Record Digital Video Images from up to Eight Vehicle Cameras

K alatel's MobileView II is a mobile digital video recording system that is designed to fit mobile recording needs and is capable of recording up to eight cameras. Digital video images are stored in a compact and rugged vehicle-mounted recorder. An audio option provides synchronized audio during image playback. Recorded images may be viewed from a laptop or at the central station through the use of a docking station and PC.

When MobileView II's patented cellular transmission system is used, the system can be programmed to automatically capture, store locally, and transmit images to a central monitoring station. The central station can also call into the mobile system and request images at any time.

The typical MobileView II system consists of CCTV cameras, a digital video recorder (DVR), a keypad, an optional analog cellular transmission system, a docking station, and a PC loaded with MobileView II Central Station Software.
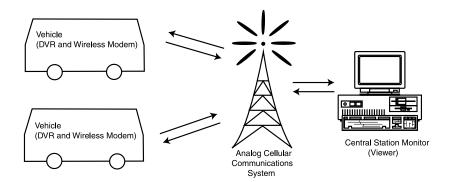
MobileView II DVR in outer housing with LCD monitor, portable keypad, and typical camera housing.

Features

- 36 GB of storage space
- Lightweight/compact – 12 lb
- Multiple resolution settings
- Capture rate of up to eight images per second
- MobileView II image browser
- Eight NTSC/PAL camera inputs

- Single channel audio option
- Patented wireless transmission option
- Field download capability
- Six alarm trigger inputs/two outputs
- Embedded system platform
- SideEye™ camera option

MobileView Theory of Operations

Vehicle
(DVR and Wireless Modem)

Vehicle
(DVR and Wireless Modem)

Analog Cellular
Communications
System

Central Station Monitor
(Viewer)

System Diagram

When the transmission option is used, the central station can request images through a cellular connection and can automatically receive images from a vehicle when an alarm or trigger is activated.
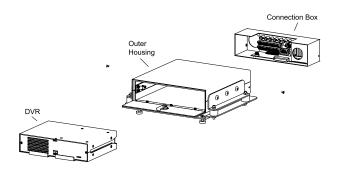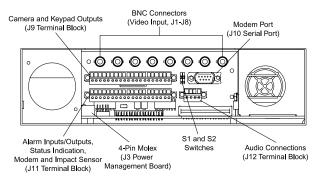
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MobileView Vehicle Hardware

The MobileView II DVR consists of a digital processor with 36 GB of fixed disk memory protected inside a rugged outer housing that provides shock and vibration protection. By itself, the DVR acts as a mobile recording device. It can be programmed to record images at regular intervals and at various resolutions and capture rates, or to capture images after a specific alarm or trigger has been activated (e.g., panic button, inertia switch). Under normal operation, images that are tagged because of the activation of the system's inputs are protected from automatic overwriting and will be deleted only after a preprogrammed time period. Stored images can be retrieved and viewed at the central station.
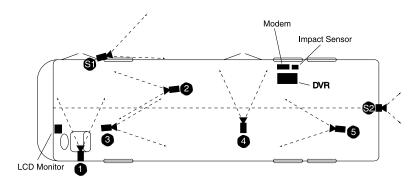
The DVR can support up to six user–defined alarm or trigger inputs and two status outputs. The most commonly used inputs are driver panic buttons and impact (crash) sensors. Images generated by these triggers are "tagged" in a special file format with a time and date stamp so that critical information can be easily found and retrieved. DVR's are self-regulating, internally protected from power surges and spikes, and environ–mentally monitored for internal temperature. The DVR uses wavelet image hardware compression and is powered via a 12 or 24VDC input.

MobileView II Cameras

The MobileView II system can support up to eight color or monochrome cameras. The stored or captured images have a resolution of up to 720 X 243 pixels. The cameras are mounted in low–profile, vandal–resistant housings (flush– or surface–mount) inside or outside the vehicle. The system can be programmed to capture up to eight images per second (system total). Each camera can be programmed to capture images independently at a configurable rate. The DVR can store at least seven 18-hour days of images. Recording for longer periods is possible by adjusting the user–defined image parameters.

Typical System Layout

Cameras 1-5 are interior MobileView II system cameras; Cameras S1 and S2 are optional exterior-mount SideEye cameras.

SideEye Cameras are a customizable option. Stationary side–mount cameras are attached outside the bus at driver blind spots. They are viewed on a separate LCD monitor located by the driver. Side–mount cameras and the SideEye LCD Monitor are not connected to the DVR or cellular transmission system.

Cellular Transmission

The patented transmission system (utilizing analog cellular technology) provides two additional features: dial in and connection to the vehicle to receive live video images, and automatic transmission of images to the central station when an alarm or trigger is activated on the vehicle. The transmission system also allows information relating to the DVR—such as camera status, software versions and log files—to be downloaded.

Simple DVR Configuration

Configuring the DVR is simple. A small keypad, that is connected to the DVR, enables the user to navigate through the programming menus. The keypad is used to test connections during the installation process for configuration once the system has been completely installed. It is also used for troubleshooting and status indication. The keypad can also save configuration information for an entire fleet to be uploaded or downloaded.

MobileView Central Station

The central station consists of a CPU, monitor, keyboard, mouse, modem (if transmission is used), docking station, and MobileView II Central Station Software, which features a synchronized eight-window image browser. At the central station an operator can review the images captured on the DVR. With the transmission option, an operator can perform three primary tasks: dial up and connect to a vehicle to receive video images, receive incoming alarm images and data, and view previously recorded images. Central Station Software processes incoming alarm signals received through a cellular network. The alarm signal originates from a DVR unit that has received an event trigger, normally associated with a panic button or impact sensor. The Central Station Software also enables the operator to view "current" surveillance images by dialing a vehicle through the cellular modem.

Meeting Mobile Recording Needs

The image at left depicts Central Station Software showing the views from up to eight onboard cameras.

To review the stored image data, the DVR is simply removed from the outer housing at the vehicle site and inserted into the docking station. Data can then be viewed, enhanced, sharpened, enlarged, printed, e-mailed, or transferred to alternative mass media for long-term storage. Images can also be viewed from a laptop via an ethernet connection and Central Station Software. Browser software presents previously recorded images in one, four, or eight camera views at once. The operator can control the speed of cycling through images as well as the sharpness/enhancement of the image. Images are generally loaded in 1-hour (60-minute) increments. Once downloaded, these images may be copied in various time segments.

Technical Specifications

DVR

Electrical

Input Voltage:	12 & 24VDC version power environment
Power:	60 watts (does not include cameras)
Video Inputs:	8 BNC Connectors
Triggers:	6 N/C Opto-Isolated Inputs
Network:	Network Card – PSTN, LAN

Hardware

Drive Size:	36 GB of Memory
Dimensions:	12.5 x 13.12 x 3.88 inches (including brackets and splash guard)
Weight:	12 pounds
Temperature:	Operates between 5° and 55° C

Software

Resolution:	720 x 243 pixels
FPS:	Up to eight (Fields per Second)

Central Station

Hardware (minimum)

Processor:	Intel Pentium 500 MHz or better
Memory:	64MB RAM

Hard Drive:	6.0 GB Internal
Network:	Network Card – PSTN, LAN
Monitor:	SVGA & 8MB SVGA Video Card (16.7M Colors)
Docking Station:	MobileView II specific

Software

Windows 2000

MobileView Browser Software

Transmission Option★

DVR

Modem:	Sierra Wireless modem (MP 200 series) and antenna

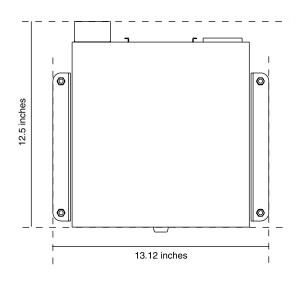**Central Station**

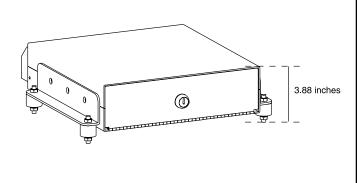|	
Network:	Network Card – PSTN, LAN
Transmission:	Shiva Remote Access Server
Modem:	Paradyne 3825 Plus (cellular compatible land-line modem)

★The wireless transmission portion of this product is covered by the following U.S. patent: 5,926,210.

12.5 inches

13.12 inches

3.88 inches

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