### SECTION 687 – CLOSED CIRCUIT TELEVISION (CCTV) FIELD EQUIPMENT

DESCRIPTION

**MATERIALS/EQUIPMENT**

**687.02.01 FUNCTIONAL REQUIREMENTS**

***ADD THE FOLLOWING TO PARAGRAPH “K” OF THIS SUBSECTION:***

6. The delivered protocol shall conform to the current FAST protocol.

**687.02.03 WARRANTY**

***DELETE THIS SUBSECTION IN ITS ENTIRETY AND REPLACE WITH THE FOLLOWING:***

Provide a minimum three-year factory warranty for all CCTV field equipment and all associated cabling. The warranty on equipment and cabling shall be offered by the manufacturer and shall be transferable to FAST at the time of acceptance. The warranty period for equipment, cabling, and work begins at the time FAST accepts the system (SAT test)

**CONSTRUCTION**

**687.03.01 CABLE HARNESS**

***ADD THE FOLLOWING PARAGRAPHS TO THIS SUBSECTION:***

D. In-Cabinet Local Controller: Each CCTV installation identified on the Plans shall include a Cohu 9300 Series i-control CCTV Control Unit, or approved equivalent, and it shall be installed neatly the respective traffic signal cabinet. It shall conform to the following specifications:

1. In-Cabinet Local Controller: Each CCTV installation identified on the Plans shall include a Cohu 9300 Series i-control CCTV Control Unit, or approved equivalent, and it shall be installed neatly the respective traffic signal cabinet. It shall conform to the following specifications:
2. Power: 110 Volts AC
3. Size: 1.75” High x 8.00” Deep x 19” Wide
4. Front Panel Control: pan/tilt, lens zoom, focus, iris
5. Extended control (via RS232 port and laptop running WinMPC): camera address, alarm ID text, camera ID text, preset positions, color balance, video tour routines, wide dynamic range adjustment, privacy zones, integration, sector zones, shutter speed, day/night mode.
6. Surge protection requirements. Install surge protectors in the CCTV cabinet for all conductors (power, data, and video) between pole mounted and cabinet mounted CCTV equipment. Ground each surge protector to the surge protector terminal block mounted to the cabinet rack. Install surge protector leads that are at least 3' in length and installed as straight as possible from the surge protector to the ground lug.

Wire, ground, and bond equipment in accordance with Section 250-86 of the NEC.

1. Coaxial Cable Surge Protector. Install 1 coaxial cable surge protector on the coaxial cable. Use surge protectors that meet the following requirements:

1. Connector BNC type
2. Attenuation 0.1 dB @ 10 MHz
3. Input/Output impedance 75 ohms nominal
4. Peak Surge Current 500 amperes minimum
5. Response Time 1 nanosecond or less

2. Power Cable Surge Protector. Install power cable surge protectors on all power conductors. At locations where the receiver/driver is integrated with the pan/tilt unit, this surge protector is not required. Use surge protectors that meet the following requirements:

1. Clamping Mode 2-stage
2. Clamping Voltage 350-volts for a 20,000-ampere, 10,000-volts

per microsecond waveform

1. Peak Clamping Current 20,000-amperes for an 8 x 20 microsecond

waveform

1. Response Time 0.5 microseconds or less
2. Number of Peak Surges 20 surges at peak current, minimum
3. Holdover Current Zero
4. Service Current Rating Adequate for the continuous load imposed

by the equipment served

10. Low Voltage Control Cable Surge Protector. Install low voltage control cable surge protectors in on each data conductor. Use surge protectors that meet the following requirements:

1. Clamping Mode 2-stage, hybrid
2. Clamping Voltage As appropriate for the specific circuit as

approved by the Engineer

1. Peak Clamping Current 4,000-amperes for an 8 x 20 microsecond

waveform

1. Response Time 30 nanoseconds or less
2. Number of Peak Surges 25 surges at peak current, minimum

**687.03.03 OPERATIONAL TESTING**

Testing Requirements. Perform testing as required in Subsection 105.03 and the following:

1. DAT. Provide certification that the window or acrylic lens will not yellow, introduce appreciable light loss, or distort over a 10 year life in a desert environment.

2. SALT. For each unit of equipment, conduct approved SALT that exercises all stand-alone (non-network) functional operations of the equipment including the following:

1. Control of focus, iris, and power on/off
2. Range of pan, tilt, zoom and digital zoom
3. Presence and quality of video signal
4. Sector text generation
5. Pan and tilt limit stops are set to the Engineer's satisfaction.

3. SST. For each camera location that is installed and interconnected in a system, conduct approved SSTs from the operator workstation that include the following:

1. All items in the stand-alone test
2. Transmission of quality video to the TMC
3. Response to all central software commands identified under functional requirements
4. Display of video images on the selected monitor
5. Horizontal and vertical resolution\*
6. Signal to noise ratio\*
7. For CCTV camera installations that have camera lowering devices, detach and secure the camera connection 5 times and verify that the signal is reestablished at the TMC each time.

\* Perform these tests if in the opinion of the Engineer the picture quality is marginal. Measure the horizontal/vertical resolution and the SIN ratio on a monitor in the TMC for a picture generated by the CCTV camera installation furthest from the TMC and at two other locations specified by the Engineer to verify compliance. The SIN ratio shall not be lower than 48 dB.

4. SAT. At least once per week, demonstrate that all CCTV system functions tested in the SST are operational. The SST requirement to raise and lower the camera 5 times is reduced to just one time during the final week of the SAT.

**METHOD OF MEASUREMENT**

**687.04.01 MEASUREMENT**

The quantity of CCTV FIELD EQUIPMENT will be measured per each.

The quantity of [FILL IN ITEM DESCRIPTION] will be measured per [UNIT].

No direct measurement shall be made for [FILL IN ITEM DESCRIPTION].

**METHOD OF PAYMENT**

**687.05.01 PAYMENT**

The accepted quantity of CCTV FIELD EQUIPMENT will be paid for at the contract unit price of each and shall conform to the requirements of subsection 687.05.01 of the Uniform Standard Specifications and shall include all materials, equipment, labor and disposal required to perform this work and all work as shown on the Plans, as specified herein and as directed by the Engineer.

The accepted quantity of [FILL IN ITEM DESCRIPTION] will be paid for at the contract unit price of [UNIT] and shall include all materials, equipment and labor required including, but not limited to, [FILL IN] and all other items necessary to complete the work as shown on the Plans, as specified herein and as directed by the Engineer.

The accepted quantity of [FILL IN ITEM DESCRIPTION] will be paid for at the contract unit price of [UNIT] and shall conform to the requirements of subsection 687.05.01 of the Uniform Standard Specifications and shall include all materials, equipment, labor and disposal required to perform this work and all work as shown on the Plans, as specified herein and as directed by the Engineer. The above payment shall also include,

Unless otherwise provided in the Special Provisions, no payment will be made for [FILL IN ITEM DESCRIPTION] as such. The cost thereof shall be considered as included in the price bid for construction or installation of the items to which [FILL IN ITEM DESCRIPTION] is required.

Payment will be made under:

|  |  |  |
| --- | --- | --- |
| **ITEM NO.** | **ITEM DESCRIPTION** | **UOM** |
| 687.0010 | CCTV FIELD EQUIPMENT | EA |

**END OF SECTION 687**