

# MOBILE VIDEO SURVEILLANCE

Complete Fleet  
Management Solutions

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**REI**

# Mobile Video Surveillance

## Complete Fleet Management Solutions

### Choosing the Right Mobile Video Surveillance Solution:

REI's Mobile Video Surveillance system consists of a DVR, high resolution color cameras, user-friendly software and accessories. The driver simply has to turn on the vehicle for the system to start. The video, audio and vehicle data is then recorded to the REI mobile DVR's removable hard drive or SD card.

An REI representative or dealer can assist you with putting together a system that's right for you. Whether you need longer recording time, cameras on the exterior or interior of your vehicle, wireless fleet and vehicle management, automated stop-arm violation reporting, a panic button, GPS mapping, integrated AVL package or additional accessories, REI has the solution for you.

Finding the right system is important, but having after-sale support is just as vital. That's why REI's 24-7 support sets us apart from the competition. REI sales and customer service teams are dedicated to serving you years after the sale. We simply don't sell a system and walk away. We want you to be a satisfied REI customer for life.

DVR Features	SD40	DR40	HD420	HD420W	HD800	HD800W
Wireless	√*	√*	√*	√	√*	√
Stop-Arm Violator Information			√	√	√	√
GPS/AVL Tracking	√	√	√	√	√	√
Auto Download Server	√*	√*	√*	√	√*	√
DVR Diagnostics	√*	√*	√*	√	√*	√
Vehicle Diagnostics/J1939			√	√	√	√
Fleet & Vehicle Management	√	√	√	√	√	√
Cameras	4	4	4	4	8	8
Storage	Removable SD Card	Removable Hard Drive 320GB-1TB	Removable Hard Drive 320GB-1TB	Removable Hard Drive 320GB-1TB	Removable Hard Drive 320GB-1TB	Removable Hard Drive 320GB-1TB
Geo-fencing	√	√	√	√	√	√
Dual Streaming	√	√	√	√	√	√
Wake Button			√	√	√	√
Frame Rate	60 fps @ D1 Resolution	60 fps @ D1 Resolution	120 fps @ D1 Resolution	120 fps @ D1 Resolution	240 fps @ D1 Resolution	240 fps @ D1 Resolution
Video Compression	H.264	H.264	H.264	H.264	H.264	H.264
USB Auto Download	√	√	√	√	√	√
SD Download			√	√	√	√
Channels Independently Configurable	√	√	√	√	√	√
Operating Temperature Range	-40° to 155° F	-40° to 155° F	-40° to 150° F	-40° to 150° F	-40° to 150° F	-40° to 150° F
3G Compatible	√	√	√	√	√	√
Fanless Cooling Design	√	√	√	√	√	√
Industrial Extruded Aluminum Chassis	√	√	√	√	√	√

\* Requires external wireless bridge.

## Why REI's Mobile Video Surveillance Solution is Superior:

- 24-7 Technical Support. REI's in-house employees personally handle technical support day and night. Call Technical Assistance - 877.726.4617.
- REI has been a technology leader for over 75 years. REI products are designed and manufactured to ensure they are of the highest quality and value.
- REI builds a solid, durable, fanless DVR in an extruded aluminum chassis. Why? Our aluminum chassis disseminates heat without pulling in dust and dirt which ultimately shortens the lifespan of the DVR.
- REI's hard drive is engineered to "float" within the solid, durable chassis. This industrial grade mounting design protects the hard drive by absorbing the shocks and vibrations of the road.
- The convenient USB port allows you to easily download events and triggers without removing the hard drive.
- DVRs are easily configured to your needs and requirements.
- REI DVRs endure the harshest of conditions - temperature extremes, shock, vibration, dirt, dust, humidity or voltage fluctuations. Each of our DVR's hard drives include an internal heater to ensure optimal performance in the most severe environments.
- H.264 advanced video compression allows up to a 40% increase in record time, ultimately storing more video, audio and vehicle data on your hard drive or SD card.
- Choose from a variety of accessories and options to meet your needs. Whether you're looking for long or short recording times or an easily transportable memory unit, we have a DVR for you.
- Customize video quality settings and record video at different resolutions.
- Automatically downloads a pre-scheduled event AND sends it to you for viewing.
- Wireless, web-based **A.R.M.O.R.** software management solution which can be easily viewed wherever you have internet access...cell phone, home or anywhere on the go.
- Automatically downloads video when the vehicle returns to the yard, ultimately having the video available at your fingertips.
- At a moment's notice, you can set alerts for speed, door ajar, geo-fence, etc. and have that alert sent to your email. It's a convenient way to ensure safety is a priority at all times.
- Proactive wireless health checks of your fleet including status, repair history and DVR health.
- View alerts/errors for your fleet or on a specific vehicle... proactively custom configure your fleet and vehicles for improved maintenance and safety.
- Real time event triggering and monitoring in a live environment.
- Integrate a REI safety solution such as a Camera Observation System to record various camera views as well as helping eliminate blind spots.
- Automatically generates stop-arm violation report capturing offender's license plate, vehicle information, violation location and date/time.
- Executive dashboard helps manage your fleet and individual vehicles with easy-to-use customizable reporting tools.
- Automatic Download Server (ADS) manages the wireless downloading, reporting and messaging of pre-defined video events, as well as video download requests made while the vehicle is off-lot or in the lot.
- Vehicle and DVR diagnostics tool proactively monitors the health status of your wireless DVR(s), camera(s), and, with the J1939 CAN-BUS option, monitors the health of your vehicles. Locate and solve intermittent vehicle problems.
- Provides AVL/GPS tracking information for your fleet, giving you the ability to locate any vehicle at any time.

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# SURVEILLANCE SOLUTIONS



DVR



**ARM:R** VMS  
Asset Reporting & Management/Observation & Recording



Camera



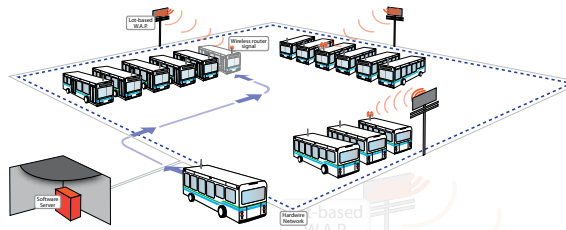
**Mobile Video  
Surveillance  
Solution**

REI's Mobile Video Surveillance Solution is powered by **A.R.M.O.R.-VMS**, our standard video management software, a DVR, camera(s) and accessories. Add **A.R.M.O.R.-AVL**, **AutoPilot**, **Diagnostics**, **Insight** and **StopArm** to enhance your system for comprehensive wireless surveillance coverage and fleet management in one robust solution. The proactive wireless fleet monitoring saves time and money while increasing passenger and fleet safety.

**A.R.M.O.R.-VMS** is the core of our mobile video surveillance solution offering a comprehensive view inside and outside your vehicle.



# SOFTWARE SOLUTIONS



## Automated Stop-Arm Violation Notification & Reporting

**A.R.M.O.R.-StopArm** improves safety on your vehicles by capturing stop-arm violator information - offender's license plate, vehicle information, violation location and date/time.



## Automated Health Status

**A.R.M.O.R.-Diagnostics** is the vehicle and DVR diagnostics tool that allows you to proactively monitor the health status of your wireless DVR(s), camera(s), and, with the J1939 CAN-BUS option, monitor the health of your vehicles.



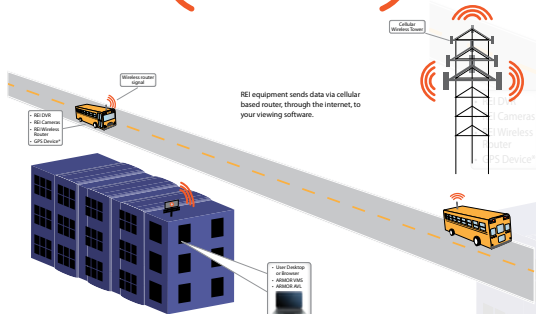
## Automated Video Management

**A.R.M.O.R.-AutoPilot** is the Automatic Download Server (ADS) that manages the wireless downloading, reporting and messaging of pre-defined video events, as well as video download requests made while the vehicle is off-lot or in the lot.



## Reporting, Notification & Analysis of Onboard Vehicle Systems

**A.R.M.O.R.-Insight** is your executive dashboard that helps you manage your fleet and individual vehicles. Manage your fleet seamlessly with easy-to-use customizable reporting tools.



## AVL/GPS Tracking

**A.R.M.O.R.-AVL** provides AVL/GPS tracking information for your fleet, giving you the ability to locate any vehicle at any time.

**A.R.M.O.R.-VMS** is the core of REI's mobile video surveillance solution. The user-friendly software enables you to view and search your video and provides access to a variety of vehicle data.



**A.R.M.O.R.-VMS** software enables you to:

- View and search video from the following sources:
  - Hard drive
  - SD card
  - USB thumb drive
  - Archived video
  - Remote DVR - wirelessly view recorded or live video from a remote DVR (optional hardware required)

Search examples: alarms, speed, accelerometer, GPS geo-fence, G-Force threshold and user selectable inputs.

- Clearly and precisely view the video recorded from the high resolution cameras placed strategically in and around your vehicle.
- Graph speed, acceleration, hard breaking and other vehicle data to evaluate driver behavior and vehicle performance.
- Pinpoint specific vehicles and their routes utilizing advance mapping software. View "breadcrumbing" of the vehicle... where it's been, where it's going, and its current location. Click anywhere on the vehicle route to view video at that time and location.

# MOBILE VIDEO SURVEILLANCE

## A.R.M.O.R.-VMS Features



### Geo-Fence

Search for vehicle entry or exit from specified areas.



### Advanced Search

Search video for stop-arm alerts, alarms, speed, accelerometer/hard braking, GPS location and other events.



### Blur Tool

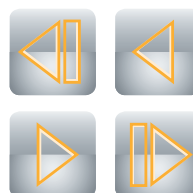
Obscure faces or objects in video or still shots making them unrecognizable.

## Playback Controls



### Save Video

Specify any length of video to be saved. Multiple format options are available.



### Standard Controls

Rewind, stop, play/pause, forward.



### View

Customize the viewing window.



### AVL

Integrate A.R.M.O.R.-AVL to actively monitor your fleet.



### Slow Play

Play back at less than real time.



### Mute

Audio controls.



### Info

Display vehicle information.



### Graph

Graphical view of vehicle data.



### GPS

Map vehicle location, route and breadcrumb trail.



### Setup

Customize application preferences.

**A.R.M.O.R.-AutoPilot** is the Automatic Download Server (ADS) that manages the wireless downloading, reporting and messaging of pre-defined video events, as well as video download requests made while the vehicle is off-lot or in the lot. The system can be utilized over the web or within your current IT infrastructure.

## Sort or Filter Data Using Selectable Criteria

Play	Vehicle Name	Event Time	Duration	% Complete	Download Reason	Priority	Actions
	REI_006	12/6/2012 1:09:13 PM	17 minutes, 28 seconds	Failed	Speed Over 65MPH	Urgent	
	REI_002	12/6/2012 1:40:00 PM	10 minutes	Downloaded	Manually Requested	Urgent	
	REI_002	2/5/2013 9:50:50 AM	18 minutes	Waiting	Manually Requested	Urgent	
	REI_001	2/5/2013 4:09:52 PM	4 minutes, 2 seconds	Downloaded	Speed Over 65MPH	Urgent	
	REI_002	2/26/2013 9:50:00 AM	5 minutes	Downloaded	Manually Requested	Urgent	
	REI_008	2/23/2013 2:30:00 AM	20 minutes	Waiting	Manually Requested	Urgent	
	REI_007	12/3/2012 8:55:03 PM	10 minutes, 21 seconds	Downloaded	Speed Over 65MPH	5	
	REI_006	12/4/2012 6:56:30 AM	7 minutes, 50 seconds	Downloaded	Speed Over 65MPH	6	
	REI_006	12/4/2012 7:37:29 AM	8 minutes, 2 seconds	Downloaded	Speed Over 65MPH	6	
	REI_007	12/4/2012 3:47:22 PM	8 minutes, 26 seconds	Downloaded	Speed Over 65MPH	6	
	REI_006	12/4/2012 4:25:30 PM	6 minutes, 32 seconds	Downloaded	Speed Over 65MPH	6	
	REI_004	11/4/2012 6:18:58 PM	4 minutes, 3 seconds	Downloaded	Speed Over 65MPH	6	
	REI_006	11/5/2012 8:30:16 AM	6 minutes, 34 seconds	Downloaded	Speed Over 65MPH	6	
	REI_006	11/9/2012 8:30:19 AM	8 minutes, 23 seconds	Downloaded	Speed Over 65MPH	6	
	REI_004	11/5/2012 8:42:33 AM	4 minutes, 54 seconds	Downloaded	Speed Over 65MPH	6	
	REI_003	12/3/2012 12:04:01 PM	4 minutes, 2 seconds	Downloaded	Speed Over 65MPH	4	
	REI_006	12/3/2012 2:15:42 PM	8 minutes, 14 seconds	Downloaded	Speed Over 65MPH	6	
	REI_001	11/6/2012 9:59:49 AM	9 minutes, 47 seconds	Downloaded	Speed Over 65MPH	5	
	REI_001	12/6/2012 2:46:12 PM	6 minutes, 14 seconds	Downloaded	Speed Over 65MPH	6	

Streaming Video

Action Buttons

- Automatically downloads and archives event video and related data.
- Never-miss scheduling - schedules and wakes each DVR for interaction within a user-defined time frame. The scheduler can take on different patterns based on the flow of your vehicles into or out of the lot.
- Battery protection.
- Specify which events will result in automatic video archive, including user-defined criteria (i.e. speed and accelerometer threshold values, etc.). Downloads can be scheduled without any configuration at the DVR.
- Copy video files from server to user.

- Streams playback of all video events from server.
- Generate user-configured activity summary reports and distributes via email.
- Allows protection, deletion and management of video files.
- Graphically displays all video events - sort and filter by type, vehicle, date/time and other criteria.
- Manage disk space.
- Create and configure real time text and email event notifications.
- User and password administration.



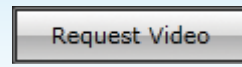
# AUTOMATIC DOWNLOAD SERVER (ADS)

## A.R.M.O.R.-AutoPilot Features



### Alert Manager

Setup rules for alerts.



### Request Video

Request video from specified dates and times.

## Playback Controls



### Play Video

Play streaming video by selecting all or specific cameras.



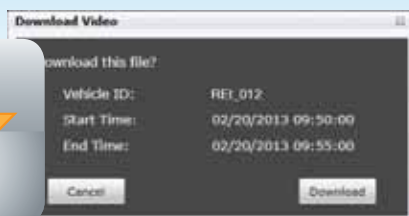
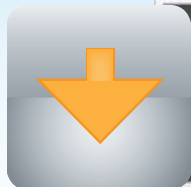
### Restrict

Share with restricted user.



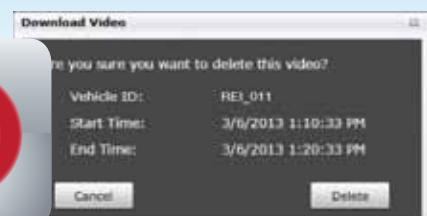
### File Protection

Lock or unlock requested video for future reference.



### Video Download

Download requested video from server to local computer.

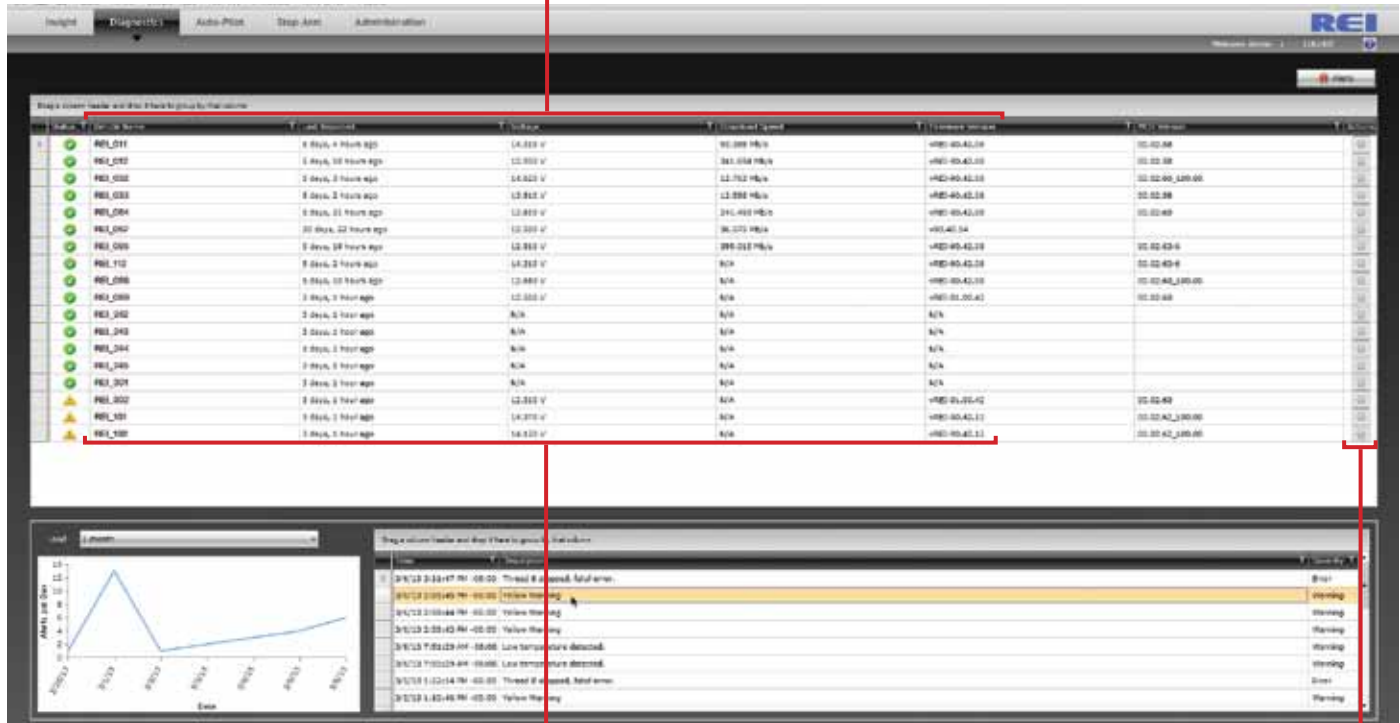


### Delete

Delete requested video from A.R.M.O.R.-AutoPilot.

**A.R.M.O.R.-Diagnostics** is the vehicle and DVR diagnostics tool that allows you to proactively monitor the health status of your wireless DVR(s), camera(s), and, with the J1939 CAN-BUS option, monitor the health of your vehicles as well.

## Sort or Filter Data Using Selectable Criteria



## System Data

## Action Buttons

- Dynamically determines current health of each DVR and vehicle.
- Uses J1939 to read vehicle information.
- Logs all information retrieved, building a consistent, accessible fleet history.
- Periodically generates user-configured activity summary reports, distributing them via email.
- Device-centric view displays vehicle and DVR health, with link to list of related "health event" information.
- Device-centric view displays essential DVR diagnostic information.

- User and password administration.
- Allows interaction with connected devices.
- Allows text and email notification of vehicle and DVR activity.
- Event-centric view displays events - sortable by vehicle, type, event-severity and time frame.
- Event-centric view allows email export of user-selected data.
- Create and configure real time text and email event notifications.
- Manage automatic DVR maintenance activities.

# VEHICLE & DVR DIAGNOSTICS

## A.R.M.O.R.-Diagnostics Features



Customize and download alerts. Choose delivery method, recipient and set expiration.

Alert Manager

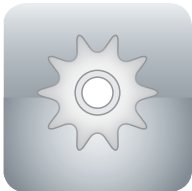
Alert Notifications New Alert

Vehicle Alerts +

Alert Category	Tracked Item	Alert Type	Delivered As	Alert Target	Expiration	Actions
Vehicle	REL_112	Vehicle Entering Lot	Email	Email: danmancuso@gmail.com	Never	Edit Delete
Vehicle	REL_068	Vehicle Entering Lot	Email	Email: danmancuso@gmail.com	Never	Edit Delete
Vehicle	REL_022	Vehicle Entering Lot	Email	Email: jaddison@radioeng.com	Never	Edit Delete
Vehicle	REL_033	Vehicle Entering Lot	Email	Email: jaddison@radioeng.com	Never	Edit Delete

Return

## Alert Setup and Status Indicators



### Setup

Personalize view and download parameters.



### OK

Video successfully downloaded and available to view.



### Warning

Caution and/or attention is needed for equipment triggering this alert.



### Error

Immediate attention is required due to system failure or corrupt equipment.

**A.R.M.O.R.-StopArm** is REI's turn-key, web-based software that provides automated stop-arm violation reporting at your fingertips. It links high resolution video with date of each incident and uploads the report automatically. By utilizing our high resolution day/night cameras with ARMOR-StopArm, you'll capture a clear image of the offenders' license plate, vehicle information, violation location and date/time. REI's ARMOR-StopArm can pay for itself when coupled with law enforcement.

**Available Events**

Drag a column header and drop it here to group by that column

	Vehicle ID	Event Time	Plate Image	Plate Text	Confidence	Status	Actions
Vehicle Name	VEH_034	9/20/2012 08:39:05		RXE974	High	Finished	
Date/Time Log	VEH_033	9/20/2012 08:13:33		SFV037	High	Finished	
Event Images	VEH_033	9/18/2012 08:30:59		SZW724	Moderate	Finished	
License Plate Image	VEH_032	9/13/2012 08:11:55		SMB065	High	Finished	
	VEH_035	9/12/2012 08:39:47		SJN030	High	Finished	
	VEH_035	9/12/2012 08:39:27		SNA449	High	Finished	
	VEH_036	9/6/2012 15:35:40		SIX097	High	Finished	
	VEH_032	9/5/2012 15:34:58		SJP875	High	Finished	
	VEH_032	9/5/2012 15:16:02		TCW691	High	Finished	
	VEH_034	9/5/2012 08:40:37		SUY524	High	Finished	
	VEH_035	9/4/2012 15:58:59		SVC034	High	Finished	
	VEH_035	9/4/2012 15:50:52		TDF392	High	Finished	
	VEH_036	9/4/2012 08:39:49		SJN030	Moderate	Finished	

**Step 1: Review Video** → **Step 2: Customize Report** → **Step 3: Generate Violation Report**

License Plate Text      Analysis Ranking      Incident Status      Actions: Download Lock Delete

## Do you know how many stop-arm violations you have?

Six children were killed by vehicles passing a school bus in 2011<sup>1</sup>. New York Association for Pupil Transportation (NYAPT) estimates that 35,000 - 50,000 motorists illegally pass stopped school buses each day in New York<sup>2</sup>.

(1) 2011-2012 National School Bus Loading & Unloading Survey, (2) [www.smartbuslive.com/stats.cfm](http://www.smartbuslive.com/stats.cfm)



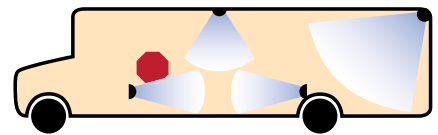
# STOP-ARM VIOLATOR INFORMATION

## 1. Review Video

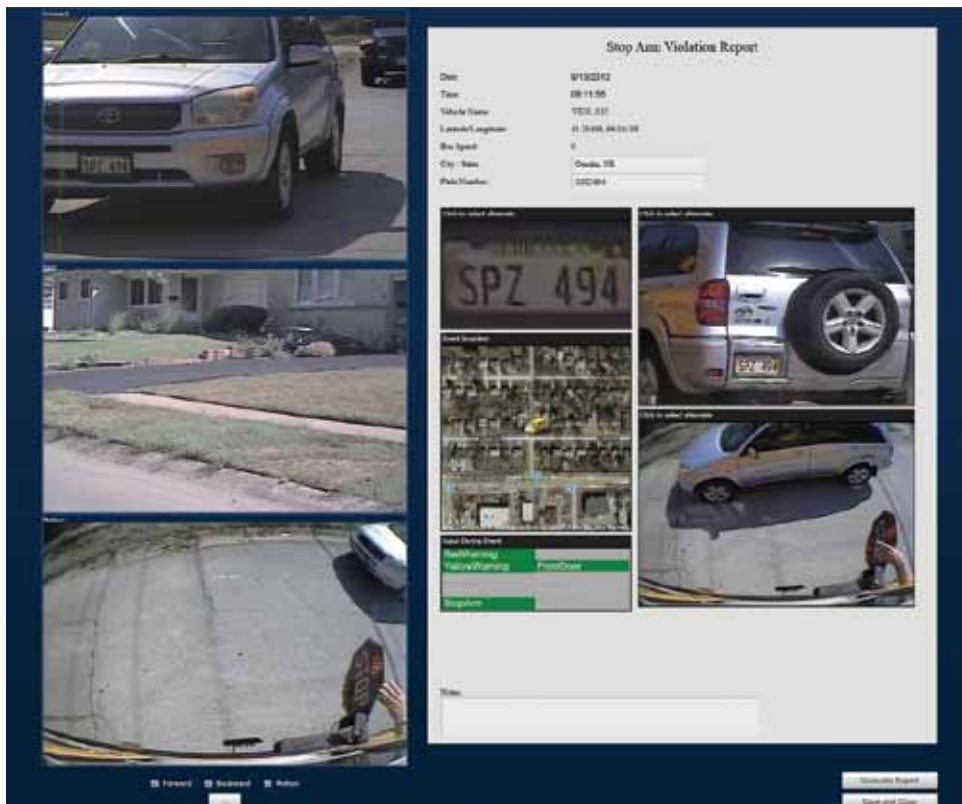


- After a violation has been flagged by ARMOR-StopArm, review the video for more information.
- Navigate the video frame-by-frame to locate the violation evidence for a report.
- Pick the channels for viewing video of the violation at every angle.
- Utilize high resolution color camera for clearer images.

*Stop-Arm Camera Mounting Options*



## 2. Customize Report for Optimal Viewing



- Select and choose video channels from your mobile video surveillance system that best captures the violation. System has ability to select from up to 8 channels.
- After selecting images from the video, the images remain active allowing you to modify the report.
- View the report as you make edits.
- Vital violation data is included on the report:
  - License Plate Image
  - Event Location/Coordinates Plotted on Map
  - Date/Time of Occurrence
  - Active Vehicle Inputs-Vehicle ID
  - City/State
  - Plate Number
- Generate report with click of a button.

### 3. Generate Violation Report

- Stop-Arm Violation report generated as .pdf.
- Report includes vital information and notes.
- Use report to issue violations.

**Do you require this report to meet specific local law enforcement criteria?**

REI can program a report exclusively to meet your needs. Contact your REI sales representative for more information.



**Green =**  
Active inputs  
during violation.



**Gray =**  
Inactive inputs  
during violation.

**REI**

#### Stop Arm Violation Report

Date: 9/13/2012 08:11:55 AM  
 Vehicle Id: VEH\_032  
 Coordinates: 41.23489,-96.04138  
 City / State: Omaha, NE  
 Plate Number: SPZ494  
 Bus Speed: 0

RedWarning	Buttons
YellowWarning	FrontDoor
LeftTurn	RearDoor
RightTurn	Panic Button
StopArm	

Notes:

Report Generated: 10/9/2012 9:48:05 AM

Page 1 of 1

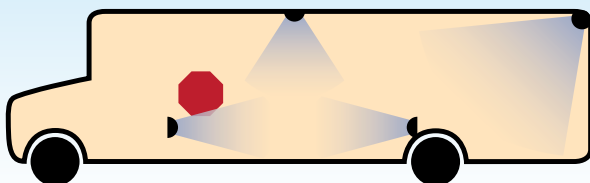
REI View with Exclusive Headlight Compensation



Competitor Camera View



Stop-Arm Camera Mounting Options



### Stop-Arm Camera

- Exclusive license plate capture software
- Vehicle headlight compensation
- Enhanced image quality and clarity
- Hi-res color series
- Optimized day/night settings automatically detects amount of light and switches setting for optimum viewing
- Built-in heater
- 650 TVL



Description	Part # Right Front/ Left Rear	Part # Left Front/ Right Rear
16.0mm Lens	710385	710395

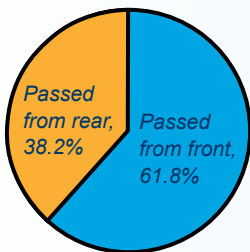
# STOP-ARM VIOLATOR INFORMATION

## Stop-Arm Statistics

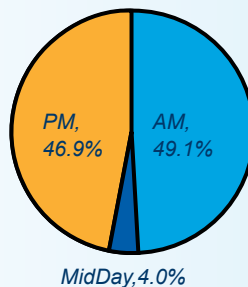
- On average, each school bus is illegally passed once every day<sup>1</sup>.
- According to the NHTSA, 21 children under the age of 19 die every year as pedestrians<sup>1</sup>.
- School buses are the safest motor vehicles on the highway—they are estimated to be 70 times safer than passenger cars, light trucks and vans. The most dangerous part of the school bus ride is getting on and off the bus<sup>2</sup>.
- An average of 31 pedestrians are killed annually while getting on or off a bus<sup>3</sup>.
- Half of pedestrian fatalities are children between the ages of 5 and 7<sup>3</sup>.

### 2011 National Stop-Arm Violation Survey National Association of State Directors of Pupil Transportation Services (NASDPTS)<sup>4</sup>

Stop-Arm Violations -  
Direction of Travel



Stop-Arm Violations -  
Time of Day



- New York Association for Pupil Transportation (NYAPT) estimates that 35,000 - 50,000 motorists illegally pass stopped school buses each day in New York<sup>3</sup>.
- A one-day study was conducted on 119 of the 131 school divisions in the State of Virginia. On that day, 3,394 Virginia motorists illegally passed a stopped school bus. Multiplying the results by a 180-day school year brings the total number of illegal passings to over 600,000 a year. Of the 3,394 total, 187 were right-side passes, on the side of the bus students use to enter and exit<sup>3</sup>.

(1) [www.operationstoparm.info/Operation\\_Stop\\_Arm/Home.html](http://www.operationstoparm.info/Operation_Stop_Arm/Home.html), (2) Fatality Analysis Reporting System, (3) [www.smartbuslive.com/stats.cfm](http://www.smartbuslive.com/stats.cfm), [www.nasdpts.org/StopArm2011/index.html](http://www.nasdpts.org/StopArm2011/index.html), (4) [www.nasdpts.org/StopArm2011/index.html](http://www.nasdpts.org/StopArm2011/index.html)



**A.R.M.O.R.-Insight** is your Executive Dashboard, designed especially for fleet management. Take the driver's seat with your fleet using a web-enabled, server-based software solution that provides a 360° overview of your fleet. REI brings this right to your desktop or mobile device wirelessly.

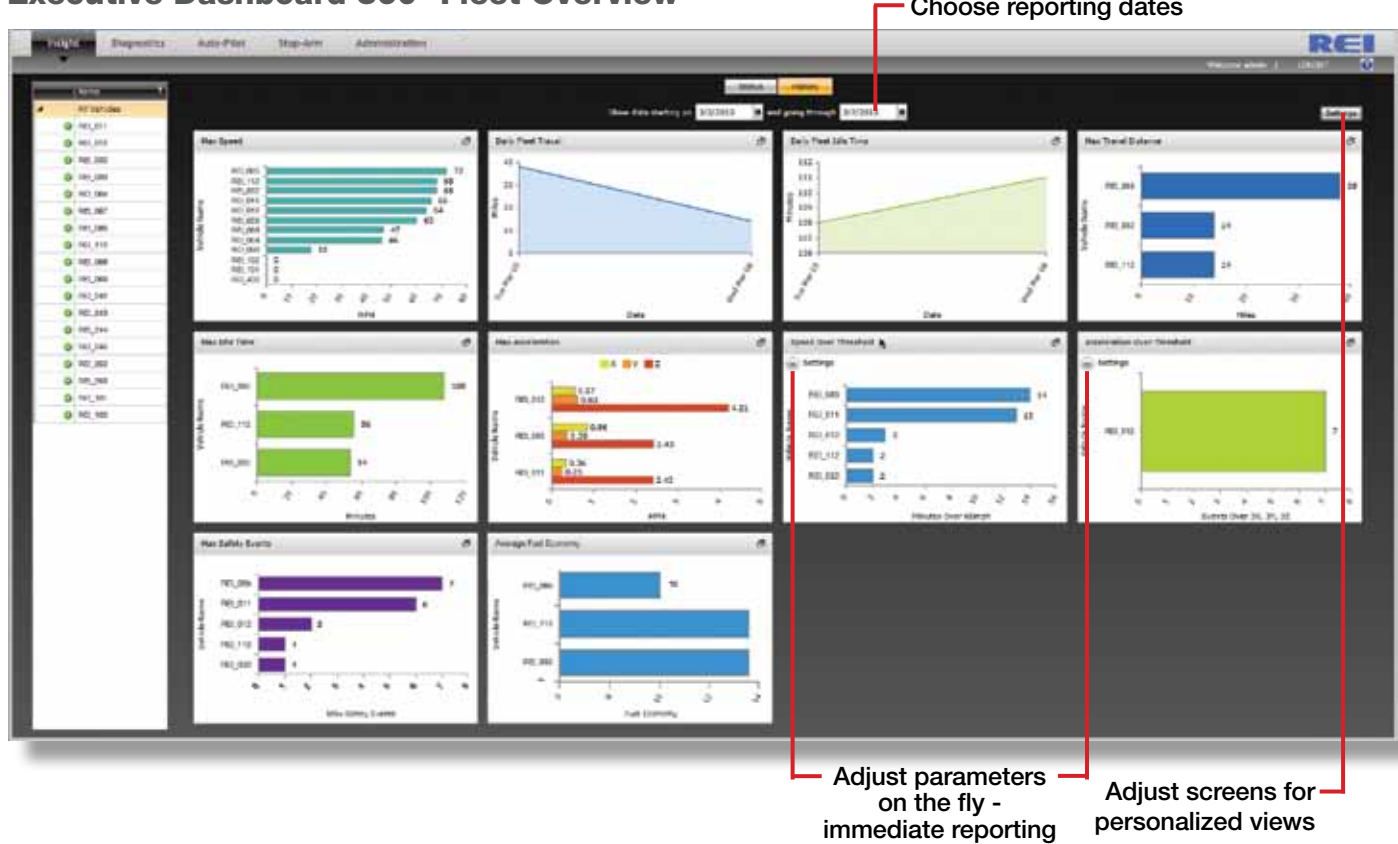
## System Recommendations:

- REI HD DVR with WiFi
- REI Cameras Internal and/or External
- REI **A.R.M.O.R.-VMS**
- REI **A.R.M.O.R.-AutoPilot** and **Diagnostics**
- Various Accessories

## Benefits:

- Delivers key data points for your review and analysis with easy-to-read charts
- Fleet is safer and more efficient
- Evaluates fleet and driver performance
- Prolongs fleet life
- Finds intermittent problems

## Executive Dashboard 360° Fleet Overview



## Fleet Advantages:

- Push text message alerts
- Reduce idle time
- Monitor speed and acceleration
- Fleet history
- Improve fleet safety with safety events, reporting and analysis

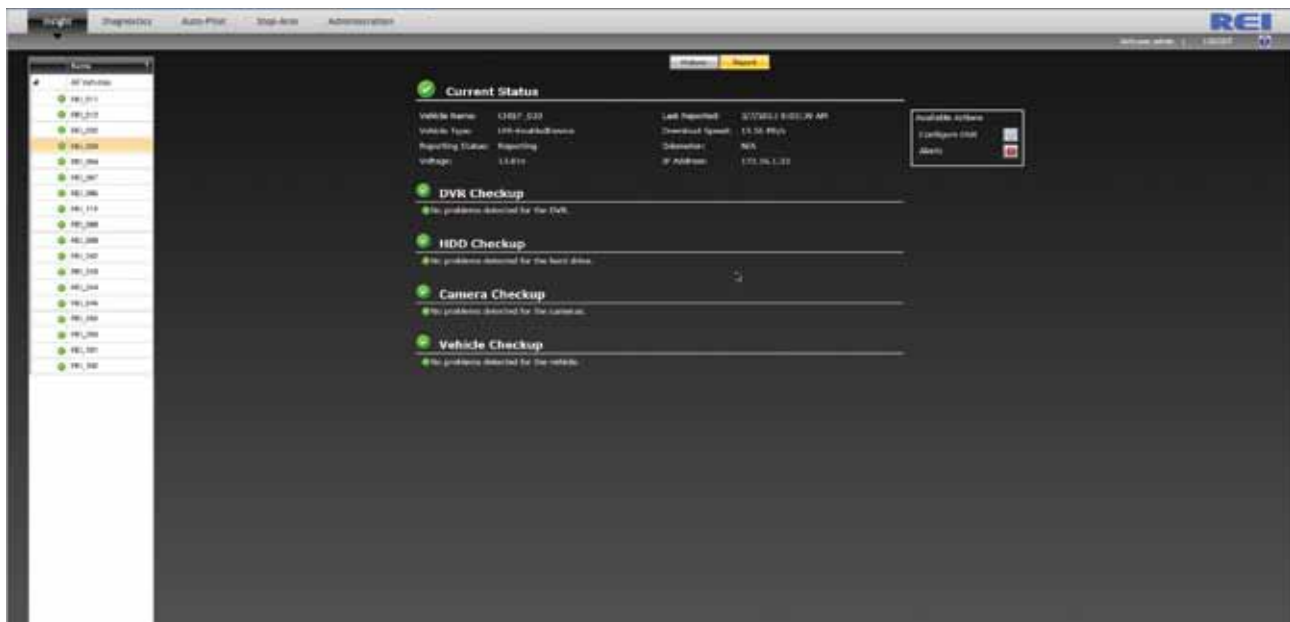
## Features:

- Select reporting dates
- Reporting modules
- Chart views
- Daily fleet travel
- Daily fleet idle time
- Max travel distance
- Max idle time
- Max acceleration
- Max speed
- Speed over threshold
- Acceleration over threshold
- Max safety events
- Average fuel economy
- Current fuel level
- Current SCR level
- System history
- Fleet activities
- Fleet maintenance alerts



# FLEET & VEHICLE MANAGEMENT

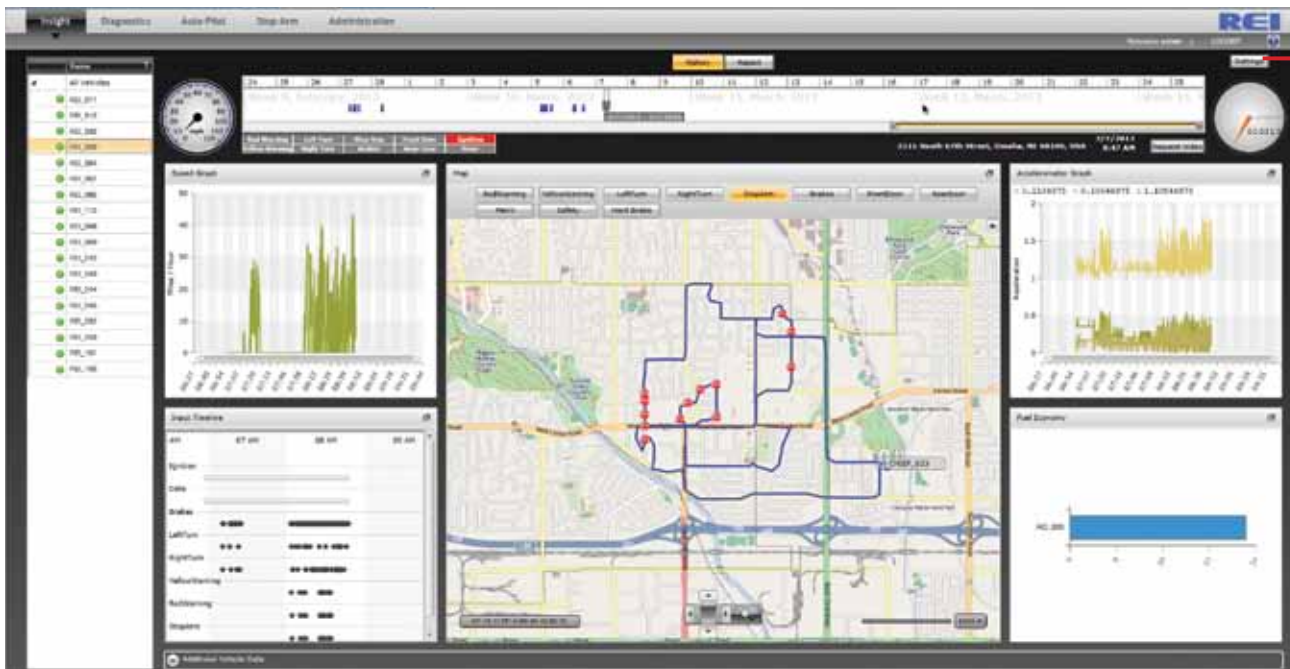
## Individual Vehicle View



- Current vehicle diagnostics including REI's *industry-leading* J-1939 data alerts
- Current vehicle meta-data
- DVR/HD/Camera operational status

## Executive Dashboard Individual Vehicle View

Request  
Video/Audio



- *Industry-leading* J-1939 data reporting
- Panic button alerts
- Graphs & route data dynamically linked for vehicle activity review
- Historical meta-data
- Input sensor harness data
- GPS / time
- Accelerometer data

**A.R.M.O.R.-Administration:** Within the A.R.M.O.R. software suite are easy-to-use administration tools that provide comprehensive system control and configuration options from any connected vehicle location. Manage the following with User Administration:

- User credentials
- Vehicle devices
- Vehicle types
- Event notifications
- Email summaries
- System activity reporting
- Automatic device maintenance
- Even processing
- Overall system information
- Automatic event download
- Device query scheduling

## Administration Overview

Insight
Diagnostics
Auto-Pilot
Stop-Arm
Administration

REI

Welcome admin
LOGOUT

Assets
Users & Notifications
Auto-Pilot
About

Vehicles
Vehicle Types
Divs Types

Drag a column header and drop it here to group by that column

	Last Reported	Vehicle Name	Vehicle Type	Out of Service
>	49 days, 11 hours ago	REI_011	Default	<input type="checkbox"/>
	50 days, 1 hour ago	REI_012	Default	<input type="checkbox"/>
	50 days, 3 hours ago	REI_064	Default	<input type="checkbox"/>
	49 days, 9 hours ago	REI_032	LPR-EnabledDevice	<input type="checkbox"/>
	49 days, 8 hours ago	REI_112	Default	<input checked="" type="checkbox"/>
	50 days, 1 hour ago	REI_085	Default	<input type="checkbox"/>
	57 days, 31 minutes ago	REI_068	Default	<input checked="" type="checkbox"/>
	49 days, 8 hours ago	REI_033	LPR-EnabledDevice	<input type="checkbox"/>
	65 days, 5 hours ago	REI_067	Default	<input type="checkbox"/>
	50 days, 2 hours ago	REI_068	Default	<input type="checkbox"/>
	49 days, 8 hours ago	REI_112	Default	<input type="checkbox"/>
	47 days, 7 hours ago	REI_241	Default	<input type="checkbox"/>
	47 days, 7 hours ago	REI_242	Default	<input type="checkbox"/>
	47 days, 7 hours ago	REI_400	Default	<input type="checkbox"/>
	47 days, 7 hours ago	REI_101	Default	<input type="checkbox"/>
	47 days, 7 hours ago	REI_243	Default	<input type="checkbox"/>
	47 days, 7 hours ago	REI_102	Default	<input type="checkbox"/>
	47 days, 7 hours ago	REI_244	Default	<input type="checkbox"/>
	47 days, 7 hours ago	REI_401	Default	<input type="checkbox"/>
	47 days, 7 hours ago	REI_245	Default	<input type="checkbox"/>

## Administration-AutoPilot

The screenshot shows the 'Auto-Download Rules' configuration window. The window has a title bar with 'Kaspersky Security Center' and a 'Help' button. Below the title bar is a navigation pane with 'Home', 'Tools & Settings', 'Auto-Download', and 'About'. The main area is titled 'Auto-Download Rules' and contains a table of rules. The table has columns for 'Name', 'Priority', and 'Status'. The 'Default Rule: Speed Over Time' rule is highlighted in blue. Below the table, there is a 'New Rule' button. At the bottom of the window, there is a status bar with 'Download Rule', 'Download Rule', 'Download Rule', 'Download Rule', and 'Download Rule'.

Name	Priority	Status
Download Rule: 4 GB	1	OK
Download Rule: 4 GB	2	OK
Default Rule: Speed Over Time	3	OK
Download Rule: 4 GB	4	OK

Administration AutoPilot provides comprehensive system control and configuration options from any connected location. Manage:

- Users
- Vehicle devices
- Vehicle device types
- Real-time notifications
- System activity reporting
- Automatic device
- Maintenance event processing
- Overall system information

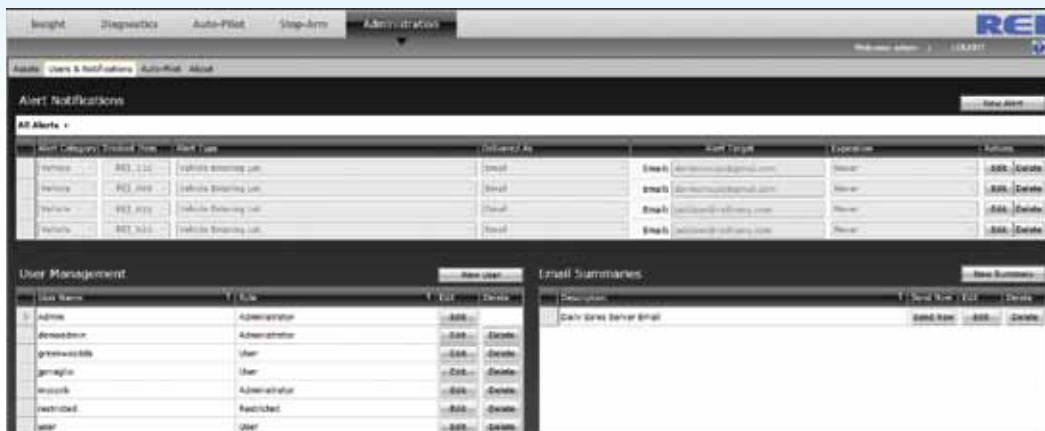
# USER ADMINISTRATION

## Vehicle Types



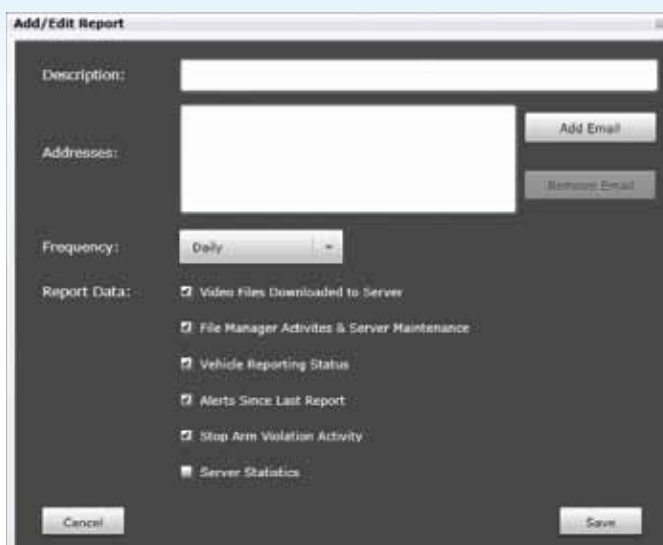
Vehicle Types identifies your vehicle to your specific use. For example, group your school bus settings separately than your shuttle bus settings. Set and download specific alerts per vehicle group to precisely manage your fleet.

## Individual Vehicle View



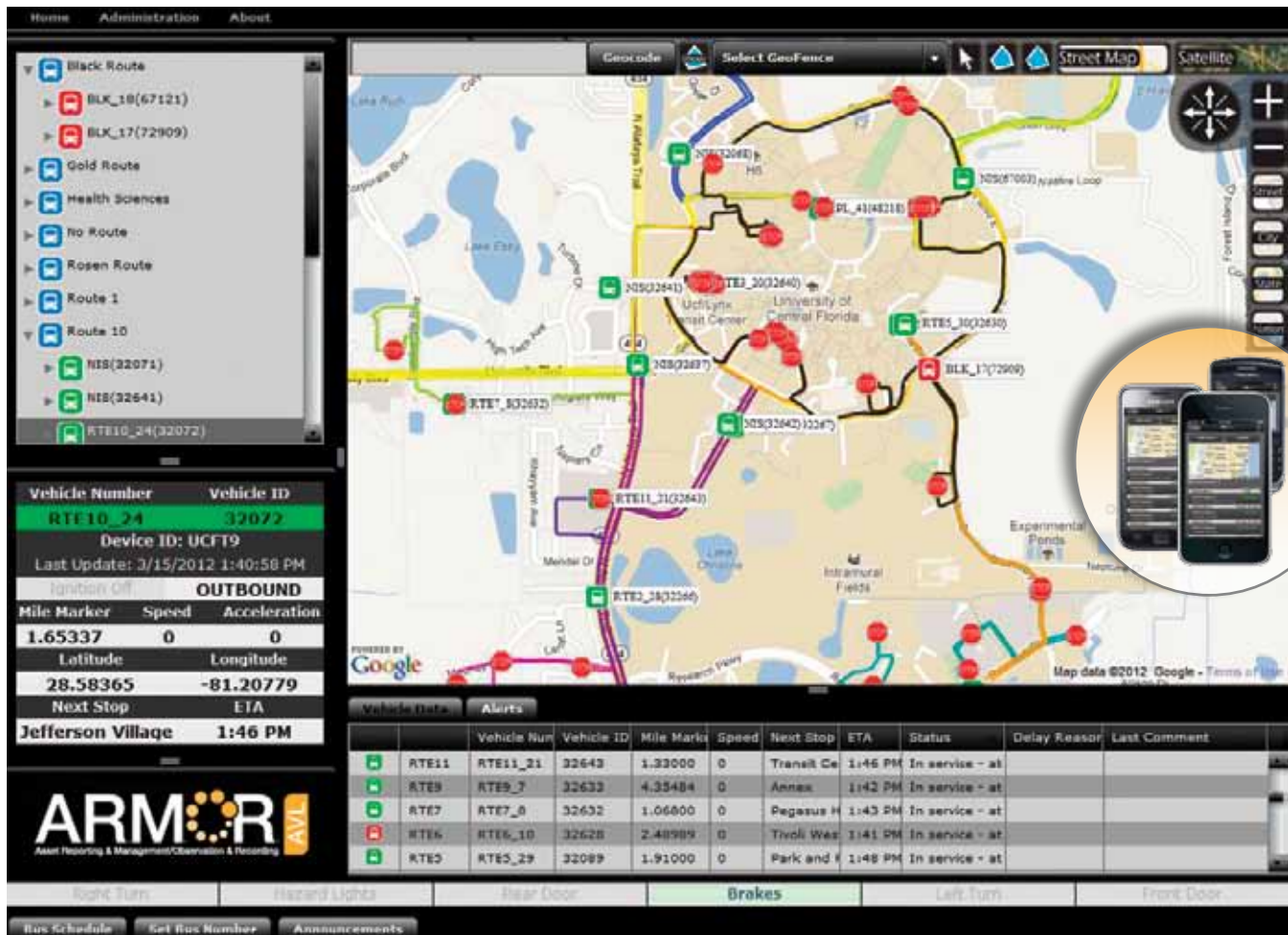
The Individual Vehicle View adds, edits and deletes real-time event notifications system-wide. Each event notification appears as a unique horizontal entry and can be sorted and filtered using the column controls.

## Email Summaries



Email Summaries are comprehensive administrative activity reports delivered via email at a user-specified frequency to select email addresses.

**A.R.M.O.R.-AVL** is a real time fleet management solution which provides a quantifiable return on investment, reduces risky driving behavior and can drastically improve operating efficiencies. The system also provides fleet operators the tools they need to reduce costs and improve fleet operations.



- Field proven and cost effective automatic vehicle location, video surveillance and passenger information system built on open standards and COTS hardware.
- Turn-key, fully supported solution provides in-depth, real time view of rolling stock and vehicle operations.
- Web-based operations management and dispatch software.
- Automated next bus/next stop announcements.
- Instantly know the precise location of your entire fleet at all times.
- Improve on-time performance and reduce inbound customer complaint calls.
- Reporting tools provide fingertip access to vehicle hour, mileage, performance to schedule, excessive idling, speeding, trip history ("breadcrumb") and other reports. These reports are essential in helping improve driver behavior - stark reductions in speeding, risky driving behavior, excessive idling and driver efficiency.
- Add-ons include:
  - Automatic passenger counters.
  - Passenger information display systems with synchronized text and audio.



## A.R.M.O.R.-AVL Features



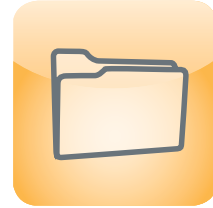
### **Fleet Management**

Oversee vehicle maintenance and inventory, asset management and more.



### **Fuel Savings**

Track fuel consumption and reduce excessive fuel usage.



### **Incident Management**

Automatically track and manage alerts and incidents occurring on your vehicles.



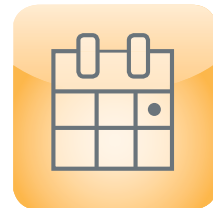
### **Smart Phone Apps**

Passengers can quickly and conveniently access bus arrival predictions.



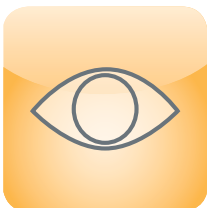
### **CAD/AVL**

Manage your entire fleet remotely, performance to schedule, and more.



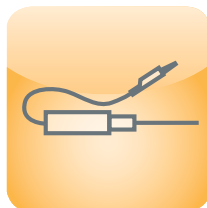
### **Route Planning**

Accurately plan the most efficient routes for your fleet.



### **Mobile Video Surveillance**

Combine the power of AVL and video surveillance into one cohesive package.



### **Vehicle Diagnostics**

Reduce maintenance costs and down-time with real time vehicle diagnostics.



### **Driver Training**


Utilize reports and analytics to improve driver behavior.

REI's mobile DVRs record video, audio and vehicle data via a removable hard drive or SD card. Connect 1 to 8 surveillance cameras and provide ultimate video coverage in and around your vehicle. You can customize your recording times or simply start your vehicle to begin recording. Plus, you can record for up to 10 hours after the vehicle is shut off. REI's durable DVRs include an extruded aluminum chassis, fanless design and wireless capability.

## HD Series

### HD800 DVR - 8 Camera Channels

Part #710331

with WiFi 

Part #710425



- Record up to 8 channels of audio/video - 240 fps at D1 resolution

#### PRODUCT ORDERING CODES

DVR SERIES	MODEL	WiFi	# of Cameras	Hard Drive Storage
HD	800			
		W = WiFi Leave Blank for No WiFi	1 = 1 Camera 2 = 2 Cameras 3 = 3 Cameras 4 = 4 Cameras 5 = 5 Cameras 6 = 6 Cameras 7 = 7 Cameras 8 = 8 Cameras	320 = 320GB 500 = 500GB 750 = 750GB 1 = 1TB

- Easy-to-use **A.R.M.O.R.-VMS** viewing software
- H.264 advanced video compression
- Dual streaming WiFi
- 3G/4G compatible
- GPS compatible
- Removable hard drive module with USB port

### HD420 DVR - 4 Camera Channels

Part #710422

with WiFi 

Part #710424



- Record up to 4 channels of audio/video - 120 fps at D1 resolution

#### PRODUCT ORDERING CODES

DVR SERIES	MODEL	WiFi	# of Cameras	Hard Drive Storage
HD	420			
		W = WiFi Leave Blank for No WiFi	1 = 1 Camera 2 = 2 Cameras 3 = 3 Cameras 4 = 4 Cameras	320 = 320GB 500 = 500GB 750 = 750GB 1 = 1TB

- USB auto download
- Integral hard drive dampening
- Durable, extruded aluminum chassis
- Durable, compact and lightweight
- Quiet, clean, fanless design
- Optional lock box and security caps

## DR Series

### DR40 DVR - 4 Camera Channels

Part #710411

- Record up to 4 channels of audio/video - 60 fps at D1 resolution
- Easy-to-use **A.R.M.O.R.** viewing software
- H.264 advanced video compression
- Dual streaming WiFi
- 3G/4G compatible
- GPS compatible
- Removable hard drive module with USB port
- USB auto download
- Integral hard drive dampening
- Durable, extruded aluminum chassis
- Compact and lightweight
- Quiet, clean, fanless design
- Optional lock box and security caps



#### PRODUCT ORDERING CODES

DVR SERIES	MODEL	# of Cameras	Hard Drive Storage
DR	40		
		1 = 1 Camera	320 = 320GB
		2 = 2 Cameras	500 = 500GB
		3 = 3 Cameras	750 = 750GB
		4 = 4 Cameras	1 = 1TB

## SD Series

### SD40 DVR - 4 Camera Channels

Part #710292

- Record up to 4 channels of audio/video - 60 fps at D1 resolution
- Lockable SD card slot utilizes professional grade 32GB REI SD card
- Easy-to-use **A.R.M.O.R.** viewing software
- H.264 advanced video compression
- 100% solid-state technology
- Dual streaming WiFi and 3G/4G compatible
- USB auto download
- Durable, compact and lightweight
- Quiet, clean, fanless design
- Optional security caps



#### PRODUCT ORDERING CODES

DVR SERIES	MODEL	# of Cameras	SD Card Storage
SD	40		32
		1 = 1 Camera	
		2 = 2 Cameras	
		3 = 3 Cameras	
		4 = 4 Cameras	

# CAMERAS

REI offers a variety of high resolution color cameras that can be placed on the interior or exterior of your vehicle(s). Choose 1 or 2 cameras for minimal coverage or up to 8 cameras to maximize your view of activities in and around your vehicle. REI's cameras are fully integrated with audio, include IR illuminators with backlight compensation, have adjustable viewing angles and are tamper proof. With a small footprint and no exposed cables, the cameras can be mounted easily and seamlessly onto your vehicle.

## Wedge Camera

- Hi-res color series
- Day/night viewing
- Microphone allows for audio separation in various areas of the vehicle
- Intelligent IR technology for eliminating IR hot spots



Description	Part #
2.8mm Lens	710360
4.0mm Lens	710361
6.0mm Lens	710362
8.0mm Lens	710363

## Minibox Camera

- Hi-res color series
- Day/night viewing
- Microphone allows for audio separation in various areas of the vehicle
- Intelligent IR technology for eliminating IR hot spots
- Adjustable viewing angle



Description	Part #
2.8mm Lens	710350
4.0mm Lens	710351
6.0mm Lens	710352
8.0mm Lens	710353

## Dome Cameras

- Hi-res color series
- Microphone allows for audio separation in various areas of the vehicle
- Optional illuminator available



Camera shown with optional IR Illuminator



Description	Part #
2.8mm Lens	710370
4.0mm Lens	710371
6.0mm Lens	710372
8.0mm Lens	710373
Day/Night Illuminator	710369
Fixed Pedestal w/ 5" Post Dome Mount Plate	540919
Adjustable Pedestal Mount w/ 6" Post Dome Mount Plate	540921

## Exterior Side Mount Cameras

- Hi-res color series
- Day/night viewing
- Built-in heater



Right Front/  
Left Rear  
Mount



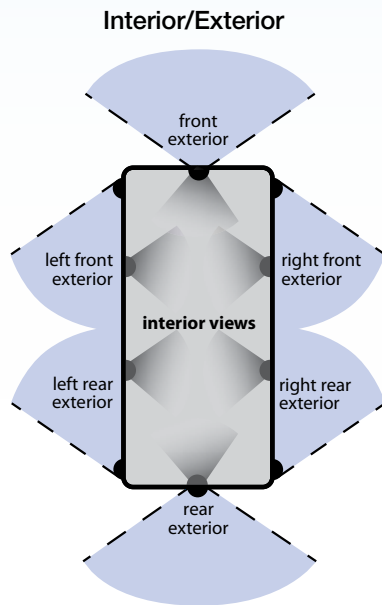
Left Front/  
Right Rear  
Mount

Description	Part # Right Front/ Left Rear	Part # Left Front/ Right Rear
4.0mm Lens	710380	710390
6.0mm Lens	710381	710391
8.0mm Lens	710382	710392
12.0mm Lens	710383	710393
16.0mm Lens	710384	710394
Rear/Side Door 2.8mm	710441	



## Camera Mounting Options

REI's cameras can be mounted in a variety of locations throughout the interior and exterior of your vehicle. Choose one or two locations for basic coverage, or choose more locations for maximum coverage. The number of cameras you choose to mount will affect which REI DVR you need to purchase.



## Camera Cable Options

Description	Part #
Ext. Camera Cable Adapter	512246
6' Camera Cable	512166
15' Camera Cable	512167
25' Camera Cable	512168
40' Camera Cable	512169
50' Camera Cable	510993
60' Camera Cable	512170

## Interior Camera Views



## Exterior Camera Views



Note: 0°, 5° and 15° mounting plates included with cameras.

# ACCESSORIES

## Hard Drives - 320/500/750GB/1TB

HD Series



DR40



## SD Card



## USB SD Card Reader



## Panic Button/Event Marker



## Wireless Bridge



## GPS Antenna Receiver



## Inertia Sensor - Accelerometer 8G



## 20' Vehicle Sensor Harness



## Camera/DVR Setup Monitor



Description	Part #
HD Series Hard Drive - 320 GB SATA	710332
HD Series Hard Drive - 500 GB SATA	710333
HD Series Hard Drive - 750 GB SATA	710334
HD Series Hard Drive - 1 TB SATA	710341
DR40 Hard Drive - 320 GB SATA	710445
DR40 Hard Drive - 500 GB SATA	710446
DR40 Hard Drive - 750 GB SATA	710447
DR40 Hard Drive - 1 TB SATA	710448
SD Card - 32 GB	690694
USB SD Card Reader	690647
Panic Button/Event Marker w/20' Harness (Additional Lengths Available)	511986
Wireless Bridge Kit 802.11G	750240
GPS Antenna Receiver/SIRF3 w/16' Cable	710214

Description	Part #
HD Series Inertia Sensor - Accelerometer 8G	710335
DR/SD Series Inertia Sensor - Accelerometer 8G	710449
Status Output Module	710429
20' Vehicle Sensor Harness (Additional Lengths Available)	512209
Camera/DVR Setup Monitor	750207
A.R.M.O.R.-VMS - HD Series	621012
A.R.M.O.R.-CMS - DR/SD Series	621005
A.R.M.O.R.-AVL	Inquire
A.R.M.O.R.-Auto Pilot & Diagnostic	622012
A.R.M.O.R.-Insight	622016
A.R.M.O.R.-StopArm	622014

## Security Cap-Front



## Security Cap-Rear



SD40 shown with Security Caps.  
Security Caps also available for  
DR40 and HD Series DVRs.



Description	Part #
Security Cap HD Series - Front and Rear	750202
Security Cap HD Series - Rear	750203
Security Cap DR40 - Front and Rear	750268
Security Cap DR40 - Rear	750269
Security Cap SD40 - Front	750243
Security Cap SD40 - Rear	750244
Lock Box	710133
6' Cable - USB 2.0	530076
3' Cable - Network Crossover CAT5E	530068
Cable - Exterior Camera Adapter	512246

## Mobile Broadband Router



- Pre-configured to integrate with REI DVRs
- Single 3G/4G factory installed card
- Rugged enclosure w/secure power connector
- External power, status and signal strength indicators
- Ethernet port for device connectivity

Mobile Broadband Routers	Part #
Mobile Broadband Router - Sprint	832153
Mobile Broadband Router - Verizon	832151

## Cellular Broadband Router and Mobile Hotspot



- Single or dual 3G/4G factory installed cards
- Rugged enclosure w/secure power connector
- External WiFi and cellular antenna connections
- External power, status and signal strength indicators
- Dual band WiFi hotspot with 3x3 MIMO antenna system

Call your REI sales representative for additional functionality.

Cellular Broadband Routers	Part #
Single Mobile Broadband Router WiFi - Sprint	832151
Single Mobile Broadband Router WiFi - Verizon	832153
Dual Mobile Broadband Router WiFi - 1-Sprint, 1-Verizon	832156
Dual Mobile Broadband Router WiFi - Sprint	832154
Dual Mobile Broadband Router WiFi - Verizon	832155
<i>Includes: Modem; Power Cable; and WiFi Antenna</i>	

Cellular Antennas	Part #
Fixed Mount NMO Low Profile Cellular Antenna w/17' Cable	210136
Glass Mount Cellular Antenna w/14' Cable	210134

# CAMERA OBSERVATION

When you need extra visibility on the road or around the farm, a versatile REI camera observation system gives you the edge you need. It can be the extra “eyes” required for blind spot protection and lane changing assistance, in addition to improving day and night visibility. All of our systems are built and tested to withstand constant use in commercial applications and can withstand harsh conditions such as temperature extremes, vibration and power fluctuations.

## Monitor Features

- Digital color LCD monitor
- Button backlighting and auto dimming
- View 1, 2, 3 or 4 cameras at the same time\*
- Wide operational temperature range
- RCA audio/video AUX input
- 12/24 Volt
- 2.4 GHz (wireless system)

\*Varies by monitor model

## Camera Features

- Sony color CCD image sensor
- Die-cast high impact waterproof housing
- IR illuminated - up to 45' in darkness\*
- Built-in thermostat controlled heater\*\*
- Wide operational temperature range
- 12 Volt (power provided from monitor)
- DC10.5-28V (wireless camera)
- 2.4 GHz w/100M range (wireless camera)

\*Illumination distance varies by camera

\*\*Excluding eyeball cameras

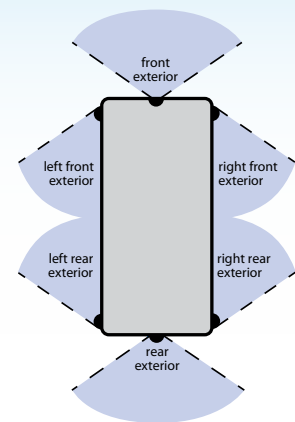
## System Accessories

- Metal mounting brackets w/stainless steel hardware
- Insulated camera cable w/watertight connections
- Sun visor trim ring (monitor)
- Remote control

## Wired Camera Observation System



### Camera View Options

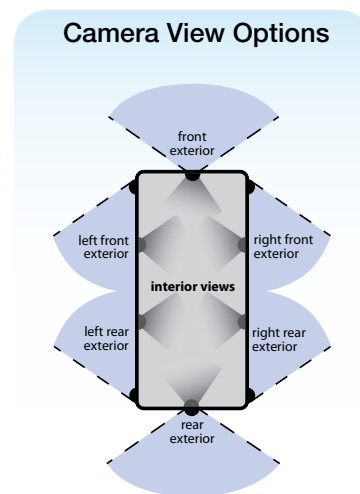


System Description	Monitor View	System - Main Components	Part #
7" LCD w/1 Camera Input, 1 Minibox Camera and 65' Camera Cable	Single Camera View	710346 - 7" Monitor 710311 - Minibox Camera 512369 - 65' Camera Cable	760923
7" LCD w/3 Camera Inputs, 1 Minibox Camera and 65' Camera Cable	Single Camera View	710310 - 7" Monitor 710311 - Minibox Camera 512369 - 65' Camera Cable	760920
7" Quad LCD w/4 Camera Inputs, 1 Minibox Camera and 65' Camera Cable	Monitor Allows for Single/Dual/Quad View	710344 - 7" Monitor 710311 - Minibox Camera 512369 - 65' Camera Cable	760926
5" LCD w/3 Camera Inputs, 1 Minibox Camera and 65' Camera Cable	Single Camera View	710368 - 5" Monitor 710311 - Minibox Camera 512369 - 65' Camera Cable	760921



# CAMERA OBSERVATION

## Wireless Camera Observation System

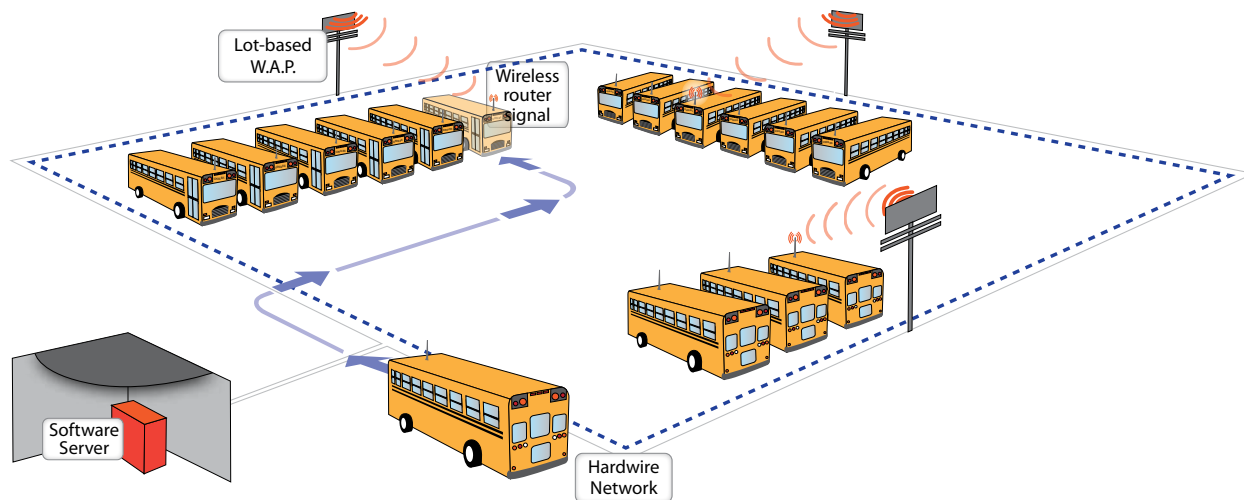


System Description	Monitor View	System - Main Components	Part #
7" Wireless LCD Receives 1 Wireless Camera Image, Includes Wireless Minibox Camera - Channel F	Single Camera View	710401 - Wireless 7" Monitor 710364 - Wireless Minibox Camera - Channel F	760922
7" Wireless Quad LCD Receives up to 4 Wireless Camera Images, Includes 1 Wireless Minibox Camera - Channel F <i>Additional cameras must be ordered separately</i>	Monitor Allows for Single/ Dual/Triple/Quad View	710345 - Wireless 7" Monitor 710364 - Wireless Minibox Camera - Channel F	760927

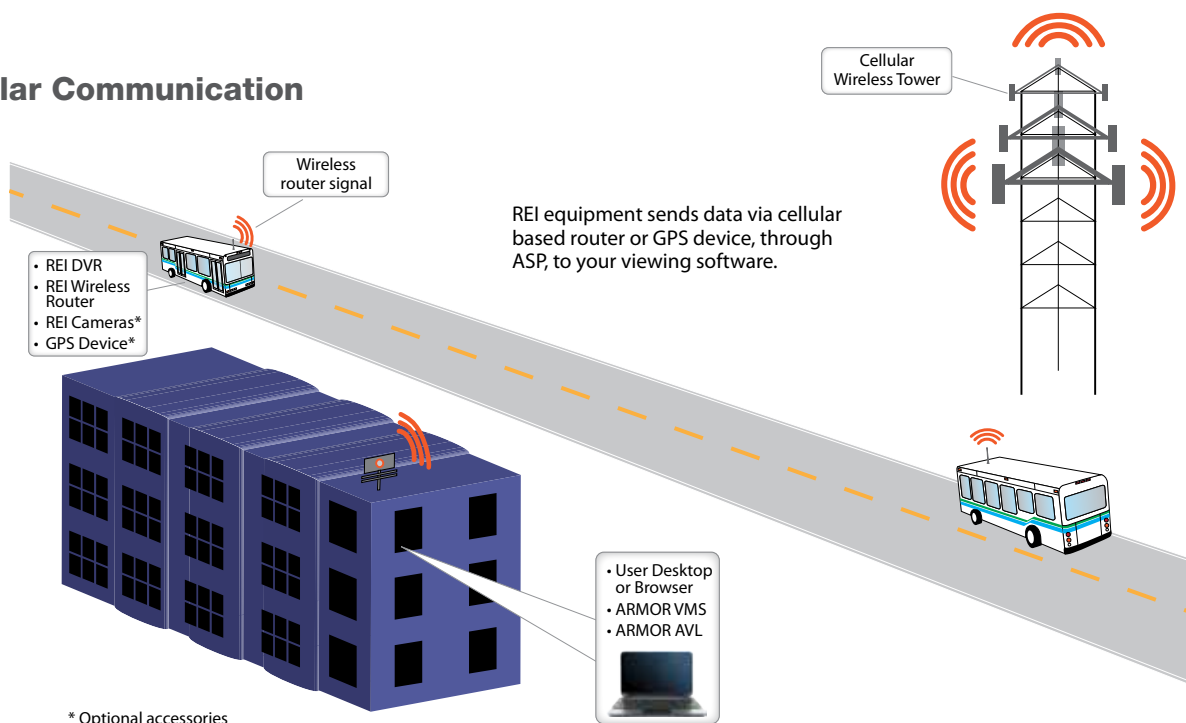
# SYSTEM OVERVIEW

REI's surveillance solution integrates seamlessly to meet your safety needs. Our sales team is here to guide you, so whether you outfit your fleet with one or two solutions or choose the entire suite, you're guaranteed to have the customized solution that's right for you. Ready to learn more? Contact REI sales today!

## Wireless Communication



## Cellular Communication



# HOW IT FITS TOGETHER

Interior Surveillance Cameras



Exterior Observation Cameras

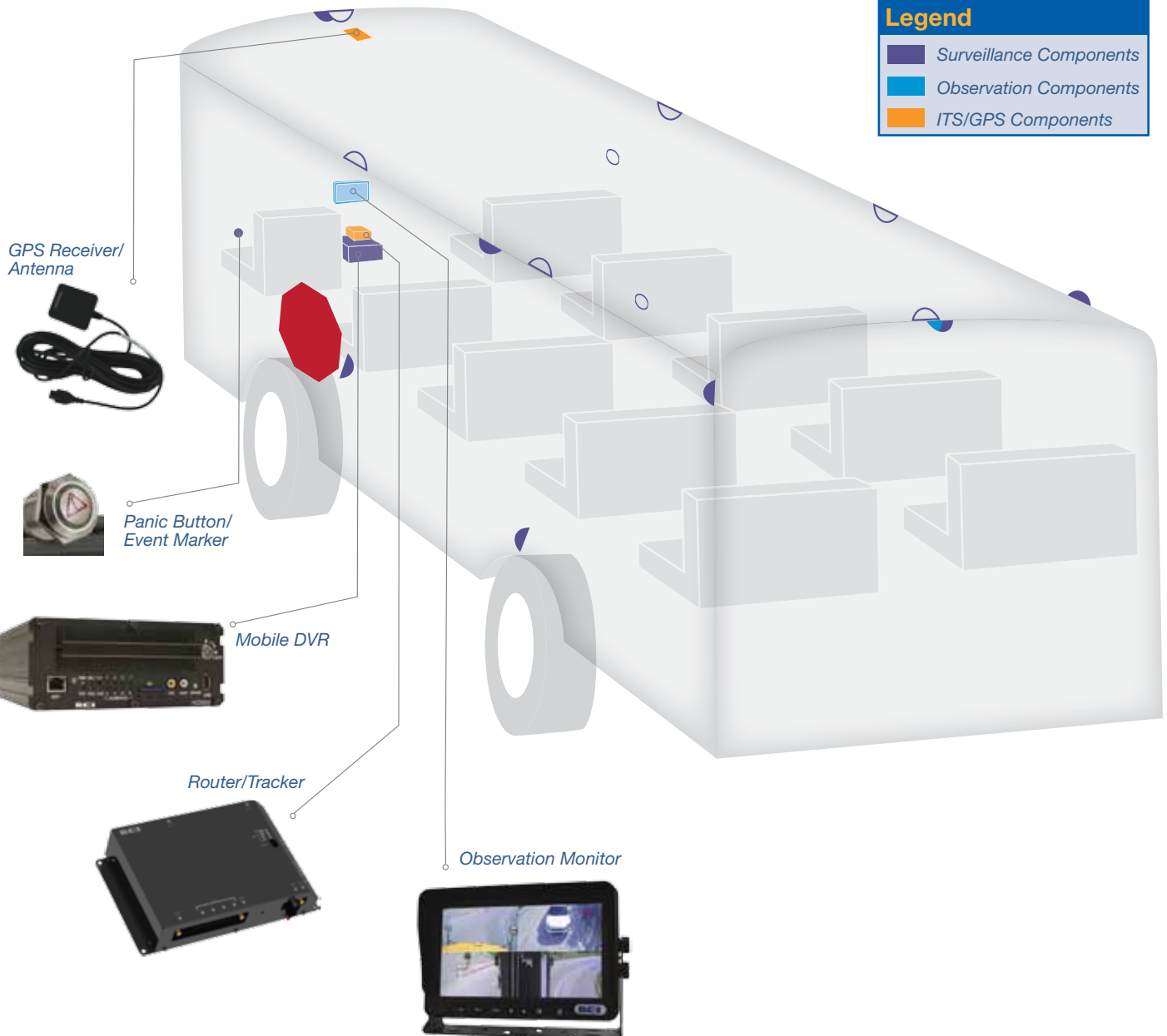


Exterior Surveillance Camera



## Legend

- Surveillance Components
- Observation Components
- ITS/GPS Components



# REI

# MOBILE VIDEO SURVEILLANCE



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402.339.2200

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