A&E Specifications

RoadRunner Video Surveillance Systems for School Transportation Applications

A. Digital Video Recorder (DVR) System:

1. The system shall be provided in compatible and interchangeable formats that support simultaneous recording of up to two (2) 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" style 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 save the serial number of the hard disk drive to the system log in order to record and track the replacement of the recording media.

8. The system shall have a minimum recording and playback rate of 120 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 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.

10. 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.

11. The DVR shall record 30 images per second system-wide for a minimum of 3,010 hours on a single 1.0TB on-board hard disk drive.

12. 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 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.

16. No videotapes or videotape recorders shall be used.

17. 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.

18. 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).

19. 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.

20. 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.).

21. The system shall be equipped with a USB port to allow for exporting video clips using CDRW, HDD or USB flash memory.

22. 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.

23. 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.

24. The DVR shall be programmable utilizing an optional mouse and LCD display; the system shall be capable of on-board viewing, downloading and control via laptop using the included software.

25. The DVR dimensions shall not exceed: 11.5" x 4.7" x 13.75" (WxHxD).

26. The DVR shall be compatible with a facility-based DVR system and allow for software interoperability between vehicle and facility recording systems.

27. Onboard system components shall be removable / replaceable as an entire component to minimize vehicle down times and simplify maintenance.

28. Video clip 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.

29. The system shall be provided in compatible and interchangeable formats that support simultaneous recording of up to four (4) cameras.

30. The system shall feature a GPS receiver.

31. When equipped with GPS, the system shall provide historical and live software mapping display routes of the vehicle location and speed charts.

32. 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.

33. The DVR shall record 30 images per second system-wide for a minimum of 6,020 hours on a single 2.0TB on-board hard disk drive.

34. The system shall include an optional built-in heater for operating in temperatures as low as -20°F. Systems that require an enclosure to comply with this requirement are not acceptable.

35. 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.)

36. The DVR shall interface with 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.

37. 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.

38. The system shall include options for recording onto solid-state hard disk drives up 480GB.

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39. The system shall be capable of streaming live video to first responders through cellular or wireless LAN options.

B. Included 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 shall feature 256 user passwords and 64 user groups.

4. The software shall be capable of displaying the current time and date onto the video.

5. 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.

6. The included software shall allow the user to connect to multiple units simultaneously and allow for viewing a minimum of 64 camera views at one time.

7. The software shall allow for automated software upgrades and simultaneous updates to multiple sites.

8. Image adjustments and alarm out controls shall be administered utilizing the software.

9. 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.

10. 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.

11. 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).

12. 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.

13. Video clips shall provide the option of viewing a single camera or multiple cameras on a single screen.

14. 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.

15. The software shall feature the option to archive video clips requiring a password for reviewing.

16. To retrieve recorded video, the software shall provide searches by: event, time lapse, time and date, vehicle location and vehicle speed.

17. 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.

18. 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.

19. Management software shall provide fleet-wide status reports, event logs, on-demand and automated video clip retrieval for easy fleet-wide video management.

20. Management software shall provide access to an unlimited number of users and feature multiple user access-levels with password protection to ensure system settings are secure.

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21. Software licenses shall be provided on a per-vehicle basis, and shall include 12 months of maintenance (software updates) at no additional charge.

22. Software shall include both a client-based and web-based user interface options.

23. Users shall be capable of programming the software to automatically download video clips based on specific event types.

24. All data logs and video clips shall be available for viewing anytime once the video clips has been uploaded.

25. Users shall be capable downloading of video clips on-demand, for viewing those not scheduled for automatic download.

26. Video clips scheduled or manually requested shall automatically download when the vehicle connects to the network.

27. Software shall provide "connection status" to easily determine if a vehicle has not recently connected to the network.

28. The user shall be capable of requesting multiple video clips simultaneously from multiple sites.

29. Software shall provide chain of custody reports with a complete history of system and user actions associated with each video clip.

30. Users with permission rights shall be capable of classifying reviewed video clips to save to temporary or long-term storage or schedule for deletion.

31. Administrative users shall be capable of programming the software with an adjustable time period for storing the event log, temporary storage, long-term storage and deletion grace period (by which video clips are stored for a period time prior to deletion).

32. Management software shall supply health information of the video system with error logs, reports and automatic notification for: video blind events, video loss events, disk errors, disk temperature events, fan errors, recorder errors, disk almost full and disk S.M.A.R.T (Self-monitoring, analysis and reporting technology) events.

33. Video clips associated with each error event can be requested for: review of the clip, review of the chain of custody report associated with the clip, preserving the clip in long-term storage and downloading/archiving the clip.

34. Management software shall include a recording log that displays each DVR's total recording time and the number of recording segments to assist in diagnosing potential recording issues.

35. Management software shall be compatible with all DVR systems proposed.

36. Software shall provide customizable categories that will allow users to classify video clips based upon pre-determined criteria.

37. Software shall support sorting of video clips based upon classification status; A user tasked with categorizing clips shall be able to quickly locate video clips not yet classified.

38. Users shall be capable of inserting and saving notes or comments regarding a specific video clip to document essential data regarding a clip.

39. Management software shall support email notification of system events and provide camera and DVR health reports.

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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. All cameras shall feature a minimum standard resolution of 600 TV lines.

3. Optional exterior cameras shall be impact and tamper-resistant and rated a minimum of IP66 for proven durability in exterior mobile applications.

D. Warranty, Service & Support:

E. All hardware shall include a warranty of two (2) years parts and labor.

F. Unlimited telephone and email technical support shall be provided at no additional charge for the life of the system.

G. Additional extended warranty and service contracts shall be available.

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