

Special Specification 6369

Gateway Modem



1. DESCRIPTION

Furnish and install a Gateway Modem as shown on the plans, as detailed in the Special Specification, and as directed.

Furnish, assemble, fabricate or install new, corrosion resistant materials in strict accordance with the details shown on the plans and in the specifications.

Include licenses for equipment, where required, for any software or hardware in the system.

Provide all routers from the same manufacturer.

2. MATERIALS

Provide any of the following Gateway Modem options, to be uninterrupted, reliable performance for the transfer of serial data communications between Intelligent Transportation System (ITS) devices and CTECC, as shown in the plans and as directed by the Engineer.

Provide cellular antenna from the same manufacturer and as part of this bid item.

- Option 1: Cisco 809 (with Antenna) – IR809G-LTE-NA or IR809G-LTE-VZ
- Option 2: Sierra Wireless Airlink® MP70 Modem (with Antenna)
- Option 3: Approved Equivalent according to following specifications:

2.1. **Software.** Provide programming and software required to support the system. Install the programming and software in the appropriate equipment at the time of acceptance testing, and use it in the acceptance testing.

Provide software updates free of charge during the warranty period.

2.2. **Power Requirements.** Ensure the router operates at input voltage range 9.6 – 60V DC with a maximum 2A and 0.4A minimum current, from a separate power supply to be provided as part of the bid item.

Provide a separate power supply with 110/220V AC and 88-300V DC input.

Provide equipment operations that are not affected by the transient voltages, surges, and sags normally experienced on commercial power lines. Check the local power service to determine if any special design is needed for the equipment. Include the extra cost, if required, in the bid of this item.

Provide equipment that is designed such that the failures of the equipment must not cause the failure of any other unit of equipment.

2.2.1. **Wiring.** Provide wiring that meets the requirements of the National Electric Code. Provide wires that are cut to proper length before assembly. Provide cable slacks to facilitate removal and replacement of assemblies, panels, and modules. Do not double-back wire to take up slack. Lace wires neatly into cable with nylon lacing or plastic straps. Secure cables with clamps. Provide service loops at connections.

- 2.2.2. **Fail Safe Provision.** Provide equipment that is designed such that the failures of the equipment must not cause the failure of any other unit of equipment. Ensure that automatic recovery from power failure occurs within 40 sec. after resumption of power.
- 2.3. **Mechanical Requirements.** Ensure the dimensions of the enclosure do not exceed 5.05 in. W X 6.27in. H X 1.15 in. D. Ensure the equipment weight does not exceed 2 lb.
- Coat printed circuit boards with a clear-coat moisture and fungus resistant material (conformal coating).

3. CONSTRUCTION

- 3.1. **General.** Provide equipment that utilizes the latest available techniques for design and construction with a minimum number of parts, subassemblies, circuits, cards, and modules to maximize standardization and commonality.
- Design the equipment for ease of maintenance. Provide component parts that are readily accessible for inspection and maintenance. Provide test points that are for checking essential voltages and waveforms.
- 3.2. **Electronic Components.** Provide electronic components in accordance with the Special Specification, "Electronic Components".
- 3.3. **Mechanical Components.** Provide external screws, nuts and locking washers that are stainless steel; do not use self-tapping screws. Provide parts made of corrosion resistant material, such as plastic, stainless steel, anodized aluminum or brass. Protect materials from fungus growth and moisture deterioration. Separate dissimilar metals by an inert dielectric material.
- 3.4. **Documentation Requirements.** Provide documentation in accordance with Article 4 of the Special Specification, "Testing, Training, Documentation, Final Acceptance, and Warranty."
- 3.5. **Testing.** Perform testing in accordance with Article 2 of the Special Specification, "Testing, Training, Documentation, Final Acceptance, and Warranty." Test each Cisco 809 to ensure compliance to FCC and Department specifications.
- 3.6. **Experience Requirements.** Meet the following minimum requirements for Contractors or designated subcontractors involved in the installation and testing of the Cisco 809 or similar gateway modems:
- Two years' experience in the installation of wireless gateway modem systems;
 - Two installed Cisco 809 systems (or similar) where the systems have been in continuously satisfactory operation for at least 1 yr. Submit as proof, photographs or other supporting documents, and the names, addresses and telephone numbers of the operating personnel who can be contacted regarding the system; and
 - Provide necessary documentation of subcontractor qualifications pursuant to contract award.
- 3.7. **Technical Assistance.** Ensure that a manufacturer's technical representative is available on site to assist the Contractor's technical personnel at each installation site and with Cisco 809 system equipment installation and communication system configuration.
- Do not execute the initial powering up of the gateway modem equipment without the permission of the manufacturer's representative.
- 3.8. **Training.** Provide training in accordance with Article 3 of the Special Specification, "Testing, Training, Documentation, Final Acceptance and Warranty."

- 3.9. **Warranty.** Provide a warranty in accordance with Article 6 of the Special Specification, "Testing, Training, Documentation, Final Acceptance and Warranty."

4. **MEASUREMENT**

This Item will be measured as each unit furnished, installed, made fully operational, and tested.

5. **PAYMENT**

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for each "Gateway Modem." This price is full compensation for the equipment described under this Item with cellular antenna, cables and connectors, mounting assemblies, documentation and testing; and includes the cost of furnishing labor, tools, materials, training, warranty, and incidentals.