item #1112285A – thermal VIDEO Detector assembly

Description:

 Furnish and install a Thermal Video Detector Assembly (TVDA) as shown on the plans or as directed by the Engineer.

Materials:

 All hardware shall be new, corrosion resistant. All equipment shall be current production.

# Thermal Detector Assembly:

**Thermal Imaging Sensor:**

* Sensor Type: Focal Plane Array (FPA), Uncooled Vanadium Oxide Microbolometer
* Fixed mount pan and tilt unit bracket.
* Thermal Sensitivity: <75mk, <50 mK f/1.0 or lower.
* Active picture elements (pixels): 320(H) x 240(V), minimum. 25 micron pixel pitch.
* Thermal Output: Analog NTSC equivalent.
* Output impedance: 75 Ohms nominal.
* Operating Temperature Range: -50°C to 75°C (-58°F to 167°F)
* Lens Selection: Based on recommendation of manufacturer for each detector installed, per outcome of Site Survey.

**Surge Protection**

A thermal surge suppressor(s) shall be available for installation inside the traffic signal controller cabinet. The suppressor shall provide coaxial cable connection points to a Thomas Research CCTV-SP-NI or approved equal transient suppresser for each image sensor.

* Peak Surge Current (8 x 20 us) 20KA
* Technology Hybrid, Solid State
* Attenuation 0.1db @ 10Mhz
* Response Time <1 nanosecond
* Protection Line to Ground
* Shield to Ground (isolated shield modules)
* Clamp Voltage 6 volts
* Connectors BNC
* Impedance 75 Ohms
* Temperature -40 to +85 degrees C
* Humidity 0-95% non-condensing
* Dimensions 4.5” x 1.5” x 1.25”
* UL Listed UL 497B

**Detector Enclosure:**

* Tamper proof constructed of painted or powder coated aluminum of at least 0.06-inch (1.59-mm) thickness.
* Environmentally sealed housing. IP-66 Rating
* Adequate adjustable sunshield should be provided.
* Internal Heater, window defroster, and a thermostat to control both.
* The enclosure shall include grounding and surge protection.

**Documentation: (TVDA)**

Provide to the **Department of Transportation Office of Maintenance** three (3) copies of equipment manuals furnished by the manufacturer, which includes the following:

* Installation and operation procedures.
* Performance specifications (functions, electrical, mechanical and environmental) of the unit.
* Schematic diagrams.
* Pictorial of component layout on circuit board.
* List of replaceable parts including names of vendors for parts not identified by universal part numbers such as JEDEC/RETMA or EIA.
* Troubleshooting, diagnostic and maintenance procedures.

**Site Survey:**

Perform a site survey with the TVDA manufacturer representative at all TVDA locations prior to the installations of the TVDA equipment. The site surveys must be conducted in the field to accurately assess the existing conditions of each location. The purpose of the survey is to optimize the performance from the TVDA equipment when it is installed and ensure that it will meet the accuracy requirements specified previously. Submit the results of this survey to the Engineer in a report, which lists all TVDA locations with any recommended changes to camera locations, mounting adjustments, camera lens adjustments, and desired detection zone locations. This report shall be provided to the Engineer no later than the semi-final inspection.

**Warranties and Guarantees: (TVDA)**

Provide warranties and guarantees to the **Department of Transportation Office of Maintenance** in accordance with Article 1.06.08 of the Standard Specifications. Warranties for all equipment furnished as part of this Contract are to cover a period of 24 months following successful completion of the entire intersection acceptance test.

Construction Methods:

Install TVDA equipment in accordance with the manufacturer instructions and recommendations to achieve the detection zones as shown in the plans and accuracy as described in these specifications. Conduct the Site Survey as specified above. The location of the TVDA shown on the plan may be revised as a result of the Site Survey. Provide the Site Survey report to the Engineer and review proposed TVDA relocations prior to installation of TVDA equipment.

Method of Measurement:

The Thermal Video Detector Assembly will be measured for payment as the number of detectors furnished, installed operational and accepted.

Basis of Payment:

The unit bid price for Thermal Video Detector Assembly includes the detector, enclosure, surge protector, brackets used to attach the TVDA to a support structure or extension bracket, documentation, warrantee, labor, tools and equipment necessary to provide the specified video signal to the VDP.

## Pay Item Pay Unit

Thermal Video Detector Assembly Ea.

