connections from various types of cameras. Table 1 shows interface definitions of various analog cameras. The standard interface is for IP cameras. A user must select a camera type according to the hardware connection used and configure the proper corresponding settings in the software.

Connection	Pin #	Interface Definition	Pin #	Interface Definition
	1	12V OUT	3	A-IN
	2	GND	4	V-IN

Table 1
Camera Connection Modes

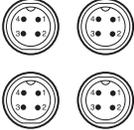
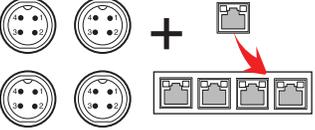
Connection Mode	Connection Diagram	Model 10-8 HD4SD
Connection of a single analog camera		4 ways of D1/960H/720P AHD video inputs available.
Mixed connection of analog and network cameras		Max 4 ways of 720P AHD video inputs + 1 way of IPC HD video inputs available, with connection to a switch also possible.

Table 2
Software Settings

After connecting the camera according to the above methods, go to the *Setup menu* → *Record Setup* → *Channel Mode* interface, where you can set video resolution, frame rate, picture quality, and audio recording for each channel.

- The frame rate is adjusted according to the image format. The higher the frame rate, the better the timelines will be.

PAL is adjustable between 1-15 frames per second (fps); NTSC is adjustable between 1-30 fps.
- Level 8 indicates the lowest picture quality. The higher the picture quality is, the better the video definition will be.

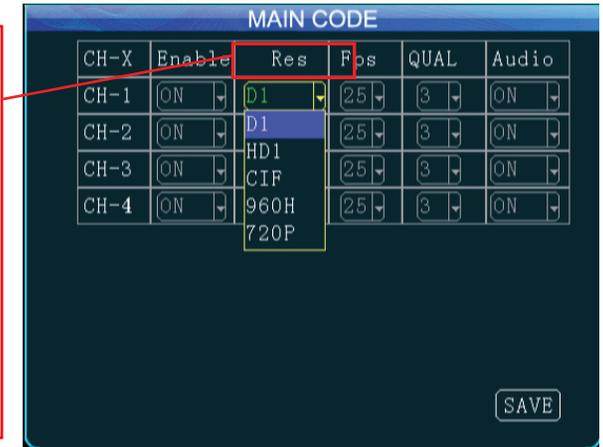


FIG. 21
Channel Mode Interface

 To ensure your option changes are saved when you are done, move your cursor to the “**Save**” button and then press the “**Enter**” button.

DVR: Setup (Recording)

Step 4: Sub-Stream Setup (WiFi Option Only)

Press the "RETURN" button to return to the *Record Setup Menu*, then enter the *Sub-Stream* settings interface.

This setting is directly related to definition and fluidity of the video on the CMS software. The higher the resolution, frame rate and bit rate are, the better looking the video will be. However, this requires more storage space, memory and bandwidth. So far, 3G networks allow only transmission of CIF in real-time. CIF and QCIF can be set for each sub-stream.

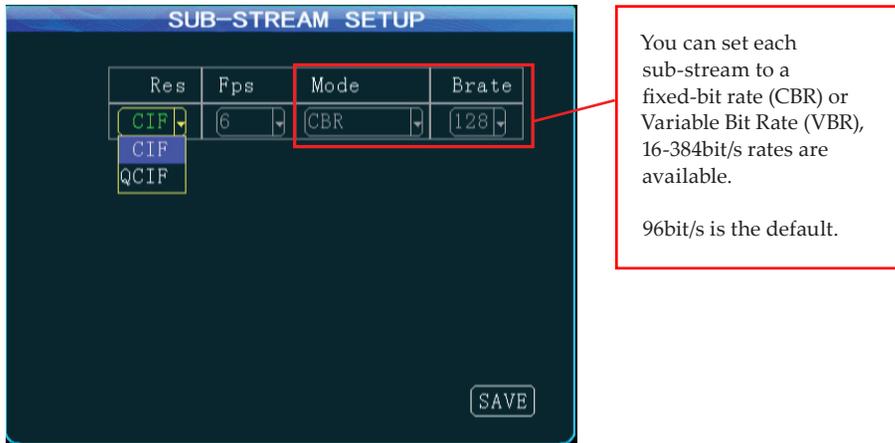


FIG. 22
Sub-Stream Setup Interface



1. Either CIF or QCIF is optional for sub-stream resolution. Currently, the maximum CIF real-time transmission capabilities are only available via a 3G network.
2. To ensure your option changes are saved when you are done, move your cursor to the "Save" button and then press the "Enter" button.

Step 5: Recording Schedule

(to be set in timing record mode NOT recommended for Department use)

Press the "RETURN" button to return to the *Record Setup Menu*, then enter the *Recording Schedule* settings interface.

If "Timing Record" mode (not commonly used) is selected under *Record Mode* in the *General Options*, you must set the record time frame here (two time frames can be selected).



FIG. 23
Recording Schedule Setup Interface



1. The *Recording Schedule* can only be set when the "Timing Record" mode is selected under *Record Mode* in the *General Options*.
2. To ensure your option changes are saved when you are done, move your cursor to the "Save" button and then press the "Enter" button.

Alarm Setup

Step 1: Enter the Alarm Setup interface.

Press the “RETURN” button to return to the *Setup Menu*, and select the *Alarm Setup* interface. Here you can set the sensor, speed, acceleration, temperature, motion detection, linkage settings and other alarm modes. The alarm feature can only be used when an external sensor is connected.

Different types of recordings are created depending which alarm type you choose for each alarm setting.

- If an “Event” is selected for the alarm type, a normal recording is conducted.
- If an “Alarm” is selected for the alarm type, an alarm recording is conducted.
- The “threshold” indicates the point at which an alarm is triggered.



FIG. 24
Alarm Setup Interface

Step 2: Sensor Setup

This device provides eight (8) SENSOR-IN inputs and can be set with a high level alarm. From the Alarm Setup menu, select the “Sensor” icon, and press the “ENTER” button to enter the sensor alarm options. Set the alarm “Enable” to “ON” and name the sensor as required.

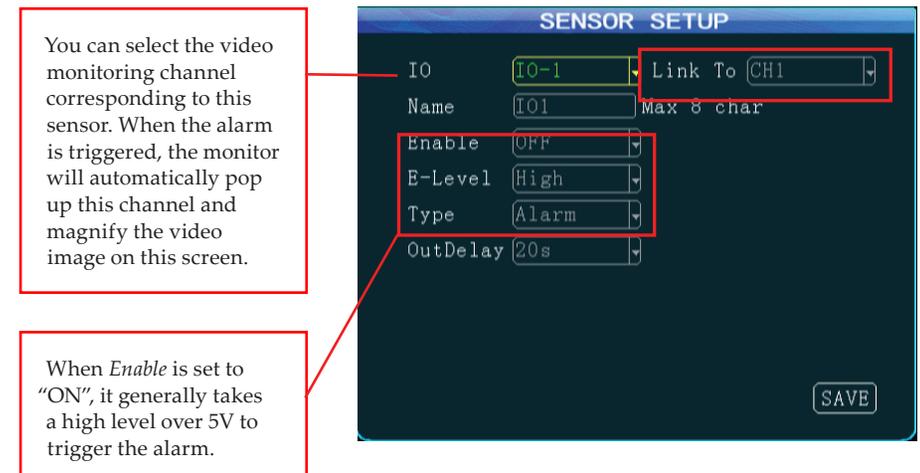


FIG. 25
Alarm Sensor Setup Interface



1. Output delay indicates that the alarm output is set in the alarm linkage, i.e. when the alarm is off, the alarm outputs within the set delay time.
2. Be sure to use the Link To setting to assign this sensor alarm to a specific input channel to monitor.
3. To ensure your option changes are saved when you are done, move your cursor to the “Save” button and then press the “Enter” button.

DVR: Setup (Alarm)

Step 3: Speed Setup

Press the "RETURN" button to return to the *Alarm Setup* menu, and then select the *Speed Setup* interface. If the temperature alarm feature is enabled, this information can be transmitted to the central CMS system.

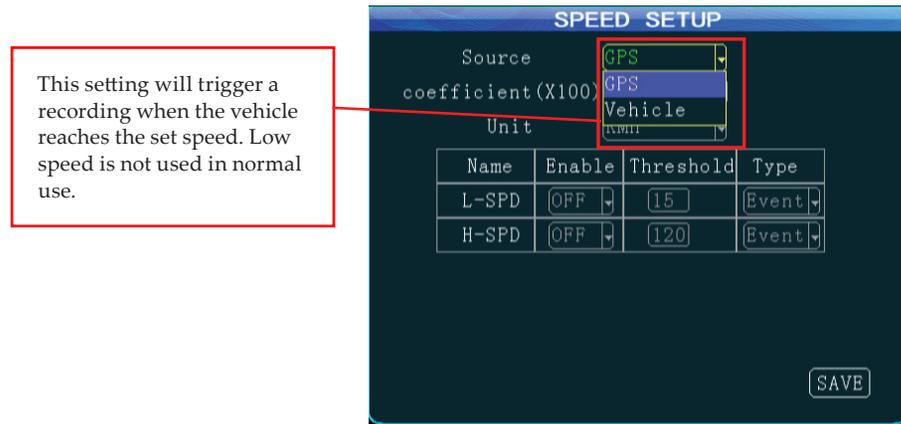


FIG. 26
Speed Setup Interface



To ensure your option changes are saved when you are done, move your cursor to the "Save" button and then press the "Enter" button.

Step 4: G-Sensor Setup

Press the "RETURN" button to return to the *Alarm Setup* menu, and then select the *G-Sensor Setup* interface. When transient acceleration is high during braking, turning, acceleration or collision, the sensors will indicate that the threshold value has changed quickly.

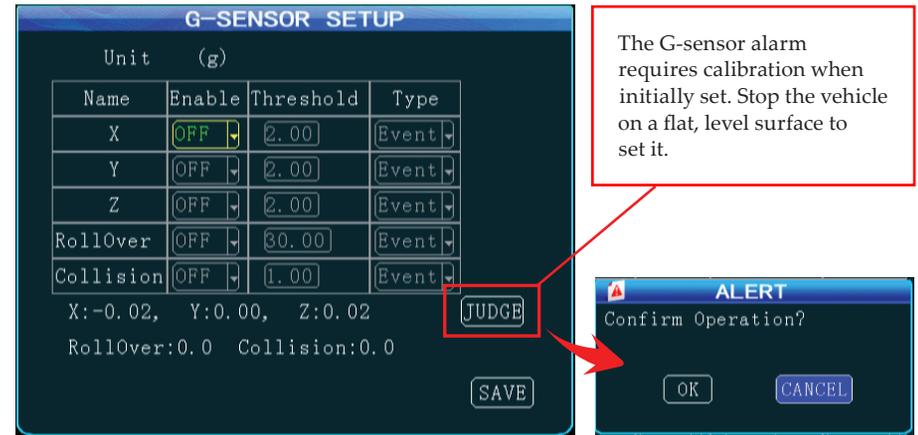


FIG. 27
G-Sensor Setup Interface

DVR: Setup (Alarm)

Step 5: Temperature Setup (NOT currently used)

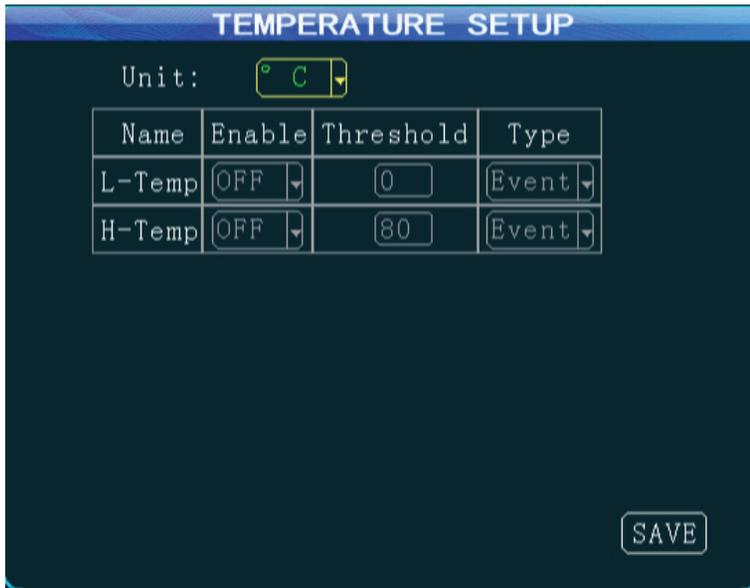
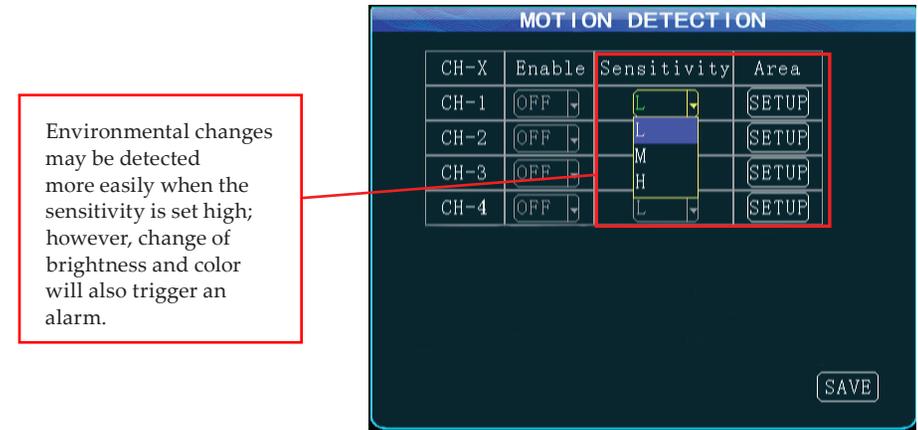


FIG. 28
Temperature Setup Interface

Step 6: Motion Detection Setup (NOT currently used)



Environmental changes may be detected more easily when the sensitivity is set high; however, change of brightness and color will also trigger an alarm.

FIG. 29
Motion Detection Setup Interface

You can use your remote control within the detection area to select two points as a diagonal to define a detection area. Within the user defined area, when there is an object moving, the system will give an alarm when it is detected. A user can search motion detection alarm events under "Configuration → Log Search", naming "CHL MD alarm".

How to Set a Detection Area:

1. Select "Setup", and press the "Enter" button on the remote to enter the motion detection setting interface.
2. Select the first block (yellow), and then the motion block will change to blue after you press the "Enter" button confirming its placement.
3. Select the second block and press the "Enter" button. The rectangular area formed by the diagonal of these two blocks is shown.
4. Press "Return" to return to the previous menu and press the "Save" button.

DVR: Setup (Alarm)

Step 7: Linkage Setup

Press the “RETURN” button to return to the *Alarm Setup* menu, and then select the *Linkage Setup* interface. This device provides two alarm outputs.

You can select *none/output 1/output 2* from the linkage setup menu. 12V of high level is generated to drive other optoelectronic devices when the related alarm is triggered. (For detailed connection methods, please refer to the alarm input/output cable connection section.)

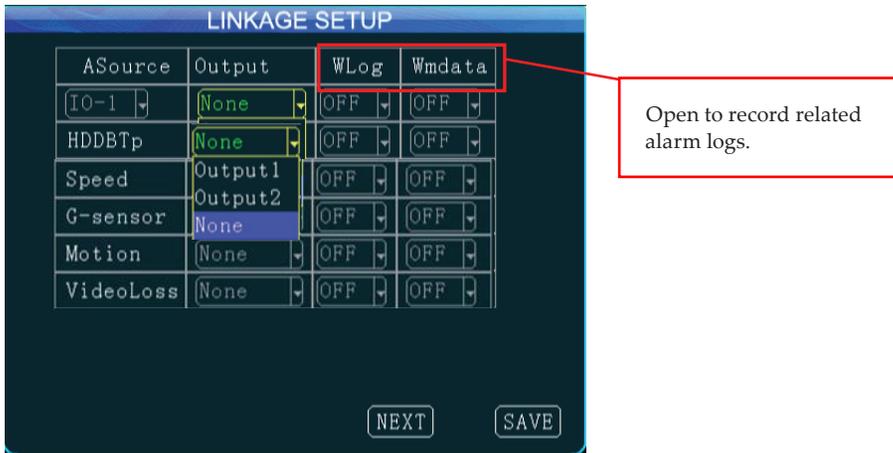


FIG. 30
Linkage Setup Interface

This page left intentionally blank.



1. Enabling or disabling of write metadata is used to check if related alarm information is written tot the video file.
2. To ensure your option changes are saved when you are done, move your cursor to the “Save” button and then press the “Enter” button.

Configuration

Step 1: Configuration Management

Press the "RETURN" button to return to the *Setup Menu*, and then select the *Tools* icon. Then select the *Configuration* icon to enter the *Configuration* interface. Here you can import/export configuration settings through an SD card or reset to the MDVR to its factory settings.

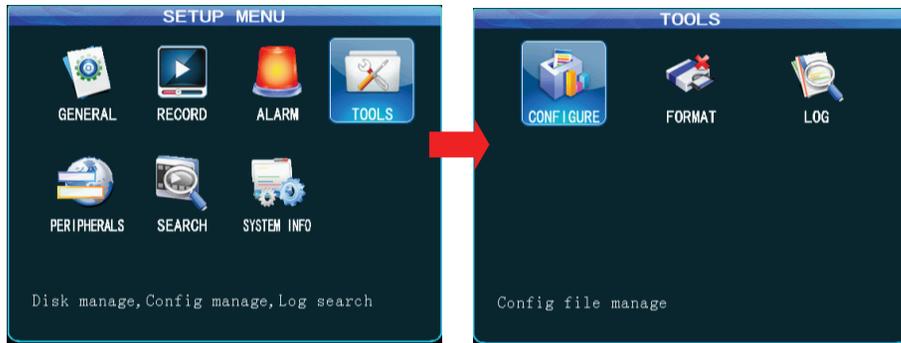


FIG. 31
Accessing the Configuration Interface

Step 2: Formatting SD Cards

Press the "RETURN" button to return to the *Setup Menu*, and then select the *Tools* icon. Then select the *Format* icon to enter the *Format* interface. Here you can select the storage medium to be formatted and press the "Format" button.

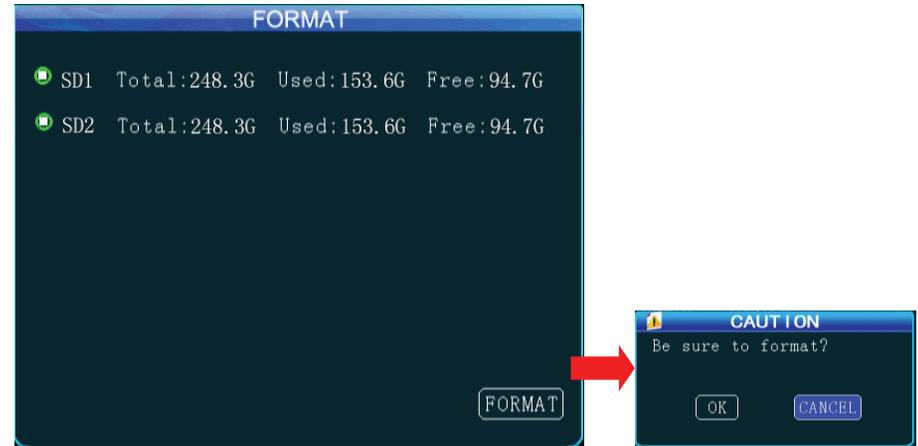


FIG. 32
Formatting Media Interface

Software: Configuration

Step 3: Log Search

Press the "RETURN" button to return to the *Setup Menu*, and then select the *Tools* icon. Then select the *Log* icon to enter the *Log Search* interface.

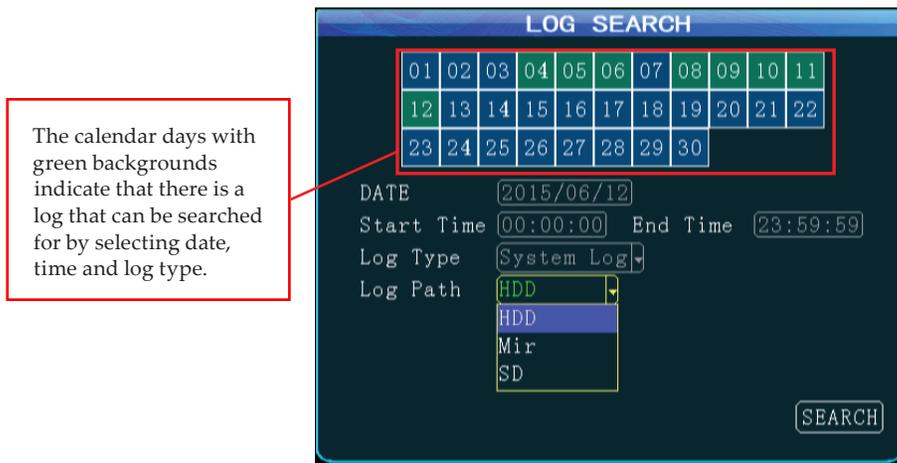


FIG. 33
Log Search Interface

Search and Replay Recordings

Press the "RETURN" button to return to the *Setup Menu*, and then select the *Search* icon to enter the *Record Search* interface. You can play the video files that appear in the search results.

The calendar days with a green background indicate that there is a log that can be searched by selecting the date, time, record type and related channel.

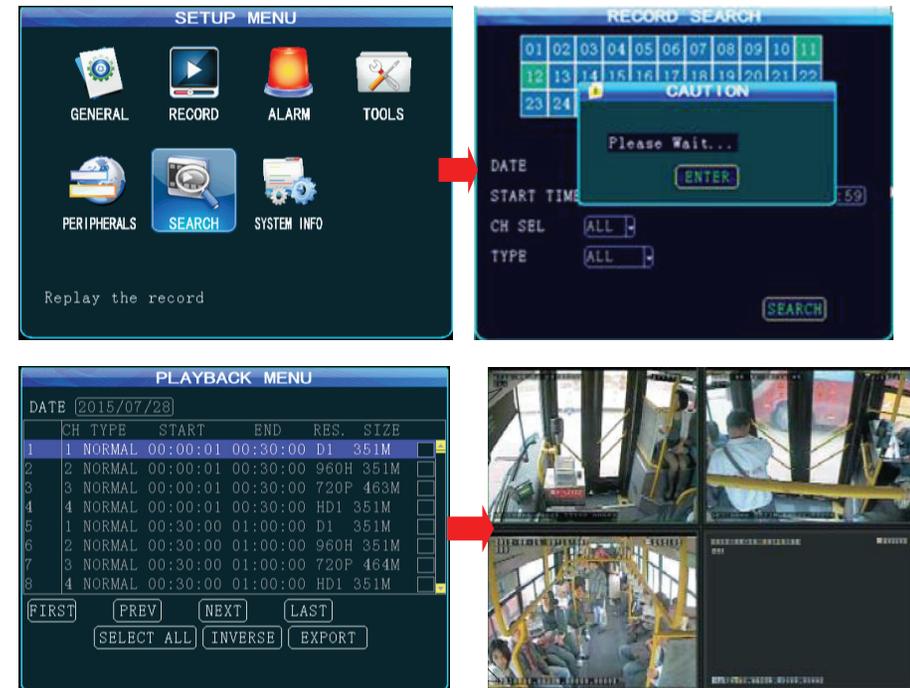


FIG. 34
Recordings Playback Workflow

Software: System Information

System Information

In Quad view mode, you can either press the “INFO” button on your remote control or enter the setup menu to display the system information using the *System Info* icon.

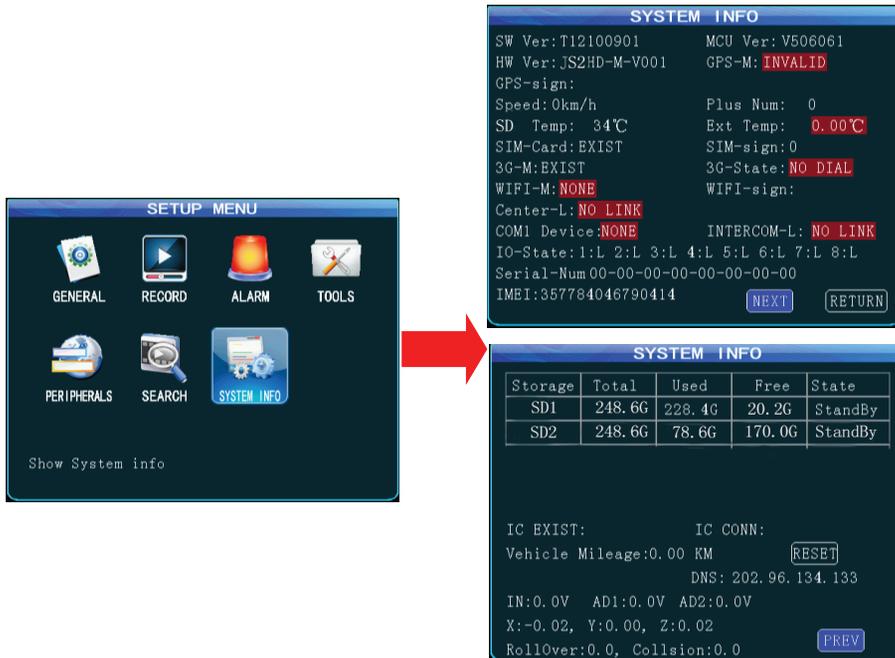


FIG. 35
System Information Workflow

This page left intentionally blank.

FAQ - Frequently Asked Questions

Q: The mobile device does not output video.

- A:**
1. Check the power status of the device. If only one blue indicator LED is lit, it indicates that the device is still in standby mode and not powered on; at the same time, check if the red or yellow cable of the main power is supplied normally; if not, the device cannot be started.
 2. Check if the display is powered and if the display video is switched to AV status.
 3. Check the connection status of the video output cable and display.
 4. Check the lock status on the 10-8 HD4SD lock; the device can only be started when the lock is locked.

Q: The 10-8 HD4SD video interface is different from the camera input interface.

- A:** A 4-pin interface is used for the vehicle device. BNC interface or air interface is used for the camera. If inconsistency is found, please use an adapter or connect it to a standard line defined as the line sequence for the vehicle device.

Q: A recording is lost or no recording is found within a certain period of time.

- A:**
1. Analyze the period of time between when the final video file was lost and the last video that was successfully recorded to see what has changed in the recording environment.
 2. Check if the device's power was on during this period of time, for example, delay recording was not set during mid-way shutdown or unloading & loading.

Q: Recording capabilities are unavailable even when the device is powered on and the HDD is installed?

- A:**
1. Check that the HDD is formatted after the HDD is installed. Unless the HDD is formatted it cannot be used properly.
 2. Check if the record channel is off or if timing record is set. Recording is unavailable when it is not within the specified recording time frame.
 3. Check if the HDD is properly contacted, and the HDD on the front panel is lit up.

GPS Related Problems

Q: GPS module is present but no coordinate information is available.

- A:**
1. Check if the GPS module is indeed present; also check if the HDD is installed and properly contacted.
 2. Check if the GPS antenna is properly contacted and if the antenna is broken. The antenna is recommended to be placed in an area having a strong signal. Note that some car glass shielding may interfere with receiving a proper GPS signal.
 3. If the test is conducted indoors and the GPS antenna is also indoors and shielded, it is recommended to place the GPS antenna outdoors.

Q: GPS geographic position is not accurately displayed on map.

- A:** If the GPS module is positioned, it indicates that the signal is valid. Government limitation, error tolerance or GPS signal interruption may cause deviation. The satellite map may have some deviation for safety reasons. In general, this can be solved by using GPS correction.

CMS Related Problems

Q: The device is powered on while the CMS client does not display vehicle information or video.

- A:**
1. Check if the central registration server is powered on and online. Then check if the device number is used, thereby causing a conflict. Also check if the IP and port number are set correctly for the server center.
 2. Check if the device reports information to the server via the built-in 3G module or WiFi (if available). If the built-in 3G is used, check if the right type is selected; for example, WCDMA and EVDO correspond to related SIM cards.
 3. Check if the antenna is properly connected, if data access point(s) and center number are correctly set. If it still does not work, please collect as much information as possible about your setup and submit it to the technical support department for analysis and to facilitate troubleshooting.

Q: The device is online but a video image is not displayed.

- A:** Please set a lower sub-stream to transmit images. Then the sub-stream is set too high, block or slower transmission rates may result due to uploading limits of the network; the video transmission may be seriously affected due to weak network signal or intermittence.

Q: The device reports information to the CMS, but after a period of time it ceases to transmit video.

- A:**
1. Check if the device information displays dial-up. If it does then the traffic for the SIM card may be used up. Replace it with a new SIM card.
 2. Check if the device number has been changed. If it has, your vehicle information will be reported again to the server.
 3. If card replacement does not solve the problem, check if the device 3G module is faulty.

Reference Tables

10-8 HD4SD Memory Space Reference

	Picture Quality								
	Resolution	1	2	3	4	5	6	7	8
Video Record Space M/h	D1	900	670	540	450	390	350	315	280
	HD1	560	420	335	280	245	220	195	175
	CIF	350	260	210	175	150	135	120	110
	960H	904	792	680	567	455	343	229	173
	720P	1804	1355	905	680	455	343	229	173

The above table shows the recording space required for one-way images per hour. *This table is for reference only.* The size of the file is related to illumination change and object motion of the current channel. The video file may be much smaller. To save space, you can disable audio or an undesirable video channel.

Tools Required for 10-8 HD4SD Installation

S/N	Name	Specification	Description
1	Multimeter	As Needed	Test the electrical circuit
2	Drill Bit	As Needed	Create holes for mounting
3	Remote Control	Special Tool	For device debugging
4	Electroprobe	As Needed	Test electrical circuits
5	Display	Special Tool	For device debugging
6	Wire Stripper	As Needed	For stripping wires
7	Screwdriver	As Needed	For device maintenance
8	Allen Wrench	As Needed	For device maintenance
9	Tape Measure	As Needed	For measurement
10	Cutting Pliers	As Needed	For cutting
11	Pincer Pliers	As Needed	For cutting
12	Electric Screwdriver	As Needed	For device maintenance

