

GATEKEEPER



SYSTEMS INC.

Safety, Security, Peace of Mind™

Gatekeeper Systems
304-SD Solid State System.



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Introduction.

Congratulations on the purchase of the Gatekeeper Systems 304-SD DVR. This Solid State 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.

In place of a spinning hard drive the 304-SD records to a removable SD memory card. Utilizing state of the art surface mount components the 304-SD is built to withstand the shock and vibration of vehicle operation. In order to play back the recorded video the 304-SD utilizes custom video viewing software, the "G4 Viewer", 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 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.

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.
SD Card	Secure Digital Card is a non-volatile memory card format for use in mobile devices.
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.



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 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.

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

CAUTION

RISK OF ELECTRIC
SHOCK

Firmware updates (available from www.gatekeeper-systems.com when released) are system specific, firmware updates must only be applied to the 304-SD system. If this firmware is applied to any other Gatekeeper Systems DVR **warranty will be void.**

The 304-SD has an operating temperature range of -40° C to +65° C. It is good practice to ensure that the 304-SD is mounted in an area in which acceptable temperature ranges are experienced.

Do not remove the cover of the 304-SD 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.

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 Technical Bulletins and Product Tutorials can be found in the Gate section of www.gatekeeper-systems.com



Package Check List.

Ensure all system components are accounted for prior to installation. Contact Gatekeeper Systems, Inc. if any components are missing or if they appear defective.



304-SD Mobile Digital Video Recorder.



Sensor Cable: P/N: CAB000323



Power Cable: P/N: CAB000309

Power Line Fuse



Ignition Line Fuse



Fastening Screws



Key





Download Kits

Gatekeeper Systems offers additional Download Kits which enhance the usability of the 304SD. These download kits have been designed to assist in the management; configuration and maintenance of the 304SD.

SD Download Kit

Part Number = **G4SDDLK**

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 = **G4SDDLKA**

- G4SDDLK
- Plus a 7" battery powered monitor

SD Download Kit Plus B

Part Number = **G4SDDLKB**

- G4SDDLK
- Plus an ICD = Interactive control display and cable.



System Overview.

Front View

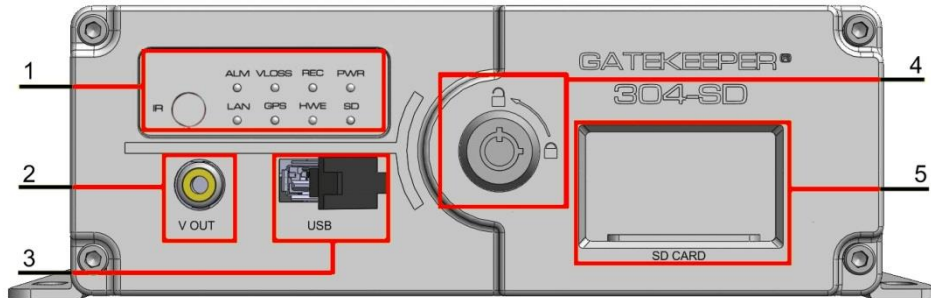


Figure 1: Front View

1. LED Status Indicators. (See Table 1)
2. V OUT. Connects to External Display
3. USB. Used for Saving/Uploading configurations and updating the system firmware.
4. Lock. Allows access to the SD Card Slot (5) and can start & stop recording of video.
5. SD Card. Houses the SD Card used for recording Video.

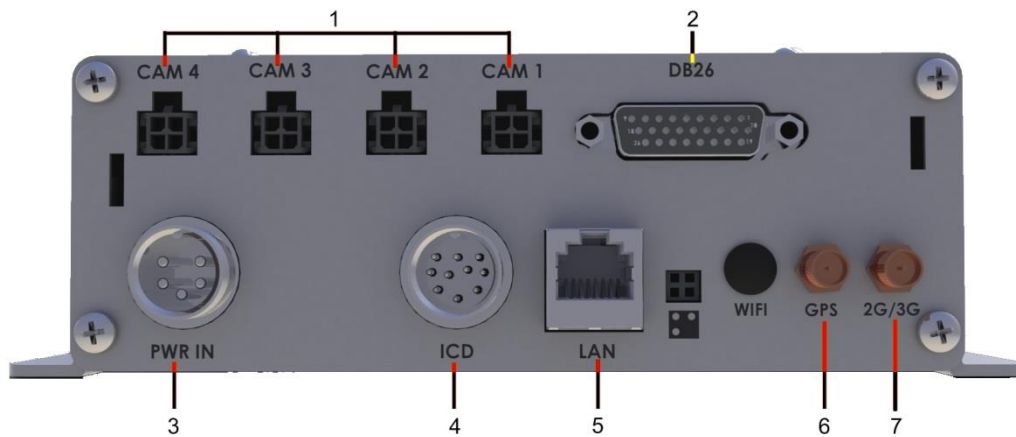
TEXT	ITEM	DESCRIPTION
V OUT	Video Out	Video output to an external display, e.g. TV / Portable DVD Player.
SD	The various LED's are status indicators.	Flashes to indicate 304SD is recording
GPS		Illuminated when GPS signal is present
LAN		Displays Network activity
PWR		Illuminated when power present
REC		Normal Recording
HWE		A Physical Hardware error, or, no SD Card.
ALM		Signifies the 304SD has received an Alarm input.
VLOSS		Flashes if Video Loss has occurred.
IR	IR receiver	For receiving signals from the Remote Control.
USB	USB Interface	Use to backup recorded video files; download/upload configurations and firmware upgrade
		The SD card slot needs to be locked before booting up the system, otherwise, the boot sequence will be unsuccessful. The 304SD will be in standby mode anytime the SD slot is unlocked.



Table 1: LED Status Indicators.



Rear View



1. Camera Inputs. The 304SD accommodates up to four video channels. Use CAB GSWHC2N-XX (Where XX = Length in Feet, e.g. GSWHC2N-15 for a 15 foot cable).
2. Sensor Connector. CAB000323, Connects to Stop Arm; Warning Lights, etc.
3. Power Connector. CAB000309, has keyed connection to eliminate incorrect installation.
4. Interactive Control Display. Optional accessory for configuration.
5. RJ45 Connection. Used when the 304SD requires a connection to an external Router/Radio.
6. GPS. Optional GPS module accessory.
7. 2G/3G. Optional Cellular accessory.

Figure 2: Rear View



Mounting the System.

Installation / Environmental Requirements.

The 304-SD has an operating temperature range of -40° C to +65° C. It is good practice to ensure that the 304-SD 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 304-SD operates between 8V ~ 36V. Please ensure a regulated, consistent power source is available for the 304-SD.
2. DO NOT remove any enclosures/covers associated with the 304-SD 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 304-SD.
5. Do Not use any third party accessories, unless approved by Gatekeeper Systems.
6. The 304-SD is designed for interior use only. Do not install in areas which are exposed to excessive moisture / wetness.
7. Mount 304-SD 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 304-SD 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 304-SD, 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.

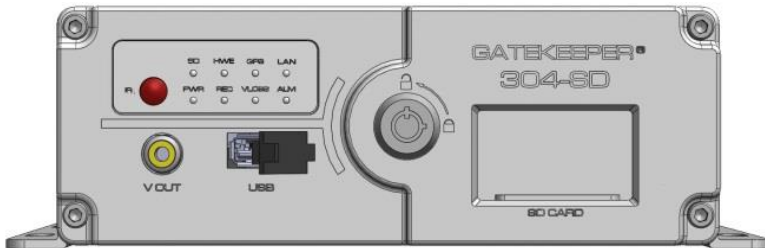
The 1AMP fuse must be installed as close as possible to the source on the Yellow Ignition wire on CAB000309

The 15AMP fuse must be installed as close as possible to the source on the Red (+12V) wire on CAB000309

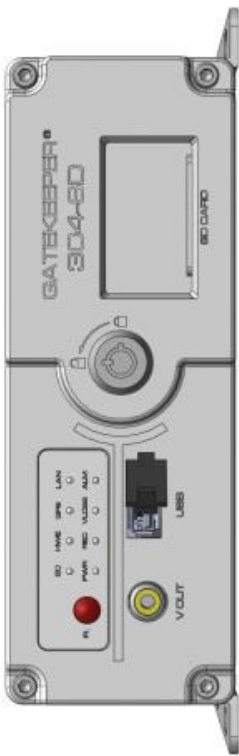


Mount In Bulkhead.

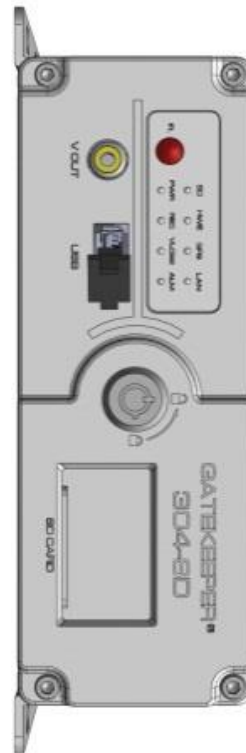
Gatekeeper Systems understands that mounting the 304-SD DVR in the bulkhead above the front windshield is often employed. As the bulkhead area is not heated or cooled it is subject to temperature extremes. In order to implement best practices Gatekeeper Systems recommends that the 304-SD mounted in the passenger compartment that is heated and cooled. By avoiding temperature extremes (hot and cold) the components in the 304-SD DVR will be subject to less temperature stress.



Standard Mount



Right Side Mount



Left Side Mount

Figure 3: Acceptable Mounting.

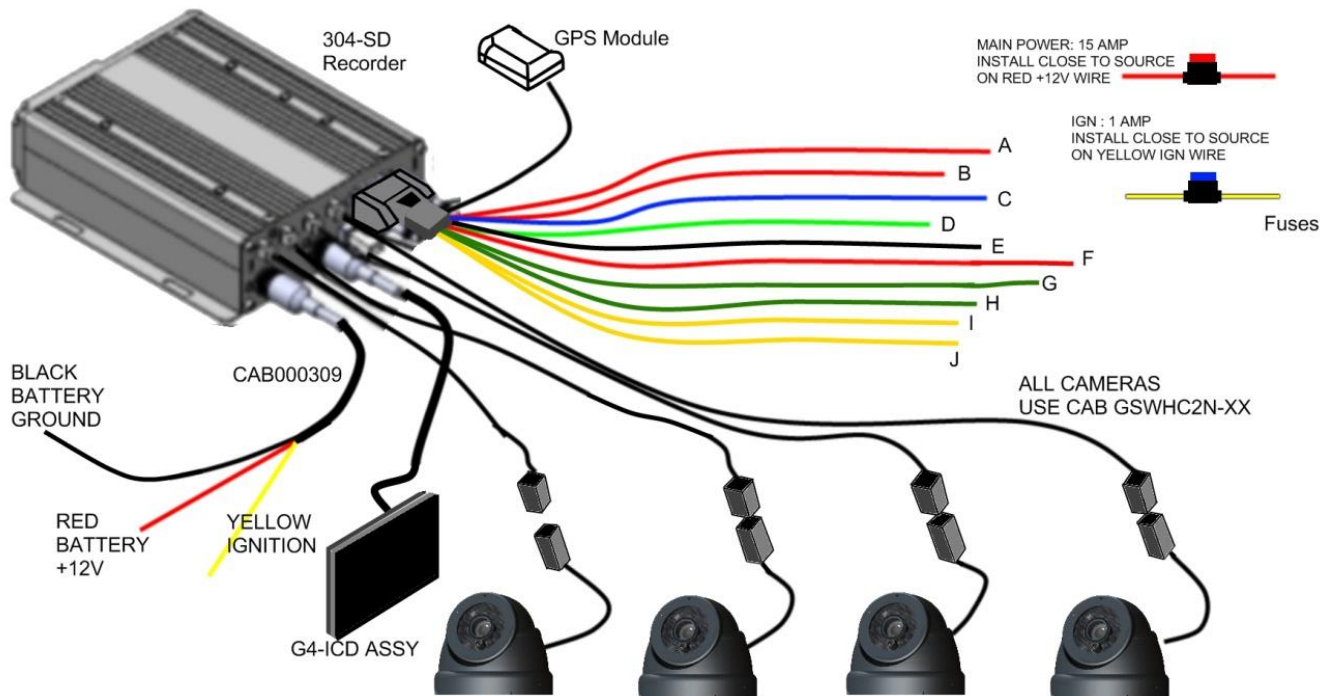


Figure 4: 304-SD Wiring, Including Optional Accessories.

	Connection Bundles.	Cable Length (Nominal)
A	SENSORS IN : 1- 6 (see for configuration)	16 ½ Feet
B	SENSORS IN : 7 - 8 (Currently not used)	8 Inches
C	SENSORS OUT : 1- 2	8 Inches
D	SPEED + / - (not supported)	7.8 Inches
E	GROUND	7.8 Inches
F	+12V OUT	7.8 Inches
G	232-1 (COM connection, Not Supported)	6.3 Inches
H	232-2 (COM connection, Not Supported)	6.3 Inches
I	485-3 (Connect to the Driver Alert Button)	7 Inches
J	485-4 (Connect to the G, Inertia, Sensor)	7 Inches

Table 2: CAB000323 Definitions.

Power Connector (CAB000309)



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 304SD. 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 15AMP In-Line fuse is used

Figure 5: Power Connections.



Sensors

The 304-SD 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

Table 3: Sensor Definitions.

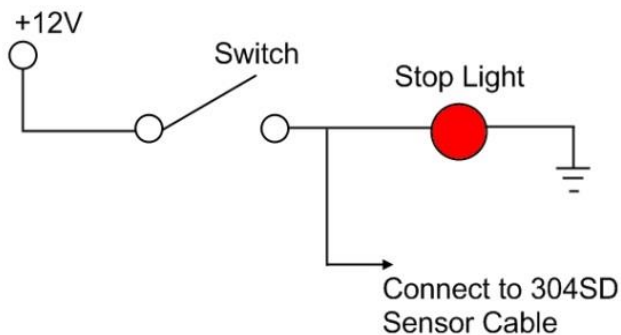


Figure 6: Sensor Connection Example

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 7, only S4 "DOOR" has been enabled.

Once Sensor's 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

Figure 7: Sensor Setup



GPS

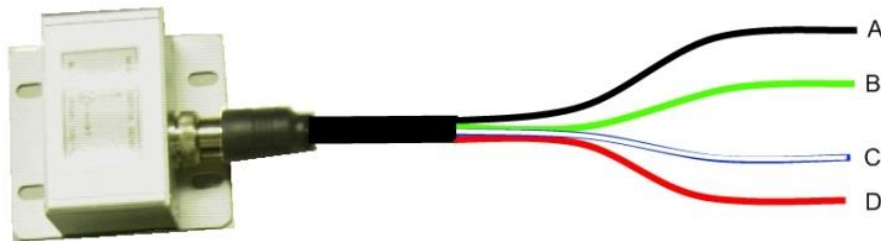
The 304-SD can be outfitted with an optional GPS module. For optimum results it is recommended that the GPS module be exterior mounted utilizing the magnetic base with the cable protected by a suitable grommet.

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.

Inertia, G, Sensor.

The Inertia, G, sensor can detect acceleration of the vehicle. The Inertia sensor can monitor driver behavior: Acceleration; deceleration and abrupt stopping. The Inertia sensor can detect X/Y/Z axis. The Inertia sensor cable connects to CAB000323 which has two bundles of 485 wires. Always connect the G-Sensor to the 485-4 of CAB000323. The G-Sensor connection should always be orientated towards the rear of the vehicle.

Please Note: Only mount the G-Sensor Horizontally on the vehicle floor, if not, inaccurate and/or inconsistent data may occur.



- A. GND connects to Black GND on cable set 485-4 on CAB000323
- B. Green, 485B, connects to Blue/White on cable set 485-4 on CAB000323
- C. White, 485A, connects to Blue on cable set 485-4 on CAB000323
- D. Red connects to Red +5V on cable set 485-4 on CAB000323

Figure 8: Inertia, G- Sensor Wiring.

If the 304-SD has an 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 Check Button, System → Sensor → Acceleration. With the Inertia sensor in your hand click on the Check button (B) as you quickly move the sensor from left to right. As the sensor is moved the values of X, Y and Z (C) will change.

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

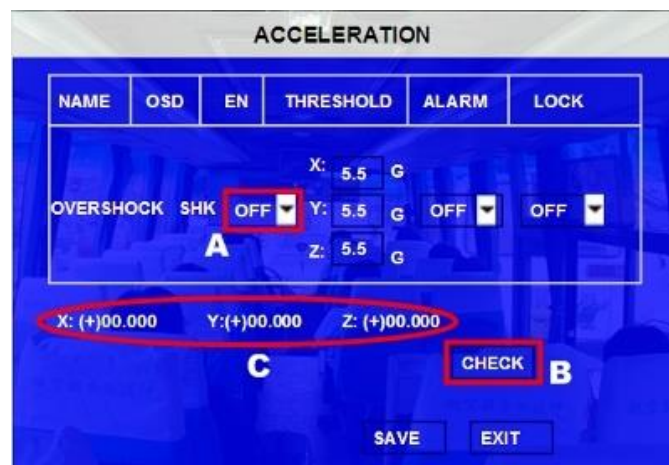


Figure 9: Inertia Sensor Configuration.



Driver Alert Button.

A Driver Alert Panel is available as an optional accessory for the 304-SD. The Driver Alert Panel must be installed using the provided 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 the 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.



Figure 10: Driver Alert Panel.

The Driver Alert Panel requires setting up in the configuration of the 304-SD. Navigate to Advanced → Peripheral → Ext.Com Setup. Select the following options:

Mode	BUS MODE
COM1	NONE (232-1)
COM2	NONE (232-2)
COM3	DRIVER ALERT (485-3)
COM4	NONE (485-4)

Table 4: Driver Alert Panel Configuration.



SD Card – Overview.

The 304-SD utilizes a SD (Secure Digital) card for the storage of Video. SD cards are very simple to use, and very reliable. The SD cards supplied by Gatekeeper Systems have been extensively tested and are the only approved SD cards for use in the 304-SD. SD cards from Gatekeeper Systems are available in 32GB and 64GB depending upon the product purchased.

Inserting the Card Into A Reader.

Please Note: When using a SD Card from a 304-SD in a Microsoft Windows based system, you will be prompted to format the SD Card, Click CANCEL. If you choose to format the SD Card ALL VIDEO will be deleted from the SD.

If you are using a Notebook PC, or a recently purchased desktop, your system may have been supplied with a SD card reader.

Please check the documentation that came with your computer system, or, speak with your I.T. department staff to determine if you have an internal SD reader and how to insert the SD card into your system.

If you are using an external SD card reader it is essential that the SD Card is inserted into the reader in the correct orientation or permanent damage may occur to the SD card, the Card reader, or both.

1. Select the slot on the reader. Please check the documentation which came with your SD Card reader as to where the SD Card slot can be found.
2. If your personal computer has an integral reader, select the appropriate slot on that system.
3. Carefully push the card into the slot, check the orientation (Figure 11). The edge which has this profile is the edge which must be inserted into the reader.
4. Ensure that the SD Card is fully inserted.

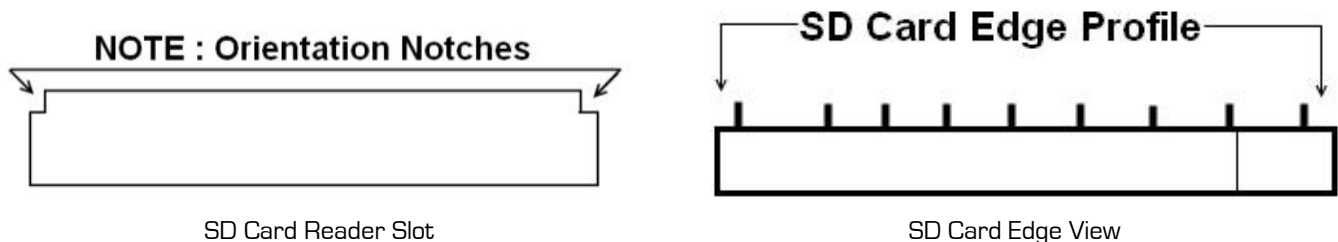
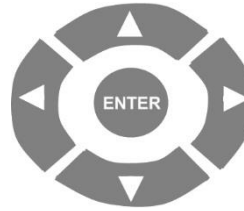
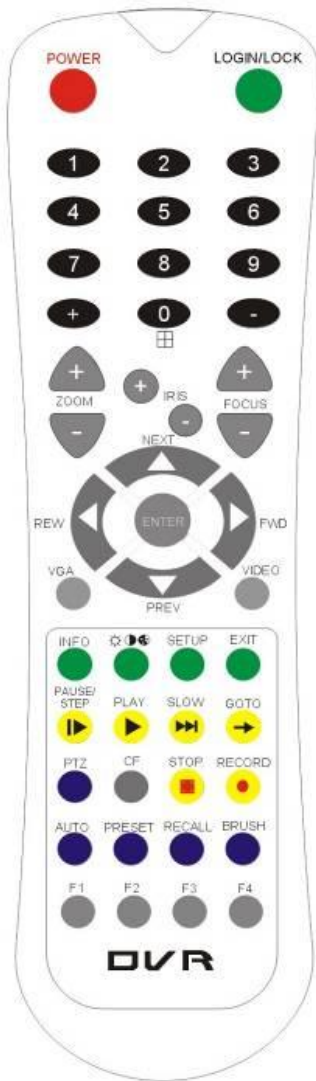


Figure 11: Inserting a SD card into a Reader.



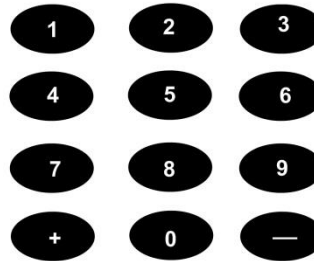
Using the Remote Control.



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.

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.

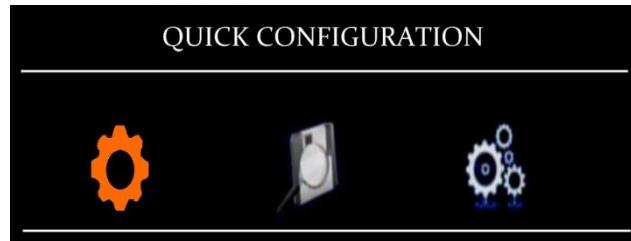
► ◀: Left, Right directional keys: Moves cursor left or right in setup menu.

[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 = 31127 Password =20020818



System Configuration



The 304-SD utilizes a simple three option menu system. Going from Left to Right the Quick Configuration gives access to the vast majority of required menu options, the basic settings which need to be set for each individual 304-SD for effective operation.

The second menu, Recorded Video, is for the playback of recorded video from the internal SD card. This video is only viewable if an external display, or the Interactive Control Display has been connected.

The Third Menu, Advanced Configuration, is more for system administrators and management and involves configuration of Networks/Wireless/Cellular, etc. as well as advanced settings for Events/Alarms, etc.

Quick Configuration



There are eight sub-menus within the Quick Configuration menu.

Vehicle Number

Within the Vehicle Number menu there are Four Fields, Three of which are user definable.

Unit S/N	This field is set by an encrypted chip from the system board and cannot be changed by the user.
Company Name (User Configurable)	Press the ENTER button on the remote control and then select the required characters from the on-screen menu. The options for input are Uppercase; Lowercase; Numeric and Symbols. Use the ← symbol from the on-screen menu as the backspace key to delete a character. Once all selections have been made, use the ↵ symbol from the on-screen menu to exit. Maximum Number of Characters is 8.
Vehicle No. (User Configurable)	Please Note that this field has a limitation of 8 characters. Press the ENTER button on the remote control and then select the required characters from the on-screen menu. The options for input are Uppercase; Lowercase; Numeric and Symbols. Use the ← symbol from the on-screen menu as the backspace key to delete a character. Once all selections have been made, use the ↵ symbol from the on-screen menu to exit.
Driver/Route Name (User Configurable)	Please Note that this field has a limitation of 8 characters. Press the ENTER button on the remote control and then select the required characters from the on-screen menu. The options for input are Uppercase; Lowercase; Numeric and Symbols. Use the ← symbol from the on-screen menu as the backspace key to delete a character. Once all selections have been made, use the ↵ symbol from the on-screen menu to exit.



Camera Name

Under the Camera menu it is possible to name each of the cameras individually, e.g. CH1 = Stairs. There is a limit of 8 alpha/numeric characters.

Use the Up arrow on the remote control to highlight the required Channel. Once highlighted in Green press the ENTER button on the remote control. A dialog box will appear enter the name of the camera. Once completed highlight the ↵ symbol in the dialog box and press the Enter key on the remote control. Arrow down and highlight the Save button and press Enter.

CAMERA NAME/CHANNEL NUMBER			
CAMERA	ENABLE	NAME	AUDIO
CH1	ON	cars	ON
CH2	ON	mail	ON
CH3	OFF		ON
CH4	OFF		ON

OK CANCEL

OSD (On Screen Display)

There are eleven options within the OSD which can be configured.

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 304-SD 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	OFF/TRIGGER/FIXED		
ACCEL. DATA	ON / OFF		
TEMPERATURE	ON / OFF		
FIRMWARE VER.	ON / OFF		
GPS INFO	OFF / TRIGGER / FIXED		
CH NAME	ON / OFF	ON / OFF	
VEHICLE NO.	ON / OFF	ON / OFF	

Table 5: OSD Definitions.

Shut Down Delay

The Amount of time the 304-SD will remain on after the ignition signal has been removed can be set to any value between 0 and 24 Hours. Use the remote control to set the amount of time for Shut Down Delay, which is in HH:MM:SS format, by highlighting each digit and using the number pad on the remote control. In the example on the right, Shut Down Delay has been set to Five minutes. Once set to the required Shut Down Delay highlight OK and press Enter on the remote control. Default for Shut Down Delay is 5 minutes.

Please Note: The Shut Down Delay is set in HH:MM:SS format, however, on the OSD the Shut Down Delay will be displayed in seconds.

SHUT DOWN DELAY

ON/OFF TYPE: IGNITION

SHUT DOWN DELAY(0-24)HOUR: 00:05:00

OK CANCEL



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 J 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	Currently this option is disabled.		

When Date Time has been set for 24HR; GPS with DST ON the dialog window will display as shown in Figure 12. Should different options be chosen, e.g. NTP for Synchronization, the window will appear with different user options.

Figure 12: Date Time Window.

Speed

There are 8 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 should be connected to the 304-SD 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, as this method is not supported by Gatekeeper Systems INC.

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.

NAME	OSD	EN	THRESHOLD	ALARM	LOCK
LOWSPEED	SPDL	OFF	001	OFF	OFF
OVERSPEED	SPDO	ON	060	ON	OFF

Buttons: OK, CANCEL

- To enable Speed check select the EN (short for 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.

Format Card

Under the Format Card menu there is only one option to choose, and this is listed under the Function Option.

Function Options are FAST FORMAT (Approximately 2 minutes to format a 32GB SD card) or SLOW FORMAT (Approximately 4 minutes to format a 32GB SD card).

Once the required Function option has been Selected, Highlight the OK button and press the ENTER button on the remote control.

A dialog window will appear requiring User Confirmation and warning "All data will be deleted after formatting". Click the OK button to confirm or the CANCEL button to exit the format and return to the Format option window.

If OK has been chosen, a dialog box will appear stating "Formatting, Please wait". Once formatting has completed a different dialog window will appear stating "Format Successfully, please restart", press ENTER on the remote control to restart the 304SD. A confirmation window will appear stating that the 304-SD is restarting.

NOTE: If a SD card has been formatted in a PC or another device, it **MUST** be formatted in the 304-SD. In order to increase reliability as a custom file system is utilized by the 304-SD. The SD card must be formatted on the 304-SD or no video will be recorded.

Reboot DVR

On some occasions, such as after changing the Shut Down Delay setting, it is beneficial to restart the DVR for the option to take effect immediately. Once the option window, shown on the right, appears use the UP arrow on the remote control and highlight NO. A drop down menu will appear, select YES. Use the Down arrow on the remote control to Highlight OK and then press the ENTER button on the remote control. Once the ENTER button has been pressed a Dialog window will appear stating "MDVR will restart, [OK/Cancel]" with the OK button highlighted press the ENTER button on the remote control.

Please Note: There will be a time delay between the pressing of the OK button and the restarting of the DVR, this is due to the DVR finalizing the writing of Video to the SD card.



Recorded Video.



There are two sub-menus available under Recorded Video; All Files and Event Files.

All Files.

Within All Files there is an option for File Search. File Search is broken down into seven sections

At the top of File Search is a calendar feature with highlights denoting which days have recorded video available.

SEL

File Search	Options	Video Storage / Mirror SD
File Type	Options	All / Alarm
Channel	Options	All / CH1 / CH2 / CH3 / CH4. Use this option to select which channel's video you wish to view.

Date Use the remote control to input the required date of the file to search for. Only those dates highlighted in the Header of the File Search page will be available.

Start Time Narrow down the search by specifying a Start Time for the search

End Time Enter an End Time for the search.

Once criteria has been set for the search, a File List window will appear. There are Multiple options within the File List window.

FILE LIST									
SEL	LOCK	TYPE	CH	RES	FR	TIME	SIZE	FIRST	
<input type="checkbox"/>	U	T	1	HD1	01	16:07-16:37	11.1M	PGUP	
<input type="checkbox"/>	U	T	2	HD1	01	16:07-16:37	11.1M	PGDOWN	
<input type="checkbox"/>	U	T	3	HD1	01	16:07-16:37	11.1M	LAST	
<input type="checkbox"/>	U	T	4	HD1	01	16:07-16:37	11.1M	REV.	
<input type="checkbox"/>	U	T	1	D1	01	16:40-17:20	30.5M	UNLOCK	
<input type="checkbox"/>	U	T	2	D1	01	16:40-17:20	30.5M	EXPORT	
								EXIT	

Figure 13: File List.

SEL	Use the remote control to arrow over and then press Enter. This will place an X in the box indicating that this file has been selected for backup to an external device.
FIRST	Highlight this option and press Enter on the remote control to navigate back to the first file in the listing.
PGUP	Scrolls the file listing up by a single page.
PGDOWN	Scrolls the file listing down by a page.
LAST	Highlights the last file in the file listing.
REV	Enables ALL files to be selected for backup.
UNLOCK	Unlocks Event files allowing them to be overwritten
EXPORT	Exports the selected files to an external USB device connected to the front of the 304-SD
EXIT	Exits the File List page and returns the user to the File Search page.



IO ALARM	Displays Alarms triggered by Stop Arm, Warning Lights, Brake, etc. These Alarms are configured in Advanced → System → Menu → Event
ACCELERATION	Displays Events generated by the G-Sensor configuration. Advanced → System → Event → Acceleration
SPEED	Displays Events recorded generated by the configuration of Advanced → System → Event → Speed.
TEMP ALARM	Displays Events recorded generated by the configuration of Advanced → System → 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.

Table 6: Event File Type Definitions.

In Figure 17 File Type 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 304-SD Export can now be selected using the remote control.

SEL	EVENT NAME	DATE	TIME
X	VL	2009-04-14	09:35:20
X	Over Speed	2009-04-15	10:20:39

Figure 17: Event List

SEL	Selects which file in the Event List to backup.
EVENT NAME	The name for the Event e.g. VL video loss.
DATE	Displays the date when the Event occurred.
TIME	The start time when the Event occurred.
REV	If ALL files are required for exporting use the Remote control to highlight REV and press Enter. This will Select ALL files for Exporting and an X will display under the SEL column for all files.
EXPORT	Export the selected Files to external USB drive connected to the front of the 304-SD.

Advanced Configuration.



There are six menu options listed under Advanced Configuration.

SYSTEM

DATE TIME

Please refer to the Date / Time section listed in the Quick Configuration section of this guide.

GENERAL

On/Off Type

Options: Ignition/Timer/Ignition or Timer.
Determines how the 304-SD begins power up.

Default: Ignition

Shutdown Delay

Determines how long the 304-SD 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 304-SD'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 304-SD 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 304-SD and is read from an encrypted chip. This value cannot be edited.

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 304-SD.

REGISTER INFO	
UNIT S/N:	0072011D90
COMPANY NAME:	GKS
VEHICLE NO.:	DCS01
DRIVER/ROUTE NAME:	MW
DEVICE ID:	DCS01
<input type="button" value="OK"/> <input type="button" value="CANCEL"/>	

Figure 18: Register Info Screen.



FORMAT

Use this feature to format devices ready for use with the 304-SD. 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: Video Storage; USB; Mirror SD
 Video Storage is the SD card which is inserted into the SD slot located on the front of the 304-SD.
 USB: Any USB device connected to the front of the 304-SD
 Mirror SD: Reserved for future development.
 Function: Options: Fast Format; Slow Format

UPGRADE

Important: When updating firmware on a GSI 304SD 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 304SD 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 304SD 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 304SD unit.
7. Using the arrow buttons, go to the Wrench and Gear Icon > System > 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 the Wrench and Gear icon > "System > 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 304SD will restart automatically.
11. Once the system has restarted, go to System > 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 > Upgrade and check the "Current Version".

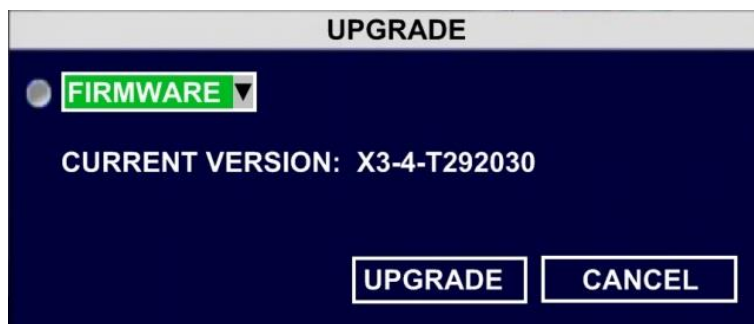


Figure 19: Upgrade Dialog Window.

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 31127.

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 304-SD.

DEFAULT: Restores the 304-SD to factory default settings.

EXPORT: Exports the current configuration. Use a USB drive connected to the front of the 304-SD 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 304-SD which you attempt to Import this configuration too will not see the file.

IMPORT: Imports a previously saved configuration from another 304-SD. Use a USB drive connected to the front of the 304-SD for the Importing of the configuration file.

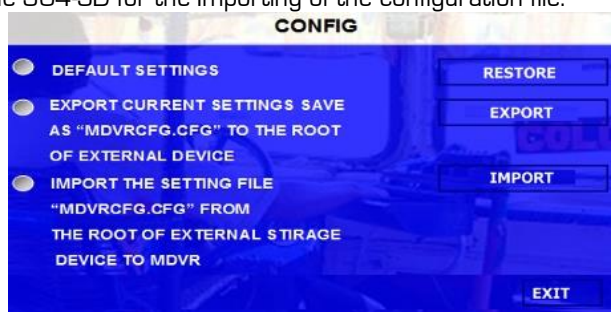


Figure 20: Configuration Default / Import / Export.



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 304-SD.
Delete System Log: Deletes the System Log. If selected a confirmation window will appear.

GEO FENCING

Reserved for Future development.

RECORD

Options There are two pages of Preferences within the Record Options menu.

OPTIONS 1	
VIDEO TYPE	NTSC
RECORD MODE	GENERAL
NORMAL REC RATE	NORMAL
ALARM PRE-REC TIME(1-60)MIN	00
ALARM DURATION(3-30)SEC	10
ALARM POST REC(0-1800)SEC	0010
ALARM TIME(SEC)	15
<div> <div>NEXT PAGE</div> <div>OK</div> <div>CANCEL</div> </div>	

OPTIONS 2	
METADATA CAPTURE	ON
RECORD FILE TIME (MIN)	15
HDD/SD OVERWRITE	ON
LOCKED FILE RETENTION(DAY)	15
PRE-RECORDING SWITCH	OFF
SD CARD TYPE	INTERNAL
MIRROR REC. TO SD CARD	OFF
<div> <div>FRONT PAGE</div> <div>OK</div> <div>CANCEL</div> </div>	

Figure 21: Record Options

Options 1.
Video Type

Options: NTSC or PAL

Default: NTSC

Record Mode

Options: General; Timer or Event.

General: The 304-SD will begin recording upon power up.

Timer: The 304-SD will begin recording at the time specified in the Timer Record menu based on the schedule

Event: When an Event has been triggered the 304-SD will record. To set an Event to record go to Advanced Configuration → System → Event to set triggers.

Default: General

Normal Rec Rate

Options: Normal or I Frame.

Normal The 304-SD will begin to record according to the configuration of the settings in the Record Setting menu.

I Frame The 304-SD will begin recording at 1 frame per second to conserve disk space, however, if an event is triggered the 304-SD will record at the frame rate specified within the Record Setting menu.

Default: Normal

Alarm Pre-Rec

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.

Alarm Duration
Alarm Post Rec

Determines the duration for which an Alarm will record.

Determines the duration for how long an Alarm will record for after it has been activated it.

Alarm Time

When Alarm has been triggered, duration time of the Alarm.



Options 2.

METADATA CAPTURE

Reserved for future development

RECORD FILE TIME (MIN)

Sets the length in minutes of the recorded video file

HDD / SD OVRWRITE

Options: ON / OFF

ON: When the SD Card has less than 2G, the 304-SD will begin to delete the oldest recorded files until the SD card available space is equal to, or over 10GB. Alarm files will remain as they are in a locked state.

OFF: 304-SD will stop recording when SD Card is full, (less than 500MB). You must replace the SD Card or delete files manually for the 304-SD 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

SD CARD TYPE

Reserved for future development

MIRROR REC. TO SD CARD

Reserved for future development

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 304-SD 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	ON/OFF	ON/OFF	

Table 7: OSD Overlay Options



CAMERA SETTING.

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.

CAMERA NAME / CHANNEL NUMBER				
CAMERA	ENABLE	NAME	AUDIO	LIVE
CH1	ON	DRIVER	ON	ON
CH2	ON	STAIRWELL	ON	ON
CH3	OFF		ON	ON
CH4	OFF		ON	ON
ROUND:		OFF	ROUND TIME: 120 (5-300)SEC	
VOICE INTERCOM:		OFF	LIVE AUDIO: ON	
			OK	CANCEL

Figure 22: Camera Name / Channel Number.

RECORD SETTINGS.

RES	Options	D1 704×576 HD1 704×288 CIF 354×288
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

RECORD SETTING				
CAMERA	RES	FPS	NORMAL QUALITY	ALARM QUALITY
CH1	D1	15	1	5
CH2	D1	15	1	5
CH3	D1	15	1	1
CH4	D1	15	1	1
			OK	CANCEL

Figure 23: Record Settings

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
		WKD:	Runs the schedule based on the days selected in Workday From
		*****:	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 304-SD will record as normal.
		NORMAL:	The 304-SD will record Events ONLY during the time specified in the schedule.
		ALARM:	
SCHEDULE 2	00:00-00:00		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 304-SD will record as normal.
		ALARM:	The 304-SD 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

RESERVED FOR FUTURE DEVELOPMENT



Network

SERVER

The IP address' shown are for example only. Please consult with your I.T. 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 304-SD, or, when using an external Wi-Fi radio.
	Mobile Net	Allows connection to the 304-SD via 2G/3G cellular networks.
	Wi-Fi Net	Select this value when the 304-SD 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. 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 304-SD, or, when using an external Wi-Fi radio.
	Mobile Net	Allows connection to the 304-SD via 2G/3G cellular networks.
	Wi-Fi Net	Select this value when the 304-SD 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.

LOCAL

Local settings are used to allow the 304-SD 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 304-SD directly to a network

1. IP. This is the IP Address for which the 304-SD has been pre-configured.
2. SUB. The subnet the 304-SD 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 304-SD 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 304-SD to the network.
5. DNS. Allows communication between the 304-SD and the host network.
6. MAC Address. The MAC address of the 304-SD

Please Note: None of the values shown in Figure 24 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

Figure 24: Local Network Settings.



Wi-Fi

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 304-SD 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.

Figure 25: Example Wi-Fi Configuration.

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

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 304-SD will require the installation of a SIM card. The installation of the SIM card must be done at time of system build at the Gatekeeper Systems Facility.

Remove the 4 retaining screws on the base of the 304-SD. The SD card slot located here is for future development.

Make sure to connect the 3G antenna to the rear of the 304-SD.

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		See Figure 25 for more information	
Intercom Settings		Reserved for future development.	



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#

Figure 26: SIM Card Dial Parameters.

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						
	ENABLE	NAME	OSD	SET	ALARM	LOCK
S1	ON ▼	BRK	BK	HIGH ▼	ON ▼	OFF ▼
S2	ON ▼	WRN	WN	HIGH ▼	ON ▼	OFF ▼
S3	ON ▼	STPARM	SA	HIGH ▼	ON ▼	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 as defined in the Advanced → Record → Options [Options 2]

Alarm Output

THIS FEATURE IS CURRENTLY NOT SUPPORTED.

SPEED

There are 8 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 304-SD 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.

SPEED						
<input type="radio"/>	SPEED SOURCE:	GPS ▼				
<input type="radio"/>	SPEED UNIT:	MPH ▼				
<input type="radio"/>	ALARM SETTING:					
	NAME	OSD	EN	THRESHOLD	ALARM	LOCK
	LOWSPEED	SPDL	OFF ▼	001	OFF ▼	OFF ▼
	OVERSPEED	SPDO	ON ▼	060	ON ▼	OFF ▼
						OK CANCEL

- To enable Speed check select the EN (short for 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.



ACCELERATION.

If the 304-SD has been fitted with an 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 Check Button, System → Sensor → Acceleration. With the Inertia sensor in your hand click on the Check button (B) as you quickly move the sensor from left to right. As the sensor is moved the values of X, Y and Z (C) will change.

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

ACCELERATION

NAME	OSD	EN	THRESHOLD	ALARM	LOCK
OVERSHOCK	SHK	OFF <input type="button" value="v"/>	X: 5.5 G Y: 5.5 G Z: 5.5 G	OFF <input type="button" value="v"/>	OFF <input type="button" value="v"/>

A

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

C

B

Temperature

If Temperature is enabled in the configuration of the 304-SD 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:

ALARM SETTING:

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

HDD HEATING:

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 304-SD 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
1 <input type="button" value="v"/>	3 <input type="button" value="v"/>	<input type="button" value="SETUP"/>	1 <input type="button" value="v"/>

ALARM SETTING:

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



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:	OFF ▾
LOW VOLTAGE:	09.0 V
VOLTAGE OF START:	11.0 V
SHUT DOWN DELAY:	010 MIN
INTERVAL FOR CMS:	005 MIN
<div>OK</div> <div>CANCEL</div>	

Emerg. Alarm

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 SD card has reached its capacity.

ALARM OF PANIC BUTTON			
● CONFIG. OF PANIC BUTTON:			
NAME	EN	ALARM	LOCK
	ON ▾	ON ▾	OFF ▾
<div>OK</div> <div>CANCEL</div>			

Peripheral

PTZ RESERVED FOR FUTURE DEVELOPMENT.

Ext. COM Setup

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

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

COM4. This relates to 485-4 (G-Sensor) on CAB000323

EXT. COM SETUP	
MODE:	BUS MODE ▾
COM1:	NONE ▾
COM2:	NONE ▾
COM3:	DRIVER ALERT ▾
COM4:	NONE ▾
<div>OK</div> <div>CANCEL</div>	

Figure 27: EXT. COM Setup Default Values.



Info

Version

Displays the current version of Firmware installed on the 304-SD.

The SD Total Capacity; Amount of Available free space and total recording time, in hours, still available.

History Info.

History Info display information for the following four items, all of which can be reset to zero by highlighting the CLEAR button and then pressing the ENTER button on the remote control.

The four values are: Highest Speed; Total Mileage; Lowest Voltage and Highest Shock.

Modules

Modules displays system status information. In Figure 26 GPS has been set to ON on its configuration page but the GPS is displaying as Invalid. This allows for troubleshooting to be undertaken, e.g. check the GPS connection on the rear of the 304-SD; Incorrect mounting of the GPS module, etc.

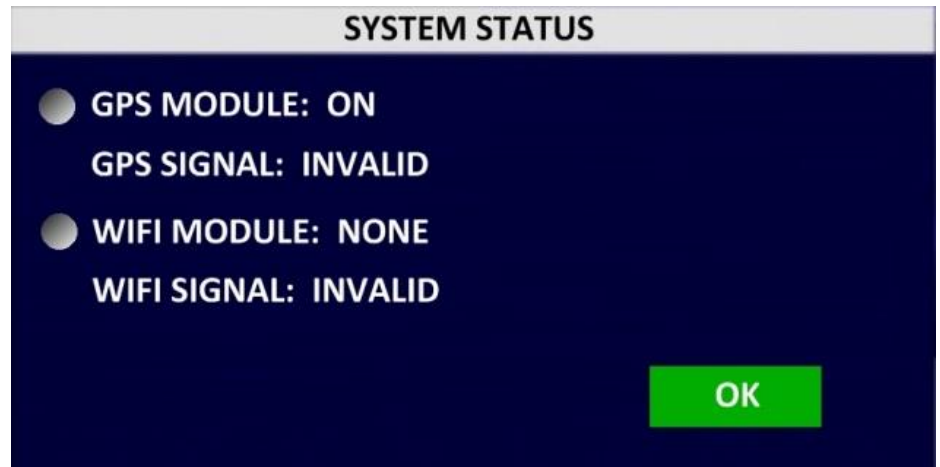


Figure 28: System Status.



Overview.

G4 Incident Management Software is compatible with Microsoft Vista; Microsoft Windows 7 and Microsoft Windows 8. Microsoft XP is not supported as Microsoft has deemed it to be End-Of-Life.

Gatekeeper Systems G4 Incident Management Software 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 Incident Management Software must be completed with Administrator rights. For more information on this, please speak with your School District's Information Technology contact.

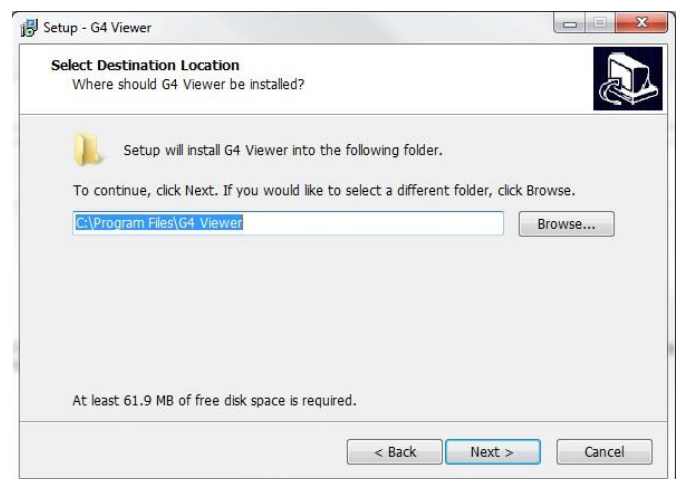
This section will describe how to install Gatekeeper Systems Inc. G4 Incident Management Software. Please read before beginning the install. G4 Incident Management Software can be installed from the G4 CD (available as part of G4HDDLK), or, as a free download from The Gate area of www.gatekeeper-systems.com

To begin the installation of the G4 from gatekeeper Systems Inc. double click on the G4_Viewer_XXXX.exe file, where XXXX is the version number.

Set up will now begin.



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





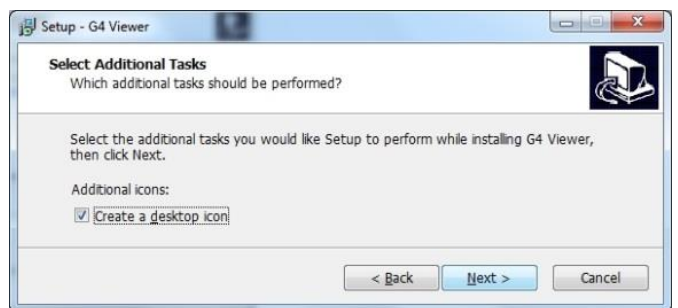
In the window which appears next make sure that "Don't create a Start Menu Folder" is not checked.

Click Next.

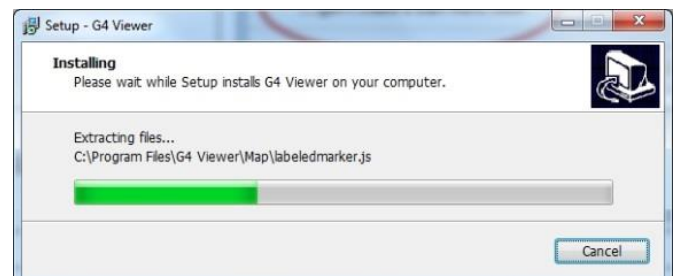


Select "Create a Desktop Icon" and click Next.

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.





G4 Playback Interface.

Do not format the SD card using Microsoft Windows.



Figure 29: G4 Incident Management Software Interface.

1. Displays the installed version of G4; Current System Date/Time.
2. GSI Logo. When Clicked opens www.gatekeeper-systems.com
3. Video Playback Window,
4. HDD. Becomes active when a SD card is detected on the system.
Please Note: When using a SD card in a Microsoft Windows based system, you will be prompted to format the SD Card, Click CANCEL. If you choose to format the SD Card ALL VIDEO will be deleted from the SD Card.
5. Directory. Displays all files clipped from a SD Card and saved to that directory.
6. Device. Used in conjunction with a Gatekeeper Systems Wireless System.
7. Displays options based on which view is currently active.
8. Playback File Options. Use to select from File List; Event List; Log; Search.
9. Video Clip Information Panel.
10. Calendar/Playback interface selector.
11. File Playback Information and Playback Speed adjustment.
12. Playback/Clip Controls.
13. Time Bar.
14. Vehicle Status Panel. View information on Channels; Events; Sensor; Speed and Acceleration.
15. GPS Vehicle lock; Route Tracer options.
16. GPS Map.
17. Settings. Use to set default directory for snapshots, Unit Setup Options and Record Options.

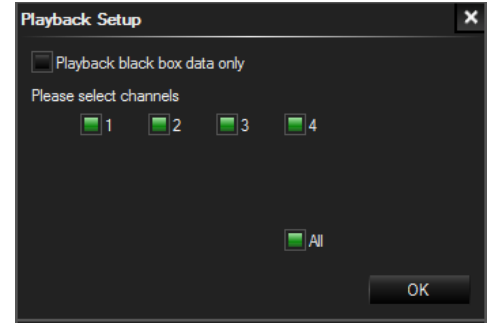


HDD

When viewing recorded video from a 304-SD using the SD card, HDD will display the vehicle name. Double click on the listed vehicle and all available video on the SD card will be displayed in the Calendar. Double click on one of the highlighted days and the Playback Setup dialog window will appear.



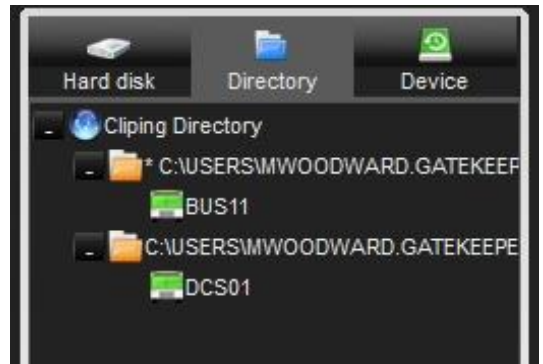
To select a different time of the video to playback, use the Zoom In tool on the Time Bar and then select the time frame you require. As the selection is made, the GPS map will also update to reflect the change in the vehicles position.



Directory.

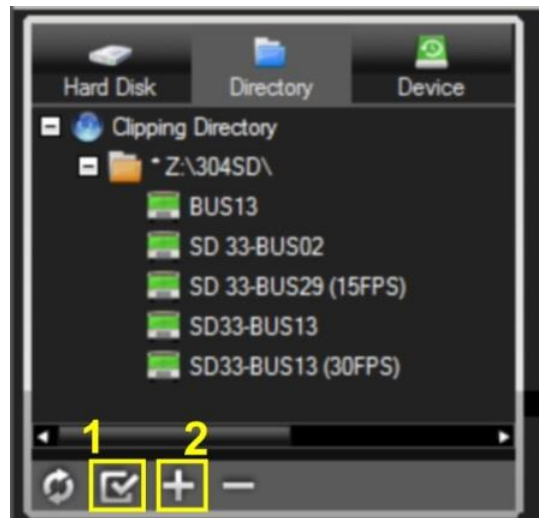
The Directory contains all of the previously Clipped video. Once a clip has been made the Directory automatically updates to reflect the new clip name and location if the clip is from a new vehicle.

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.



To set a default directory Highlight the required Directory and then click the "Set it as the Default Directory" Icon (1 in the image to the right). A confirmation dialog box will appear. If this information is correct click the OK button.

To add a directory click on the + Icon (2 in the image to the right) and navigate to a directory. This directory MUST have the correct structure in terms of containing the rmdvrrootdir.dat file which points to a previously clipped file.





Device.

Device lists all the 304-SD'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.

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 31 for more information.



Figure 30: Opening Screen Icons.

When search is selected Click on the Search button just below the Search Icon (#4 in Figure 30). 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 31: Search Filter.



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

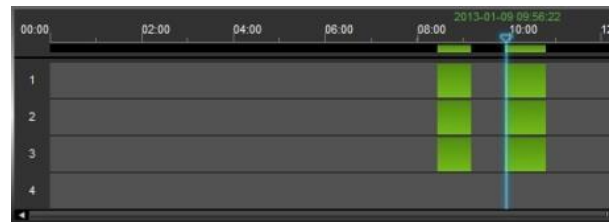
In this example Sensor2 had 3 Events during the specified time period, denoted by [3]. Click on the Plus sign to the left of the Result and the window will expand showing information regarding what happened at that time.

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.



Time Bar.

The Time Bar (item 9 in Figure 29) 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 304-SD 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 29) 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 Bus Name 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. 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 32 for playback controls.



Playback Controls.

The Playback Controls consist of three items;

- Play (or Pause dependent upon the state of the currently playing video file).
- Next Frame. When the video file has been paused this allows the video to be advanced in One frame increments. This feature gives the ability for exact incident capture, e.g. License Plate Capturing.
- The Speaker Icon allows for volume adjustment, or, mute.

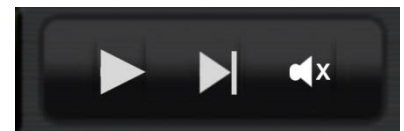


Figure 32: Playback Controls.



Snapshot / Clip / Open File / Layout Controls.

With the video paused at a specific image, if the Snapshot [Camera] Icon is clicked a snapshot will be sent to the folder previously setup in System Setting [Item 17 in Figure 29]. To the right is a pop up menu with an option to Open Folder, this will open the folder to which the snapshot has been saved.

If the Clip [scissors] icon is clicked the Time Line window will display an option window, see Saving a Clip, Page 49.

The Zoom-In Icon will zoom in on the time line status window, e.g. if a clip shows 1 hour when zoomed in the time line can show individual seconds of the current video playback.

The Zoom-Out icon is the reverse of Zoom-In.

Open File. This allows navigation to a known folder containing H.264 video files and selecting them for playback. Note only one of the files in the folder in question needs to be highlighted and selected for all of the files in that folder to be played back,

Layout. When clicked a secondary pop-up window (See Figure 33) will appear giving various options as to how the currently playing video file will be played back.



Figure 33: Playback Window Layout Options.

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 Incident Management Software and cleaning the registry.
2. The location of the default directory. Use the Ellipse button ... to navigate to the desired folder. It is recommended that this folder be created prior to setting the path.
3. Unit Setup. Choose between MPH; KPH and C; F.

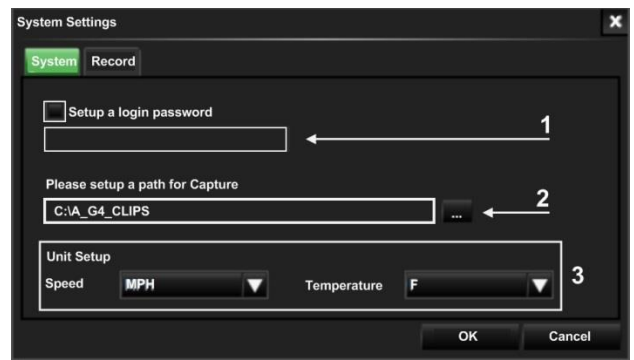


Figure 34: System Settings.

Once settings have been made/changed there will be a need to restart G4 Incident Management Software

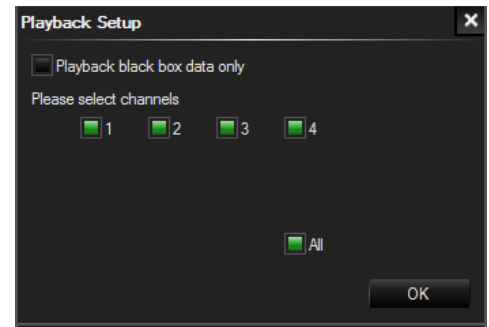
Playing Back a Video File.

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 (Playback Setup). Ensure that required channels are selected click OK. G4 Incident Management Software will immediately begin playback of the earliest available video file.





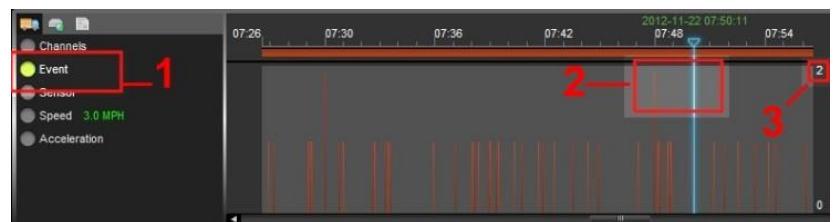
To select a different time of the video to playback, use the Zoom In tool on the Time Bar and then select the time frame you require. As the selection is made, the GPS map will also update to reflect the change in the vehicles position.



Event Playback.

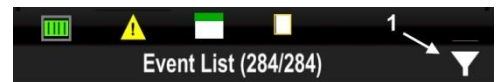
With G4 Incident Management Software it is possible to view Events; Sensor or Speed Playback by viewing the Time Bar.

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 304-SD configuration, will also be displayed, (3).



If only specific Events are required for playback G4 Incident Management Software has been designed to facilitate this.

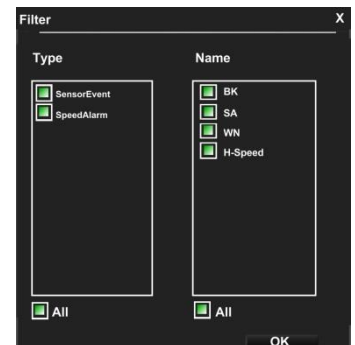
If the Yellow triangle (item 2 in Figure 30) is selected a Filter Icon (1 in the image to the right) will appear.



Click on this Icon and a secondary window will appear with options as to which Events can be selected.

If only Stop Arm events are required ensure that Sensor Event is checked below Type all other items except for SA listed below Name are unchecked.

Click OK.



Sensor / Alarm Playback 1.

When a 304-SD has been set up to record Sensor / Alarm activations, these will show in G4 Incident Management Software.

In Figure 35 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
06:33:35	SensorEvent	SA	3
06:33:35	SensorEvent	SA	3
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

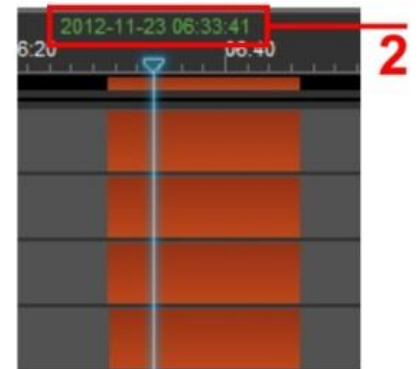


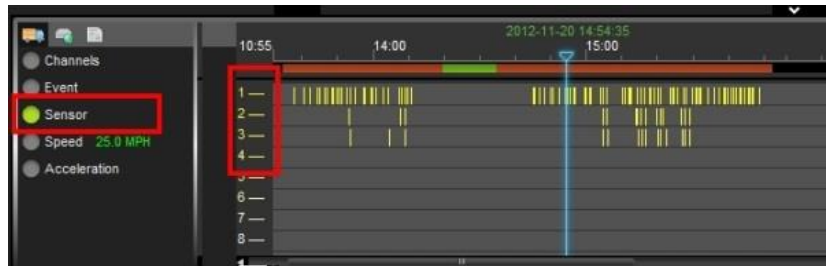
Figure 35: Playback Sensor/Alarm Activations.



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 Marker 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 36 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 36: Speed Playback.

Working With Clips.

Using G4 Incident Management Software a section of video can be saved as a clip; exported as a standalone .exe file which includes a mini-player, or, as AVI's playable by Windows media player. Please note that AVI's generated will be individual camera views and will not contain GPS, Speed Information, etc.

Saving a Clip

When saving a clips it is recommended that a folder be created, e.g. C:\MyClips, and an initial clip saved to this location. Once this is completed in G4 Incident Management make this folder the default by clicking on the Check Mark icon (in Item 7 Figure 29).

When a clip is created a file called rmdvrrootdir.dat is created outside of the Bus Name folder and this file contains information regarding the location of the clip entries.

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.

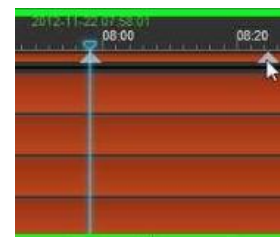


3. Select the Start Point and Click and Drag it to the required Start point before the required clip.

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 $\sqrt{\quad}$ to the right of the Time Bar. This will confirm the clip length.



5. Once the $\sqrt{\quad}$ 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.

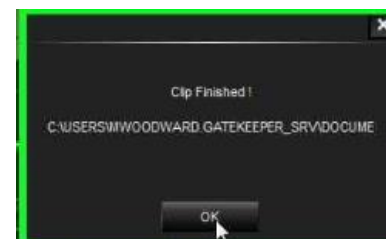
It is possible to change the Start Time and End Time by manually editing these values.

If this clip is to go to a directory other than the Default Clip directory click on the browse button and navigate to the required folder.

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.





Documents library

BUS13

2014 - 01 - .28

rmdvrrootdir.dat

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 2014-01-28: January 28th 2014.

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 Incident Management Software.

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	Name	Da
BUS13	20121122	13:59:41	14:09:12	BUS13	1/1
				BUS13_20121122_135941_140912.exe	1/1
				rmdvrrootdir.dat	1/1

Figure 37: 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 38: AVI Conversion.



Blurring an Image.

G4 Incident Management Software 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.



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 39: Defining a Blur.

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

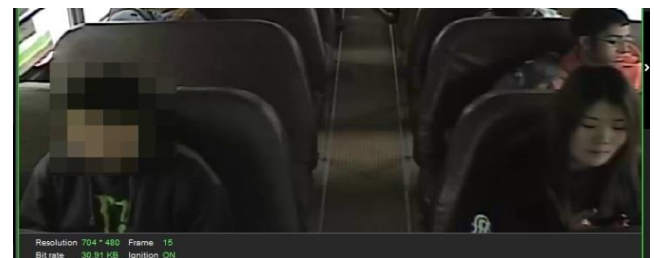


Figure 40: Playback Blur.



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 304-SD 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.

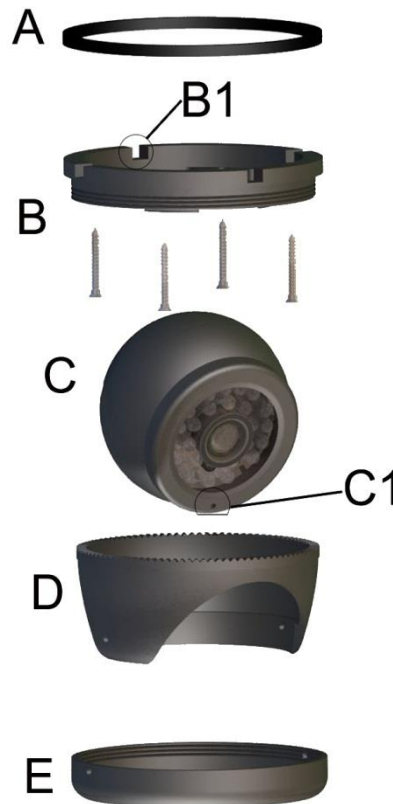
DO NOT disassemble the Camera Ball unless directed to, and under the direction of, a Gatekeeper Systems support technician



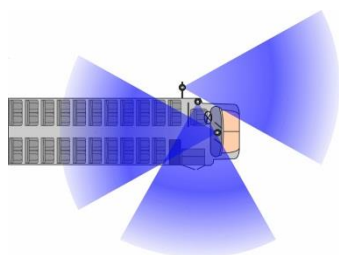


**A. Rubber Gasket. B. Base Plate. C. Camera Ball.
D. Camera Collar. E. Retainer Ring**

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 304-SD, 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.



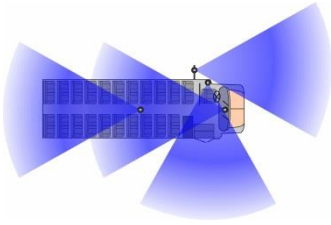
Suggested Camera Locations.



Three Camera Configuration

Check For:

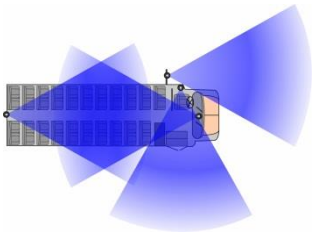
- Ceiling mount recommended.
- Do not obstruct walkways.
- Avoid contact with abrasive metal to prevent short circuits.



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

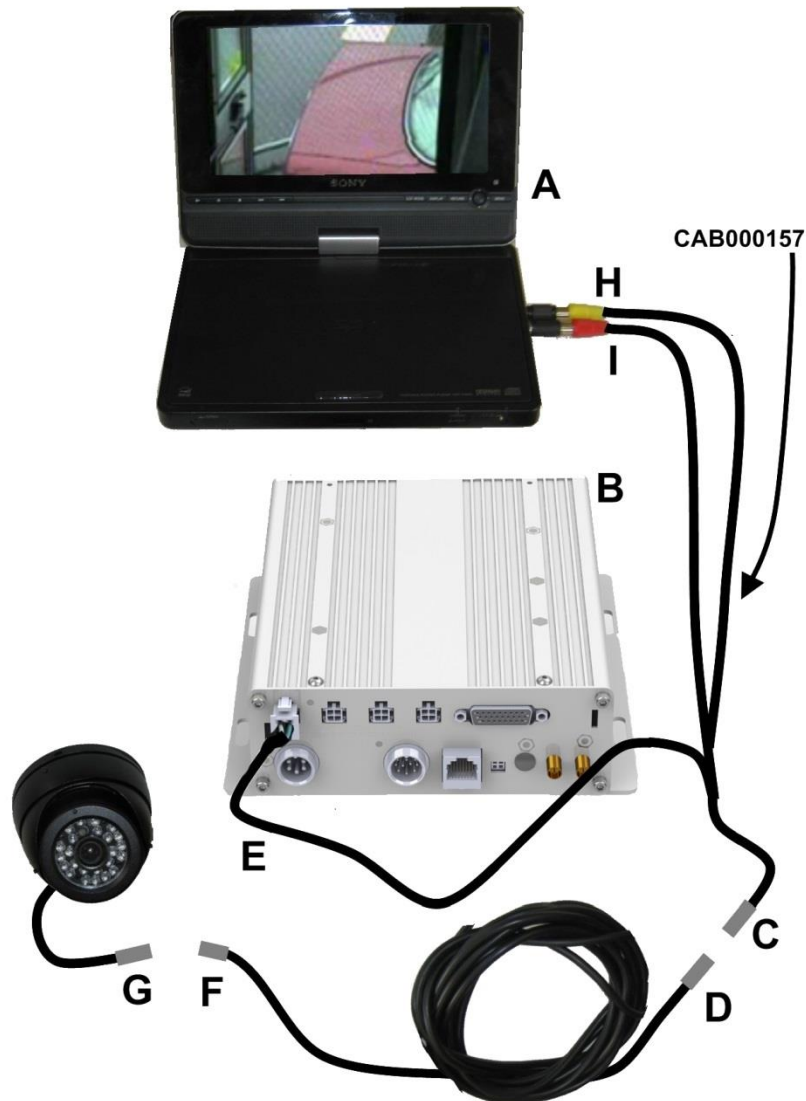


Alternate Four Camera Configuration.



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: 304-SD

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 Video input on rear of 304-SD

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.

An installed, fully functional, powered up 304-SD 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 the video input on the rear of the 304-SD

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.

304-SD Quick Install Guide.

- The 304-SD must be secured to an interior surface of the vehicle with the Tek Screws provided.
- Do Not orient the 304-SD such that the SD Door faces the floor of the vehicle.
- Wire the 304-SD into the vehicle as per the table below.
- Do No disassemble the 304-SD. There are no user serviceable parts inside.

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 304-SD firmware must be configured before using the DVR. Connect a monitor to the RCA Video Out port on the front of the 304-SD. Press the Setup key on the IR Remote Control. Enter the following login information when prompted:

User ID: 31127
Password: 20020818

Move the cursor to the Quick Configuration icon and press Enter.

There are Eight Quick Configuration Options. 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 SD Card.

After setting the configuration format the SD Card.



Please Note: Non Gatekeeper branded SD cards may not function reliably. If a non Gatekeeper branded SD card is used it must be formatted in the DVR prior to use.

Start the vehicle and wait for the 304-SD 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	Flashing Status
SD	GREEN	Fast Flash
HWE (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

Table 8: LED Status (Record Mode)

LED	Color	Flashing Status
SD	GREEN	OFF
HWE	RED	OFF
GPS	GREEN	OFF
LAN	GREEN	OFF
PWR	BLUE	OFF
REC	GREEN	OFF
VLOSS	RED	OFF
ALM	RED	OFF

Table 9: Safely Remove SD Card.

To access the SD card, turn the provided key to the unlock position. Open the SD card door and remove the SD card only when the power light is illuminated Blue, see table 9.



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 manufacture 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, MECHANICS 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:

Gatekeeper Systems Inc.
446 Harrison Street
Sumas WA 98295
Tel. 1.604.864.6187
Fax 1.604.864.8490
Toll Free (N.A.) 1.888.666.4833

CANADA OPERATIONS:

Gatekeeper Systems Inc.
301-3 1127 Wheel Avenue
Abbotsford BC V2T 6H1
Tel. 1.604.864.6187
Fax. 1.604.864.8490
Toll Free (N.A.) 1.888.666.4833



Contact Information.

GSI – Canada

301-31127 Wheel Avenue
Abbotsford, BC V2T 6H1
Canada

GSI – USA

446 Harrison Street
Sumas, WA 98295
USA

Sales & Technical Support

North America:

Tel: 1.604.864.6187
Fax: 1.604.864.8472

Toll Free: 1.888.666.4833