

## PROFESSIONAL DIGITAL SPECIFICATIONS

(1-4 Camera Solid State Drive (SSD) with GPS & On Screen Mapping optional)

### THE CAMERAS:

- The cameras are the eyes of the digital system and should be very high quality to provide sharp, clear hi resolution images when viewed.
- Horizontal Resolution 420 TV Line (NTSC)
- All cameras must be adjustable on 3-axis; for pan, tilt & level so they can be moved or angled to match varied bus configurations.
- Cameras that are not 3-axis adjustable for pan, tilt & level are not acceptable.
- Hi-Security cameras are required incorporating heavy-duty cast or extruded steel case, capable of withstanding impact by hand, book or shoe without damage to prevent costly replacement and service when vandalized. Eggshell thin pressed sheet metal cases that can be destroyed by a single blow from a child's hand is not acceptable.
- Camera cases that are not cast steel or extruded steel is unacceptable.
- Night vision via at least 23 built-in Infra-Red Illuminating LEDs to prevent them from vandalism is required. External IR LED clusters are an easy target for vandals, and a poor substitution for a well-designed night vision camera suitable for school bus applications.
- Cameras that do not have at least 23 built-in Infra-Red LED illumination, cannot record in total darkness are not acceptable.
- Cameras must have built in adjustments for the user to easily adjust pan and tilt without the use of shims, spacers or other device as each bus is different.
- Cameras not adjustable fir tilt and pan, which may require shims, spacers or other way to properly aim them, are not acceptable.
- Cameras must retain their component integrity throughout the installation process, meaning if you must open them to mount them all pieces must remain intact.
- Cameras that do not remain intact, or have pieces falling out of them upon installation are not acceptable.
- Hi quality audio is a must on school bus systems, with independent adjustable microphone gain at the camera, as well as in the DVR setup menu, to assure customers of audio enhancement both mechanically in the camera itself and via software in the DVR setup menu.
- Cameras without "Hi quality audio, with independent adjustable microphone gain at the camera, as well as in the DVR setup menu, to assure customers of audio enhancement both mechanically in the camera itself and via software in the DVR setup menu" are not acceptable.
- Each camera frame rate will be customer variable from 1-30 fps.
- Systems that share camera frame rates and cannot provide 30 fps per camera are not acceptable.

## THE DVR:

- The DVR must be “Made in America”. There is absolutely no reason to help finance Communist China with US school funds when American made DVRs are available.
- DVRs that are not “Made in America” are not acceptable.
- Linux operating system is required on the bus mounted DVR. Bus DVR must operate on the rock solid Linux operation system to insure the reliability and durability in a mobile environment.
- A DVR that does not offer the stability of the Linux operations system in the bus DVR is not acceptable.
- Wireless download capability, is required for downloading of video recorded events to school provided wireless environment, with the addition of an access point bridge.
- Systems that are not wireless download capable are not acceptable.
- Event button marker is required to mark problems or events that may need review later on.
- Systems that do not permit the driver to mark events for later review are not acceptable.
- Minimum of 64 Gig Solid State Drive (SSD) is required to eliminate future district budgets expenditures on fragile hard drives wearing out and crashing, and insure a long lasting dependable digital memory based system.
- DVRs that do not have at least a 64 Gig Solid State Drive (SSD) are not acceptable.
- DVR must be programmable without the use of external remotes or data entry devices that can be lost or misplaced. The DVR must be programmable through face mounted selector buttons that can then be locked out via password to prevent their use by unauthorized individuals.
- DVRs without face mounted selector buttons that cannot be locked out with a password are not acceptable.
- DVR must be programmable as a self contained unit, without the use of any remote device necessary, meaning, if it needs some device to change settings that can be lost or have batteries fail, it was poorly designed in the first place and could cost the district down the road when replacements are needed.
- DVRs that require any type of remote device wired or wireless are not acceptable.
- Records at true "real time" minimum of 30 frames per second (fps) on up to 2 cameras, individual camera fps rates (from 1 to 30 fps) can be programmed while the DVR is operating.
- DVRs with camera frame rates less than 30 frames per second (fps) are not acceptable.
- Dual hard drive trays will permit future expansion for the school district. The hard drive tray must permit 2 hard drives to be installed to double the maximum capacity if the districts choose to.
- Hard drive trays that do not permit 2 hard drives to be running simultaneously to double the storage if necessary are not acceptable.
- DVRs must offer selectable resolution: MJPEG D1, VGA, D1 or VGA
- DVRs that do not offer selectable resolution of MJPEG D1, VGA, D1 or VGA are not acceptable.
- DVR must offer search capability 90x fast forward & review to save user time.
- DVRs that do not offer 90x fast forward & review are not acceptable.

- DVR must offer free 3-axis accelerometer on secondary slide-in card in case of accident.
- DVRs that do not offer 3-axis accelerometer on secondary slide-in card are not acceptable.
- DVR must offer Synchronization of time & date with the GPS satellite system.
- DVRs that require the user to set local time are not acceptable.

**ON SCREEN MAPPING (Option)**

- GPS speed and location must be available as an option on all DVRs at the time of purchase. The systems will not require service connections, service fees or use charges and will be passive in nature.
- DVRs that do not offer passive GPS at the time of purchase as an option, or charge fees to the district for setup service or use are not acceptable.
- On Screen Mapping must be included free of charge with all GPS equipped DVRs at time of purchase.
- GPS equipped systems that do not offer free on Screen Mapping are not acceptable.
- On Screen Mapping must be software derived without the need for any additional hardware on all GPS equipped DVR.
- On Screen Mapping on GPS equipped DVRs that are not software driven, and requires any additional hardware, is not acceptable.
- On Screen Mapping may not consume a valuable video channel on the DVR. A 2 channel DVR must be capable of displaying and playing back 2 camera inputs simultaneously and still showing the On Screen Mapping feature. A 4 channel DVR must be capable of displaying and playing back 4 camera inputs simultaneously and still showing the On Screen Mapping feature.
- GPS equipped DVRs with On Screen Mapping that consume a valuable video channel are not acceptable.
- On Screen mapping must update maps automatically from the source every year those maps are updated, so customers do not get stuck with outdated maps. Meaning there cannot be any customer required action, effort or expense at all when maps are updated, including empty promises to have someone come out and update them when needed.
- Systems that require any customer interaction, effort, bother or expense to update their On Screen Mapping map files are not acceptable.

**WARRANTY**

- 3 Year Parts & Labor Warranty are required as a standard on the DVR & SSD and camera, with additional years of warranty coverage available.
- Less than 3 Year Parts & Labor Warranty on the DVR, SSD and cameras is not acceptable.

	<b>Spec. American Made DVRs</b>	
	<b>Bid American Made DVRs</b>	