OBSERVER™ 4000 HYB
USER GUIDE

SAFETY VISION®

Important Notices

Title: Observer™ 4000 HYB User Guide
Document Version: 1.4

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Main Wiring Diagrams

With Optional External Monitor

ANALOG CAMERA   ANALOG CAMERA   ANALOG CAMERA

SVS-xxMMF (see table A)

GPS ANTENNA

DC IN   DC IN
+   −   ACC

SV-A/V-INPUTADAP

41-PWRHRNS

4000-HYB

AHD 1   AHD 2   AHD 3

RS232   MIC
(under development)

Sensor & Serial   A/V OUT   MIC   AHD 4   Power

41-UPS

SV-A/V-INPUTADAP

Sensor Out 1
Sensor Out 2
GND
Speed In
+5V

GND
24V DC

SVS-xxMMF
(see table A)

SENSOR OUTPUTS
1 – 8

4000-A/VOUT-ADA

GND   +12V

+12V OUTPUT   Video Out   Audio Out   IP CAMERA   ANALOG CAMERA

With SV-CP4-HYB Monitor

SV-CP4-HYB

4000HYB-CP4ADAP

ICPMONCBL

GPS ANTENNA

RS232

MIC
(under development)

4000-HYB

ANALOG CAMERAS

SVS-xxMMF (see table A)

SV-A/V-INPUTADAP

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SENSOR OUTPUTS
1 - 8

GND
24V DC

SVS-xxMMF
(see table A)

IP CAMERA

ANALOG CAMERA

With CP4-HYB Monitor and Optional Peripherals

TO PERIPHERALS
(OPTIONAL)

SV-CP4-HYB

ANALOG CAMERAS

SVS-xxMMF (see table A)

ICPMONCBL

SV-A/V-INPUTADAP

GPS ANTENNA

DC IN DC IN
+   −   ACC

41-PWRHRNS

4000-HYB

AHD 1   AHD 2   AHD 3

RS232

A/V OUT   IIC   AHD 4   Power

Sensor & Serial

MIC
(under development)

SV-A/V-INPUTADAP

41-UPS

GND
24V DC

SVS-xxMMF
(see table A)

Sensor Out 1
Sensor Out 2
GND
Speed In
+5V

SENSOR OUTPUTS
1 - 8

IP CAMERA

ANALOG CAMERA
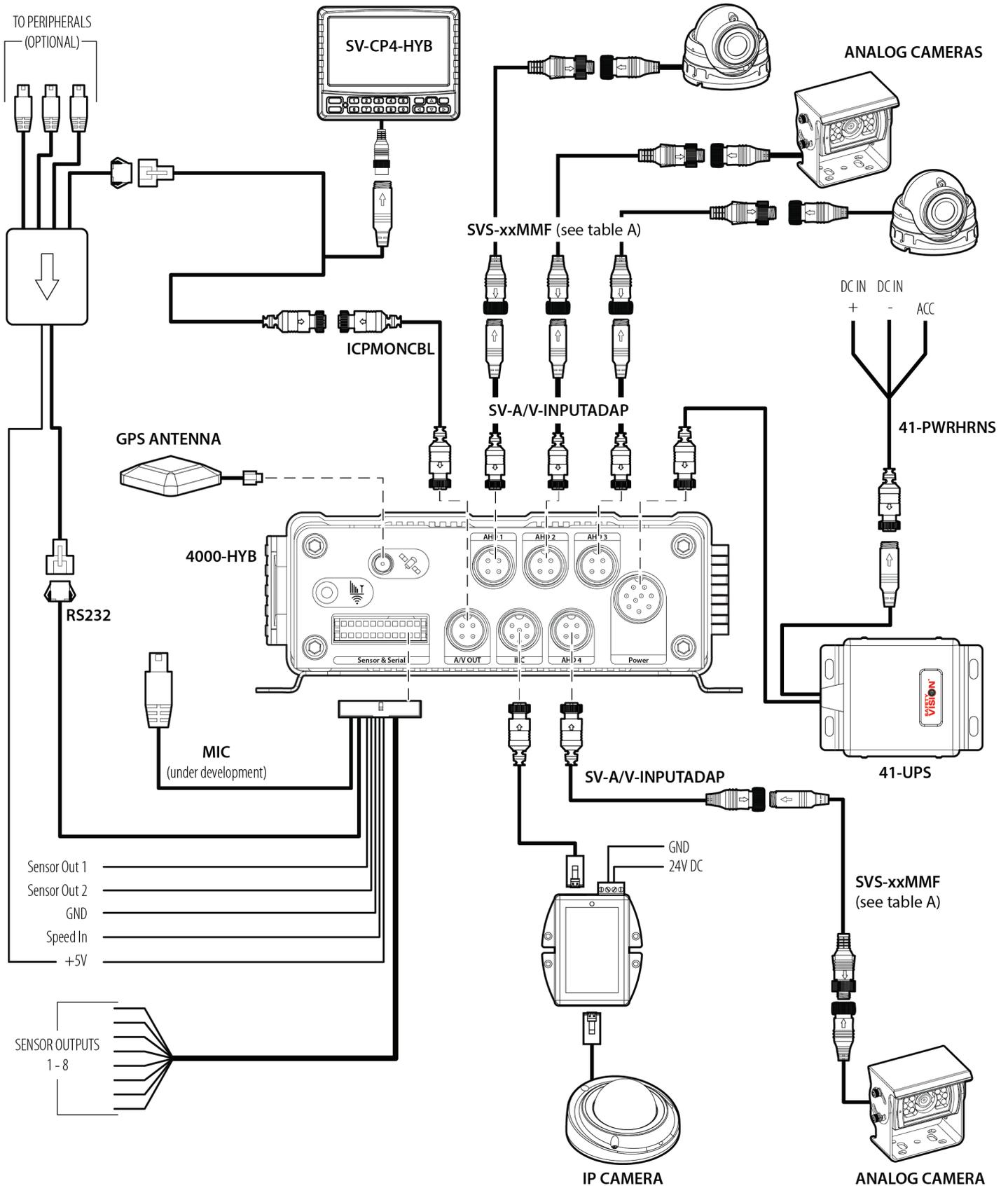
Installation

Flat Mount

Secure the HVR to the surface with self-tapping screws or rivets.

>Ensure that the front panel of the DVR remains accessible and there is a minimum 2.5 inches of clearance for cables.. Do not install the DVR in an area of the vehicle cabin that could interfere with the safe operation of the vehicle.
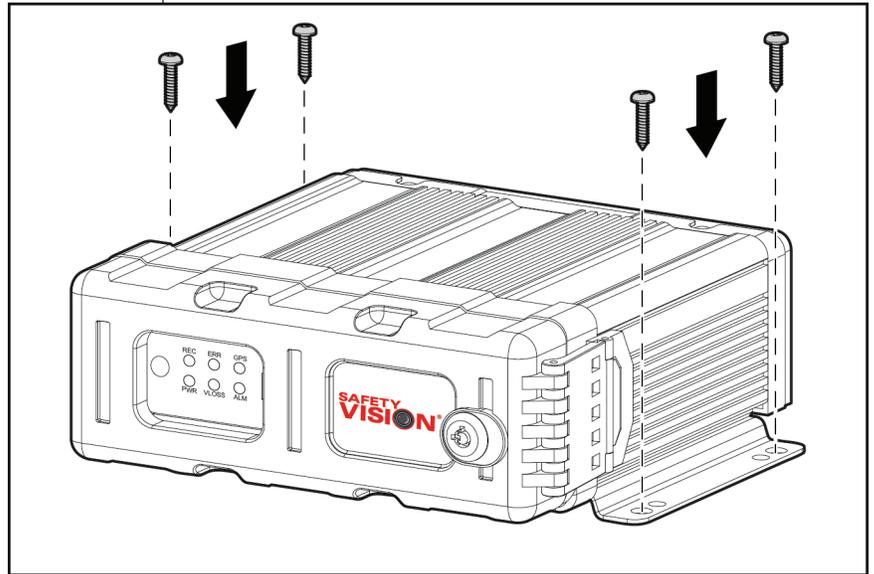
SD Card Removal/Insertion

Do not force the SD card into the slot upside down or backwards.

Ensure the SD card's write protection slider is in the "unlocked" position.

Do not remove the SD card until the DVR is turned off.

1. **Insert the key into the faceplate lock and turn it counter-clockwise.**
2. **Release the faceplate latch.**
3. **Open the faceplate.**
   Opening the faceplate automatically turns the HVR off.
4. **Wait until the HVR has completely powered down (PWR status LED has turned off).**
5. **Flip down the SD card slot door.**
6. **Insert an SD card into the SD card slot label-side up, with the notch to the right, until it clicks in place.**
   To remove the SD card, press the SD card as far as it will go in the slot, then allow it to "spring" out.
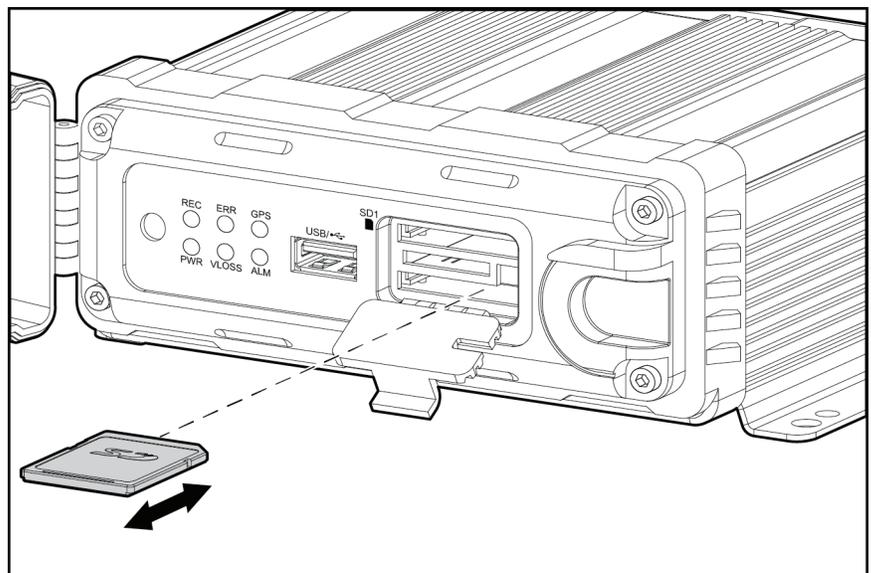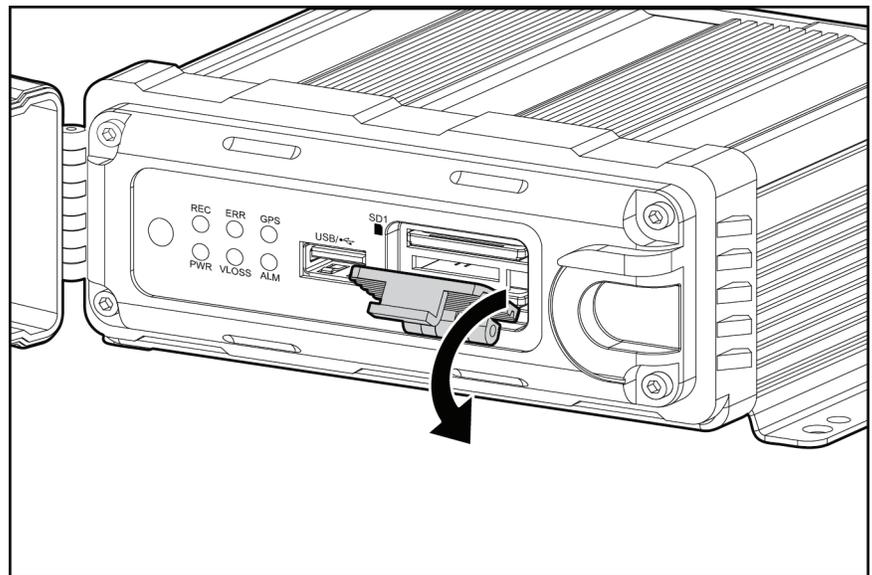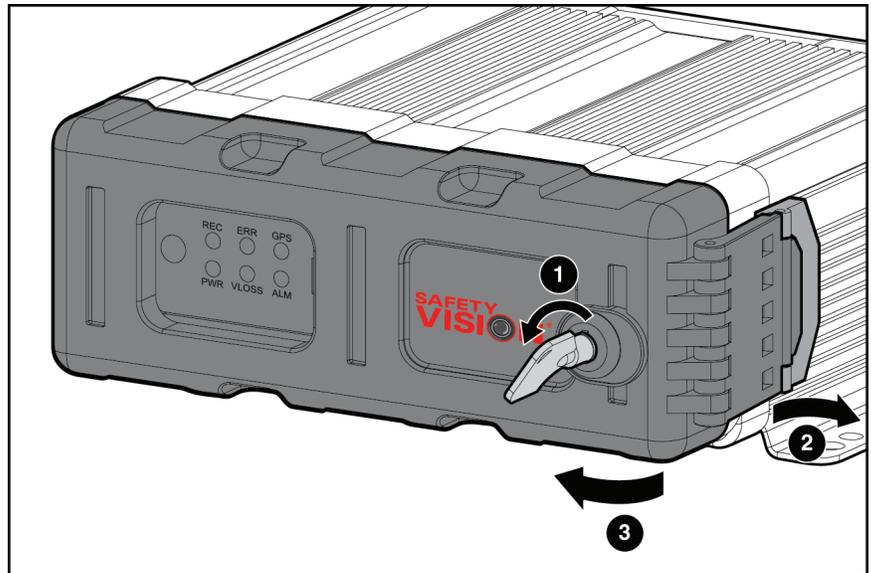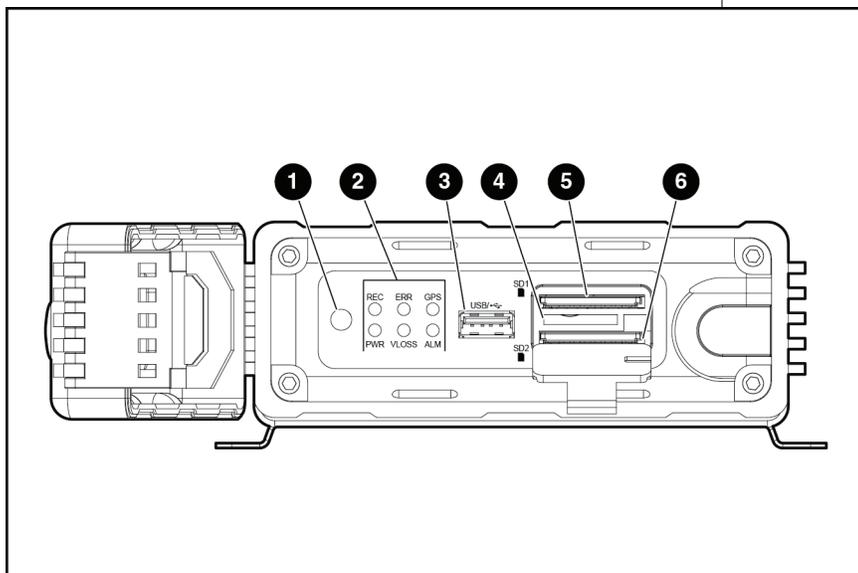
Components

1 - IR Remote Sensor - The IR Remote Sensor receives signals from the DVR Remote Control.

2 - Status LEDs - The Status LEDs illuminate to display the current status of the DVR. See chart at left.

3 - USB Port - Insert a USB flash drive to download events quickly without having to remove the SD card or hard drive, or upload firmware updates.

4 - SIM Card Slot - Not used.

5 - Primary SD Card Slot - Insert an SD card into the slot until it clicks. To remove the SD card, briefly press it in until it ejects.

6 - Mirror/Secondary SD Card Slot - Insert an SD card into the slot until it clicks. To remove the SD card, briefly press it in until it ejects. This SD card can be used for mirror recording or as a secondary storage device once the primary SD card is full.

STATUS LEDS	
REC	DVR is recording video
PWR	DVR is receiving power
ERR	Error may have occured
VLOSS	One or more cameras is detached or malfunctioning
GPS	Solid – GPS searching for signal/Flashing – GPS has locked on
ALM	Event/alarm has occured

For further information regarding the configuration of the DVR, see the Configuration section.
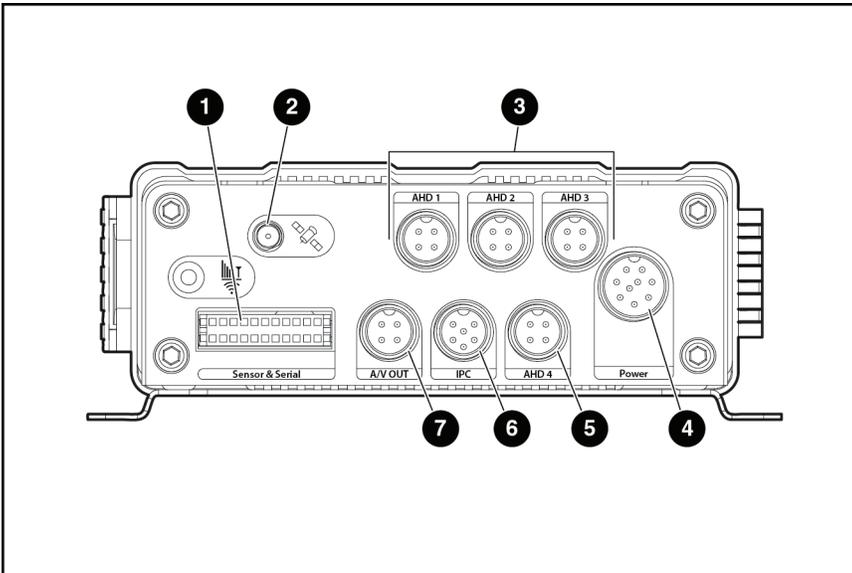
1 - Sensor & Serial Port - Connection for the sensor harness.

2 - GPS Antenna Port - Connection an external GPS antenna.

3, 5 - AHD IN 1-4 Ports - Connection for analog high definiton (AHD) cameras.

4 - Power Port - Connection for the 41-PWRHRNS main power harness.

6 - IPC Port - Connection for IP cameras.

7 - A/V OUT Port - Connection for 4000-A/VOUT-ADA to an external monitor.
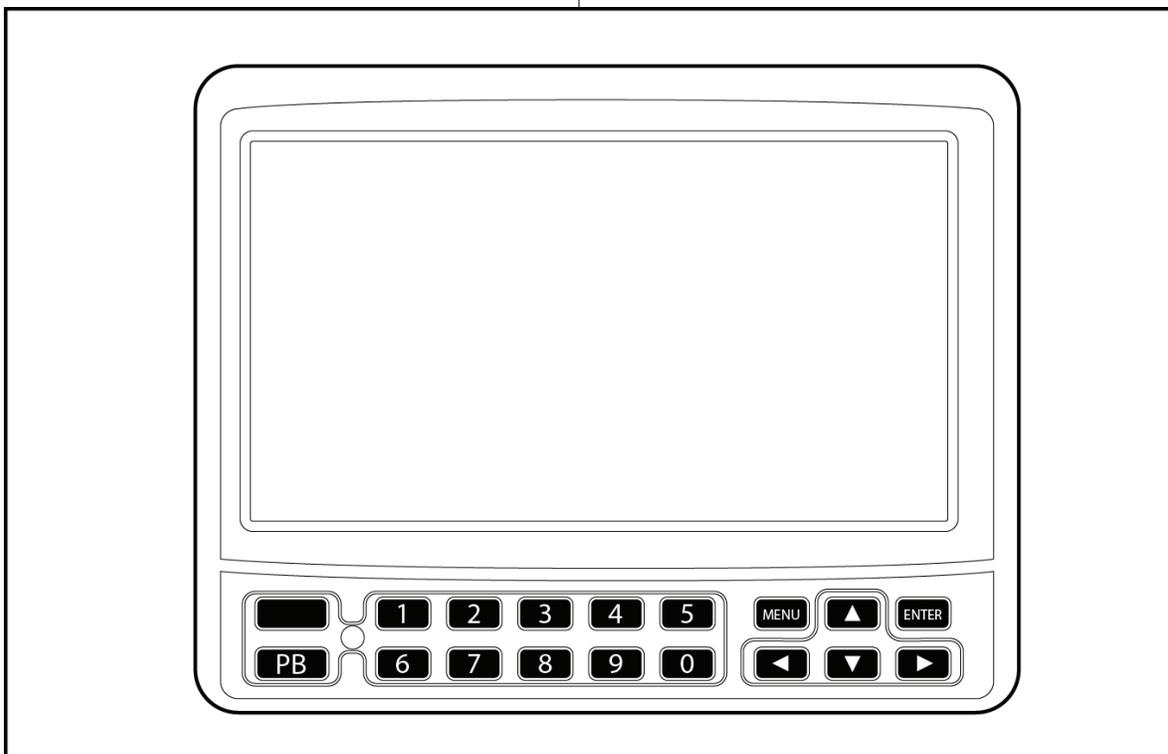
SV-CP4-HYB
Touch Screen Monitor

To make selections using the SV-CP4-HYB monitor, simply tap on the touch screen. Do not exert excessive force on the screen.

After the HVR initializes, the Status Screen is displayed. Tap **MENU** to display the login window. Enter your assigned user name and password and tap Login. The Home Screen is displayed. Tap the Return symbol to return to the Status Screen, and you can use the Up and Down Arrow keys on the SV-CP4-HYB to switch between the Live View and the Status Screen.

Tap the screen once while displaying the Live View to display the shortcut bar. Use the shortcut bar to display a single screen or a quad-view. Tap Playback or System to access video playback or system settings, respectively. Tap the Log In icon to log in and access the Home screen.

The SV-CP4-HYB monitor incorporates the functionality of a remote control. Buttons on the monitor are functionally the same as the remote control buttons described on the next page.

The SV-CP4-HYB monitor also provides an IR receiver for the remote control. When using the remote control, ensure it is pointed at either the IR receiver on the monitor or the IR receiver on the front of the HVR.

Additionally, the SV-CP4-HYB monitor provides two additional buttons on the left side of the control panel. The blank black button toggles between dim and bright monitor brightnesses for day or night. The red **PB** button provides Panic Button functionality.
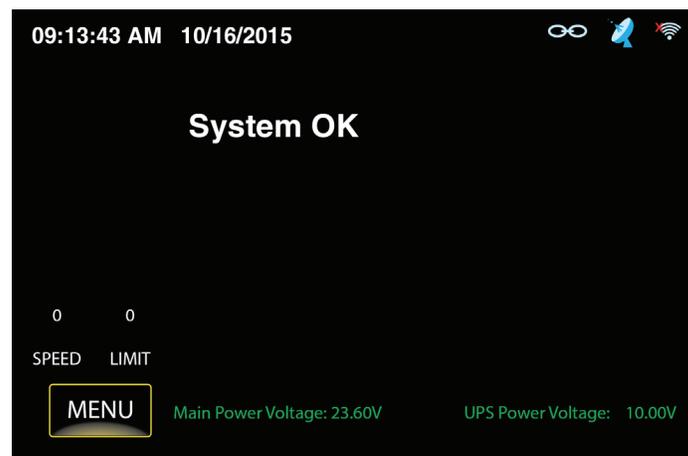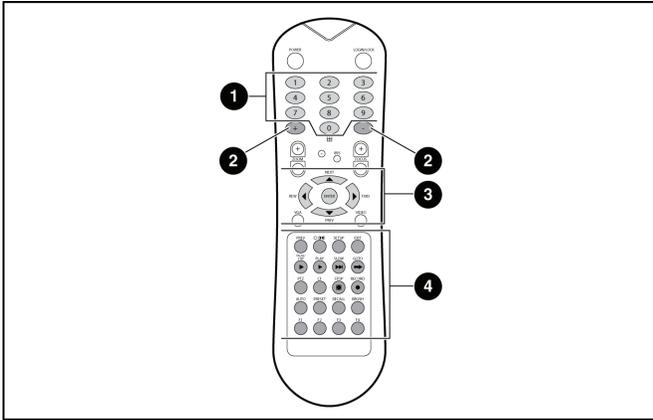
Remote Control

The Observer remote control is used to navigate through the configuration menus or to control video playback on an external monitor. Point the remote control at the IR receiver on the front panel of the Observer to make selections.

Power - Use this key to power the Observer on or off. *DO NOT power off the unit while the ignition is on, otherwise the unit will not automatically power on when ignition is reapplied.*

Login/Lock - Quickly access the login screen or secure the unit when already logged in. Login values can be set in the configuration menu.

1 - Numeric Keypad - Use the numeric keypad to input numerical values when configuring the system. Additionally, you can use the 1, 2, 3, and 4 keys to display that numbered video channel during video playback. Press the 0 key to switch between displaying individual channels and a quad view.

2 - (+) and (-) Keys - Use the (+) and (-) keys to increase or decrease values by one.

3 - Navigation Buttons - Use the four arrow keys to navigate between input fields or menu selections when configuring the system. Use the Enter key in the center of the arrow keys to make selections. During video playback the left and right arrow keys can be used to rewind or fast-forward. Press the Enter key while viewing the live view to display a comprehensive status screen.

4 - Additional Remote Control Keys

VGA - Switch the output mode of the external monitor to VGA1, VGA2, or VGA3.

Video - Switch between VGA output and the front composite external monitor output.

Brightness, Contrast, and Color - Press this key repeatedly to toggle between brightness, contrast, and color options for each individual channel. Use the (+) and (-) keys to adjust each value.

Setup - Quickly access the configuration menu. Login may be required.

Exit - Quickly return to the previous menu while viewing configuration menus. Pressing this key on the main configuration menu returns to the live view.

Pause/Step - During video playback, press this key to pause the video. Press this key again to advance video playback by one frame.

Play - Press this key to resume regular speed video playback when video is paused or stopped.

Slow - Press this key to slow down video playback.

GoTo - Press this key to quickly access video recorded at a certain time. When playing back video, press this key and input the desired time. Press Play to begin video playback.

Stop - Press this key to manually stop video recording.

Record - Press this key to manually begin recording again once it has stopped.

F2 - Automatic Video Download. This feature is configured under Basic Setup - Other Setup - Remote.

All additional buttons are unused at this time.

USB Mouse

Additionally, a USB mouse can be attached to the front USB port to navigate menus on an external monitor.

Monitor Log In and Home Screen

Log In

Tap the screen once to display the shortcut bar. Tap the large **Log In** icon on the right to display the log in prompt. The log in prompt also appears if you are logged out and attempt to access Playback or other functions that require logging in.

Enter your **User name** and **Password**, select a **Language**, and tap **Login** to log in.

The default login is User name: admin and Password: admin.

Home Screen

Once logged in, the Home Screen displays. The Home Screen provides access to the following features:

- **REC (Recording) Search:** Search for a playback previously recorded video
- **System:** View the HVR's system details and current status
- **Log Search:** Search the HVR's log file to view previous actions and events
- **Setup:** View and setup the HVR's configuration

Log Out

Tap the Logout icon to log out of the HVR. A prompt is displayed; confirm your action by tapping **OK**. You will have to log in again to review video.

Shotcut Symbols

When browsing the menus:

Tap the **Home** symbol to display the Home Screen.

Tap the **Return** symbol to return to a previous menu.

Log In icon
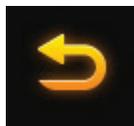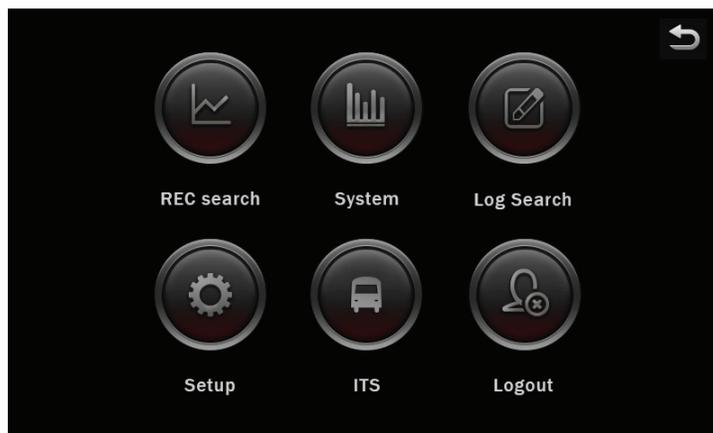
Recording Search

On the Home Screen, tap the Recording Search icon to search for previously recorded video, review it, and export it.

Calendar

The calendar screen appears. Scroll through the months and year using the controls on the left. On the right, select to search for Main record, Sub record, or Mirror record video.

- **Main record:** video recorded to the hard drive
- **Sub record:** video recorded by the secondary video stream configured in the Record menu
- **Mirror record:** video recorded to the mirror SD card

Available video appears as colored bars on the calendar.

- **Alarm (red):** video recorded as a result of an alarm
- **Locked (yellow):** video determined important and locked from deletion
- **Normal (green):** video recorded not as a result of an alarm (continuous recording, etc)

Select a day on the calendar and tap the **Next** button to advance to the channel selection screen.

Channels

Select specific channels you want to review by checking its box. You can use the Video Type field to select only channels with Normal or Alarm type video. Then tap **Next** to advance to the results screen.

Results

The results screen displays available recorded video as colored bars across the 24 hour period of the selected day. The timeline can be adjusted at the top of the screen. Use the (+) and (-) buttons to zoom in and out (display a narrower or wider band of time) of the timeline. Use the left and right arrow buttons to move back and forth along the timeline. Use the up and down arrow button on the right side of the screen to scroll through available channels.

Select the channels you want to review by checking them on the left side of the screen, then tap the Playback or Export buttons to advance to either of those two functions.
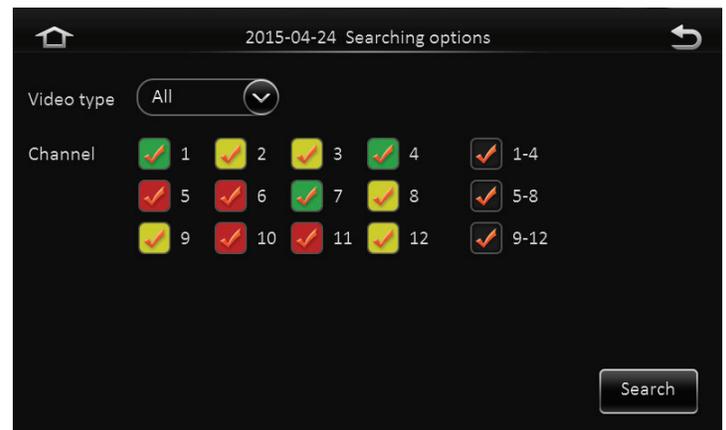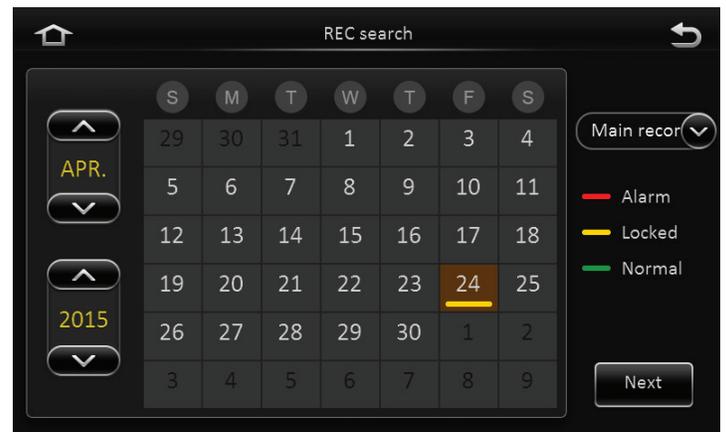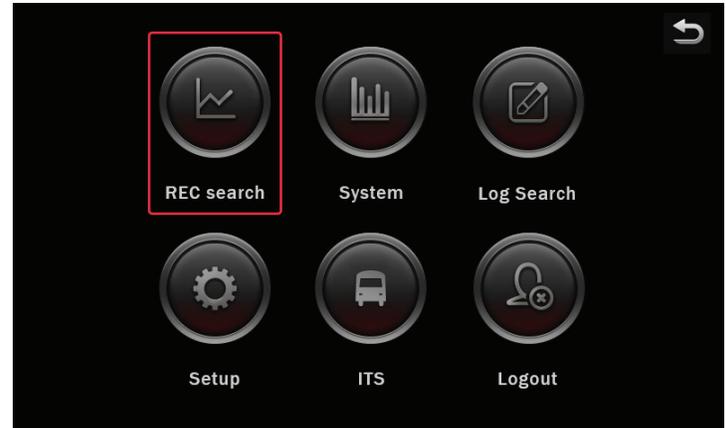
Playback

Tapping the Playback button on the results screen begins video playback immediately.

You can slide your finger along the timeline at the top of the screen to quickly advance to specific video. Additionally, a specific time can be entered in the field in the upper right. Tap on it to make a keypad appear.

Tap the speaker icon in the upper left of the screen to mute or unmute any audio playback.

Tap the left and right arrows on the right side of the screen to scroll to additional channels if more than four were selected.

Tap the Return icon in the lower right of the screen to return to the video search results.

Export

Tapping the Export button on the results screen begins the export process. Selected video can be downloaded to a USB flash drive:

1. **Insert a USB flash drive into the USB port on the front panel of the HVR.**
2. **Tap the Export button on the results screen.**
3. **Use your finger to drag the marker to where the exported video clip will begin.**
   Additionally, you can also tap the time marker icon at the bottom of the marker line to display a keypad and enter the start time manually.
4. **Tap the Start time button.**
   A second marker appears.
5. **Use your finger to drag the marker to where the exported video clip will end.**
6. **Tap the End time button.**
   The Export prompt appears, displaying the exported video clips length and file size, as well as the capacity of the inserted USB flash drive.
7. **Select the exported file format:**
   • **Synthetic data:** video can only be played back using the Observer Management System (OMS) software.
   • **AV data:** video is exported in .avi format, which can be played by most commonly available media players.
8. **Tap OK.**
   The video clip is exported automatically.

   If the amount of video being downloaded exceeds the capacity of the USB thumb drive being used, a prompt appears requesting that an additional thumb drive be inserted to conclude the export.

   Exported files are saved on the root directory of the USB thumb drive. Files are titled first by Unit ID, then Alarm Log, then the date recorded.

System

Tap the System icon on the Home Page to view the System menus. System menus mainly provide detailed information regarding the current status of the HVR and the accessories connected to it.

This information can be useful when troubleshooting certain issues. All of the fields in the System menus are for display only and cannot be changed. Configurable parameters can be adjusted in the Setup menus.

Tap the tabs on the left side of the screen to navigate be-tween different menus.

Version Info

The Version Info menu provides information on the firmware versions of the HVR in addition to other information.

- Device name: unique alphanumeric name of the HVR
- OMS ID: unique numeric ID assigned to the HVR for identification in the Observer Management System (OMS)
- MAC address: HVR's MAC address
- Firmware version: HVR's firmware version
- MCU version: firmware version of the HVR's internal MCU
- CP3/4 Version: firmware version of the SV-CP4-HYB monitor attached to the HVR's Panel Port

Modules

The Modules menus provide information about the internal wireless and GPS modules inside the HVR.

WIFI

• Built-in WIFI status: displays if the internal Wi-Fi module is currently connected to a wireless network

• Signal: if the internal Wi-Fi module is connected to a network, the Signal field displays a graphic indicating the signal strength

• IP address: IP address of the internal Wi-Fi module

• External WIFI status: displays the status of a connected external Wi-Fi device

• ESSID: ESSID of a connected external Wi-Fi device

• IP address: IP address of a connected external Wi-Fi device

GPS

• Planet GPS status: the HVR's current geographic location expressed in exact latitude and longitude

• GPS source: source of the GPS information (from the internal GPS module or an external module)

• GPS plant number

• GPS angle: displays the GPS course orientation

• Speed: displays the real-time speed of the vehicle in which the HVR is installed

Server Status

The Server Status menu displays the status of an Observer Management System (OMS) server to which the HVR is connected.

- Server status: connection status
- Network type: type of network used to communicate with the OMS server
- Protocol type: type of protocol used when communicating with the OMS server
- Server address: IP address of the OMS server
- Port: port of the OMS server

Environment

The Environment menu displays current voltage and device temperature readings.

- Voltage: voltage (displayed in volts) the HVR is currently receiving
- Device temperature: displays the internal temperature of the HVR displayed in degrees Celsius
- HDD heater status: displays if the internal HDD heater is currently on or off
- UPS Power Voltage: voltage (displayed in volts) the UPS is currently receiving

Storage

The Storage menu displays the status, capacity, and recording time for each data storage device connected to the HVR.

- Storage type: type of storage device
- Status: displays if the device is currently Recording, is Normal, or a problem has occured
- Free/Total: displays the ratio of available storage space to the amount of total sotrage space
- Remain time: displays the amount of video that can be recorded given the remaining storage space available
- GDS Status: (Good Driver Status) *This feature is under development at this time*

	2015-04-24 System			
Version info	Storage type	Status	Free/Total	Remain time
Modules	HDD	Recording	2.7G/500.1G	12Minute
Server Status	SD card(Internal	Recording	2.3G/31.9G	27Minute
Environment	Flash drive	Normal	31.8G/32.0G	
Storages				

GDS Status (Good Driver Status)

The Good Driver Status feature is under development at this time.

Status Info

- GDS Communication
- GDS Versions
- OBD Communication
- OBD Versions
- Data Collection
- Engine Type

OBD Data

- Engine Speed
- Vehicle Speed
- Coolant Temperature
- Total Distance
- Fuel Consumption

6Axis Data

- ACC SpeedX
- ACC SpeedY
- ACC SpeedZ
- Angular SpeedX
- Angular SpeedY
- Angular SpeedZ

Log Search

On the Home Screen, tap the Log Search icon to search for different types of logs that document events in the history of the HVR.

Calendar

The calendar screen appears. Scroll through the months and year using the controls on the left. Days where log files exist include a green log mark.

Tap a day to select it, then tap **Next**.

Time and Log Type

The time and log type screen appears. Tap the Start time and End time fields to display a keypad to respectively enter a specific start and end time in which you want to search.

In the Log type field, select the type of log to search for:

- Alarm log: log of of different types of alarms. After selecting this option, the Alarm type field appears:
  - All: all alarms
  - IO alarm: alarms initiated by a sensor connected to the I/O hub
  - Panel alarm: alarms initiated by pressing the panic button on the SV-CP4-HYB monitor or LED panic button panel
  - Speed alarm: alarms initiated by the vehicle exceeding the configured top speed
  - ACC alarm: alarms initiated by impacts detected by the accelerometer
- Operation log: log of actions performed by users (searching for video, changing configuration, etc)
- Locked log: log of when video was locked

After making these selections, tap the **Search** button.
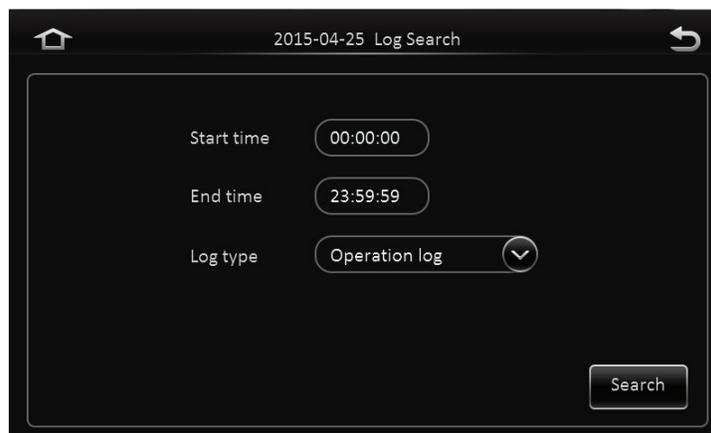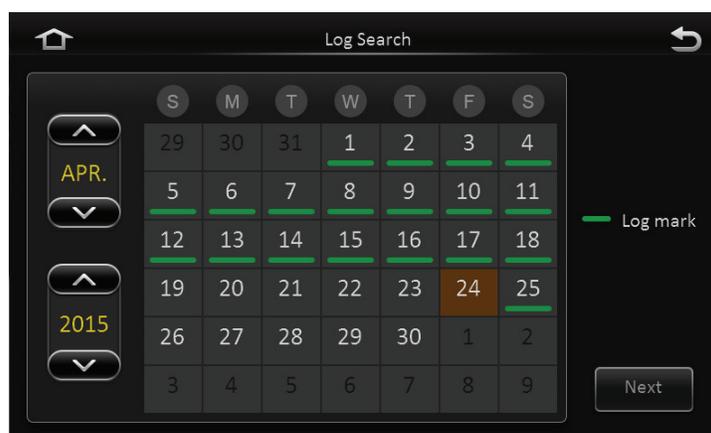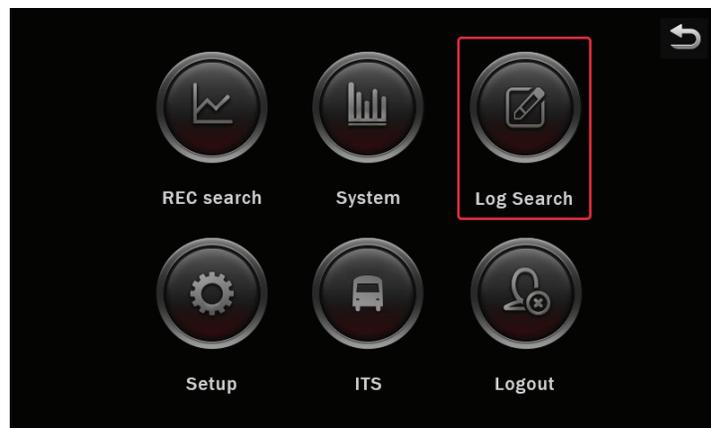
Results

After tapping the Search button, the results of the log search are displayed.

Use the up and down arrow buttons on the right side of the screen to scroll through log entries, or tap the page number field to display a keypad and enter a specific page to display.

Tap the highlighted film icon next to alarm log entries to automatically begin playback of the alarm.

Exporting Log Files

Tapping the Export button on the lower right begins the export process. The selected video can be downloaded to a USB flash drive:

1. **Insert a USB flash drive into the USB port on the front panel of the HVR.**
2. **Tap the Export button.**
    The log file is exported automatically.

    Exported log files are saved on the root directory of the USB thumb drive in a .txt format file.

2015-04-25 Log Search

03:23:17 - 04:24:18 Panic button alarm

04:25:20 - 05:26:21 Sensor(1) alarm

1 /87

10:26:20 Local user logout

06:29:26 - 07:30:27 Over speed alarm

12:32:26 Format disk

13:35:29 Reset settings
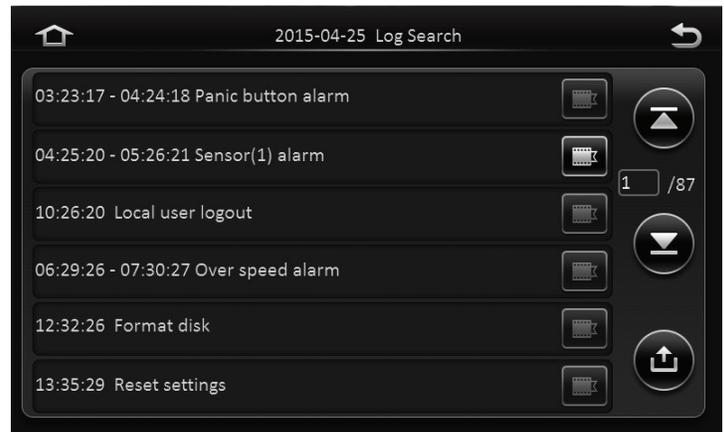
Setup

Tap the Setup icon on the Home Page to view the Setup menus. Setup menus allow configuration of the many HVR options and features.

Navigate the Setup menus by tapping on the icons at the top of the screen. Once in a top menu, tap the tabs on the left of the screen to view the different sub-menus. Some sub-menus contain multiple pages.

Basic Setup

The Basic Setup menu configures basic HVR settings such as the date, time, users, and start up and shutdown parameters.

Basic Info

Device Info

- OMS ID: unique numeric ID assigned to the HVR for identification in the Observer Management System (OMS); this field is automatically populated

Vehicle Info

- Vehicle Num: optional alphanumeric vehicle fleet number
- Vehicle Plate: alphanumeric vehicle license or number plate

Driver Info

- Driver number: optional driver number
- Driver name: optional driver name
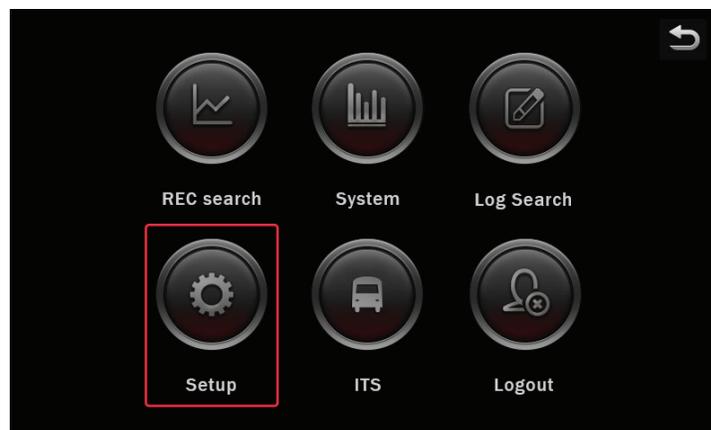
*After making any entries, tap **Save** at the bottom of the screen.*

Time Setup

General

- Date format: select from MONTH-DAY-YEAR (MM/DD/YYYY), DAY-MONTH-YEAR (DD/MM/YYYY), or YEAR-MONTH-DAY (YYYY-MM-DD) date format
- Time format: select 12 or 24 hour time format
- Time Zone: select how many hours the local time zone is deviated from GMT. (In the United States, Eastern is "-5", Central is "-6", Mountain is "-7", and Pacific is "-8".)

Time Sync

- Date/Time: tap these fields to manually enter the current date and time of the HVR
- GPS: select this option to automatically syncronize the date and time from the GPS signal
- Center Server: select this option to automatically syncronize the date and time to an OMS server when the HVR connects
- NTP sync: select this option to automatically syncronize the date and time to an official time-keeping website when the HVR has an available internet connection; select from several predefined websites, or select **User-Defined** to enter your own

DST

- Enable: select this option to enable Daylight Savings Time (DST) automatic time adjustment
- Offset: select a one or two hour DST adjustment
- Mode: select Week to define the DST period by a specific weeks in the calendar; select Date to manually enter an exact date

*After making any entries, tap **Save** at the bottom of the screen.*

Startup

ON/OFF

- ON/OFF mode: select **Timer** to power the HVR on and off at set specific times; select **Ignition** to power the HVR on and off with the vehicle's ignition; select **Ignition or Timer** to power the HVR on during both conditions

- Shutdown Delay: enter the amount of time, in seconds, that the HVR will wait to shut down after the vehicle's ignition has been turned off

- Shutdown Record: enter the amount of time, in seconds, that the HVR will continue to record after the vehicle's ignition has been turned off

- Timer From: enter the exact times each day the HVR powers up and powers down when using the Timer ON/OFF mode

- Monitor mode: select **Automatic power up** to turn the SV-CP4-HYB monitor on automatically with the HVR; select **Auto-standby** to leave the monitor in standby mode (must be touched to activate) when the HVR is powered on

Sleep

- Low voltage protection: select this option to automatically shut down the HVR when the power it receives drops below the specified voltage

- Shutdown voltage: enter the minimum voltage, in volts, that the HVR can receive before it automatically disconnects from OMS or shuts down

- Start up voltage: enter the minimum number of volts the HVR must be receiving before starting up

- Upload to server; select this option to allow the HVR to continue to upload data to an OMS server while under voltage protection

*After making any entries, tap **Save** at the bottom of the screen.*

User Setup

The User Setup menu allows you to set up different users who must log in to operate the HVR. Each user is assigned a name, group, and password. The maximum user account allowed are three User accounts (Administrator, Supervisor, and Basic User).

To add a user:

1. **Tap the Add button.**
   The Add screen appears.
2. **Enter a unique alphanumeric user name.**
3. **Select the Admin or Normal User user group.**
   Admin users have full access to the HVR's features. Normal users are restricted from accessing the Setup menus.
4. **Enter a unique alphanumeric password.**
5. **Retype the password in the Confirm password field.**
6. **Tap Save.**
   The user appears in the User Setup menu list.

- Idle Time: select the number of minutes after no activity that the user is automatically logged out; select **Never** to keep users logged in indefinately

- Delete: select any number of users and tap the Delete button to delete them from the HVR

- Edit: select a user and tap the Edit button to change a user's name, user group, or password

*After making any entries, tap **Save** at the bottom of the screen.*

Network

Local

- DHCP mode: select this option to have the HVR automatically receive an IP address and associated information from the network it is attempting to communicate with
- Static IP: enter the IP address, etc, of the OMS network manually
- IP address: enter a static internet protocol (IP) address for the HVR
- Subnet mask: enter a static subnet mask for the HVR
- Gateway: enter a static network gateway for the HVR
- Auto get DNS: select this option to allow the HVR to receive DNS information automatically
- Use following DNS: select this option to enter the DNS information manually
- Preferred DNS server: enter the preferred primary DNS server address
- Alternate DNS server: enter the secondary, alternate DNS server address

Ports

- WEB port: enter the WEB port for the HVR if necessary

*After making any entries, tap **Save** at the bottom of the screen.*

Network (cont.)

WIFI

Select **Enable** to enable the internal Wi-Fi module. Enter the following information for the Wi-Fi network you want to connect to:

• ESSID

• Encryption

• Password

• Static IP

• IP address

• Subnet mask

• Gateway

Server

Select a central server to configure from the drop down menu. Multiple servers/configurations can be saved; to add a new server, tap the **Add** button. To activate a server, select the ON option and enter the following information:

• Protocol Type

• Network Mode

• Message Server

• Message Port

• Media Server Address

• Media Port

*After making any entries, tap **Save** at the bottom of the screen.*

Application

FTP Client

Select FTP Enable to enable the FTP client option, which allows you to log into the HVR as an FTP server with an external PC. Enter the following information about the FTP client:

• Server

• Port

• User Name

• Password

Download

Auto Download Reconnect: select this option to enable the HVR to reconnect automatically if a download is interrupted; Enter the time to wait to retry (between 1 and 10 minutes)

*After making any entries, tap **Save** at the bottom of the screen.*

Other Setup

Voice Setup

The Voice Setup menu configures the voice commands that are sounded when certain events happen.

• Disable Voice Alert: select the option to turn off all voice notifications.
• TTS and CP4: enter a volume level, between 0 and 63 decibels, that the voice notifications are sounded through the respective accessory

Display

• Startup Screen Setup: select **Preview Window** or **System Status** to appear on an external monitor upon system startup

Remote

• F2 Alarm Auto Download: select this option to enable automatic event downloading using the F2 button on the DVR remote. A USB flash drive must be inserted into the USB port on the front of the HVR.

*After making any entries, tap **Save** at the bottom of the screen.*

Video Setup

The Video Setup menus configure how video is displayed and recorded by the HVR.

Live View

Cam Views

• Preview audio: select this option to enable audio while viewing the Live View

• Image setup: tap the Setup button to display the Image Setup screen; select a channel in the Channel field and adjust the following image settings; select a channel in the **Copy to** field and tap **Copy** to automatically copy the same settings to additional channels.

  • BRI (Brightness)
  • CON (Contrast)
  • COL (Color)
  • SAT (Saturation)

• Margins: tap the Setup button to display the Margins Setup screen; adjust the space from the edge of the image to the edge of the monitor display to your satisfaction

• Startup screen: select the format of the Live View that appears automatically when the HVR starts up

• Channel: select which channels appear in the Live View

Auto Loop

The Auto Loop tab allows you to program the Live View to automatically cycle through different camera channels. The screens will cycle in the order listed on the monitor.

To enable the Auto Loop feature, select the **Auto Loop** option at the bottom of the screen. Tap the **Add Screen** button, or tap an existing screen's **Setup** icon to display the Edit Screen, and enter the following:

• Mode: select 1x1 (one channel), 2x2 (four channels), or 3x3 (nine channels) for each screen that loops

• Channels: select the channels that appear in each screen section

• Duration: select the duration, in seconds, each screen is displayed in the Auto Loop

When finished, tap **OK**.

*After making any entries, tap **Save** at the bottom of the screen.*

Live View (cont.)

Live OSD

Select which pieces of metadata appear overlayed on the on-screen display (OSD) of the Live View:

- Date/Time
- Speed
- Vehicle Num
- GPS
- Alarm
- Vehicle Plate
- Channel Name
- ACC Info

Position Setup

Tap this option to adjust the position of the previously selected metadata options on the screen. Tap and drag each metadata description to the desired location. Select Default to return the metadata to it's default positions

*After making any entries, tap **Save** at the bottom of the screen.*

Record

General

- Video type: select the NTSC or PAL analog video system
- Overwrite: when the primary storage device reaches capacity, select this option to allow recording to continue, overwriting the oldest data
- Lock Duration: enter the time, between 1 and 31 days, that recorded files are locked, during which time the HVR is prevented from recording over them
- Pre-recording: select the option and select an amount of time duration for pre-alarm recording; this is the amount of time included in a video recording from before the alarm was activated

Main Stream

Select a channel in the Channel field and enter the following information:

- Channel Name:
- Enable: select this option to enable the channel; deselect this option to disable a channel
- Resolution: select CIF, WCIF, HD1, WHD1, D1, WD1, 720p, or 1080p video resolution (ranked in ascending order, "W" indicates "wide")
- Frame Rate: select between 1 and 30 frames per second
- Quality (bit rate): select between 1 and 8, 1 being the best, for continuously recorded video quality
- Record mode: select Power up (continuous recording begins when HVR is powered on), Timer (HVR records during the configured time schedule [see below]), or Alarm (HVR records only when an alarm is activated
- Audio: select this option to enable audio recording on this channel
- I Frame: select this option to enable the I Frame feature (in development)
- Alarm quality (bit rate): select between 1 and 8, 1 being best, to adjust the video quality during an alarm
- Encode mode: select SBR or VBR video encoding

After completing all of the fields for one camera, the same configuration can be copied to other cameras. Select a camera in the **Copy to** field and tap the **Copy** button.

To configure the timer option, first select a day. Several time periods can be configured per day. Tap **Add a plan** to add additional time periods, and enter a **Start time** and **End time** for each of them. Complete day plans can be copied to other days by selecting them in the **Copy to** field, and tapping **Copy**.

*After making any entries, tap **Save** at the bottom of the screen.*

Record (cont.)

Dual Stream

The Dual Stream page configures a dual stream recording setup, when the HVR records one video stream to one storage device, and a secondary stream can be configured to stream to another storage device or viewed live in OMS.

- Record Storage: select the storage device to which the second stream of data is recorded
- Record Mode: select Sub-Record (provides stream for LIve View in OMS, see below), Mirror record (records identical data), or Alarm backup (records only alarms)
- Channels: select which channels are recorded in the second stream

Tap the Setup button next to the Record mode field after selecting Sub-Record to display the Setup screen to configure each individual channel to be displayed in the Live View of OMS:

- Channel
- Enable
- Audio
- Resolution
- Frame rate
- Quality

After completing all of the fields for one camera, the same configuration can be copied to other cameras. Select a camera in the **Copy to** field and tap the **Copy** button.

OSD

Select which pieces of metadata appear overlayed on recorded video:

- Date/Time
- Speed
- Vehicle Num
- GPS

Where the metadata appears overlayed relative to its position on the screen can be adjusted. Tap the Setup button to display the position screen. Use your finger to drag the metadata to the location where you want it to appear.

Mirrored SD Card, Total Camera Options
When configured for mirror recording, the maximum allowed bit rate is 12288 Kb.
Resolution/12288 Kb = Maximum Cameras
For example, if you have 8 cameras at D1 resolution with a quality of 1, you can mirror 6 cameras to the SD card.
2048 Kb (D1)/12288 Kb = 6 cameras.

IPC Setup

The IPC Setup tab allows you to configure a number of IPC networks.

1. Select **Enable** for the channel you would like to use.
2. Tap the **Search** icon (magnifying glass) to search for available IP cameras.
   The IPC search screen appears.
3. In the IPC search screen, select an available camera and tap **OK**.
4. Tap on the **Setup** icon for each network.
   The Network Setup screen appears.
5. Enter the following for each network:

- Channel
- Protocol type
- IP address
- Port
- User name
- Password

41H series cameras: leave the User name and Password fields blank.

*Gen 3 (60-32000X[Exterior] and 60-20000X [Interior]): enter **Admin** in the User name field and **1234** in the Password field.*

*45 and 46 series IP cameras: enter **admin** in the User name field and **SV123456** in the Password field.*

Note - Gen 2, Gen 3, 45 and 46 series IP cameras require an assigned IP address. Suggested IP schemes to assign the IP cameras:

10.100.100.101
10.100.100.102
10.100.100.103
10.100.100.104

Tap the last three digits of the **Local address** to enter these numbers manually.

*After making any entries, tap **Save** at the bottom of the screen.*
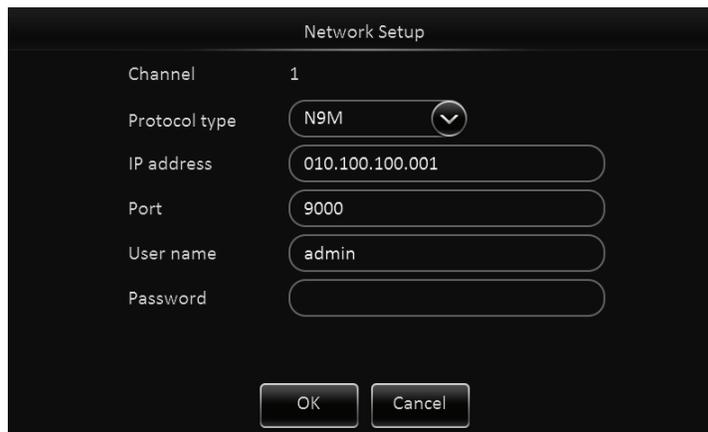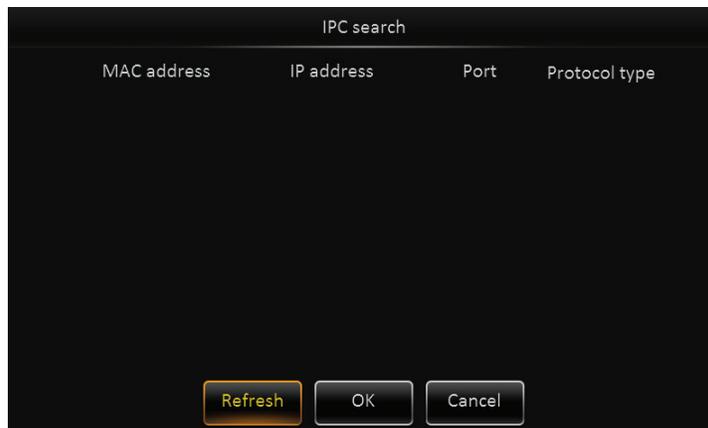
PTZ

The PTZ tab allows you to configure the capabilities of any PTZ (pan-tilt-zoom) equipped cameras attached. For each attached PTZ camera, configure the following:

• ChannelEnable: select this option to enable PTZ functions

• Operate: select Serial, N9M, or ONVIF

• Protocol Type: select Pelco-D or Pelco-P

• Addr: enter the numbered address of the camera

• Test: tap this button after configuration to display a PTZ control menu to ensure operation is correct

After making any entries, tap **Save** *at the bottom of the screen.*

Data Setup

The Data Setup menus configure how the HVR communicates with external devices.

General

Sensor

Select a sensor in the Sensor number field, then enter the following for each:

- Sensor name: enter an alphanumeric name for this sensor
- OSD name: enter an alphanumeric name for this sensor that will appear on the on-screen display to identify when this sensor is active

Serial Port

The Serial Port tab configures which devices are connected to the I/O hub. There are four I/O hub connections (RS232-1, RS232-2, RS485-1, and RS485-2). For each connection, select which device is connected (None, Control panel, GPS Data, CAN, 3Axis Acc) and the frequency.

Speed

- Unit: select speed to be calculated in KM/H or MPH
- Source: select the source of the vehicle's speed data, (GPS or Pulse [under development])

Mileage

The Mileage tab tracks the total miles the HVR has been installed in the vehicle.

*After making any entries, tap **Save** at the bottom of the screen.*

Snap Setting

The Snap Setting menu configures the snapshot feature. Still image snapshots can be taken at set intervals, instead of full motion video, in order to conserve storage space in certain applications.

Use the **Time Snap** menu to configure snapshots to be taken during specific time periods. Select the **Time snap** option at the bottom of the screen, and tap the **Add** button to add a time period. Enter a **Start time** and **End time** for the time period, then tap the setup button to configure each channel.

Use the **Trigger Snap** menu to configure snapshots to be taken during alarms or manually. Tap the **Setup** button under each option to configure each channel.

Snapshot Setup screen

Select a channel in the Channel field and configure the following for each:

• Snap enable: select this option to enable snapshots to be taken for this channel

• Resolution: select the resolution of the snapshots

• Quality: select the quality of the snapshots, with 1 being best

• Upload type: select FTP (uploads the snapshots to the FTP client) or CMS (uploads snapshots to OMS)

• Snap numbers: select the number of snapshots (between 1 and 3) taken at each interval

• Interval: select the interval that snapshots are taken (from every 5 seconds to every 3600 seconds)

*After making any entries, tap **Save** at the bottom of the screen.*

GDS Status

The GDS Status tab is under development at this time.

OBDII

GDS Config

Maintenance

The Maintenance tab configures typical vehicle mainte-nance thresholds that can appear in a central management system.

Malfunction

For both Temperature and Voltage, enter the following:

• Peak: enter the maximum value (in degrees Celsius or volts)

• Valley: enter the minimum value

• Duration: enter the amount of time, in seconds, that a threshold can be surpassed before a malfunction is noted

*After making any entries, tap **Save** at the bottom of the screen.*

Alarm

The Alarm menus configure the various alarms and their triggers.

For each alarm type, select the following:

• Alarm type: for each alarm, select Sensor or Event
• Trigger; tap **Setup** to configure the parameters specific to this type of alarm
• Config: tap the **Setup** button under Linkage for each alarm type to display to configure additional options (see the next page).

Base

Speed Alarm

Select the **Overspeed** option to enable speed alarms. An alarm is triggered when the configured speed is exceeded. Tap the **Setup** button under Trigger to configure the following:

• Speed: enter the maximum speed that can be obtained by the vehicle before an alarm is triggered
• Alarm Duration: enter the time (between 0 and 255 seconds) that the alarm records

Panel Alarm

Select the **Panic** option to enable panel alarms. An alarm is triggered when the panic button on the SV-CP4-HYB monitor or LED panic button panel is pressed. Tap the **Setup** button under Trigger and enter the amount of time (between 0 and 255 seconds) in the **Any key** field.

IO Alarm

Select to enable a number of optional external devices to trigger alarms. For each sensor, tap the **Setup** button and select if the external device sends a High or Low signal.

HDD/SD

Select the **HDD/SD** alarm to trigger an event when the selected storage device is approaching low available space.

*After making any entries, tap **Save** at the bottom of the screen.*

Alarm (cont.)

Video

Video Loss

Select the **Video Loss** option to trigger alarms whenever video loss or camera failure is detected on specific channels

Motion

Select the **Motion** option to trigger alarms when motion is detected in the selected camera channels. During configuration, select the portion of the field of view in which motion will trigger an alarm.

Cover

Select the **Cover** option to trigger alarms when it is detected a camera lens may have been covered or otherwise obstructed. During configuration, select the portion of the field of view in which an obstruction will trigger an alarm.

Advanced

ACC Alarm

Select the **ACC** alarm to trigger an event due to shock detected by the optional external 3Axis accelerometer. Tap the **Setup** button and enter a threshold (between 0 and 9.9 Gs) for each direction which when exceeded triggers the alarm. Additionally, tap the **Calibrate** button why the HVR is still to reset the accelerometer readings to 0.0.

Geo Fence

Select **Area I/O Alarm Switch**, **Line I/O Alarm Switch**, or both options to activate an alarm when the indicated geo fence is breached. For the Line I/O Alarm Switch, select **Skew Alarm Switch**, **Driver Alarm Switch**, or **Section Limit Speed TTS Switch** options. Geo fences can be configured in the Foresight PRO software.

Alarm (cont.)

Config

- Channel: select the channels that are recorded for the duration of this alarm

- Post Recording: enter the amount of time (between 1 and 30 minutes) the alarm records video after it is triggered

- Lock: select this option to Lock the video recorded during this alarm

- Linkage IO output: select IO outputs 1 or 2 to be activated during this alarm

- Output delay time: enter the amount of time (between 0 and 255 seconds) between when the alarm is triggered and when the IO signal is sent

- Alarm Upload: select this option to upload the alarm

- Linkage screen: select a screen to appear on the monitor while the alarm is active, either a single screen, or a split screen with multiple channels; tap the Setup button to select the channels that appear in each screen section and the Duration (between 1 and 300 seconds) that it appears on the monitor

- PB alarm duration: enter the amount of time (between 0 and 255 seconds)

- Alarm snap: select this option to capture a snap shot when this alarm is activated

Maintenance

The Maintenance menus provide access to useful tasks, such as configuration file import/export, data export, and storage device formatting.

Config

Insert a USB flash drive into the USB port on the front of the HVR and tap **Export** to download a configuration file for the HVR. The configuration file contains all of the settings on the HVR and can be copied to additional HVRs. The file saved as DVRcfg.cfg on the root directory of the flash drive.

To upload a configuration file to an HVR, insert a USB flash drive with a configuration file present on the root directory into the USB on the front panel and tap **Import**.

File Export

The File Export menu allows you to export certain data from the HVR for analysis.

Select **All** to export all of the selected data available, or select **Export time** to request only data in a specific time range. Enter a **Start time** and **End time**, then select from the following file types:

- GPS data file
- Vehicle info file
- ACC info file
- Can info file (under development)
- Captured picture
- Alarm log
- Operation log
- GPS Date

To export the selected data, tap **Export**.

Upgrade

The Upgrade menu allows you to update the HVR's firmware.

Note - It is strongly recommended a configuration backup file be created prior to updating the firmware. (Configuration files can be exported in Maintenance - Config menu.)

1. **Obtain the firmware upgrade file from Safety Vision technical support.**
2. **On an otherwise blank USB flash drive, place the file in a folder entitled upgrade in the root directory.**
3. **Insert the flash drive into the USB port on the front of the HVR and tap Update.**
4. **The firmware upgrade process begins automatically.**
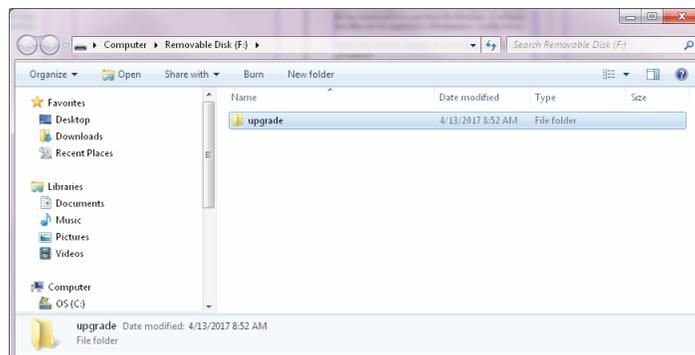
Storage

The Storage menu is used to format storage devices connected to the HVR and displays the ratio of free to total space available for each.

To format a device, tap **Format**.

Formatting a device erases all data, including recorded video.
Use with caution.

Reset

The Reset menu allows you to reset the HVR's entire configuration to the factory default settings. To reset all settings, tap the **Default** button.

Resetting an HVR erases all settings.
Use with caution.

Tap the **Reboot** button to reboot the HVR.

Web Configuration

The Observer 4112 includes a web-based configuration menu that can be accessed with a Windows based PC and browser. It provides much of the same functionality as an external monitor and remote control when these accessories are not available or practical.

Use the following procedure to access the web configuration menus:

1. **Determine the IP Address of the HVR.**
    The default IP address is 192.168.1.100. Check the Network tab in the Setup menu to confirm the correct IP address if it has been changed.
2. **Connect the PC to the HVR's RJ-45 port with a standard Ethernet cable.**
3. **Ensure the HVR is receiving power and has started up.**
4. **Set a sequential static IP address for the LAN connection connected to the HVR.**
    For example, if the HVR's IP address is 192.168.1.100, set a static IP address of 192.168.1.101.
    In Windows, this can be accomplished in the Internet Protocol (TCP/IP) Properties window, accessed through the properties of the Local Area Connection.
5. **Open Windows Internet Explorer as an Administrator.**
    Right-click the Internet Explorer icon and select Run as administrator.
6. **Navigate to the HVR's IP address.**
7. **Run any Active X controls if and when prompted by Internet Explorer.**
    The Login screen appears.
8. **Enter a User name and Password and click Login.**
    Additionally, you can click the Safety Vision Technical Support link to directly access Safety Vision's Technical Support request form (internet access required).
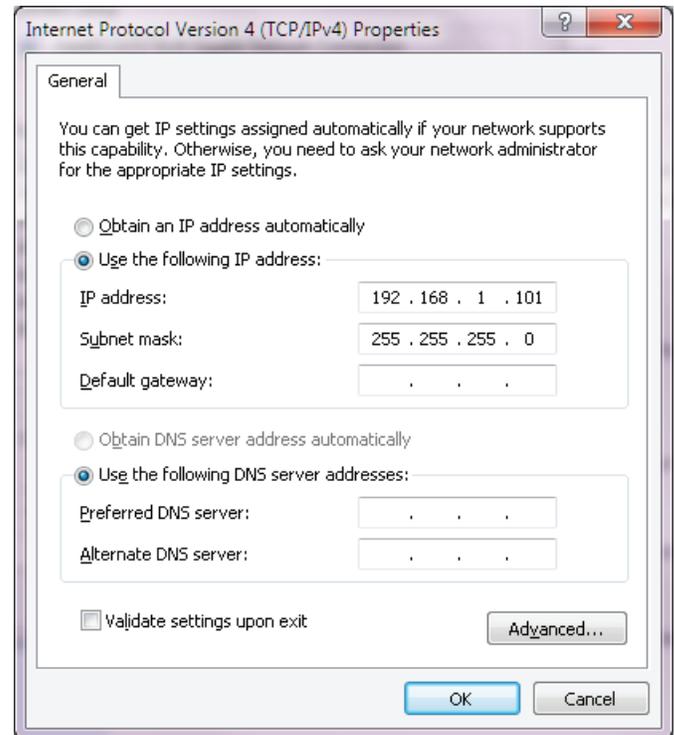
Playback

The Playback tab allows you to search for and playback recorded video similar to the Recording Search function when using an external monitor.

Use the calendar on the left to find days with recorded video (highlighted in green) and alarms (highlighted in red). Click on a day to display a list of video files. Double click on a file to begin playback. Playback can be controlled with the function buttons along the bottom of the screen.

Additionally, you can click the Camera icon at the bottom of the screen to download a still image of the displayed camera channel via Internet Explorer.

To export video segments after searching for video:

1. Click **Record list** underneath the Search button.
2. Select the channels of the selected video segments you want to export.
3. Click the **Backup** button.
   The Backup window appears.
4. Select one of the following options:
   - **Synthetic data:** video can only be played back using the Observer Management System (OMS) software.
   - **AV data:** video is exported in .avi format, which can be played by most commonly available media players.
5. Click **OK**.
   The video segments begin downloading automatically. When complete, the download appears via Internet Explorer.

Live

The Live tab displays the current camera's views similar to the Live View on an external monitor. Right click on the display area and select Open Camera to view a camera's live view.

Use the button at the bottom of the screen to control the display area. Additionally, you can click the Camera icon at the bottom of the screen to download a still image of the displayed camera channel via the web browser. Adjust color, contrast, and brightness by clicking the palette icon.
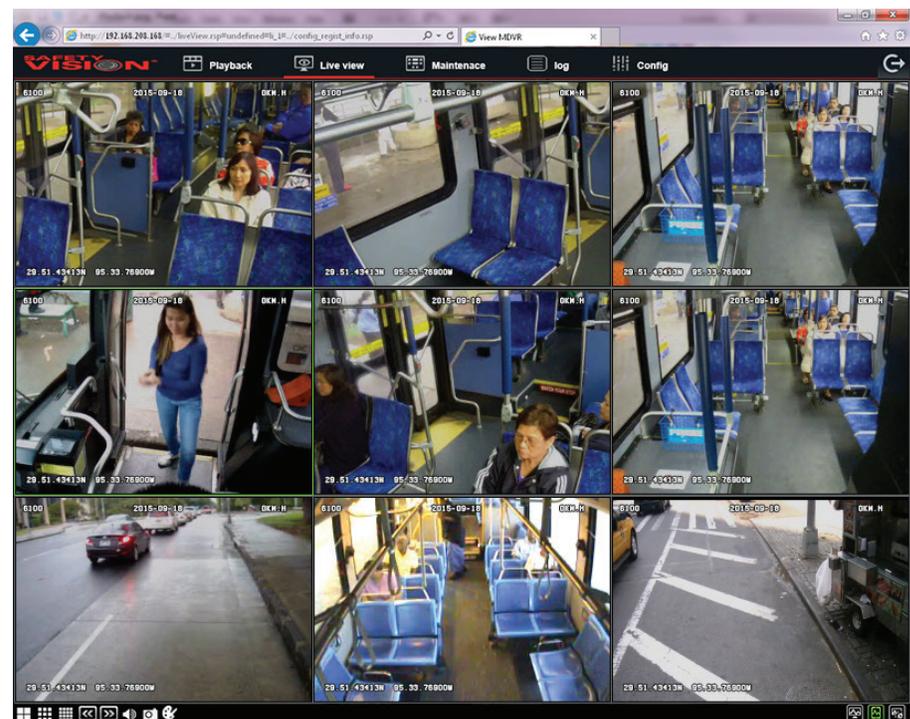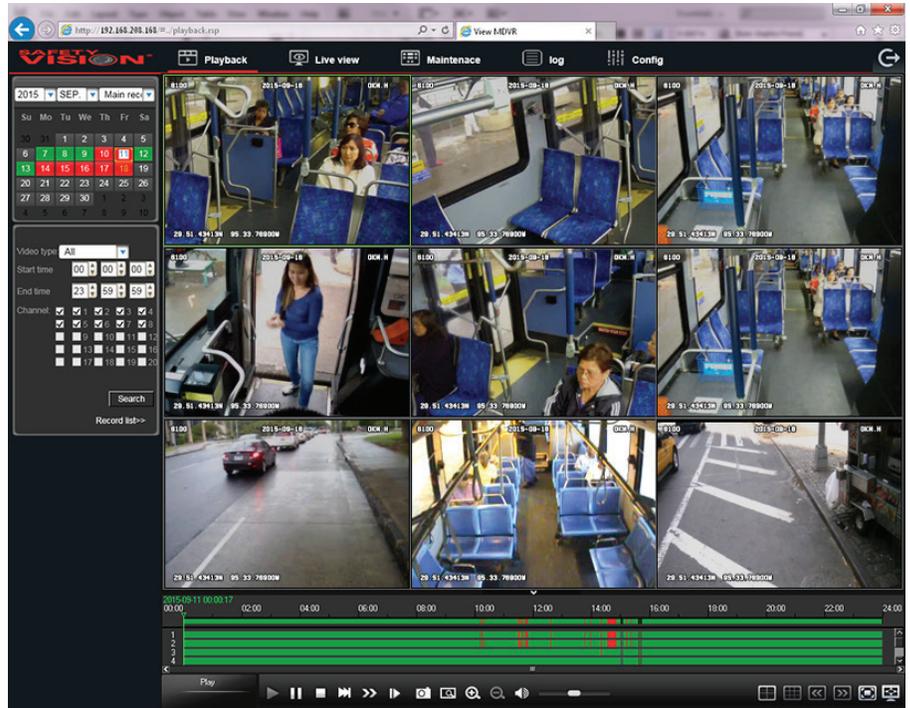
Maintenance

The Maintenance tab provides the same display-only information as the System menu viewed on an external monitor.

Additionally, the Storage tab allows you to format a storage device. Simply click the Format icon next to the desired device.

Formatting a device erases all data, including recorded video.
Use with caution.
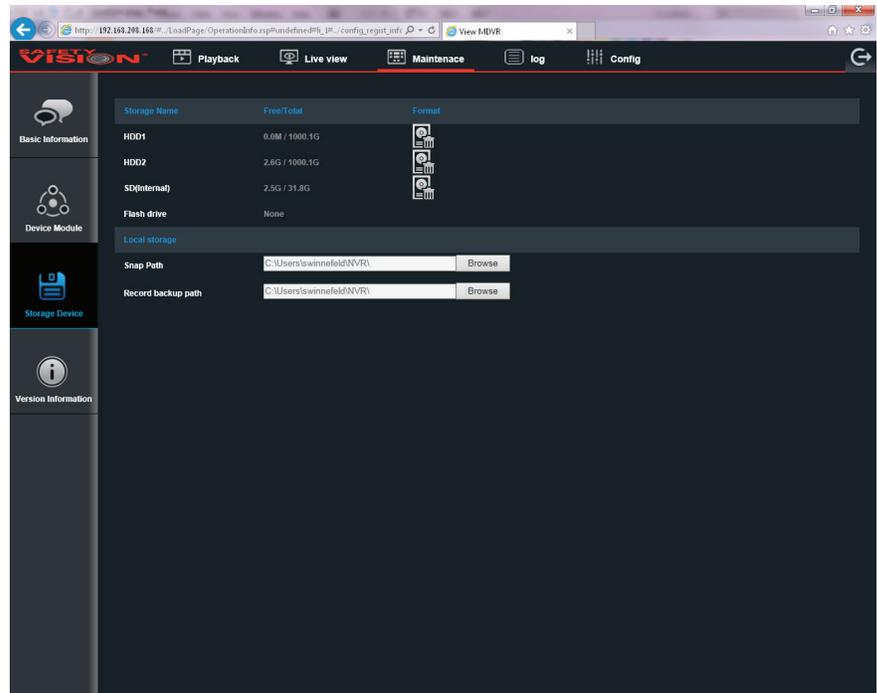
Log

The Log tab provides the same functionality at the Log Search feature on an external monitor.

Enter the Log type, Operate type, and the start and end time to search for, the click the Search button. Available log entries are displayed.

Additionally, a .txt file of the displayed log entries can be downloaded via Internet Explorer Simply click Export and select a destination.
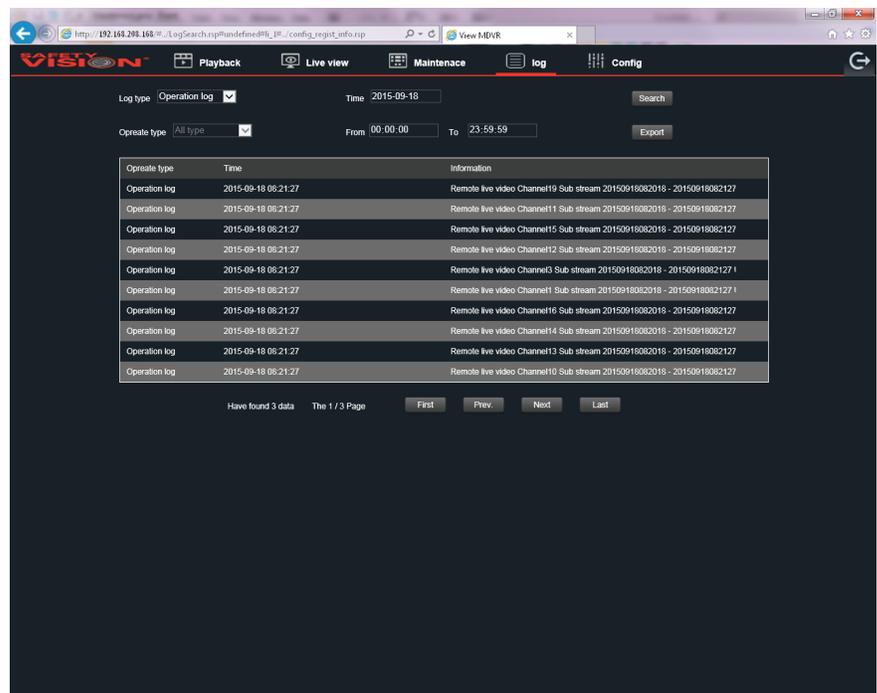
Configuration

The Config (Configuration) duplicates the Setup menus accessed with an external monitor. Navigate through the different menus using the tabs on the left of the screen. Remember to click **Save** after changing any parameters.
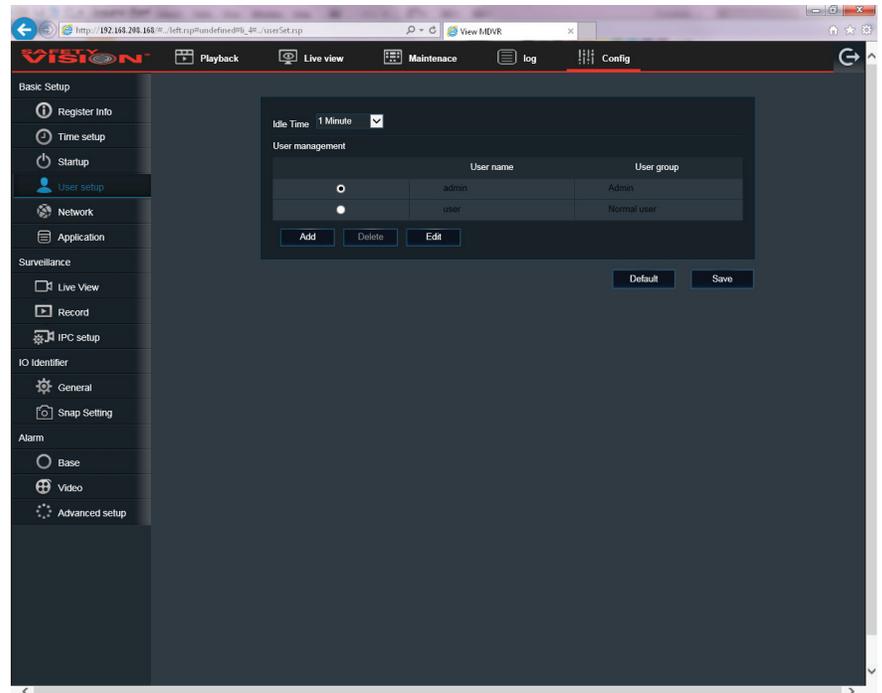
Appendix A: Specifications

SPECIFICATIONS	
Part No. 4000-HYB	
Operating System	Embedded Real Time Linux
Video Standard	NTSC / PAL (selectable)
Audio/Video Inputs	4 channels AHD or Analog + 1 IP channel
Audio/Video Output	1 channel
Audio/Video Compression	ADPCM / H.264
Resolution	720P, WD1, WHD1, WCIF, D1, HD1, CIF
Frame Rate	NTSC: (4x30)FPS WD1 +30FPS 720P or (4x15)FPS 720P (AHD)+30FPS 720P (IPC) PAL: (4x25)FPS WD1+30FPS 720P (IPC) or (4x15) FPS 720P (AHD)+30FPS 720P (IPC)
Image Quality (Bit Rate)	8 levels (1 is best)
Recording Mode	Continuous/Schedule/Alarm
Pre-Event Recording	Configurable up to 60 minutes
Post-Event Recording	Configurable up to 30 minutes
Mirror Recording	Yes
GPS (Antenna Included)	Built-in module (location tracking, speed detection, and time sync)
Storage (lockable)	1 × Class 10 SD Card (256 GB max) 1 × Class 10 SD Card (256 GB max, mirror recording optional)
Interfaces	1 x RS-232 and 1 x USB 2.0
Sensor Inputs	8 inputs, 2 outputs
Power Input	8 - 36V DC
Power Output	5V at 500mA
Power Consumption	29W
Dimensions (w × h × d)	5.59 in x 2.13 in x 5.7 in (142 mm x 54.2 mm x 144.8 mm)
Weight	1.5 lbs. (0.7 kg.)
Operating Temperature	-13°F~140°F (-25°C~60°C)
Relative Humidity	8% - 90%
Configuration	IR remote control (included); monitor (optional)
WITH A SAFETY VISION MONITOR	
On Screen Display	GPS information, event, temperature, voltage, device information, firmware version, MCU version
Display Split	1/4
Playback	1 channel by local monitor, 1/4 channels with software
Search Mode	date/time, channel, event

Appendix B: Dimensions
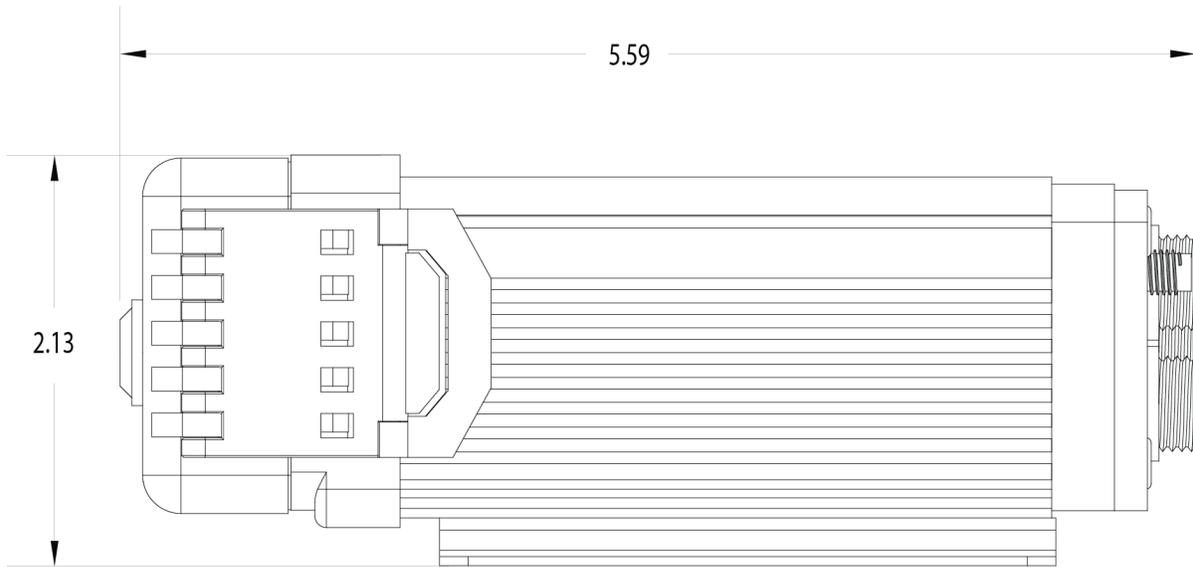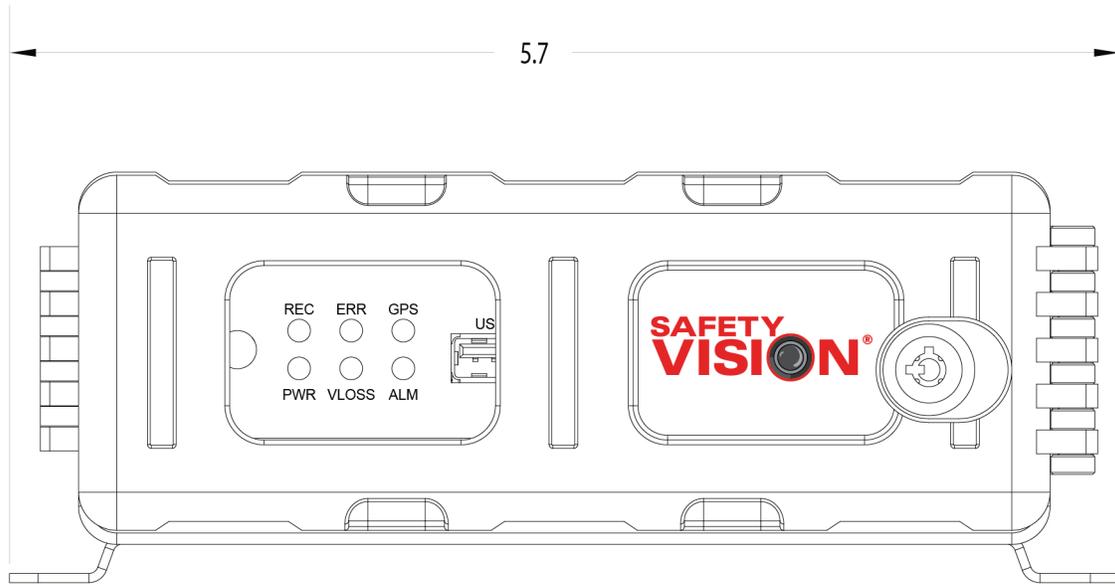
Appendix C: Bit Rate Chart

		QUALITY (kB/s)							
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
WD1 PAL: 960 × 576 NTSC: 960 × 480	Stream (kB/s)	2048 × 1.3	1536 × 1.3	1280 × 1.3	1024 × 1.3	900 × 1.3	800 × 1.3	720 × 1.3	640 × 1.3
	MB/hour/ch.	1170	878	731	585	514	457	411	366
WHD1 PAL: 960 × 288 NTSC: 960 × 240	Stream (kB/s)	1536 × 1.3	1280 × 1.3	1024 × 1.3	768 × 1.3	640 × 1.3	560 × 1.3	500 × 1.3	450 × 1.3
	MB/hour/ch.	878	731	585	439	366	320	286	257
WCIF PAL: 480 × 288 NTSC: 480 × 240	Stream (kB/s)	1024 × 1.3	768×1.3	640 × 1.3	512 × 1.3	440 × 1.3	350 × 1.3	312 × 1.3	280 × 1.3
	MB/hour/ch.	585	439	366	293	251	200	178	160
D1/VGA PAL: 704 × 576 NTSC: 704 × 480	Stream (kB/s)	2048	1536	1280	1024	900	800	720	640
	MB/hour/ch.	900	675	563	450	396	352	316	281
HD1 PAL: 704 × 288 NTSC: 704 × 240	Stream (kB/s)	1536	1280	1024	768	640	560	500	450
	MB/hour/ch.	675	563	450	338	281	246	220	198
CIF PAL: 352 × 288 NTSC: 352 × 240	Stream (kB/s)	1024	768	640	512	440	350	312	280
	MB/hour/ch.	450	338	281	225	193	154	137	123
QCIF/QVGA PAL: 176 × 144 NTSC: 176 × 120	Stream (kB/s)	512	448	416	384	352	320	288	256
	MB/hour/ch.	225	197	183	169	155	141	127	113
720P 1280 × 720	Stream (kB/s)	6144	4800	4128	3456	2784	2112	1440	768
	MB/hour/ch.	2700	2109	1814	1519	1223	928	633	338
1080P 1920 × 1080	Stream (kB/s)	8192	6390	5505	4068	3712	2816	1919	1024
	MB/hour/ch.	3600	2808	2419	1788	1631	1238	843	450

FCC Compliance Statement

NOTE

This device has been tested and found to comply with the limits for a *Class A digital device*, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference in which case the user will be required to correct the interference at his own expense.

CAUTION

Any changes or modifications in construction of this device which are not expressly approved by the party responsible for the compliance could void the user's authority to operate the equipment.

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