SPECIAL SPECIFICATION

A9002

Video Server

1. **Description.** Furnish and install Video Server field equipment in designated field locations and equipment cabinets as shown on the plans and as detailed in the Special Specifications.

2. **Materials.** Provide new, corrosive resistant materials in accordance with the details shown on the plans and this Item.

   Provide Video Server equipment including, but not limited to, the following:

   - Four channel video server (location specific).
   - Video server housing and mounting hardware.
   - Video, camera control, Ethernet and power cable harnesses, connectors.
   - Software and PTZ driver software for specified camera in use.

3. **Functional Requirements.** The video server shall allow the transmission of CIF-sized images at up to 25 fps per channel when connected to PAL devices, and up to 30 fps per channels when connected to NTSC devices, using standard Motion JPEG format and with no modification of images. When transmitting images from a single channel, the video server shall allow the transmission of up to 25 fps when connected to PAL devices, and up to 30 fps when connected to NTSC devices, this for all resolutions.

   The video server shall also provide Advanced Simple Profile (ASP) and Simple Profile (SP) MPEG-4, and shall support both unicast and multicast over RTP, controlled by RTSP. It shall also be possible to tunnel the MPEG-4 unicast stream over RTSP and HTTP. It shall be possible to configure the camera to provide ISMA-compliant MPEG-4. The video server shall provide support for simultaneous Motion JPEG and MPEG-4 streams.

A. Resolution Requirements. Video shall be available in a minimum of 5 different resolutions, each supporting a minimum of 11 different compression levels. Supported video resolutions shall include:

- QCIF
- CIF
- 2CIF
- 2CIF Expanded
- 4CIF

The video server shall be capable of providing video at bit rates of up to 8Mbit/sec per video stream.

B. Networking Requirements. The video server shall contain a built-in web server to make video and configuration available in a standard browser environment, with no need for additional software. The video server shall allow the user to view each video signal in full screen mode, in a sequence with individually definable dwell times, or to view one to four video signals simultaneously in so-called quad mode.

When accessed from a browser, the built-in web server shall provide users with online, context-sensitive help.

The video server shall support both fixed IP addresses and dynamically assigned IP addresses (provided by a DHCP server). It shall also allow automatic detection of the video server based on UPnP™, when using a PC with an operating system that supports this feature.

The video server shall provide the ability to control network traffic by limiting the maximum bandwidth to a selected value. Furthermore, it shall be possible to limit the frame rate per viewer to a selected value, as well as the duration of each viewing session.

The video server shall provide the ability to send operational and technical information using a standard SMTP mail server.

The video server shall provide embedded on-screen text in the video, with support for date & time, and a customer-specific text, video server name, of at least 32 ASCII characters. It shall also allow for the overlay of a graphical image, such as a logotype, into the image.

The video server shall provide local time & date, including support for daylight saving time. To ensure accuracy, the video server must accept external time synchronization from an NTP (Network Time Protocol) server.

The video server shall support simultaneous viewing by up to 20 clients. To avoid improper use and configuration, the video server must provide support for defining users and passwords, for a minimum of three different types of users.

The video server shall support the use of HTTPS and the ability to upload signed certificates to provide an encrypted and secure communication of both administration and video streams. It shall also provide support for restricting access to pre-defined IP addresses only, so-called IP address filtering.

To improve functionality, the video server shall allow the user to write scripts, controlling events and other user functions.

C. PTZ Control Requirements. The video server shall be able to connect to and control third party domes and Pan Tilt Zoom devices via RS-232 or RS-485. The drivers for these devices shall be possible to upload to the video server. The uploading of drivers, and the changing of the driver type shall be possible without having to replace the video server's firmware.

LED's shall indicate the video server's operational status and provide information about power, communication with receiver, the network status and the video server status.

Customer-specific settings, including the IP address, the local time & date, event functionality and video configuration, shall be stored in a non-volatile memory and shall not be lost during power cuts or soft resets.

4. Electrical and Mechanical Requirements. The video server shall provide one to four analogue video inputs, each compatible with black and white (EIA and CCIR) and colour (PAL and NTSC) composite video signals.

The video server shall deliver high speed, high quality video at resolutions up to 768x576 (PAL) / 704x480 (NTSC) pixels over IP networks, by using Motion JPEG compression. It shall be capable of simultaneously delivering up to 30 frames (CIF resolution) per second per channel. When viewing a single video source, the frame rate shall be up to 30 frames per second in all resolutions. The video server shall support both IP address filtering and HTTPS to secure transmission of video and configuration data. The video server shall not require any additional software to operate.

The video server shall also support MPEG-4 Advanced Simple Profile (ASP) and Simple Profile (SP), with simultaneous Motion JPEG support.

The video server shall be equipped with at least 1 to 4 alarm inputs and one to four outputs. It shall be capable of receiving external triggers from third party devices, as well as triggers from the built-in Video Motion Detection. In response to these triggers, the video server will be able to initiate alarms and/or image transmission. Notification will be provided over TCP, email and HTTP, while image upload will be available via FTP, email and HTTP. The video server shall connect to a network using 10baseT Ethernet or 100baseTX Fast Ethernet, via a standard RJ-45 socket.

The video server shall be equipped with 1 to 4 video inputs of BNC UG/U type. Termination of the inputs shall be independent for each input, using dip switches located on the front of the video server (standalone version) or on the Blade (blade version). The video server shall automatically detect the video format used (PAL or NTSC).

The video server shall be equipped with 2 serial ports, one RS-232 and one RS-422/485 serial port.

The video server shall be equipped with a minimum of 1 to 4 control (alarm) inputs and 1 to 4 outputs, accessible via a removable terminal. A mating connector shall be supplied with the video server. The control input shall be configurable to respond to normally open (NO) or normally closed (NC) dry contacts, or to active low or active high TTL/CMOS compatible electronic outputs. The alarm mating connector shall provide alarm outputs to TTL/CMOS compatible alarm inputs on peripheral devices, such as a device for processing alarms. These functions shall be configurable via the web interface. The video server shall also, via the same connector, provide suitable control voltage for these inputs.

The video server shall connect to a network using 10baseT Ethernet or 100baseTX Fast Ethernet via a standard RJ-45 socket, and shall support auto sensing of network speed.

The video server shall be equipped with a minimum of three LED's, capable of providing visible status information in green, red and amber.

The standalone video server shall be manufactured in a solid all-metal casing and be provided with mounting ears for wall mounting. The blade version shall be fitted with an aluminum front plate for use in suitable 19 in. Video Server Racks, supporting hot-swap of blades.

The stand alone video server shall support DC-based power supplies.

5. **Software Requirements.** The video server shall be compatible with the existing City of Allen Video Imaging Vehicle Detection equipment in the field and the new Advanced Traffic Management System.

   The video server shall use an embedded non-PC-based solution, running on an open source, non-Windows based platform. It shall incorporate TCP/IP, HTTP, HTTPS, SSL/TSL, FTP, RTP, RTSP, SMTP, NTP, ARP, DCHP, and UPnP protocol support.

   The video server shall be monitored by a Watchdog, which shall automatically re-initiate processes or restart the video server if a malfunction is detected.

   It shall be possible to update the software (firmware) over the network, using FTP or HTTP.

   The video server shall include support for Shell scripting, allowing customer-specific functions to be created.

   The video server shall support full functionality when operating in the following environment:

   Operating Systems: Windows 2000, Windows XP

   Browsers: MS Explorer 6.x and higher

   The video server shall be supported by a fully open and published API (Application Programmers Interface), providing all the necessary information required for integrating functionality into third party applications.

6. **Environmental Requirements.** The video server shall operate in a temperature range of +5° to +50°C (41° to 122° F). The video server shall operate in a humidity range of 20–80% RH (non condensing).

7. **Measurement.** This item will be measured as each unit complete in place.

8. **Payment.** The work performed and material furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit prices bid for each "Video Server" of the type specified. This price includes all equipment described under this Item with all documentation and testing; and will include the cost of furnishing all labor, materials, warranty, equipment and incidentals.