

GATEKEEPER



SYSTEMS INC.

Safety, Security, Peace of Mind™

504HD USER GUIDE AND MANUAL



Table of Contents.

TABLE OF FIGURES	5
Introduction	6
Glossary	6
Important Safeguards and Warnings	7
Package Checklist.....	8
Download Kits	9
SD Download Kit.....	9
SD Download Kit Plus A.....	9
SD Download Kit Plus B.....	9
System Overview.	10
Front View.....	10
Rear View.....	11
Accessing Video on 504-HD COMRAD™ (Hard Disk Drive)	11
Mounting the System.....	12
Installation / Environmental Requirements	12
Power Connector (CAB0000307).....	12
Sensors.....	13
GPS.....	14
Driver Alert Button	14
Using the Remote Control.....	15
Numeric Keypad.....	15
Setup Menu Navigation:	15
System Configuration.....	16
Recorded Video.....	16
REC. SEARCH.....	16
EVENT FILES.....	17
System Settings.....	18
DATE TIME.....	18
GENERAL.....	19
REGISTER INFO	19
FORMAT	20
UPGRADE	20
USER SECURITY	20
CONFIG.....	21
SYSTEM LOG.....	21
BLACKBOX FILE.....	21
GEO FENCING	21
RECORD	22



OPTIONS 1.....	22
OPTIONS 2.....	23
OSD OVERLAY.....	23
CAMERA SETTINGS.....	24
RECORD SETTING.....	24
SUB STREAM.....	24
SCHEDULE.....	24
OTHER SETTING.....	25
NETWORK.....	26
LOCAL.....	26
SERVER.....	26
WIFI.....	28
MOBILE NETWORK.....	28
FTP SETTINGS.....	28
ROUTE.....	28
EVENT.....	29
SENSOR.....	29
ALARM OUTPUT.....	29
SPEED.....	30
ACCELERATION.....	30
TEMPERATURE.....	31
CAMERA.....	31
VOLTAGE.....	31
EMERGENCY EVENT.....	31
PERIPHERAL.....	32
PTZ.....	32
EXT. COM.....	32
SMART BATTERY.....	32
SYSTEM INFORMATION.....	33
SYSTEM.....	33
DIAL STATUS.....	33
HISTORY.....	33
MODULES.....	34
Overview.....	35
INSTALLATION.....	35
Using G4 Viewer.....	37
Opening Screen.....	37
G4 Calendar Interface.....	39
HDD.....	40



Directory.....	40
Device.....	40
Time Bar.....	41
Calendar or Playback Interface.....	41
Playback Details.....	41
Playback Controls.....	41
System Settings.....	42
Saving a Clip.....	42
Exporting a Clip.....	44
Export to an AVI File.....	44
G4 Playback Interface.....	45
Playing Back a Video File.....	46
Event Playback.....	46
Sensor / Alarm Playback 1.....	46
Sensor / Alarm Playback 2.....	47
Vehicle Speed Playback.....	47
Blurring an Image.....	47
APPENDIX.....	49
Camera Mounting and Connections.....	49
Camera Installation.....	49
Suggested Camera Locations.....	51
Video Alignment Cable: CAB000157.....	52
504-HD Quick Install Guide.....	53
Quick Configuration Guide.....	53
Warranty.....	55
Contact Information.....	56



TABLE OF FIGURES.

FIGURE 1: 504-HD FRONT VIEW.	10
FIGURE 2: 504-HD REAR VIEW.....	11
FIGURE 3: 504-HD COMRAD™ REAR VIEW	11
FIGURE 4: SENSOR CONNECTION EXAMPLE.....	13
FIGURE 5: SENSOR SETUP.	13
FIGURE 6: REMOTE CONTROL.....	15
FIGURE 7: REC SEARCH.	16
FIGURE 8: EVENT SEARCH.	17
FIGURE 9: DATE / TIME SETUP.	18
FIGURE 10: CONFIG SCREEN.....	21
FIGURE 11: RECORD SETTINGS.	22
FIGURE 12: CAMERA SETTINGS.....	24
FIGURE 13: LOCAL NETWORK SETTINGS.	26
FIGURE 14: WI-FI SETTINGS.....	28
FIGURE 15: SENSOR SETTINGS/ACTIONS.	29
FIGURE 16: SPEED.....	30
FIGURE 17: ACCELERATION.	30
FIGURE 18: EMERGENCY EVENT.....	31
FIGURE 19: SYSTEM INFO.....	33
FIGURE 20: MODULES.....	34
FIGURE 21: OPENING SCREEN ICONS.....	37
FIGURE 22: SEARCH FILTER.....	37
FIGURE 23: G4 CALENDAR INTERFACE.	39
FIGURE 24: PLAYBACK CONTROLS.	41
FIGURE 25: SYSTEM SETTINGS.	42
FIGURE 26: EXPORT FILE DEFINITIONS.	44
FIGURE 27: AVI CONVERSION.....	44
FIGURE 28: G4 PLAYBACK INTERFACE.....	45
FIGURE 29: PLAYBACK SENSOR/ALARM ACTIVATIONS.	46
FIGURE 30: SPEED PLAYBACK.	47
FIGURE 31: BLURRING AN IMAGE.	47
FIGURE 32: DEFINING A BLUR.	48
FIGURE 33: PLAYBACK BLUR.....	48
FIGURE 34: VIDEO ALIGNMENT CABLE.....	52



Introduction.

Congratulations on the purchase of the Gatekeeper Systems 504-HD DVR. This Digital Video Recorder offers H.264 compression, the same compression technique as used in Blue Ray disk players, which produces crystal clear, best in class, video imagery.

The 504-HD records to a removable Hard Disk Drive, The COMRAD™. Utilizing state of the art surface mount components the 504-HD is built to withstand the shock and vibration of vehicle operation. In order to play back the recorded video the 504-HD utilizes custom video viewing software, "G4 Viewer", which is a very easy to use application which allows users to quickly find the video of interest and save a clip. With the press of a button users can print images and then send them to qualified staff.

The battery should be disconnected from the vehicle before working on the electrical system of the vehicle when installing, servicing or removing Gatekeeper products.

All Gatekeeper employees or contractors who preform electrical work (install, service or remove a DVR, installing a backup camera system for example) on a customer vehicle shall ensure that the battery in the vehicle is disconnected before work commences.

Customers shall be responsible for addressing any systems on the bus which require attention as a result of disconnecting the bus battery. This includes, but is not limited to, entering a radio theft code, programing radio stations etc.

Glossary.

DVR	Digital Video Recorder; A DVR functions similarly to a VCR, except it uses a disk to record, as opposed to video-tapes.
H.264	H.264 contains a number of features that allow it to compress video much more effectively than older standards and offers up to twice the compression of the current standards.
OSD	On Screen Display; Is an image superimposed on a screen picture commonly used to display information such as volume; channel; time; status, etc. and can be used to change the specific values for all configurable options.
UTC	Coordinated Universal Time is a time standard based on International Atomic Time with leap seconds added at irregular intervals to compensate for the Earth's slowing rotation.
HD	Denotes that the 504-HD system utilizes a state of the art mobile rated internal SATA hard disk drive.



Important Safeguards and Warnings.

The battery should be disconnected from the vehicle before working on the electrical system of the vehicle when installing, servicing or removing Gatekeeper products.

All Gatekeeper employees or contractors who perform electrical work (install, service or remove a DVR, installing a backup camera system for example) on a customer vehicle shall ensure that the battery in the vehicle is disconnected before work commences.

Customers shall be responsible for addressing any systems on the bus that require attention as a result of disconnecting the bus battery. This includes, but is not limited to, entering a radio theft code, programming radio stations etc.

Remove Main Power Fuse or Disconnect Vehicle Batteries Prior To Any Electrical Work Or Jump Starting The Vehicle.



Firmware updates [available from www.gatekeeper-systems.com when released] are system specific, firmware updates must only be applied to the 504-HD system. If this firmware is applied to any other Gatekeeper Systems DVR **warranty will be void.**

The 504-HD has an operating temperature range of -40° C to +65° C. It is good practice to ensure that the 504-HD is mounted in an area in which acceptable temperature ranges are experienced.

Do not remove the cover of the 504-HD series as this will void any warranty.

When a system has shipped with a GPS antenna, ensure that the GPS antenna is mounted externally on the roof of the bus, magnetic side down.

Do not format the COMRAD™ HDD using Microsoft Windows.

If at any time there is a question about how to proceed, contact Gatekeeper Systems Inc. at 1-888-666-4833 or 604-864-6187 immediately for directions. Review all installation documentation, including technical bulletins. Additional Resources; Technical Bulletins and Product Tutorials can be found in the Gate section of www.gatekeeper-systems.com



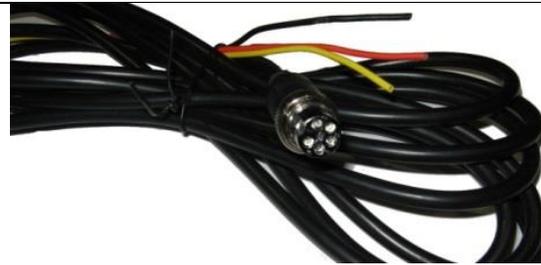
Package Checklist.



504-HD Digital Video Recorder.



Sensor Cable: P/N: CAB000323



Power Cable: P/N: CAB000307



Power Line Fuse



Ignition Line Fuse



Fastening Screws



Key



Dual Headed USB Cable



CAB000310 Camera Adapter Cable.



Download Kits

Gatekeeper Systems offers additional Download Kits which enhance the usability of the 504-HD. These download kits have been designed to assist in the management; configuration and maintenance of the 504-HD.

SD Download Kit

Part Number = **G4HDDLK**

Contains:

- remote control
- SD card reader
- CD with G4 Viewer
- RC150 Cable (single RCA male to male)
- CAB 000157 [(Video Alignment Cable) See Appendix]

SD Download Kit Plus A

Part Number = **G4HDDLKA**

- G4HDDLK
- Plus a 7" battery powered monitor

SD Download Kit Plus B

Part Number = **G4HDDLKB**

- G4HDDLK
- Plus an ICD = Interactive control display and cable.



System Overview.

Front View.

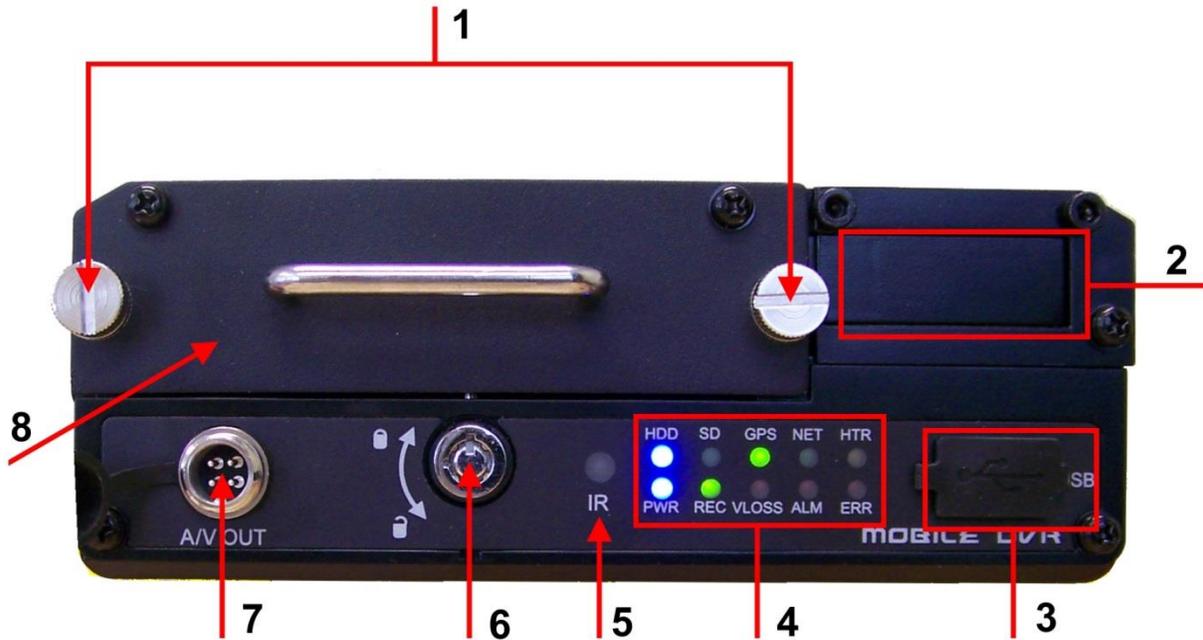


Figure 1: 504-HD Front View.

<p>1. Hard Drive (COMRAD™) retention screws.</p>	<p>2. SD Card Cover. Ensure SD card is in correct orientation for insertion.</p>																				
<p>3. USB Cover. An external USB stick can be used for Saving/Uploading configurations; Updating the system firmware and Downloading of recorded video/event files.</p>	<p>4. LED Status Indicators.</p> <table border="1"> <tr> <td>HDD</td> <td>When illuminated indicates that a HDD is present.</td> </tr> <tr> <td>SD</td> <td>Displays if a SD card is present in the system.</td> </tr> <tr> <td>GPS</td> <td>Illuminated when GPS signal is present</td> </tr> <tr> <td>NET</td> <td>Displays Network activity</td> </tr> <tr> <td>HTR</td> <td>When illuminated HDD Heater is active.</td> </tr> <tr> <td>PWR</td> <td>Illuminated when power present</td> </tr> <tr> <td>REC</td> <td>Illuminated when recording.</td> </tr> <tr> <td>VLOSS</td> <td>Flashes if Video Loss has occurred.</td> </tr> <tr> <td>ALM</td> <td>Signifies the 504HD has received an Alarm input.</td> </tr> <tr> <td>ERR</td> <td>A Physical Hardware error.</td> </tr> </table>	HDD	When illuminated indicates that a HDD is present.	SD	Displays if a SD card is present in the system.	GPS	Illuminated when GPS signal is present	NET	Displays Network activity	HTR	When illuminated HDD Heater is active.	PWR	Illuminated when power present	REC	Illuminated when recording.	VLOSS	Flashes if Video Loss has occurred.	ALM	Signifies the 504HD has received an Alarm input.	ERR	A Physical Hardware error.
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<p>5. IR Receiver. For receiving signals from the Remote Control.</p> <p>7. AV Out. Connects to External Display</p>	<p>6. Lock. Allows access to the HDD and can start & stop recording of video.</p> <p>8. HDD (COMRAD™)</p>																				



Rear View.

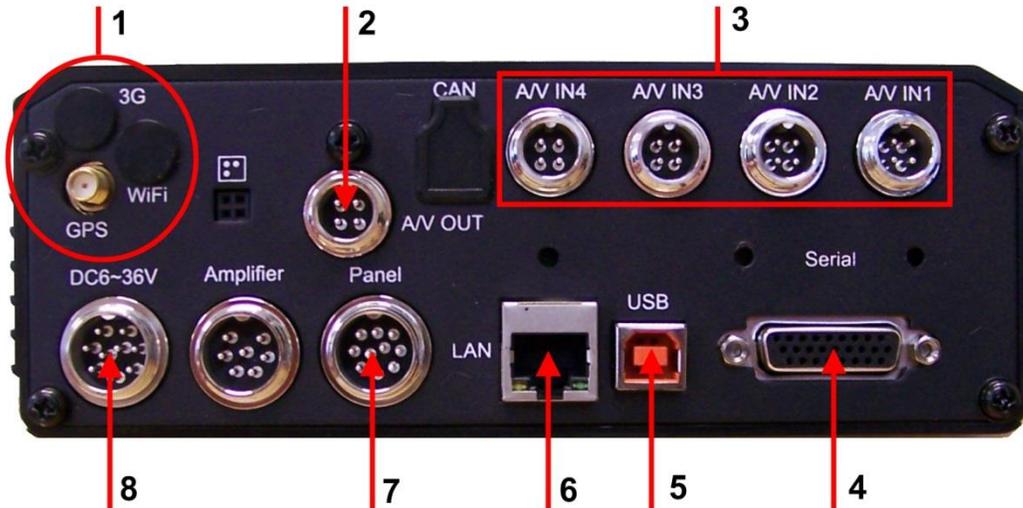


Figure 2: 504-HD Rear View.

1. External connectors for GPS; 3G and WI-FI.	2. AV Out. Connects to External Display
3. Camera connections.	4. DB26 connector for Sensor connections.
5. USB Connector. Reserved for future development.	6. LAN connection.
7. Panel. Used as connection for Gatekeeper Systems accessory, ICD.	8. Power Connection.

Accessing Video on 504-HD COMRAD™ (Hard Disk Drive).

Do not format the COMRAD™ HDD using Microsoft Windows.

To access video already recorded on the 504-HD COMRAD™ (hard disk drive) using a USB connection the COMRAD™ must first be removed from the 504-HD, ensure that the system has powered down fully prior to removing the COMRAD™.

To remove the COMRAD™ untighten the Two retaining screws, item 1 in Figure 1 and then carefully slide out the COMRAD™.

Using the Dual-Headed USB cable provided attach the COMRAD™ using its USB Port (2 in Figure 3) to a USB connection on the PC.

A message stating that windows needs to format the drive will appear Three times, click on CANCEL each time.

Once the COMRAD™ has been connected to the computer it will show as ready for use when the HDD indicator LED (1) is illuminated.

Using G4 viewer Click on the Hard Disk icon and the contents of the COMRAD™ will be displayed



Figure 3: 504-HD COMRAD™ Rear View



Mounting the System.

Installation / Environmental Requirements.

The 504-HD has an operating temperature range of -40° C to +65° C. It is good practice to ensure that the 504-HD is mounted in an area in which acceptable temperature ranges are experienced.

Please fully read and understand the following conditions to ensure the Warranty will not be voided.

1. The 504-HD operates between 8V ~ 36V. Please ensure a regulated, consistent power source is available for the 504-HD.
2. DO NOT remove any enclosures/covers associated with the 504-HD as this will void the warranty.
3. Remove the In-Line Power fuse prior to jump starting the vehicle.
4. Select a solid ground connection for the 504-HD.
5. Do Not use any third party accessories, unless approved by Gatekeeper Systems.
6. The 504-HD is designed for interior use only. Do not install in areas which are exposed to excessive moisture / wetness.
7. Mount 504-HD in a location which has good air-flow and is not subject to excessive heat/cold variations. Allow at least 6" of clearance all round for effective cooling of the system.
8. Ensure that the 504-HD is mounted where it is not easily accessible by non-authorized personnel.
9. Ensure that ALL provided Split Looms are used around exposed cables. Grommets are to be used as directed by install sheet. Failure to use provided Split Looms and Grommets will void the warranty.
10. Gatekeeper Systems provides Tek Screws with which to mount the 504-HD, these have been tested and are approved for mounting.

Power Connection.

The supplied fuses MUST be used, failure to protect the system with the correct value fuse may lead to the warranty being voided.

The 1AMP fuse must be installed as close as possible to the source on the Yellow Ignition wire on CAB000307

The 15AMP fuse must be installed as close as possible to the source on the Red (+12V) wire on CAB000307

Power Connector (CAB0000307)



GND (A) Input (Black): Connect to the negative terminal of the battery, -12V.
Ignition (B) (Yellow): Connect to vehicle ignition. +12V signal required to activate the 504-HD. Ensure that the provided 1 AMP In-Line fuse is used
Positive (C) (Red): Connect to the positive terminal of the battery, +12V. Ensure that the provided 15 AMP In-Line fuse is used



Sensors

The 504-HD allows for up to six sensor inputs, all of which are user configurable, with Sensor 1, 2 and 3 being pre-configured in the DVR, see table below. The wire from these Six sensor connections are approximately Five meters long.

CAB000323		
Sensor Wire and Color	Sensor	OSD Name
SENSOR_IN1 (Red)	Brake	BK
SENSOR_IN2 (Red)	Warning Lights	WN
SENSOR_IN3 (Red)	Stop Arm	SA
SENSOR_IN4 (Red)	Door	DR
SENSOR_IN5 (Red)	Left Turn	LT
SENSOR_IN6 (Red)	Right Turn	RT
SENSOR_IN7 (Red)	Not Assigned	Blank
SENSOR_IN8 (Red)	Not Assigned	Blank

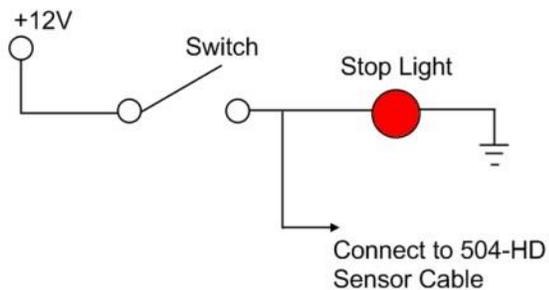


Figure 4: Sensor Connection Example

SENSOR'S 1-6 are inputs. In the example on the right S1 has been set up for Brakes; S2 for Warning Lights; see Table 2 for remaining definitions.

Using the On-Screen menu go to SETUP → EVENT → SENSOR, enable the required sensors for the install, make sure the alarm switch is ON for each required sensor. In Figure 5, only S4 "DOOR" has been enabled.

Once Sensors have been set, Click SAVE.

SENSOR						
	EN	NAME	OSD	SET	ALARM	LOCK
S1	OFF	BRAKE	BRK	LOW	OFF	OFF
S2	OFF	WRN LT	WRN	LOW	OFF	OFF
S3	OFF	STOP ARM	STP	LOW	OFF	OFF
S4	ON	DOOR	EX1	LOW	OFF	OFF
S5	OFF	LTTRN	EX2	LOW	OFF	OFF
S6	OFF	RTTRN	EX3	LOW	OFF	OFF

NEXT PAGE SAVE EXIT

Figure 5: Sensor Setup.



GPS

The 504-HD can be outfitted with an optional GPS module. For optimum results it is recommended that the GPS module be exterior mounted utilizing the magnetic base with the cable protected by a suitable grommet.

If it is not possible/practical to have the GPS module exterior mounted, the GPS module must be mounted internally with a direct line of sight vertically skyward.

Driver Alert Button.

A Driver Alert Panel is available as an optional accessory for the 504-HD. The Driver Alert Panel must be installed using the provide Tek screws. The Driver Alert allows for the driver of the vehicle to press the button and mark the recorded video with an Alert. This makes searching for Alerts far faster and easier as G4 viewer can be set to display Alarms/Alerts.

The Driver Alert Panel is connected to CAB000323.

CAB000323 has two bundles of wires labeled 485-3 and 485-4.

Connect the Driver Alert Panel to bundle 485-3.

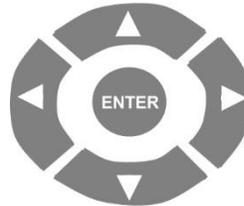
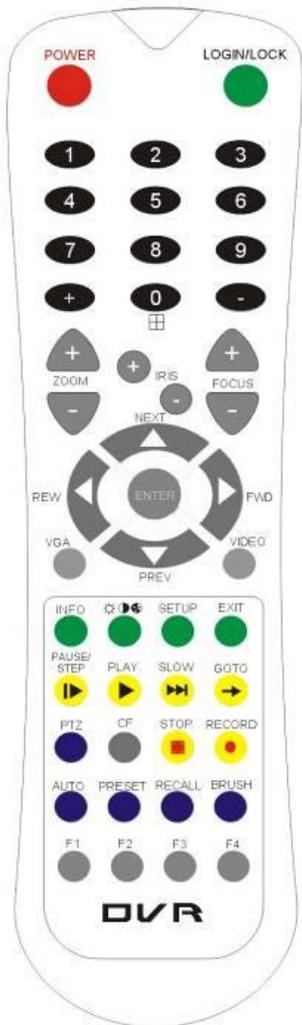


The Driver Alert Panel requires setting up in the configuration of the 504-HD. Navigate to System Settings → Peripheral → Ext.Com Setup. Select the following options:

Mode	STANDARD
COM1	NONE (232-1)
COM2	NONE (232-2)
COM3	CONTROL PANEL (485-3)
COM4	ACCELERATION (485-4)



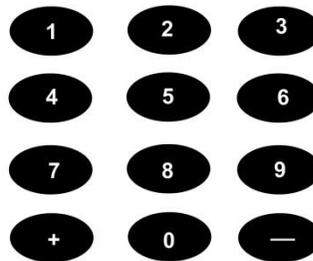
Using the Remote Control.



Use the ARROW keys to move between selections, input fields and icons.

Press ENTER to select.

And EXIT to return. Next and previous is also used to increase or decrease volume when at live or search screens.



Numeric

Use the numbers to input Values during system setup, Screen, or switch through the channels in live and playback.

Plus and Minus are used to increase or decrease setup values one by one.

Figure 6: Remote Control.

Numeric Keypad

[0-9] keys: When used during setup, number keys are used to key in values. For viewing channels 1, 2, 3 and 4 use 1, 2, 3 and 4 on numeric keypad respectively.

[+], [-] keys: During setup, plus and minus are used to select next or previous values.

Setup Menu Navigation:

▲ ▼: Up, Down directional keys: Moves selection up and down in setup menu.

▶ ◀: Left, Right directional keys: Moves cursor left or right in setup menu.

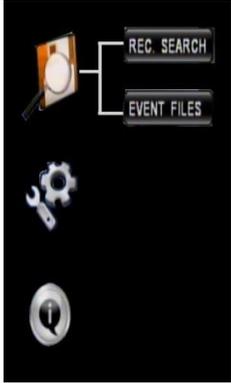
[ENTER] key: During setup, used to select and/or save an entry. During Playback ENTER will display the System information via the OSD overlay menu.

Username = 0 Password =88888888



System Configuration

The 504-HD utilizes a simple three option menu system.



Recorded Video menu option allows for the local playback of previously recorded video files, either by Recorded Search, or, Event Files.

The Second menu, System Settings , involves configuration of Networks/Wireless/Cellular, as well as advanced settings for Events/Alarms, etc.

The Third menu, System Information, gives detailed information in regards to System Settings; History; GPS and Wi-Fi Modules (if fitted).

Recorded Video

Recorded Video has two sub-menu's; REC. SEARCH and EVENT FILES.

REC. SEARCH.

When Record Search has been selected a secondary window will appear with several options, Figure 7.

1. SOURCE: This can be set to HDD or, if fitted, SD. By default the 504HD will search the internal HDD
2. TYPE: Options here are for recorded files. Options are ALL or Alarm.
3. DATE: Use the remote control to enter the required date of the video you wish to search for. Dates which have recorded video will be highlighted in Green.



Once the selections have been made highlight SEARCH and press enter on the remote control.

Figure 7: REC Search.

In the window which now appears options and information regarding the recorded video will be displayed.

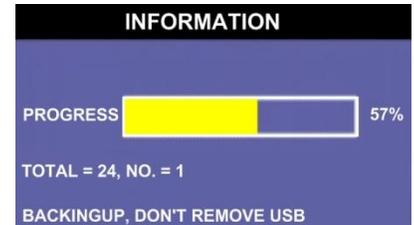
1. CHANNEL: Displays the number of channels for which there is recorded video.
2. NO VIDEO; LOCK; NORMAL and ALARM: Displays the status of each channel in regards to recorded video.
3. TIME: Displays the Start; Intermediate and End time of the recorded video.
4. CH1; CH2; CH3; CH4: Displays which channel currently has the focus for playback. Use the Down Arrow on the remote control to select the channel required.
5. START TIME: Enter the Start Time of the required Search.
6. END TIME: Enter the End Time of the required Search.
7. REPLAY; UNLOCK; EXPORT; EXIT: Select the required option using the Arrow Keys on the Remote Control. Once the selection is highlighted, press the Enter button on the remote control.





REPLAY: Plays back the selected channels video file(s)

EXPORT: Exports the selected file to an external USB drive. Once selected a progress dialog window will appear.



UNLOCK: Unlocks the selected video file, this allows the 504HD to over-write previously write protected file(s).

EVENT FILES.

Video files which have had an Alarm Action or Event associated can be exported to an external USB drive by using the Event Files menu option under Recorded Video. The Event Files search is very similar in use to All Files.

Once Event Files has been selected an Event Search window will appear. This window allows for the selecting of File Type, e.g. Panic Button (Driver Alert Button) and a specific date. As with All Files, the Calendar at the top of the screen will have dates highlighted if they contain Event Markers.

DATE: will always display the current days date. This date can be changed by using the remote control to enter the required date for the Event File required.



Figure 8: Event Search.

- IO ALARM** Displays Alarms triggered by Stop Arm, Warning Lights, Brake, etc. These Alarms are configured in System Settings → Event → Sensor.
- ACCELERATION** Displays Events generated by the G-Sensor configuration. System Settings → Event → Acceleration
- SPEED** Displays Events recorded generated by the configuration of System Settings → Event → Speed.
- TEMP ALARM** Displays Events recorded generated by the configuration of System Settings → Event → Temperature.
- MD ALARM** Motion Detection. NOT SUPPORTED
- BD ALARM** Blind Detection. NOT SUPPORTED
- VL ALARM** Displays Events recorded generated by Video Loss. Video Loss needs to be enabled for this event to be recorded.
- PANIC BUTTON** Records and Event based on the drivers pressing of the Driver Alert Panel button. The Driver Alert Panel can be configured to Mark a specified amount of time prior and after the Driver Alert Panel button being pressed.

The search was set for ALL and the result of the search displays the two events VL (Video Loss) and Over Speed. Both of these events have been selected in this screen as can be seen by the X listed under the SEL column. With a USB drive connected to the front of the 504-HD Export can now be selected using the remote control.

A dialog window will appear displaying the status of the Export.





System Settings.

Under System Settings there are Five sub menu each with their own sub-menu system.

DATE TIME.

There are multiple options which the user can select within Date/Time.

DATE FORMAT. Once highlighted press the ENTER key on the remote control. Date Format has to be manually entered. Once highlighted, press the ENTER key on the remote control and enter the date in the expected format. Once completed highlight the \uparrow symbol and press the Enter key on the remote control. Highlight the Save button and press Enter.

Options: YYYY-MM-DD; MM/DD/YYYY; DD/MM/YYYY.

Default: MM/DD/YYYY

TIME FORMAT

Time format can be selected between 12HR and 24HR (Military Time). If 12HR is selected the option for AM/PM must be set to the correct setting to reflect the time of setup, e.g. 3:45 PM for an afternoon setup.

Default: 12HR

TIME SYNC SOURCE

Determines where the system will get its time from.

NONE: Time has to be manually input.

GPS: An approved GPS module must be connected. Once GPS has been selected and the option SAVED, there may be a slight time delay as the system sync's with the GPS satellites.

NTP: Reserved for future development.

Options. NONE; GPS; NTP.

Default: GPS

TIME ZONE

There are 24 Zones available from the Drop Down menu. Ensure that the correct zone for the location is chosen at time of installation. Failure to set the correct time zone will lead to the time stamp on the recorded video being out by X number of hours.

Default: -8

DST

Daylight Saving Time will only display if DST has been set to ON. To change the value highlight and use the ENTER button on the remote control. Once the required option has been set, highlight SAVE and press Enter.

Default: ON

DST MODE

Within this menu section there are Two options: Auto and Manual. If Manual is selected the start date and End date for DST must be entered.

Default: Auto

When Date Time has been set for 24HR; GPS with DST ON the dialog window will display as shown in Figure 9. Should different options be chosen, e.g. NTP for Synchronization, the window will appear with different user options.



Figure 9: Date / Time Setup.



GENERAL

- On/Off Type** Options: Ignition/Timer/Ignition or Timer.
 Determines how the 504-HD begins power up. Default: Ignition
- Shutdown Delay** Determines how long the 504-HD will continue to record after the Ignition signal has been lost. Can be set from 0 to 24 hours in 00:00:00 format. Please note that the onscreen display will display the shutdown delay in seconds. Default: 00:00:05
- Buzzer:** Determines if the Buzzer will sound if an Alarm is activated. Default: OFF
- Idle Time** Determines how long the on-screen display will continue to show menu items without any input from the user. Use the remote control to highlight the input box and use the numeric keys on the remote to enter the required value. Format 30-300 SEC. Default: 30
- Event Files Auto Export.** Event Files can be automatically download if this menu option is set to ON. **Please Note:** Only Event Files for the current day will be downloaded to the USB drive via the 504-HD's front connection; e.g. if Todays date is 01/02/2013 then ONLY event files dated 01/02/2013 will be automatically downloaded to the external USB drive. Once a USB drive has been connected to the front of the 504-HD press the F1 button on the remote control to initiate auto-download. Default: OFF
- Aspect Ratio** 4:3 and 16:9 options are available. Default: 4:3
- Transparency** Options 0%; 25%; 50% or 75%
 Determines the level of transparency of the OSD against the underlying live camera view. Default: 25%

REGISTER INFO

Register Info displays information in regards how the system is currently configured.

Unit S/N: This is the serial number of the 504-HD and is read from an encrypted chip. This value cannot be edited.

UNIT ID: User defined Identifier of the 504HD system. Numeric values only.

Company Name: The name of company, Press the arrow key on the remote control and highlight this Option and then input the name of the company.

Vehicle NO. The designated number of the vehicle.

Driver/Route: The drivers name and route.

Device ID: This is very important for Vehicles which are configured for Wireless. The Device ID is used by network software to access and talk with a specific 504-HD.





FORMAT

Use this feature to format devices ready for use with the 504-HD. Use the remote control to highlight the required option and then press Enter to open the Options drop down window. Please note that Format will erase all data from the device being formatted. This erased data cannot be retrieved.

Device: Options: HDD; USB; Mirror SD
 HDD is the internal Hard Disk Drive.
 USB: Any USB device connected to the front of the 504-HD
 Mirror SD: Reserved for future development.

Function: Options: Fast Format; Slow Format

UPGRADE

Important: When updating firmware on a GSI 504-HD system ONLY use the approved and up to date firmware. Once the firmware has been successfully updated, the system will automatically restart. It is essential for this restart to take place. Once a firmware update and configuration has been loaded into the DVR, the configuration must be checked for correctness. If discrepancies are found the necessary changes must be manually made to the configuration.

1. Log In to The Gate section of www.gatekeeper-systems.com and download the correct firmware for the GSI 504-HD system. Please refer to the appropriate firmware "Release Notes" for specific file information.
2. Save this file to a USB Storage Device. The file must be saved to a folder named dvrupgrade. DO NOT place the firmware anywhere else or the upgrade will fail. The file will be in a .sw format and should not be renamed or changed in any way.
3. Double check that the file name of the downloaded firmware has not been changed by the internet browser. If additional characters such as brackets or numbers have been added, manually remove these from the file name.
4. Go to the recorder on the vehicle. Connect a portable monitor (or ICD Assembly) to the GSI 504-HD system. Turn the bus ignition on. This should power the unit on automatically.
5. Using the remote control or ICD, enter the user name and password. Refer to technical documentation for username and password information.
6. Insert the USB Storage Device into the front of the GSI 504-HD unit.
7. Using the arrow buttons, go to the System Settings > Config > Export Config > Are You Sure You Want to Export Local Config (select yes). If this is successful, a window will appear that states "Export Success". The config will now be saved to the USB Storage Device.
8. Using the arrow buttons, go to "System Settings > Upgrade".
9. Arrow down to "Upgrade" and select ENTER. If you see the message "No External Storage", reseal the USB Storage Device and try again. During the upgrade the LED's on the front of the unit will flash all at once for approximately 3 seconds and then go out. This pattern of flashes will repeat until the update is completed. The upgrade may take several minutes.
10. Once the upgrade has been completed, press EXIT on the remote until you see the unit restarting. At this point, the 504-HD will restart automatically.
11. Once the system has restarted, go to System Settings > Config > Import. Confirm the import and wait for the message stating "Import successful". Exit the system menus and the unit will need to restart once again.
12. Once the unit is restarted, check to ensure that all video channels are still functioning. To check the firmware version, use the arrow buttons and go to System Settings > Upgrade and check the "Current Version".

USER SECURITY

Sets the security level for various users. The Password Must be Eight characters/ digits.

Please Note: If the Administrator password is Forgotten/Lost retrieval requires a call to Gatekeeper Systems technical support for reset.

User ID:	Factory default is 0.
Password Enable	Options: ON / OFF
User Level	Options: Administrator/Power User/User Determines
Password	Enter the required new Eight character password.



Confirm Enter the same password exactly as entered in the previous Password input box. Please Note: When the Password has been entered and prior to the Confirm password being entered an error message will display stating Password Inconsistent. This message will remain until the confirm password box has been completed and the OK button at the bottom of the screen has been selected.

CONFIG.

Within the Config menu there are options to Reset to Default; Export the current configuration and Import a previously saved configuration from another 504-HD.

- DEFAULT:** Restores the 504-HD to factory default settings.
- RESET ALL HISTORY INFO.** Resets all History. No History information remains after selecting this option and Pressing YES on the confirmation window.
- EXPORT:** Exports the current configuration. Use a USB drive connected to the front of the 504-HD to download Export the configuration too. The configuration file name will be saved as MDVRCFG.CFG This file name MUST not be changed or any 504-HD which you attempt to Import this configuration too will not see the file.
- IMPORT:** Imports a previously saved configuration from another 504-HD. Use a USB drive connected to the front of the 504-HD for the Importing of the configuration file.

Config dialog window displays options regarding the configuration files of the 504HD.



Figure 10: Config Screen

SYSTEM LOG

Within System Log there are two options; Export System Log and Delete System Log.

- Export System Log:** Exports the System log to an external USB drive connected to the front of the 504-HD.
- Delete System Log:** Deletes the System Log. If selected a confirmation window will appear.

BLACKBOX FILE.

When selected this will export the Blackbox data to an attached USB drive.



GEO FENCING

Reserved for Future development.



RECORD.

There are Two pages of options within the Record Options menu.

OPTIONS 1	
VIDEO TYPE	NTSC ▼
RECORD MODE	GENERAL ▼
NORMAL REC RATE	NORMAL ▼
RECORD FILE TIME (MIN)	15 ▼
ALARM DURATION (3-30) SEC	10
ALARM POST REC(0-1800)SEC	0010
BUZZER TIME (SEC)	15 ▼
<input type="button" value="NEXT PAGE"/> <input type="button" value="SAVE"/> <input type="button" value="EXIT"/>	

OPTIONS 2	
METADATA CAPTURE	ON ▼
MIRROR SD CARD POSITION	EXTERNAL ▼
MIRROR REC. TO SD CARD	MAIN ▼
HDD/SD OVERWRITE	ON ▼
LOCKED FILE RETENTION (DAY)	10 ▼
PRE-RECORDING SWITCH	ON ▼
ALARM PRE-REC. TIME(1-60)MIN	10
<input type="button" value="FRONT PAGE"/> <input type="button" value="SAVE"/> <input type="button" value="EXIT"/>	

Figure 11: Record Settings.

OPTIONS 1.

Video Type	Options: NTSC or PAL	Default: NTSC
Record Mode	Options: General; Timer or Event.	Default: General
	General: The 504-HD will begin recording upon power up.	
	Timer: The 504-HD will begin recording at the time specified in the Timer Record menu based on the schedule	
	Event: When an Event has been triggered the 504-HD will record. To set an Event to record go to System Settings → Event to set triggers.	
Normal Rec Rate	Options: Normal or I Frame.	Default: Normal
	Normal The 504-HD will begin to record according to the configuration of the settings in the Record Setting menu.	
	I Frame The 504-HD will begin recording at 1 frame per second to conserve disk space, however, if an event is triggered the 504-HD will record at the frame rate specified within the Record Setting menu.	
RECORD FILE TIME (MIN)	Sets the length in minutes of the recorded video file. This cannot currently be changed from the default of 15 minutes.	
ALARM DURATION	Determines the duration for which an Alarm will record.	
ALARM POST REC	Determines the duration for how long an Alarm will record for after it has been activated.	
BUZZER TIME(SEC)	Can be set to 15, 30, 45, 60 or Always.	



OPTIONS 2.

METADATA CAPTURE

Reserved for future development

MIRROR SD CARD POSITION

Options: External/Internal

EXTERNAL Reserved for future development

INTERNAL Reserved for future development

MIRROR REC. TO SD CARD

Options: OFF/MAIN/SUB

OFF No Backup created

MAIN Backs up video files to Internal SD card.

SUB Backs up video files to Internal SD card.

HDD / SD OVERWRITE

Options: ON / OFF

ON: When the Hard Disk Drive has less than 8G, the 504-HD will begin to delete the oldest recorded files until the HDD available space is equal to, or over 15GB. Alarm files will remain as they are in a locked state.

OFF: 504-HD will stop recording when HDD is full, (less than 500MB). You must replace the HDD or delete files manually for the 504-HD to begin recording again.

Default: ON

LOCKED FILE RETENTION(DAY)

Options: 7, 10, 15, 20, 30, 45 days.

Determines the length of time, in days, which a recorded file triggered by an alarm will be "Locked", Read-Only. Once the specified amount of time has elapsed the file can be deleted.

Default: 15

PRE-RECORDING SWITCH

Reserved for future development

ALARM PRE-REC. TIME(1-60)MIN

Determines the length of the file before and after an Event has been triggered, e.g. if Alarm Pre-Rec Time is set to 30 minutes an Event which was triggered at 10:00am would generate a saved file showing video from 9:30am to 10:30am.

OSD OVERLAY

The OSD Overlay options controls what will be displayed on the On Screen Display and Recorded Video. The value can either be ON or OFF, except for position which has a TOP or BOTTOM option.

LIVEVIEW controls what will be visible when the output of the 504-HD is viewed either via the ICD accessory, or, the RCA output connection on the front of the Digital Video Recorder.

If IMAGE is set to ON then the recorded video will display this information as part of the playback when viewed via G4 Viewer.

ITEMS	LIVEVIEW	IMAGE	POSITION
DATE/TIME	ON/OFF	ON/OFF	TOP/BOTTOM
ALARM	ON/OFF		
ACCEL. DATA	ON/OFF		
TEMPERATURE	ON/OFF		
FIRMWARE VERSION	ON/OFF		
GPS INFO	ON/OFF		
CH NAME		ON/OFF	
VEHICLE NO.	ON/OFF	ON/OFF	
SPEED	FIXED/OFF/TRIGGER	ON/OFF	



CAMERA SETTINGS

Camera Setting options controls what will be displayed on the On Screen Display and/or what will be recorded. The Enable value can either be ON or OFF. If the CH1, 2, 3 or 4 value is set to ON the text entered into the NAME field will display on the OSD.

If Audio is set to ON recorded video will have associated audio recorded with that video.

Live controls whether specific channels Video/Audio will be available using Live View.

IP Intercom is currently reserved for future development.

Figure 12: Camera Settings.

RECORD SETTING.

RES	Options	D1 704×480 HD1 704×240 CIF 352×240
FPS	Options	1 – 30. The maximum frame rate available is dependent upon the RES setting. With 4 cameras at D1 maximum frame rate is 15 FPS
Normal Quality	Options	1 – 8. 1 is best quality.
Alarm Quality	Options	1 – 8. 1 is best quality. Alarm is for Alarm recordings

SUB STREAM

RESERVED FOR FUTURE DEVELOPMENT.

SCHEDULE

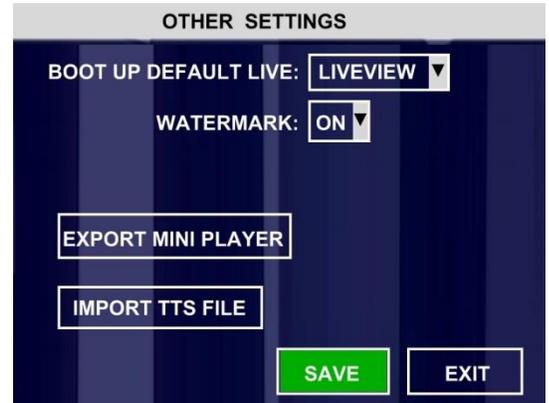
DATE	OPTIONS:	Single Day:	Select a day of the week for the schedule to run.
		EVERY:	Applies a schedule to every day of the week Runs the schedule based on the days selected in Workday From
		WKD:	Suspends the selected schedule.
		*****:	
SCHEDULE 1	00:00-00:00		Input the Start Time and End time for the scheduled recording.
TYPE	OPTIONS:	BD:	Reserved for future development.



		MD:	Reserved for future development.
			The 504-HD will record as normal.
		NORMAL:	The 504-HD will record Events ONLY during the time specified in the schedule.
SCHEDULE 2	00:00-00:00	ALARM:	This defines the schedule for a second cycle on the same day if required.
TYPE	OPTIONS:	BD:	Reserved for future development.
		MD:	Reserved for future development.
		NORMAL:	The 504-HD will record as normal.
		ALARM:	The 504-HD will record Events ONLY during the time specified in the schedule.
WORKDAY FROM	OPTIONS:	SUN; MON; TUE; WED; THU; FRI; SAT.	Select the days to START and END a schedule.

OTHER SETTING

BOOT UP DEFAULT LIVE	Options:	<p>Liveview/CP3 Liveview is utilized when a portable device such as a DVD player is connected via an RCA connector to either of the AV Out connectors (front and rear) on the 504HD for initial setup and configuration.</p> <p>CP3 is an internal name for the ICD which is an accessory available from Gatekeeper Systems, also used for initial setup and configuration.</p>
WATERMARK	Options:	ON / OFF Reserved for future development.
EXPORT MINI PLAYER		Exports the Mini Player application to an attached USB drive.
IMPORT TTS FILE		TTS is a voice report system file, used in conjunction with WCMS. This feature is currently reserved for future development.





NETWORK

The NETWORK menu is sub-divided into Five sub-menu's; LOCAL; SERVER; WIFI; MOBILE NETWORK and FTP SETTINGS. Each of these sub-menu's are configurable by the user.

LOCAL

Local settings are used to allow the 504-HD to have network connectivity either through an external wi-fi module, or, direct connection to a network switch/hub. The IP Information listed is a default setting for use with an approved Gatekeeper Systems Inc. external Wi-Fi module. These settings must not be changed unless guided to do so by a Gatekeeper Systems Technician.

Please consult with your I.T. department for all required information relating to IP; DNS Server, etc. if connecting the 504-HD directly to a network

1. IP. This is the IP Address for which the 504-HD has been pre-configured.
2. SUB. The subnet the 504-HD will be using.
3. GATE. When an external Wi-Fi module is being utilized, Gateway address has been pre-configured to allow communication between the 504-HD and the network.
4. Client Port and Web Port. These are the ports which will be need to be opened to allow communication of the 504-HD to the network.
5. DNS. Allows communication between the 504-HD and the host network.
6. MAC Address. The MAC address of the 504-HD

Please Note: None of the values shown in Figure 13 should be changed unless instructed to by a Gatekeeper Systems Technician.

LOCAL NETWORK

IP TYPE:

IP:

SUB:

GATE:

CLIENT PORT:

WEB PORT:

DNS SERVER:

MAC ADDRESS: 00-18-F5-09-B8-94

SAVE
EXIT

Figure 13: Local Network Settings.

SERVER

The IP address' shown are for example only. Please consult with your I.T. department for all required information relating to IP; DNS Server, etc.

CENTER SERVER 1

OPTIONS	Cable Net	Select this option when a CAT5/6 cable is directly connected from a PC/Server to the 504-HD, or, when using an external Wi-Fi radio.
	Mobile Net	Allows connection to the 504-HD via 2G/3G cellular networks.
	Wi-Fi Net	Select this value when the 504-HD is going to use the internal Wi-Fi module for communications.

MESSAGE SERVER

OPTIONS	Domain Name	If a fully qualified domain name is available, this option can be utilized. Enter the FQDN in the text entry box below this option.
	Static IP	If a dedicated IP address can be assigned this option can be selected. If this option is selected enter the IP address of the server in the text box below. The IP address must use all digits contained within the octet. For example, if the server has an IP address of 10.5.0.100 the digits entered into the IP address text box would be in the following format: 010.005.000.100



PORT This should be left at its default value.

MEDIA SERVER

OPTIONS Domain Name If a fully qualified domain name is available, this option can be utilized. Enter the FQDN in the text entry box below this option.

Static IP If a dedicated IP address can be assigned this option can be selected. If this option is selected enter the IP address of the server in the text box below. The IP address must use all digits contained within the octet. For example, if the server has an IP address of 10.5.0.100 the digits entered into the IP address text box would be in the following format: 010.005.000.100

PORT This should be left at its default value.

The IP address' shown are for example only. Please consult with your I.T. department for all required information relating to IP; DNS Server, etc.

CENTER SERVER 2

OPTIONS Cable Net Select this option when a CAT5/6 cable is directly connected from a PC/Server to the 504-HD, or, when using an external Wi-Fi radio.

Mobile Net Allows connection to the 504-HD via 2G/3G cellular networks.

Wi-Fi Net Select this value when the 504-HD is going to use the internal Wi-Fi module for communications.

MESSAGE SERVER

OPTIONS Domain Name If a fully qualified domain name is available, this option can be utilized. Enter the FQDN in the text entry box below this option.

Static IP If a dedicated IP address can be assigned this option can be selected. If this option is selected enter the IP address of the server in the text box below. The IP address must use all digits contained within the octet. For example, if the server has an IP address of 10.5.0.100 the digits entered into the IP address text box would be in the following format: 010.005.000.100

PORT This should be left at its default value.

MEDIA SERVER

OPTIONS Domain Name If a fully qualified domain name is available, this option can be utilized. Enter the FQDN in the text entry box below this option.

Static IP If a dedicated IP address can be assigned this option can be selected. If this option is selected enter the IP address of the server in the text box below. The IP address must use all digits contained within the octet. For example, if the server has an IP address of 10.5.0.100 the digits entered into the IP address text box would be in the following format: 010.005.000.100

PORT This should be left at its default value.



WIFI

Wi-Fi can be configured for use of an internal Wi-Fi card, if installed, or for when an external Wi-Fi radio is being utilized. If an external Wi-Fi radio is being used Wi-Fi ENABLE must be set to OFF.

If an internal wireless module is being utilized, please consult with your Information Technology department for all relevant IP; DNS; Gateway and subnet information.

If Wi-Fi is enabled, I.E. using an internal Wi-Fi card, there are two options once enable has been selected:

Client: Sets the 504-HD as a client on the network. Once selected GET IP Type will become available with two options; Static IP and Dynamic IP. If Static is chosen complete the required fields for IP; SUB; and Gateway.

AP: When AP is selected only the IP and SUB fields require population with the required information.

ESSID: ESSID only becomes active once the PASSWORD ENABLE option has been chosen. Enter the required ESSID, network name, for the wireless network.

Figure 14: Wi-Fi Settings.

PASSWORD ENABLE

Options: WEP
WPA

MOBILE NETWORK.

Please note: This function is currently reserved for future development.

If a mobile network is to be configured, the 504-HD will require the installation of a SIM card, this must be done at time of purchase of the 504-HD from Gatekeeper Systems as disassembly of the 504-HD in the field will void the warranty.

Module Type Options NONE; CDMA; EVDO; WCDMA; EDGE; TD-SCDMA
If EVDO is chosen, a secondary dialog window will appear with options for 2G3G / 2G / 3G.

Default: None

Active Mode Options Always; Call/SMS; Sensor. If Call/SMS is selected a secondary dialog window will appear where up-to three phone numbers can be entered.

Dial Parameter	Wireless module	User Name	Password	APN	Access Number
	CDMA	Card	Card		#777
	EVDO	Card	Card		#777
	WCDMA			Check with SIM card manufacturer	*99#
	GPRS			Check with SIM card manufacturer	*99***1#
	EDGE			Check with SIM card manufacturer	*99***1#

Intercom Settings Reserved for future development.

FTP SETTINGS

Not Supported

ROUTE

Not Supported



EVENT.

SENSOR

Sensor setup consists of two pages of options which are user definable. S1; S2 and S3 are pre-defined and factory defaults are set for BRK (Brakes); WRN (Warning Lights) and STPARM (Stop Arm). S7 and S8 are currently unassigned and reserved for future development.

The OSD setting is limited to two characters. It is recommended that SET remain at its factory defaults of HIGH.

SENSOR						
NO.	EN	NAME	OSD	SET	ALARM	LOCK
S1	OFF	BRAKE	BRK	LOW	OFF	OFF
S2	OFF	WRN LT	WRN	LOW	OFF	OFF
S3	OFF	STOP ARM	STP	LOW	OFF	OFF

Alarm determines if the Alarm LED will flash when the Sensor is activated.

LOCK sets if the recorded video file created by the sensor will be protected from being over-written.

On the second page of Sensor Configuration the actions which will occur when a Sensor Trigger has been activated can be set.

In the example on the right, when SENSOR 1 is activated Channel 3 will be recorded and displayed full screen on playback.

FULL SCREEN options can be set for CH1 through CH4, CH1; CH2; CH3; CH4 or NONE.

SENSOR TRIGGER ACTION		
NO.	FULL SCREEN	3G ACT.
S1	CH3	OFF
S2	NONE	OFF
S3	NONE	OFF

Figure 15: Sensor Settings/Actions.

ALARM OUTPUT

THIS FEATURE IS CURRENTLY NOT SUPPORTED.



SPEED

There are numerous options available for setting within the Speed option. Some of these options are only available after other selections have been made. **Please Note:** An approved GPS antenna is required for the 504-HD to receive satellite signals for speed.

Once the SPEED menu has been accessed, Speed Source can be selected as either Vehicle or GPS. If Vehicle is selected please consult the documentation which came with your vehicle to see how to set up this connection.

If an approved GPS module has been fitted select GPS as the Speed Source.

Speed Unit can be set to either MPH or KPH, select the correct Speed Unit for your location.

To enable Speed check select the Enable menu and set to ON.

Next for either LOWSPEED or OVERSPEED set the THRESHOLD value. Use the Numeric keypad on the remote control to set the required values.

To have an Alarm be registered when the THRESHOLD value has been reached or exceeded, set the ALARM option to ON.

Once all selections have been made, highlight the OK button and press ENTER on the remote control.

NAME	OSD	ENABLE	THRESHOLD	ALARM	LOCK
LOW SPEED	SPDL	OFF	010	OFF	OFF
OVERSPEED	SPDO	OFF	100	OFF	OFF

Figure 16: Speed.

ACCELERATION.

If the 504-HD has been fitted with an internal Inertia, G, Sensor this can be setup with independent values for X, Y and Z axis, these can be set to the requirements of the individual customer.

The Inertia sensor can be tested by accessing the ACCELERATION Button, System → Sensor → Acceleration. Once the 504-HD has been installed click on the Calibrate button (B).

After the Inertia sensor has been Setup ensure it is enabled by selecting ON from the Drop down menu (A). Once selected press the SAVE button.

NAME	OSD	ENABLE	THRESHOLD	ALARM	LOCK
OVERSHOCK SHK	A	OFF	X: 5.5 G Y: 5.5 G Z: 5.5 G	OFF	OFF

X: (+)00.000 Y: (+)00.000 Z: (+)00.000

CALIBRATE B

Figure 17: Acceleration.



TEMPERATURE.

If Temperature is enabled in the configuration of the 504-HD and the ALARM setting has been set to ON, the output can be viewed as part of the Device Status within G4 viewer, or, by selecting Event Files within the Recorded Video menu option.

TEMPERATURE

● TEMPERATURE UNIT:

● ENVIRONMENT TEMP. ALARM SETTINGS:

NAME	OSD	EN	THRESHOLD	ALARM	LOCK
HIGH TEMP.	HT	<input type="text" value="ON"/>	+85	<input type="text" value="OFF"/>	<input type="text" value="OFF"/>
LOW TEMP.	LT	<input type="text" value="ON"/>	-40	<input type="text" value="ON"/>	<input type="text" value="OFF"/>

CAMERA

Motion Detection and Blind are not currently supported.

With Video Loss enabled, if there is a problem with the video feed from the camera the 504-HD will detect this. With VL Enabled and Alarm set to ON when there is Video Loss detected the OSD will display an Alarm warning.

CAMERA

● MOTION DETECTION SETTING:

CH ID	M.D.SENSITIVE	M.D.AREA	B.D.SENSITIVE
<input type="text" value="1"/>	<input type="text" value="3"/>	<input type="button" value="SETUP"/>	<input type="text" value="1"/>

● ALARM SETTING:

NAME	OSD	ENABLE	ALARM	LOCK
BLIND	BD	<input type="text" value="OFF"/>	<input type="text" value="OFF"/>	<input type="text" value="OFF"/>
MOTION	MD	<input type="text" value="OFF"/>	<input type="text" value="OFF"/>	<input type="text" value="OFF"/>
VIDEOLOSS	VL	<input type="text" value="ON"/>	<input type="text" value="ON"/>	

VOLTAGE

Low Voltage Protection is OFF by default. If Enabled Highs; Lows and Measurements in-between will be displayed as part of the Device Status within G4 viewer.

LOW VOLTAGE PROTECTION

ENABLE:

LOW VOLTAGE: V

VOLTAGE OF START: V

INTERVAL FOR CMS: MIN

SHUT DOWN DELAY: MIN

EMERGENCY EVENT.

Determines if the Driver Alert Button will activate an alarm when pressed by the driver of the vehicle.

If Alarm is set to ON a marker will appear as part of the OSD and video playback file.

LOCK sets if the video file produced will be overwritten when the COMRAD™ has reached its capacity.

EMERGENCY EVENT

● CONFIG. OF PANIC BUTTON:

NAME	ENABLE	ALARM	LOCK
	<input type="text" value="ON"/>	<input type="text" value="ON"/>	<input type="text" value="OFF"/>

Figure 18: Emergency Event.



PERIPHERAL

PTZ

RESERVED FOR FUTURE DEVELOPMENT.

EXT. COM

COM1 and COM2 are reserved for RS232 connections and are currently not supported.

COM3. This relates to 485-3 (Driver Alert Button) on CAB000323.

EXT. COM SETUP

MODE: STANDARD ▾

COM1: NONE ▾

COM2: NONE ▾

COM3: CONTROL PANEL ▾

COM4: NONE ▾ 485BUS: OFF ▾

SAVE EXIT

SMART BATTERY.

Smart battery is a new generation of UPS (Uninterruptable Power Supply) and can send status information to the 504-HD.

SMART BATTERY SETTINGS

CHANGE TO BATTERY VOLTAGE: 08.0 V

REMAIN TIME ALARM: 300 MIN

SAVE EXIT



SYSTEM INFORMATION.

There are Five sub-menu's listed under the System Information Menu. System; Dial Status; History; Modules; Battery Info.

SYSTEM

In the System sub menu the System Info dialog box will display relevant information in regards to the firmware version currently installed on the 504HD.

HDD/SD information will also be displayed and this will show the total size of the HDD and the amount of disk space remaining.

Once this information has been viewed highlight an select the OK button to return back to the menu.

SYSTEM INFO.			
● FIRMWARE VERSION: X5L-4-T100003			
MCU VERSION: S28-D-STM32-MCU-T301261			
● HDD/SD INFORMATION			
DEVICE NAME	CAPACITY (GB)	FREE SPACE (GB)	RECORD CAPACITY(HR)
HDD	160.0G	69.1G(43%)	24
MIRROR SD	NONE	NONE	NONE
OK			

Figure 19: System Info.

DIAL STATUS.

Within this informational window Mobile Network information will be displayed, such as; Module Status; Roaming Status; Dial Status; Data sent and received, etc.

HISTORY

The History informational page is divided into Three separate dialog windows.

History dialog box One display's the Highest Speed recorded by the vehicle and also the Total Mileage since the last time this value was cleared.

To Clear a value use the remote control to highlight the word Clear to the Right of the relevant section and then press Enter on the remote control.

HISTORY INFO	
● HIGHEST SPEED IN HISTORY:	CLEAR
62 MPH 2013:04:29 12:57:11	
● TOTAL MILEAGE:	CLEAR
756.33 MILE	
NEXT PAGE	EXIT

History dialog box Two display's the Highest Shock as registered by the vehicle and also the Lowest Voltage since the last time this value was cleared.

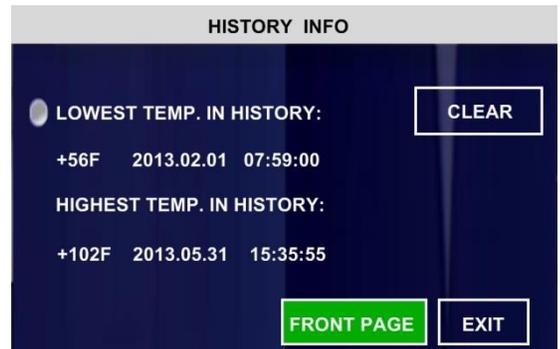
To Clear a value use the remote control to highlight the word Clear to the Right of the relevant section and then press Enter on the remote control.

HISTORY INFO	
● HIGHEST SHOCK IN HISTORY:	CLEAR
X:(-)00.833g 2013.04.12 12:59:16	
Y:(-)00.555g 2013.04.16 09:08:07	
Z:(-)02.571g 2013.05.14 16:19:00	
● LOWEST VOLTAGE IN HISTORY	CLEAR
0.80V 2013.05.01 10:36:10	
HIGHEST VOLTAGE IN HISTORY:	
12.0V 2013.05.01 11:36:11	
FRONT PAGE	NEXT PAGE EXIT



History dialog box Three display's the Highest and Lowest Temperature as registered by the vehicle since the last time this value was cleared.

To Clear a value use the remote control to highlight the word Clear to the Right of the relevant section and then press Enter on the remote control.



MODULES

Modules displays system status information in regards to additional hardware, I.E. GPS and WIFI Modules

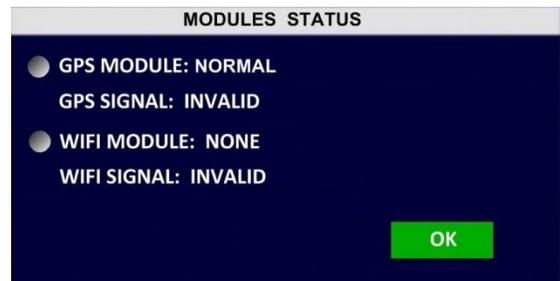


Figure 20: Modules.



Overview.

Gatekeeper Systems G4 Viewer offers un-paralleled video management with the added functionality of image blurring. Targeted areas of the recorded video can be selected and marked as Blurred, ensuring anonymity of bystanders. Clips can be saved locally, as AVI, or, exported with a stand-alone mini-player. Video can be viewed by File List or by Event List making finding an incident easier than ever before.

INSTALLATION.

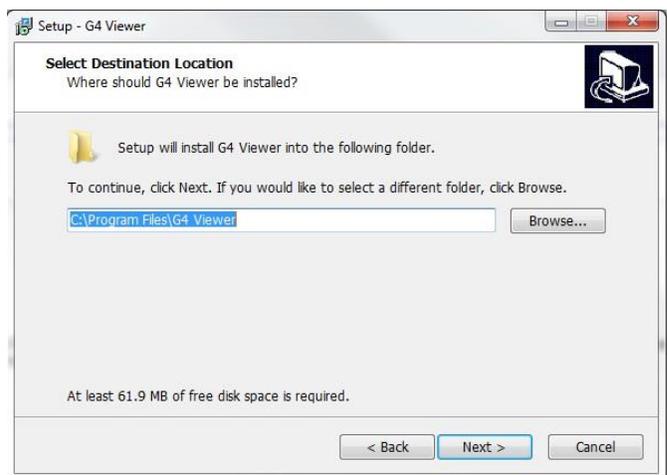
PLEASE NOTE: The installation of G4 Viewer must be completed under an account which has Administrator rights. For more information on this, please speak with your School District's Information Technology contact.

This section will describe how to install Gatekeeper Systems Inc. G4 Viewer. Please read before beginning the install.

To begin the installation of the G4 viewer from gatekeeper Systems Inc. double click on the G4_Viewer_XXXX.exe file (where XXXX = the version number). Set up will now begin.



Accept the default location for the program install. Click Next.





In the window which appears next make sure that “Don't create a Start Menu Folder” is not checked.

Click Next.

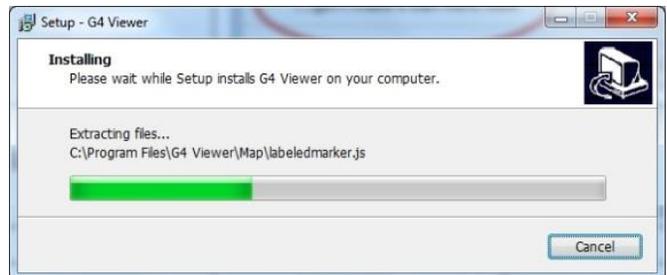


Select “Create a Desktop Icon” and click Next.

A window stating Ready To Install will appear, click on Install.



An Install Progress window will appear.



Once Setup has completed the Completing The G4 Viewer Setup Wizard will appear.

Ensure Launch G4 Viewer is selected and click on Finish.



G4 Icon will now be placed upon the desktop.





Using G4 Viewer.

Opening Screen.

When G4 Viewer is first launched, the opening screen will display these four initial icons.

1. File List. Allows the video files to be selected in chronological order.
2. Event List. Display available events for playback. Events displayed are Time / Type / Name, e.g. BK; WN / Information, e.g. Sensor 1; Sensor 2.
3. Log. Displays Logged information. [Reserved for future development].
4. Search. See Figure 22 for more information.



Figure 21: Opening Screen Icons.

When search is selected Click on the Search button just below the Search Icon (#4 in Figure 21). This will launch the Filter Settings dialog window.

1. Enter the required Start and End time of the Search.
2. Select the required items to be included in the Search.
3. Once criteria has been set click on the Search button.



Figure 22: Search Filter.



The Search will now begin and results will be displayed in the results window.

In this example Sensor2 had 3 Events during the specified time period, denoted by (3). Click on the Plus sign to the left of the Result and the window will expand showing information regarding what happened at that time. If you now double click on an entry, e.g. 08:20:37 22-11-2012 the video in the playback window will jump to that specified portion of the video file.





G4 Calendar Interface.

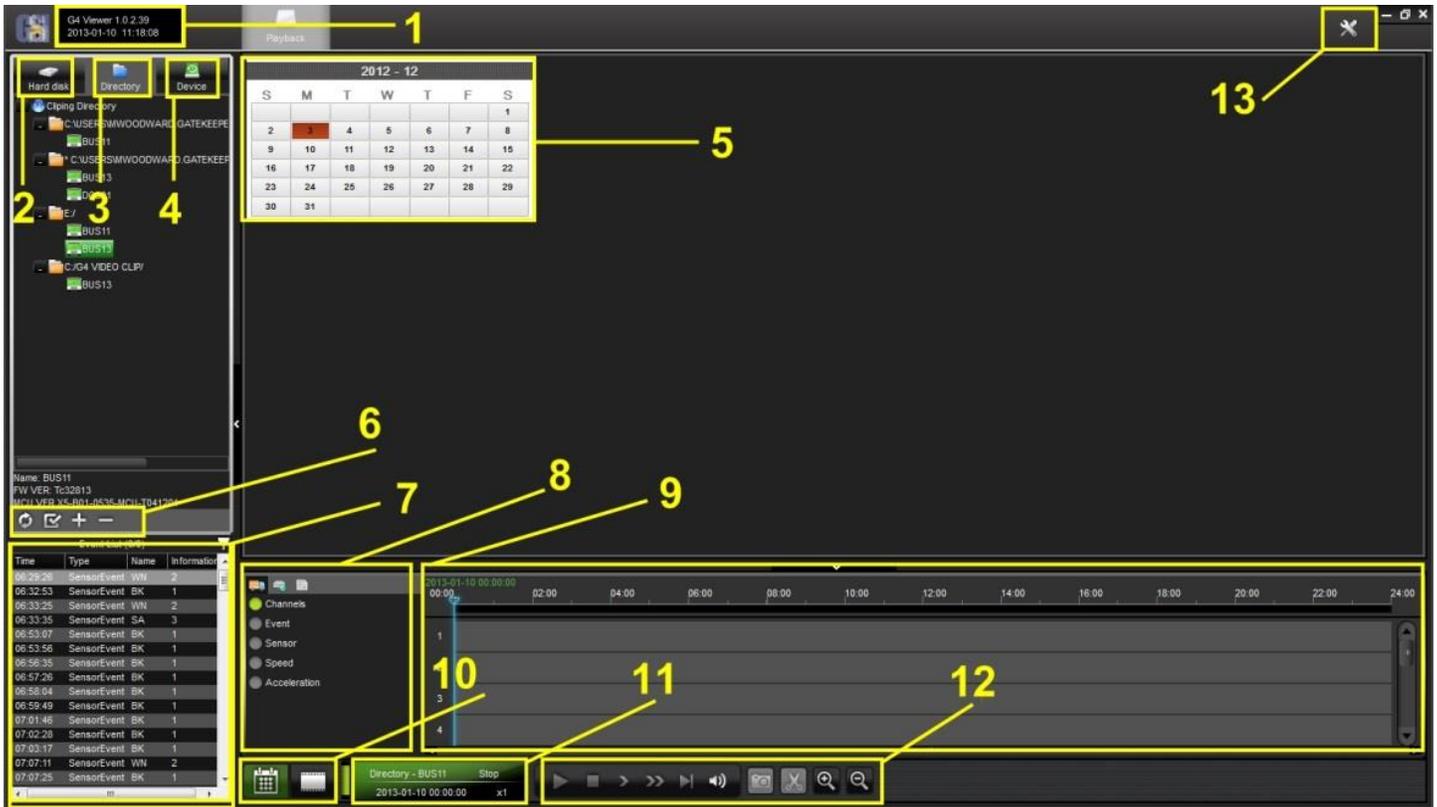


Figure 23: G4 Calendar Interface.

- 1 Displays the current version of G4 Viewer and the Current System Date and Time.
- 2 HDD: Becomes active when an HDD from a 504-HD is detected in the system. Once a HDD has been inserted, click on the "refresh icon" . (Item 6)
- Please Note:** When using a HDD from a 504-HD in a Microsoft Windows based system, you will be prompted to format the HDD, Click CANCEL. If you choose to format the HDD ALL VIDEO will be deleted from the HDD.
- 3 Directory: Storage area for video clips. Location will automatically populate once a clip has been made (see item 6).
- 4 Device: Used in conjunction with Gatekeeper Systems Wireless solution.
- 5 Calendar: Displays the date(s) for which recorded video is available. GREEN Fill is for all video. RED Fill is for video activated by alarm.
- 6 Displays options depending upon which view is currently Active, HDD; Directory or Device.
- 7 Event List: Video clip information panel.
- 8 Vehicle Status Panel: View information on Channels; Event; Sensor; Speed and Acceleration.
- 9 Time Bar.
- 10 Calendar/Playback Interface selector. If Playback is selected the main display window will display video channels, and if the 504-HD is GPS capable, a Map displaying the route of the vehicle.
- 11 File Playback Information.
- 12 Playback / Clip Controls.
- 13 System Settings.

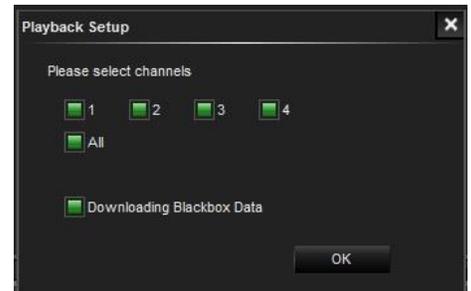


HDD

When viewing recorded video from a 504-HD using the HDD, Hard Disk will display the vehicle name. Double click on the listed vehicle and all available video on the HDD will be displayed in the Calendar. Double click on one of the highlighted days and the Playback Setup dialog window will appear.



If the 504-HD is GPS enabled, select Download Blackbox Data as this contains the GPS data. Select the required number of channels for playback and click OK. Video will begin playback at the earliest available video file.



Directory.

The Directory contains all of the previously Clipped video. Once a clip has been made the Directory automatically updates to reflect the new clip name and location if the clip is from a new vehicle.

If the clip is from a vehicle which has an existing entry in the directory, when the vehicle name is double clicked the Calendar view will display all available clips for that vehicle. If all video clips are going to be stored in the same folder location, a Default Directory location can be set. This eliminates the need to navigate to a folder when doing multiple clips.



To set a default directory Highlight the required Directory and then click the "Set it as the Default Directory" Icon.

A confirmation dialog box will appear.

If this information is correct click the OK button.



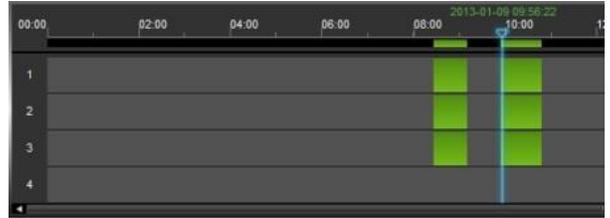
Device.

Device lists all the 504-HD's which have been configured to utilize Gatekeeper Systems Inc. MeteorMax Wireless System. This setup and configuration is covered in more depth in a separate document.



Time Bar.

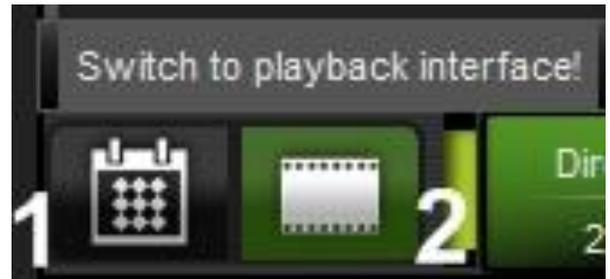
The Time Bar [item 9 in Figure 23] displays the current day's video files in chronological order. If there is a break in the time line this denotes that there is no video available for playback during that time frame. In the example on the right, there are only two video files for the vehicle's morning run, these are shown as GREEN in the Time Bar. If the 504-HD has been set up for recording Alarms, the video files available will be displayed as RED.



Calendar or Playback Interface.

Calendar/Playback Interface selector [item 10 in Figure 23] is used to select either 1 Search Interface, or, 2 Switch to Playback Interface.

If Search Interface is selected the Video Playback window will close and be replaced with a Calendar with dates with video files available highlighted.



Playback Details.

Playback Details displays information about the currently playing Video file. The Directory from where the video file has been loaded is located top left of Playback Details. Top right shows current state of the Video file and will display Play if the video is actively being played. PAUSE if the video has been paused and STOP if the video file has been stopped. If the video has been stopped the Playback indicator will automatically revert back to the start of the earliest video file. The DATE of the video file will be displayed as well as the current location of the Playback Indicator. Bottom right shows the current playback speed of the video file. See Figure 24 for playback controls.



Playback Controls.

The Playback Controls are very similar to those found on many DVD, Blu-Ray, and other video playback devices.



Figure 24: Playback Controls.

1. Play Button, Changes to Pause during Playback.
2. Stop Button.
3. Slow Forward. 1/2, 1/4, 1/8th and 1/16th speed available. Also used to Slow down playback after Fast Forward has been selected.
4. Fast Forward. X2, X4, X8 and X16 speeds available. Also used to speed playback back to normal speed after Slow Forward has been selected.
5. Next Frame. Advances the currently playing video by a single frame.
6. Sound. Controls volume level. Mute is also available.
7. Snapshot. Saves a single BMP image file to the designated folder option 13, Figure 23 . Once a snap shot has been selected a confirmation window will appear. Select an option from that window for the snapshot.
8. Clip. Creates a Clip or a File for Exporting. See the section Creating a Clip later in this guide.
9. Zoom In. Zooms in on the playback marker in the Time Bar.
10. Zoom Out. Zooms Out on the playback marker in the Time Bar.



System Settings.

Under System Settings the default directory for Snapshots can be set.

1. Allows a password to be set. Please note if this password is forgotten, future changes cannot be made without uninstalling G4 viewer and cleaning the registry.
2. The location of the default directory. Use the Ellipse button ... to navigate to the desired folder.
3. Unit Setup. Choose between MPH; KPH and C; F.

Once settings have been made/changed there will be a need to restart G4 Viewer.

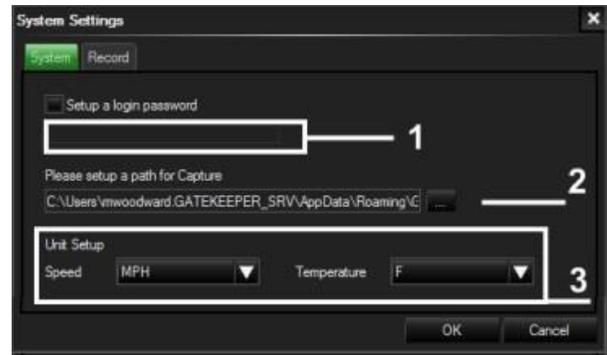


Figure 25: System Settings.

Saving a Clip.

Using G4 viewer a selection of video can be saved as a clip or exported as a standalone .exe file which includes a mini-player.

1. Once the Play indicator is at the required time for the clip, click on the Scissors icon in the Playback Controls panel.



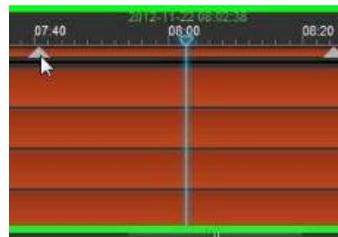
2. Click on the Zoom in Time Bar icon until a suitable time frame appears.





3. Select the Start Point and Click and Drag it to the required Start point before the required clip.

Next select the End Point and Click and Drag this to the end of the required clip.



Start Point



End Point

4. Once the desired length of clip has been set, Click on the ✓ to the right of the Time Bar. This will confirm the clip length.



5. Once the ✓ has been selected a confirmation window will appear showing: The clip Length (1); Required Video Channels (2); Video Clip Directory (3). Ensure that this information is correct.

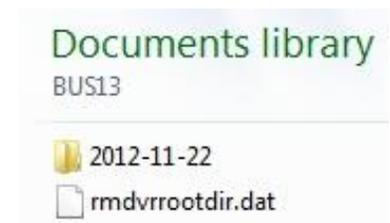
Make sure that CLIP (4) is highlighted and click OK. This will begin the Save process.



6. Once the clip has been saved a dialog window will appear. Click OK.



7. If you navigate to the folder setup in G4 System Settings, you will see a folder with the date of the clip as its title, in this example 2012-11-22: November 22nd 2012.





Exporting a Clip.

When a clip is exported a standalone .exe file is created. This allows the clip to be distributed without the need to install G4 Viewer.

To Export a clip follow Steps 1, 2, 3, 4 in "Saving a Clip". In place of Clip in Step 5 of "Saving a Clip" select Export, the dialog window will change displaying additional information about the final exported file.

Click OK to begin the Export process. A Progress dialog window will appear.

Once completed a "Compressing, Please Wait" window will appear. This may show for several minutes depending upon the length of the exported file.

Once this has completed the dialog window will change stating "Clip Finished", when OK is clicked the default Folder will be automatically opened and the Exported .exe file, BUS13_20121122_135941_140912 in this example, will be available for play. The Exported file has the Vehicle Name; Date; Start Time and End Time of the exported clip.



Vehicle #	DATE	START TIME	END TIME	
BUS13	20121122	13:59:41	14:09:12	

Name	Da
BUS13	1/1
BUS13_20121122_135941_140912.exe	1/1
indivrootdir.dat	1/1

Figure 26: Export File Definitions.

Export to an AVI File.

To Export a clip follow Steps 1, 2, 3, 4 in "Saving a Clip". In place of Clip in Step 5 of "Saving a Clip" select AVI.

Click OK to begin the AVI conversion process. A Progress dialog window will appear.

Once completed an "AVI Conversion" window will appear. Click OK.

The AVI file(s) will be saved in the default location as stated in System Settings.



Figure 27: AVI Conversion.



G4 Playback Interface.



Figure 28: G4 Playback Interface.

- 1 Displays the current version of G4 Viewer and the Current System Date and Time.
- 2 HDD: Becomes active when an COMRAD™ from a 504-HD is detected by the system.
Please Note: When using a COMRAD™ HDD from a 504-HD in a Microsoft Windows based system, you will be prompted to format the COMRAD™, Click CANCEL. If you choose to format the COMRAD™ ALL VIDEO will be deleted from the COMRAD™.
- 3 Directory: Storage area for video clips. Location will automatically populate once a clip has been made.
- 4 Device: Used in conjunction with Gatekeeper Systems Wireless solution.
- 5 Video playback window. Double click on channel to make it full screen, double click a second time to go back to quad-view.
- 6 Displays options depending upon which view is currently Active, HDD; Directory or Device.
- 7 Event List: Video clip information panel.
- 8 Vehicle Status Panel: View information on Channels; Event; Sensor; Speed and Acceleration.
- 9 Time Bar.
- 10 Calendar/Playback Interface selector. If Playback is selected the main display window will display video channels, and if the 504-HD is GPS capable, a Map displaying the route of the vehicle.
- 11 File Playback Information.
- 12 Playback / Clip Controls.
- 13 System Settings.
- 14 GPS Mapping System. (Download Black Box Data must be selected when opening a video file for GPS information to be displayed.



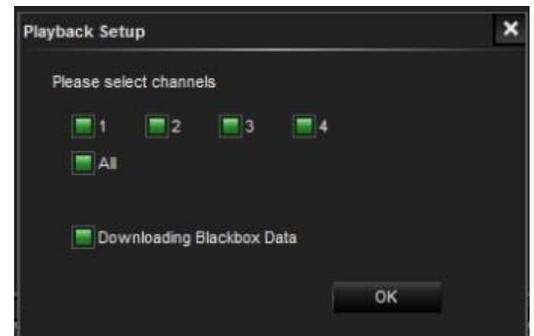
Playing Back a Video File.

To playback a video file, open G4 in Calendar View and from the HDD or Directory listing double-click on an available vehicle ID. This will bring up all dates for that vehicle for which there are available video's.



Double-click on the Date and a dialog window will appear. Ensure that All channels are selected and that Downloading Blackbox Data is also selected, click OK. G4 Viewer will immediately begin playback of the earliest available video file.

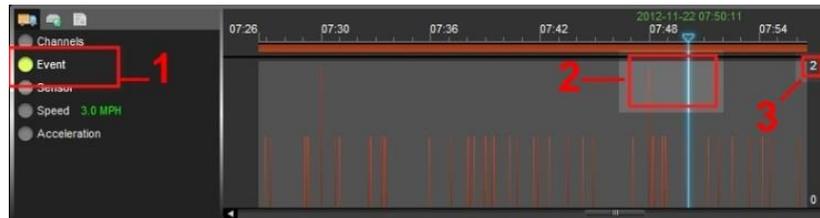
To select a different time of the video to playback, use the Zoom In tool on the Time Bar and then select the time frame you require. As the selection is made, the GPS map will also update to reflect the change in the vehicles position.



Event Playback.

With Viewer it is possible to view Events; Sensor or Speed Playback by viewing the Time Bar.

If Event playback (1) has been Selected, the Time Bar will display all Events captured during the vehicle route. If an individual Event is selected (2) the playback video will jump to that position and the Event list window will highlight the current Event selection. The Event number, as set up in the 504-HD configuration, will also be displayed, (3).



Sensor / Alarm Playback 1.

When a 504-HD has been set up to record Sensor / Alarm activations, these will show in G4 viewer.

Please Note: Downloading Black Box Data must be checked when video selection for playback is first made for Sensor / Alarm activations to show within G4 viewer. In Figure the SA, Stop Arm, event timed at 06:33:35 has been Double-Clicked (1) the Time Bar is immediately updated with the file for playback relating to this time (2).

Time	Type	Name	Information
06:29:26	SensorEvent	WN	2
06:32:53	SensorEvent	BK	1
06:33:35	SensorEvent	SA	3
06:33:57	SensorEvent	BK	1
06:53:56	SensorEvent	BK	1
06:56:35	SensorEvent	BK	1
06:57:26	SensorEvent	BK	1
06:58:04	SensorEvent	BK	1
06:59:49	SensorEvent	BK	1
07:01:46	SensorEvent	BK	1
07:02:28	SensorEvent	BK	1
07:03:17	SensorEvent	BK	1
07:07:11	SensorEvent	WN	2
07:07:25	SensorEvent	BK	1



Figure 29: Playback Sensor/Alarm Activations.



Sensor / Alarm Playback 2.

In playback Mode it is also possible to have the Time Bar just display Sensor markers rather than All Channels.

If Sensor is selected the Time Bar will display Markers for when a Sensor was activated. Use the Zoom in tool to expand the Time Bar making it easier to select an individual Sensor Marker. When this marker is clicked the Time Bar is immediately updated with the file for playback relating to this Sensor Marker.



Vehicle Speed Playback.

If Speed is selected from the vehicle status panel the Time Bar will show the Lowest and Highest speed of the vehicle during the trip. In the example in Figure 30 the highest speed was 43.0MPH as shown on the right hand side. The current speed of the vehicle in the video playback window is shown as 36.0 MPH in a box just below the Highest speed recorded. The Current speed of the vehicle in the playback window will fluctuate with this box moving up and down the column matching the peaks and troughs of the Green indicators in the Time Bar.



Figure 30: Speed Playback.

Blurring an Image.

G4 Viewer has a Blur feature allowing individual elements in a video file to be effectively “screened-out” of the playback.

To Blur an area of the playback video first pause the video playback and then give a single camera the focus in the playback window.

Next click on the Blur button located at the top right-hand corner of the playback window, arrowed in the image to the right.

This will bring up the Mosaic Setting Window.



Figure 31: Blurring an Image.



The Mosaic Setting window is divided into a 20 X 20 grid.

Using the cursor click and drag to "Screen-Off" any areas you do not want to be visible in the final playback video.

Once you have defined the areas click OK to save the options.



Figure 32: Defining a Blur.

If the playback button is now clicked the playback video will display a blurred image where the blur definition was defined.

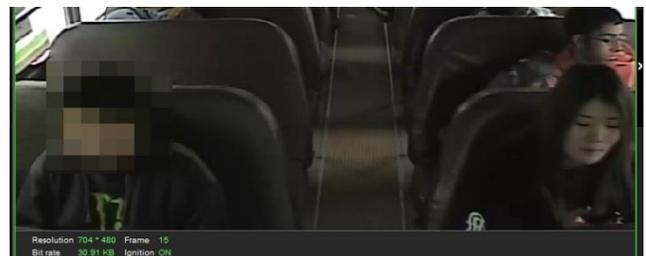


Figure 33: Playback Blur.



APPENDIX

The battery should be disconnected from the vehicle before working on the electrical system of the vehicle when installing, servicing or removing Gatekeeper products.

All Gatekeeper employees or contractors who perform electrical work (install, service or remove a DVR, installing a backup camera system for example) on a customer vehicle shall ensure that the battery in the vehicle is disconnected before work commences.

Customers shall be responsible for addressing any systems on the bus which require attention as a result of disconnecting the bus battery. This includes, but is not limited to, entering a radio theft code, programming radio stations etc.

Camera Mounting and Connections.

- Camera mounting locations are to be determined by the district.
- Cameras should be mounted to the ceiling whenever possible. Install the rubber pad provided with each camera and cut a small notch in the rubber pad to accommodate the camera cable. The audio hole on the front of the camera can be used as an aiming guide for the direction the camera needs to be facing.
- All camera harnesses must be carefully routed to the 504-HD unit to avoid pinching or piercing the shielded camera cable.
- All cables running through holes in sheet metal (ceiling, bulkhead etc.) must be protected with grommets.
- Ensure included gasket is in place between dome base plate and mounting surface.

When installing multiple cameras, mark camera harness wires so the school district knows which camera is front and back by looking at the marked Molex output connectors,

Camera Installation.

Routing the Camera Harness(es) (GSWHC2N-XX).

- Always use grommets when running the harness through sheet metal holes.
- Avoid excessively tight bends especially around metal surfaces..
- Coil and tie off excess harness in a safe place.

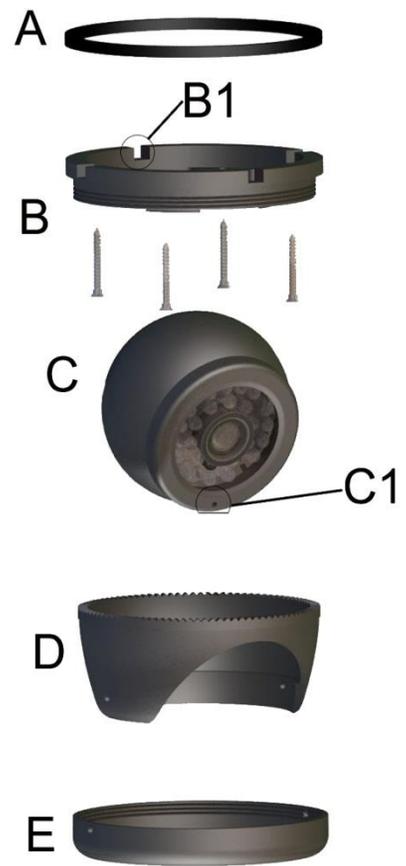
DO NOT disassemble the Camera Ball unless directed to, and under the direction of, a Gatekeeper Systems support technician





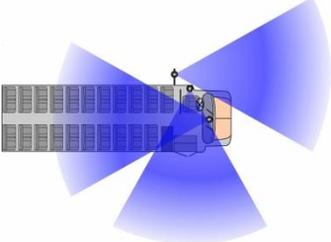
A. Rubber Gasket. B. Base Plate. C. Camera Ball.
D. Camera Collar. E. Retainer Ring

1. Disassemble the camera into its five major parts, A, B, C, D, E and carefully place all parts in a clean work area.
2. Position the Base Plate (B), in the mounting location. Ensure that there are no gaps between the Base Plate (B) and the mounting surface. If there are gaps, relocate the camera to a position where there are no gaps.
3. Note the location where the camera harness will come through the bodywork of the vehicle. Drill a $\frac{3}{4}$ " hole in this location. This $\frac{3}{4}$ " hole MUST be directly in the center of the Base Plate (B) to allow for the terminal end of the camera harness to correctly connect to the Camera Ball (C). When access behind the camera is not possible, the cable can be routed from the side through one of the cut out notches B1 in the camera base. The supplied grommets must be used as part of this procedure.
4. Center the camera over the $\frac{3}{4}$ " hole and mark the location of the 4 screws used to secure the camera base to the vehicle. Ensure that one of the camera cut out notches, B1, is aimed at the viewing target. Use the supplied TEK, self-tapping, screws to fix the camera base to the vehicle.
5. Connect the Camera Ball Molex connector to the connector at the end of the camera harness. Hold the Camera Ball firmly against the Base Plate with the Microphone, C1, pointing downwards. Position Camera Collar (D) over Camera Ball (C) with the lens window centered in the arched cut away in the Camera Collar.
6. Hold Camera Collar (D) securely while threading on the Retainer Ring (E) until finger tight. Be careful not to cross-thread the components.
7. To aim the Camera Ball (C), video from the camera can be viewed by connecting a portable LCD/Monitor with an RCA connection to the front of the 504-HD, or, by use of the ICD accessory available from Gatekeeper Systems.
8. Re-position Camera Collar (D) prior to tightening down the Retainer Ring (E) so that it does not interfere with line of sight of the camera and IR LED's in the Camera Ball (C). Ensure the Camera Ball and Harness pigtail are not pinched or trapped between the Camera Ball (C) or the Base Plate (B), it must be able to move freely.
9. Tighten all accessible set screws on the Retainer Ring (E) and Camera Collar (D). In some installations several of the set screws will not be accessible due to close proximity of the camera to the vehicles bodywork. In this situation tighten down the set screws that are accessible.





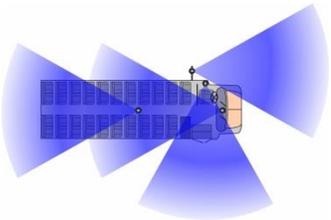
Suggested Camera Locations.



Three Camera Configuration

Check For:

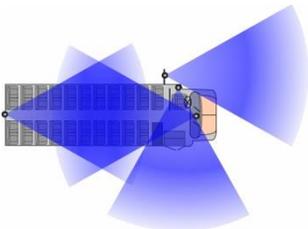
- Ceiling mount recommended.
- Do not obstruct walkways.
- Avoid contact with abrasive metal to prevent short circuits.



Wire Routing:

- Camera harness to be connected through opening in base.
- Use existing wire paths wherever possible, radio, speakers, etc.
- Avoid excessively tight bends especially around metal surfaces.
- Always use grommets when routing through sheet metal holes.
- Coil and tie off excess harness or tuck up into ceiling.

Four Camera Configuration



Alternate Four Camera Configuration.



Video Alignment Cable: CAB000157

The following information explains the correct use of the Video Alignment Cable CAB000157. With this cable an installer can temporarily view video on a monitor while they are physically close to the camera in order to facilitate the aiming of the camera. The Video Alignment Cable CAB000157 must be removed after the camera aiming is completed.



A: Portable LCD or DVD

B: 504-HD

C: 4 Pin Female connector on CAB000157 connects to 4 Pin Male connector on Camera Harness (D)

D: GSWHC2N-XX Camera Harness, 15'; 30' or 60' lengths.

E: 4 Pin Connector on CAB000157 Connects to CAB000310 input on rear of 504-HD

F: 4 Pin Male Connector connects to 4 Pin Female Connector on Camera Harness (D)

H: Yellow RCA Video Output to Video Input on Portable LCD or DVD Player.

I: Red RCA Audio Output to Audio Input on Portable LCD or DVD Player.

Figure 34: Video Alignment Cable.



An installed, fully functional, powered up 504-HD is required when using CAB000157 Video Alignment Cable.

If you look at the Video Alignment Cable you will see that there are three cables coming from one end of the Video Alignment Cable and a single cable coming from the other end.

3 Cables.

Yellow (H) Video RCA for connection to the LCD or DVD players Video Input connection. This is the connection which will display the image being captured by the camera which is currently being aligned.

Red (I) Audio RCA not used for video alignment.

A four pin male connector which connects CAB000310, video input, on the rear of the 504-HD

Single Cable.

The single cable coming from the other end of the Video Alignment Cable is a 4 pin female connector which connects to the harness of an installed camera.

Once these connections are made, alignment of the camera can be completed.

504-HD Quick Install Guide.

- The 504-HD must be secured to an interior surface of the vehicle with the Tek Screws provided.
- Do Not orient the 504-HD such that the front of the COMRAD™ faces the floor of the vehicle.
- Wire the 504-HD into the vehicle as per the table below.
- Do No disassemble the 504-HD. There are no user serviceable parts inside. Warranty will be voided.

CAB000323		
Sensor Wire and Color	Sensor	OSD Name
SENSOR_IN1(RED)	Brake	BK
SENSOR_IN2(RED)	Warning Lights	WN
SENSOR_IN3(RED)	Stop Arm	SA
SENSOR_IN4(RED)	Door	DR
SENSOR_IN5(RED)	Left Turn	LT
SENSOR_IN6(RED)	Right Turn	RT
SENSOR_IN7(RED)	Not Assigned	BLANK
SENSOR_IN8(RED)	Not Assigned	BLANK

Quick Configuration Guide.

The 504-HD firmware must be configured before using the DVR. Connect a monitor to the Video Out port on the front of the 504-HD. Press the Setup key on the IR Remote Control. Enter the following login information when prompted:

User ID: 0
 Password: 88888888

Move the cursor to the System Settings icon and press Enter.
 There are Eight Configuration Options which typically require setting. Configure as per customer requirements.

Parameter	Default	Parameter	Default
Vehicle Number	Blank	Shutdown Delay	5 Minutes
Camera Name	Blank	Date/Time	12HR PST (-8)
OSD (On Screen Display)	See DVR	Speed	Synch from GPS
Reboot DVR	Restarts the DVR	Format Card	Formats the COMRAD™ (HDD).

After setting the configuration, format the COMRAD™.



Start the vehicle and wait for the 504-HD to boot up, approximately one minute. Confirm live camera video is visible on small monitor (small Red R in each camera image – indicates the DVR is recording). Confirm DVR is recording by observing the LED's as per the following table:

LED	Color	Status
HDD	BLUE	ON
SD (If fitted)	GREEN	ON
ERR (Hardware Error)	RED	Off
GPS (An Antenna Must Be Connected)	GREEN	Slow Flash
LAN (If Network Is Configured)	GREEN	On
PWR (Power)	BLUE	ON
REC (Recording)	GREEN	ON
VLOSS (Video Loss)	RED	Off
ALM (Alarm)	RED	Off
HTR	ORANGE	Fast Flash

To access the COMRAD™, turn the provided key to the unlock position. Untighten the retaining screws and remove the COMRAD™. Ensure that the 504-HD has fully powered down before removing the COMRAD™ or video corruption and/or total video loss may occur.



Warranty.



Customer Limited Warranty

GATEKEEPER SYSTEMS INC. (Company) warrants that any product manufactured or supplied by Gatekeeper Systems and found in the reasonable judgment of Gatekeeper Systems to be defective in material or workmanship will be repaired or replaced by Gatekeeper Systems without charge for parts and labor.

This warranty shall cover the following periods and equipment:

Camcorder System

Cameras - 1 year Battery Adapters - 1 year
Plates & Enclosure Boxes - lifetime

Gatekeeper System

Interior Cameras - 5 years
Exterior Cameras - 1 year
VCR - 1 year
GSX-900 / 1000 Digital Recorder - 1 year
NITRO™-900 / 1000 Digital Recorder - 5 years (hard drives limited to 3 years)
NITRO™ 401 and NITRO™ 404 Digital Recorder - 3 years
NITRO-X 401 and NITRO-X 404 Digital Recorder - 3 years
304SD Digital Recorder - 3 years
Kingston SDHC Memory Card - Lifetime
Lexar SDXC Memory Card - 10 Years
Gatekeeper SD Cards - 5 years
All Accessories and Other Products Not Identified above - 1 year

The warranty periods commence on the date of shipment. During the period of the warranty the Company, at its discretion will repair and/or replace all improperly functioning equipment caused by a manufacturer's defect. This warranty does not protect against accidental or intentional damage, vehicle electrical systems generating steady state or transients, voltages or currents exceeding product specification, loss, acts of nature, water damage, or any other event that did not originate during the manufacturer of the product. DVR's must be returned once every twelve months for service otherwise warranty may be void.

The Gatekeeper Systems product including any defective part must be returned to Gatekeeper Systems within the warranty period. The expense of delivering Company product to Gatekeeper Systems for warranty work will be paid by the customer. The expense of delivering Company product back to the customer will be paid by Gatekeeper Systems. Gatekeeper Systems' responsibility in respect to claims is limited to making the required repairs or replacements and no claim of breach of warranty shall be cause for cancellation or rescission of the contract of sale. Proof of purchase complete with the serial numbers of the products purchased will be required by the customer to substantiate any warranty claim. All warranty work must be performed by an authorized Gatekeeper Systems service representative.

This warranty does not cover any Gatekeeper Systems' product that has been subject to misuse, neglect, negligence, or accident, or that has been operated in any way contrary to the operating instructions as specified by Gatekeeper Systems either verbally, in writing, by instructions written on the product or in the Gatekeeper Systems Installation and Operating Manual. This warranty does not apply to any damage to the Gatekeeper Systems product that is the result of improper maintenance or to any

Gatekeeper Systems' product that has been altered or modified so as to adversely affect the products' operation, performance or durability or that has been altered or modified so as to change its intended use. Gatekeeper Systems' is not responsible for lost or missing video.

The warranty does not extend to repairs made necessary by normal wear or by the use of parts or accessories which are either incompatible with the Company product or adversely affect its operation, performance or durability.

Gatekeeper Systems reserves the right to change or improve the design of any Company product without assuming any obligation to modify any product previously manufactured.

ALL IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE SPECIFIED PERIOD FOR EACH PRODUCT CATEGORY AS LISTED IN THIS DOCUMENT. ACCORDINGLY, ANY SUCH IMPLIED WARRANTIES INCLUDING MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE ARE DISCLAIMED IN THEIR ENTIRETY AFTER THE EXPIRATION OF THE APPROPRIATE WARRANTY PERIOD. GATEKEEPER SYSTEMS' OBLIGATION UNDER THIS WARRANTY IS STRICTLY AND EXCLUSIVELY LIMITED TO THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS, AND GATEKEEPER SYSTEMS DOES NOT ASSUME OR AUTHORIZE ANYONE TO ASSUME FOR THEM ANY OTHER OBLIGATION.

GATEKEEPER SYSTEMS ASSUMES NO RESPONSIBILITY FOR INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES INCLUDING, BUT NOT LIMITED TO THE EXPENSE OF RETURNING THE COMPANY PRODUCT TO GATEKEEPER SYSTEMS CORPORATE HEAD OFFICE, MECHANIC'S TRAVEL TIME, CUSTOMER LABOR EXPENSES, TELEPHONE OR TELEGRAM CHARGES, RENTAL OF LIKE PRODUCT DURING THE TIME WARRANTY SERVICE IS BEING PERFORMED, TRAVEL, LOSS OF USE OF THE PRODUCT, LOSS OF TIME OR INCONVENIENCE.

Warranty Service

To obtain warranty service, the purchaser must notify the Company during the warranty period. The Purchaser will discuss the defect or problem with a Company technician, and once the problem has been verified the Company will issue a return material authorization number (RMA) authorizing the purchaser to return faulty merchandise to the Company for repair or replacement as determined by the Company. It may be necessary for the customer to assist Gatekeeper Systems in assessing failed product. Gatekeeper Systems may require the customer to remove hardware, manipulate software and/or perform other diagnostic activities. Failure to assist in and allow remote diagnostic activities may result in a service fee being charged.

Advance replacements will be issued for the first 45 days from the date of shipment.

This Warranty applies to all Company products manufactured by Gatekeeper Systems and sold in the United States and Canada.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

USA RECEIVING FACILITY:

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