



RoadRunner Mobile Digital Video Systems A&E Specifications, MRH Series

Version 1.1

A. Digital Video Recorder (DVR) System:

1. The system shall be provided in compatible and interchangeable formats that support simultaneous recording of up to eight (8) cameras, up to twelve (12) cameras, or up to sixteen (16) cameras.
2. The hardware shall support simultaneous recording of a minimum of two (2) independent audio channels.
3. Audio channels shall be capable of synchronizing to user-selectable cameras.
4. The DVR shall be ruggedized and secure with lockable recording media without the need for an additional enclosure.
5. The system shall include a driver event switch that features a system status "Heartbeat" health indicator to provide visual confirmation that the system is operating properly.
6. The digital video recording system shall be capable of simultaneous recording, playback and remote access allowing multiple users to review video without interruption of recording.
7. The system shall utilize a removable and lockable solid-state or standard hard disk drive.
8. The system capable of recording up to eight (8) cameras shall have a minimum recording and playback rate of 240 images per second system-wide and shall be capable of recording and playback each individual camera up to 30 images per second without the use of a quad process or multiplexer.
9. The system capable of recording up to sixteen (16) cameras shall have a minimum recording and playback rate of 480 images per second system-wide and shall be capable of recording and playback each individual camera up to 30 images per second without the use of a quad process or multiplexer.
10. The system shall be made entirely of new materials and shall be engineered and constructed with rugged materials to protect the system from environmental elements including shock, dust and humidity.
11. The Digital Video Recorder shall be Mil-Spec Rated: STD-810F and SAE Rated: J1455 for vibration and shock and include a shock absorbing mounting kit.
12. The DVR shall record 30 images per second system-wide of high quality video for a minimum of 2,258 hours on a single on-board drive. The system shall record onto a removable hard disk drive equipped with a key lock to prevent tampering, and shall be 'swappable' for use in any same model DVR, regardless of the number of cameras supported.
13. The system shall be capable of configuring video quality, resolution and recording speed individually for each camera.
14. The DVR shall record in user adjustable resolution setting of 1CIF, 2CIF or 4CIF.

-
15. The system shall include an optional built-in heater for operating in temperatures as low as -20°F.
 16. The system shall have an optional hard disk player and software to allow for transferring of files directly from the HDD to a PC, where the images can be printed, emailed or saved onto another storage media.
 17. The system shall feature an optional 3-axis accelerometer capable of tagging video or sending alarm notification when the vehicle exceeds a pre-determined G-force setting.
 18. The system shall record onto a removable hard disk drive up to 2.0TB; or solid-state drives up to 250GB.
 19. No videotapes or videotape recorders shall be used.
 20. The system shall be FCC approved and shall be powered by 12 or 24 VDC vehicle power supply connected by 12 gauge wire and protected from spikes, surges and reverse polarity operating between 9 and 36 VDC.
 21. The system shall feature an option for full integration with J1939 CAN-bus. The DVR integration with the CAN-bus shall include support for diagnostic message reporting (including: video loss per camera, video obstruction per camera, DVR alarm events and 3-axis accelerometer events, hard drive status, system temperature status, bus alarm acknowledgement and roll-call acknowledgement.) The DVR shall also interface with the CAN-bus to record bus status information such as GPS, turn signals, bus speed, brake application, door position, instant fuel economy, route number, etc. to the DVR.
 22. The DVR shall meet the requirements of ISO 7637-2 "Electrical disturbances from conduction and coupling". The DVR shall provide regulated 12-volt power for all peripherals (up to 40 watts).
 23. The DVR shall have the option to remain operating for a pre-determined length of time after the vehicle power is terminated, up to twenty-four hours.
 24. The system shall feature pre-event recording that allows the system to record up to five (5) minutes of video prior to system activation (manually, motion activation, etc.).
 25. The system shall be capable of streaming live video to first responders through cellular or wireless LAN options.
 26. The system shall feature an optional GPS receiver.
 27. The system shall be equipped with a USB port to allow for exporting video clips using CDRW, HDD or USB flash memory.
 28. The DVR shall include a functional Ethernet port for system configuration and transmission of video using software over 802.11, LAN/WAN or cellular networks.
 29. The DVR shall feature H.264 "Main Profile" video compression for superior video quality and recording duration. "Constrained Baseline Profile" or "Baseline Profile" type H.264 is not acceptable.
 30. The DVR shall be programmable utilizing a mouse and LCD display.
 31. The system shall be capable of on-board viewing, downloading and control via laptop using the included software.
 32. The DVR dimensions shall not exceed: 11.5" x 4.7" x 13.75" (WxHxD).
 33. The DVR shall be compatible with a facility-based DVR system and allow for software interoperability between vehicle and facility recording systems.

-
34. Onboard system components shall be removable / replaceable as an entire component to minimize vehicle down times and simplify maintenance.
 35. Video clips samples shall be provided to display video quality recorded at the maximum recording quality and rate while maintaining on-board video on a single hard disk drive for ____ days, utilizing the hard disk drive specified in the base bid of this proposal.

B. Software / Firmware:

1. License-free software that is capable of live viewing, playback, calendar and event searches, and administration shall be provided at no extra cost, and shall be compatible with Windows® XP, Vista and Windows® 7.
2. All future software updates for license-free software shall be included free of charge.
3. The software shall provide various levels of user access rights that allow and restrict access to various functions. The software features 256 user passwords and 64 user groups.
4. When equipped with GPS, the system shall provide historical and live software mapping display routes of the vehicle location and speed charts.
5. When equipped with GPS, the system software shall be capable of connecting to pre-recorded video by selecting a point on the map or selecting a point on the speed chart to view from that speed or location.
6. To retrieve recorded video, the software shall provide searches by: event, time lapse, time & date, vehicle location and vehicle speed.
7. The software shall be capable of displaying the current time and date onto the video.
8. When events are detected, the unit shall display the event information and allow users to access the remote site directly to search the image associated with the event.
9. The included software shall allow the user to connect to multiple units simultaneously. The included software shall allow for viewing a minimum of 64 camera views at one time.
10. The system shall feature optional software for large-scale viewing and admin functions for up to 256 simultaneous users and for viewing up to hundreds of camera views at one time.
11. The software shall allow for automated software upgrades and simultaneous updates to multiple sites.
12. Image adjustments, PTZ control and alarm out controls shall be administered utilizing the software.
13. The software shall be capable of synchronizing the time of all DVR systems utilizing a 'master DVR' or to GPS time (if applicable). Daylight savings adjustments shall be automatic.
14. Utilizing the GPS option, searching for video shall be interactive allowing quick location of video by selecting a reference point (time, speed or map location).
15. Software settings shall allow the system (when networked) to send email notification for any system event including video loss, camera obstruction, hard drive "full status", etc.
16. Software settings shall allow the system to send notification to the vehicle driver or CAN-bus for any system event including video loss, camera obstruction, hard drive "full status", etc. When networked, the system shall be capable of sending notification to a central location.
17. Options for archiving/retrieving video shall include: Saving a video clip as a Windows Media Player (.avi) file, saving as an image (.bmp), or saving video as a self-executable format (.exe).

-
18. Video clips saved using the self-executable format (.exe) shall be watermarked, encrypted and should be viewed without the use of any software, providing the ability to easily transfer secure video evidence.
 19. Video clips shall provide the option of viewing a single camera or multiple cameras on a single screen.
 20. Video clips shall provide the option of saving a portion of the video clip (shorter in length and/or reducing the number of cameras) in order to make a smaller video clip from the original.
 21. The system shall feature the option to archive video clips requiring a password for reviewing.
 22. The system shall feature optional software for automated event video upload to a central server repository.

C. Cameras:

1. Interior cameras shall be low light, IR Illuminating CCD color camera operating between 10 and 14 Volts. These cameras shall have a lux rating of 0.0, with a built-in high sensitivity microphone.
2. Interior cameras shall feature a minimum standard resolution of 540 TV lines.
3. Exterior camera options shall be impact and tamper-resistant and rated for outdoor use.

D. Warranty, Service & Support:

1. The DVR unit and solid-state drives shall include a manufacturer's warranty of a minimum of three (3) years parts and labor, all other items including hard disk drives, cameras, etc. shall be covered by a warranty of a minimum of one (1) year.
2. Unlimited telephone and email technical support shall be provided at no additional charge for the life of the system.
3. Additional extended warranty and support options shall be available.