

## **Section 16950**

### **Field Instruments**

#### **PART 1: General**

- 1.1 *Related Documents* - Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- 1.2 *Summary* - This section includes the storage, installation, calibration, and warranty of the instrumentation.
- 1.3 *Delivery, Storage and Handling* -
  - 1.3.1 Deliver units as factory-assembled units, to the extent allowable by shipping limitations, with protective crating and covering.
  - 1.3.2 Lift and support units with the manufacturer's designated lifting and covering.
- 1.4 *Project Conditions* -
  - 1.4.1 *Field Measurement* - Verify dimensions by field measurements. Verify clearances for installation.
- 1.5 *Coordination and Scheduling* - Coordinate with the Owner for the equipment shop drawings (including wiring schematics) and location of mounting areas.
- 1.6 *Instrument Quantities for Bidding Purposes* - Refer to drawings and equipment list.

#### **PART 2: Products**

- 2.1 *Manufacture and Model* - As indicated on Equipment List, located on the drawings.
- 2.2 *Warranty* -
  - 2.2.1 The equipment shall be warranted for a period of two years after startup.
  - 2.2.2 Components failing to perform as specified by the engineers, or as represented by the manufacture, or proven defective in service during the warranty period, shall be replaced, repaired or satisfactorily modified by the manufacture without cost to the Owner when returned to the manufacture.
- 2.3 *Workmanship* - All materials and equipment shall be installed in accordance with the approved recommendations of the manufacturer to conform within the contract documents. The installation shall be accomplished by workmen skilled in this type of work.

### **PART 3: Execution**

#### **3.1 *Demonstration* -**

- 3.1.1 Review data in the operation and maintenance manuals. Refer to Division 1 Section "Contract Closeout".
- 3.1.2 Demonstrate operation of products specified in this Section. Briefly identify location and describe function, operation, and maintenance of each product.

#### **3.2 *Installation* -**

- 3.2.1 Install according to manufacturer's written instructions.
- 3.2.2 Install units with clearances for service and maintenance.
- 3.2.3 Contractor shall install required electric conduit and cables for all field instruments. Each field instrument shall be supplied with 2#18 AWG twisted-shielded pair of signal wire in a 1" conduit to the terminal block location indicated within the control panel.

#### **3.3 *Connections* -**

- 3.3.1 *Electrical* - Conform to applicable requirements in Division 16 Sections.
- 3.3.2 *Grounding* - Ground equipment. Tighten electrical connectors and terminals, including grounding connections, according to manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

#### **3.4 *Field Quality Control* -**

- 3.4.1 *Manufacturer's Field Service* - Provide services of a factory-authorized service representative to supervise the field assembly of components and installation and electrical connections, and to report results in writing.
- 3.4.2 Contractor shall install all equipment and related accessories before having the manufacturer's field service. If additional trips are required due to incorrect installation, Contractor shall pay for the costs for the field services.

- 3.5 *Documentation* - Provide the Owner with original copies of the installation, operation, maintenance, and calibration manuals as provided with the equipment. In addition provide the original warranty cards and product literature. Copies of this information shall not be accepted.