

Product Description and Minimum Specifications:

4 Channel, Hybrid (4 Analog or 4 Analog High Definition and 1 IP Channels) SD Card Based, Mobile Digital Video Recorder

R1- Feb 2017

The below specifications are not intended to limit competitiveness in similar products, rather they are intended to establish a standard of quality and desired features in order to ensure that the needs and requirements of the school district are met.

The DVR shall support recording of a combination of up to 4 (analog D1 video/audio channels or Analog High Definition Channels) and one IP video/audio channel.

The analog cameras shall be dome style flush mount CCD day/night cameras with the capability of mounting to the ceiling or bulkhead.

The IP camera shall be dome style flush mount CCD day/night cameras with the capability of mounting to the ceiling or bulkhead. The IP camera must be true Wide Dynamic Range. Wide Dynamic range lenses are insufficient.

The DVR must operate with 12VDC nominal and include an integrated lockable enclosure and rear cable cover. All wiring harnesses and mounting hardware required for installation must be included. GPS antenna receiver and/or required components to enable GPS mapping and data collection are to be included.

The product offered must meet/exceed the specifications for Gatekeeper 304SD1™ to ensure uniformity within the bus fleet.

Digital Video System; the DVR must support both SDXC (Secure Digital Extended Capacity) and SDHC (Secure Digital High Capacity) memory cards. SDHC cards and SDXC cards shall be available from the vendor. The SDXC shall be available up to 256 GB in size.

Any equivalent product that is proposed must be pin for pin electronically compatible with the Gatekeeper 304SD1a Mobile Digital Video Recorder in order to ensure uniformity within the bus fleet.

Vendors must submit two, 2 minutes clips video. The clips of video must be recorded with the proposed DVR and cameras. One clip must be taken with the proposed analog camera (D1, 15 FPS, and Best Quality) and the second clip must be taken with the proposed IP camera (720p, 15 FPS, Best Quality) with the proposal. The clips must be playable using Windows Media Player included in Windows 7, Windows 8 or Windows 10.

Detailed specifications are as follows:

Interior Camera Analog:

- The camera must have the capability of mounting flush to header, front bulkhead or ceiling of the bus.
- When mounted to the front bulkhead it must be possible to correctly aim the camera so to capture the rear seat of a 78 passenger bus.
- Each camera must support the Sony 960H wide video standard
- Each camera must have a lens windshield that is manufactured from optically clear material
- Each camera must be housed in an enclosure that is fabricated of metal
- Each camera must have the capability allow lenses to be interchange in the field
- Each camera must have 24 IR LED's that turn on/off with varying light conditions
- Each camera sensitivity shall be 0.1LUX/F1.2 (no IR), 0.0 LUX (IR On)
- Each camera shall have a minimum resolution of 700 TV lines.
- Each dimensions of the camera shall be no larger than 2.8" (7cm) high x 3.3" (8.5 cm) base diameter
- Each camera shall include a microphone to capture audio
- Each camera shall support 3D gimbal functionality to be able to square up an image
- Each camera shall have shall have the option to be ordered with one of the following lens sizes 2.8 mm, 4.0mm, 6.0 mm, and 8.0 mm
- Each Camera shall use a Sony Effio Super HAD II 1/3" CCD (Charge Coupled Device) imaging sensor and Sony DSP (digital signal processor)
- Each camera must be IP 65 compliant
- The camera housing shall have no vents thus making the camera resistant to water spray
- Each camera shall operate over the following temperature range: -40°F to +158°F (-40°C to +70°C)
- Once the camera is installed the camera shall be tamper proof to reduce the probability of the aiming of the camera to be changed by a passenger.
- Each camera shall have a 5 year warranty

Interior IP Camera:

- The camera must have the capability of mounting flush to header, front bulkhead or ceiling of the bus.
- When mounted to the front bulkhead it must be possible to correctly aim the camera so to capture the rear seat of a 78 passenger bus.
- Each camera must have a lens windshield that is manufactured from optically clear material
- Each camera must be housed in an enclosure that is fabricated of metal
- Each camera must have the capability allow lenses to be interchange in the field
- Each camera must provide 720p (1280 x 720) resolution up to 30 frames per second
- Each camera must compress the video using H.264 compression
- Each camera must have 12 IR LED's that turn on/off with varying light conditions
- Each camera shall be compliant with ONVIF Profile S, V2.4
- Each camera sensitivity shall be 0.1LUX/F1.2 (no IR), 0.0 LUX (IR On)
- Each dimensions of the camera shall be no larger than 2.8" (7cm) high x 3.3" (8.5 cm) base diameter
- Each camera shall include a microphone to capture audio
- Each camera shall support 3D gimbal functionality to be able to square up an image
- Each camera shall have shall have the option to be ordered with one of the following lens sizes 2.8 mm, 4.0mm, 6.0 mm, and 8.0 mm
- Each Camera shall use a Sony IMX238 1/3" CMOS sensor
- Each camera must support 12V Power over Ethernet
- Each camera must have a RJ45 connector so that they can be wired with industry standard Cat 5e cable – proprietary connectors are not acceptable
- Each camera must be IP 65 compliant
- Each camera shall operate over the following temperature range: -40°F to +158°F (-40°C to +70°C)
- The camera housing shall have no vents thus making the camera resistant to water spray
- Once the camera is installed the camera shall be tamper proof to reduce the probability of the aiming of the camera to be changed by a passenger.
- CAT 5 cables with industry standard RJ45 jacks must be available in the following lengths 15', 30' 45' and 60' with strain resistant over molded connectors
- Each camera shall have a 5 year warranty

Interior Analog High Definition Camera:

- The camera must have the capability of mounting flush to header, front bulkhead or ceiling of the bus.
- When mounted to the front bulkhead it must be possible to correctly aim the camera so to capture the rear seat of a 78 passenger bus.
- Each camera must have a lens windshield that is manufactured from optically clear material
- Each camera must be housed in an enclosure that is fabricated of metal
- Each camera must have the capability allow lenses to be interchange in the field
- Each camera must provide 720p (1280 x 720) resolution up to 30 frames per second
- Each camera must provide video and audio in a high definition analog format.
- Each camera must have 24 IR LED's that turn on/off with varying light conditions
- Each camera sensitivity shall be 0.001LUX/F1.2 (no IR), 0.0 LUX (IR On)
- Each dimensions of the camera shall be no larger than 2.8" (7cm) high x 3.3" (8.5 cm) base diameter
- Each camera shall include a microphone to capture audio
- Each camera shall support 3D gimbal functionality to be able to square up an image
- Each camera shall have shall have the option to be ordered with one of the following lens sizes 2.8 mm, 4.0mm, 6.0 mm, and 8.0 mm
- Each Camera shall use a Sony EXMOR IMX225 1/3" CMOS sensor
- Each Camera shall use a Nextchip NVP2431H video processor
- Each camera must be IP 65 compliant
- Each camera shall operate over the following temperature range: -40°F to +158°F (-40°C to +70°C)
- The camera housing shall have no vents thus making the camera resistant to water spray
- Once the camera is installed the camera shall be tamper proof to reduce the probability of the aiming of the camera to be changed by a passenger.
- Each camera shall have a 5 year warranty

Digital Video Recorder:

- The digital video recorder must record a minimum of four analog video/audio channels and 1 IP video/audio channel
- The digital video recorder must have GPS recording capability in addition to the 5 separate video/audio channels. The recorder must not cannibalize one of the video channels to record the GPS data.
- The digital video recorder must record a minimum of five audio channels (one associated with each video channel)
- The digital video recorder IP channel must be compliant with ONVIF Profile S, V2.4
- The digital video recorders Analog High Definition Channels must be Analog High Definition signal up to 720p
- The digital video recorder must support the Sony 960H wide video standard
- The digital video recorder must use H.264 video compression technology on the analog channels
- The digital video recorder must be able to support the following analog video resolutions D1 (720 x 480), HD1 (704 x 240) and CIF (352 x 240)
- The digital video recorder must be able to support up to 4 analog High Definition channels up to 720p (1280 x 720)
- The end user shall be able to connect analog cameras and analog high definition channels in groups of two up to a maximum of 2 groups of two for a total of 4 channels.
- The digital video recorder shall be all solid state with no spinning hard drive.
- The digital video recorder must support allow users to download video and/or video of marked events to a USB memory stick that can be inserted in the front of the DVR.
- The digital video recorder shall accommodate 2 SD cards
- The digital video recorder must allow for recording of up to 4 analog cameras simultaneously at 120 Frames per Second at D1 resolution, best quality.
- The digital video recorder must support the following recording frame rates for analog cameras, from 1 to 30 fps in 1 frame per second increments. It shall be possible to independently set the frame rate on each video channel independently.
- The digital video recorder must provide adjustable frame rate, resolution and video quality setting for each analog camera independently.
- The digital video recorder must support at least 7 video quality settings for each analog camera
- The digital video recorder must support daylight savings time and automatically change its time on the appropriate day.
- The digital video recorder must be capable of powering up at -40°C (-40°F) in less than 3 minutes
- The digital video recorder must be capable of operating up to ambient temp of -40°C (-40°F) to +60°C (+140°F)
- The digital video recorder must record to solid state Secure Digital High Capacity (SDXC) card capacities up to 128 GB
- The digital video recorder must record to solid state Secure Digital High Capacity (SDHC) card capacities up to 32 GB
- The SD cards provided must be industrial rated with an operating temperature range of -40°C (-40°F) to +60°C (+140°F) and not consumer grade SD cards.
- The digital video recorder must NOT incorporate a fan in the product
- The removable solid state cards must be swappable between Gatekeepers digital hybrid video recorders without the digital video recorder losing its configuration

- The digital video recorder must allow for the solid state cards to interface with a PC without need for a docking station and the solid state card shall connect to a PC directly (when the PC has an integral SD card reader) or via a SD card reader with a USB 2.0 interface to a PC
- The digital video recorder must provide dual streaming. This means a high quality full resolution image can be stored on the SD card while a lower resolution image can be streamed over the optional cellular connection.
- The digital video recorder must allow for adjustments of the secondary data stream to allow for the different bandwidth available with 3G and 4G cellular.
- The digital video record must be field upgradable to support cellular and or in yard WiFi. Shipping DVR's back to a vendor for upgrade is unacceptable.
- The recorder shall have a keyed electrical interlock that prevents users from inadvertently removing the SD card before powering down the DVR
- The recorder shall be small and light for easy mounting in various locations in a bus and shall not exceed the following dimensions: 6.5" x 6.8" x 2.5" (165 mm x 175 mm x 64 mm) without cable cover and 11.3" x 6.8" x 2.5" (290 mm x 175 mm x 64 mm) with optional cable cover.
- The digital video recorder must operate on standard 12 Volts with operating range of 8 to 32 Volts
- The digital video recorder must be a maximum weight of 2.4 lbs. (1.09 kg) and be capable of horizontal or vertical installation.
- The digital video recorder must begin recording upon activation of 12V trigger (i.e. ignition activation)
- The digital video recorder must have the option to include a G Sensor
- The digital video recorder must be designed for a rugged mobile environment and shock and vibration tested and tested to a provision of MIL-STD 810G (Trucks on Highways)
- The digital recorder must be configurable to overwrite data or power off when storage is full.
- The digital video recorder must be capable of formatting the SDHC or SDXC solid state cards for erasing data if required
- The digital video recorder must be capable of recording and playing back video when connected to a NTSC monitor
- The digital video recorder must have Auto-Record Schedule capability and be able to be programmed on/off up to three times over a 24 hour period
- The digital video recorder must be capable of adjusting the video quality on each camera (analog and IP) independently
- The digital video recorder must have the capability to record for up to 23 hours, 59 minutes and 59 seconds after the bus has been turned off.
- The digital video recorder must include the capability to record up to eight event triggers that can be analyzed upon playback
- The digital video recorder must include 2 output triggers.
- The digital video recorder must have the capability to connect to a driver alarm push button switch.
- The digital video recorder must have included an internal GPS module. No external cards or boxes will be accepted except for the external GPS antenna.
- The GPS location and speed information must be recorded and synchronized with the video for subsequent analysis and playback using a compatible viewer provided by the successful vendor.
- The digital video recorder must have motion detection capability
- The digital video recorder must have a boot time of no more than 60 seconds
- The DVR must have a minimum 3 year warranty

- The SD card must have a minimum 3 year warranty
- The digital video recorder must be based on an embedded operating system with the ability to upgrade software in the field without return to the manufacturer
- The digital video recorder must have a built-in real time clock with automatic Daylight Savings time adjustment
- The video on the SD card must be viewable/playable using a Windows Vista, Windows 7, Windows 8 or Windows 10 equipped computer.
- The digital video recorder when equipped with GPS shall automatically update the digital video recorders real time clock automatically.
- The digital record must have passed ISO 7637-2, Road vehicles — Electrical disturbances from conduction and coupling — Part 2: Electrical transient conduction along supply lines only.
- The video recorder must include options for cellular and WiFi data transmission.
- A driver alert button with at minimum a power LED and record LED must be available for use with the recorder.
- The design of the digital video recorder must be such so that it is secured from SD card removal and changing of configuration without the use of a lock box.
- The digital video recorder must include a key lock mechanism that will allow access to the SD card when unlocked and simultaneously stop recording to the SD card so that it is safe to remove the SD card. When the key lock mechanism it shall be possible to continue recording to the SD card.
- The recorders analog channels must come with 4 pin molex connectors that that consistent with Gatekeeper Systems camera wiring cables.
- The digital DVR shall include, at no additional cost, 15' power cable and multi conductor sensor cable.

Viewing Software

- The viewing software shall incorporate the following capabilities as found in The G4 Viewer or equivalent.
- The viewing software shall be included in the system price at no extra charge.
- The viewing software must be able to playback up to five channels of analog, analog high definition and IP channels simultaneously.
- The viewing software must display Bus ID, time, date, event triggers, GPS information and speed
- The viewing software must display the video file time, date, bus ID, and number of alarms
- The Viewing software must have the capability to save portions of a video file into a clip to be specified by the user
- The viewing software must provide the user with a means to fast forward and rewind, pause and play all video files
- The viewing software must have the ability to capture still images at any point in the video as specified by user and saved as a JPEG or BMP.
- The viewing software must display the date, time, bus ID of each event trigger
- The viewing software must operate on the following operating systems: Microsoft Vista Microsoft Windows 7 and Microsoft Windows 8 and Microsoft Windows 10.
- The viewing software must provide a map view that displays the location of the vehicle using Google maps when video (with GPS information) is being played.
- The Viewer must support blurring of selective areas of the image.
- The Viewer must allow the user to dynamically move the blur area to track a moving target in the field of view.
- The viewer must allow the user to blur all of the field of view except for the specific target area which must remain clear.
- The Viewer must allow the user to dynamically move the clear area to track a moving target in the field of view while the rest of the field of view is blurred.
- Blurred video must be savable as an AVI or mini player format. The mini player format shall package a light version of a viewer with the video file so that a specific viewer is not required to be loaded on a target PC.
- Once blurred video is saved as a clip the blur area must be permanently burnt into the video.
- There shall be an option in the viewing software that a password must be entered before the viewing software will launch.
- The viewing software must be able to produce video clips as follows:
 - AVI – compatible with Windows Media Player found in Microsoft Vista, Windows 7 and Windows 8 and Windows 10 without the addition of any codecs
 - Mini Player – a self-contained executable that contains a lite version of the viewer and the clipped video. It shall be possible to password protect the file from opening. The mini player must also have mapping, sensor data, GPS data.
 - Native – these clips shall be subsets of the raw video produced by the DVR. There shall be no alteration to the original video data.