

SECTION 18100

INTERLOCKING CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Section includes requirements for installing, testing, and documenting Owner-furnished pre-wired vital microprocessor based interlocking controller racks and local control panels that provide the functionality shown on the Contract Drawings.
- B. Final application logic programs, including EPROMS will be furnished by the Owner.

1.02 REFERENCE STANDARDS

- A. Code of Federal Regulations (CFR), Title 49, Transportation:
 - 1. Part 236 Rules, Standards, and Instructions for Railroad Signal System
- B. American Railway Engineering and Maintenance of Way Association (AREMA):
 - 1. Communications and Signals Manual of Recommended Practices (C&S Manual).

1.03 SUBMITTALS

- A. Submit a narrative explanation of the electrical and/or mechanical methods of configuration control used to ensure that the application logic software installed is the correct software for the specific location and that it is the latest version. It shall explain Contractor's procedures for handling components of the vital interlocking controller.
- B. Submit certified acceptance reports.
- C. Submit test reports and verification of tests as described herein under Testing.

1.04 QUALITY ASSURANCE

- A. Install and test the interlocking controller and local control panel (LCP) so as to conform to and provide all applicable requirements of CFR 49, Part 236, and the recommendations of AREMA C&S Manual Part 2.2.10. When following the recommendations of the AREMA C&S Manual substitute the word "shall" for the word "should" in the applicable Manual Part.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Package plug in modules for shipment separately from their card cage units using ESD safe packaging. Protect each item from damage or loss during handling and shipment.
- B. Clearly identify each controller unit, LCP, and their associated components on the packing crate, referencing its intended location.

1.06 WARRANTY

- A. Provide warranty from defects arising from improper handling for 2 years from the first date of service.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Solid State Micro-Processor Interlocking Controller, software, and local control panels will be Owner-furnished.

2.02 FACTORY TESTING

- A. Conduct an acceptance test on the unit prior to loading at the warehouse. Provide certified acceptance reports with each unit at time of delivery.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Ensure that test and specialized installation equipment recommended by the manufacturer to make any readings or adjustments is in the Contractor's possession and within the project limits a minimum of 30 days prior to installation

3.02 INSTALLATION

- A. Wire and install the microprocessor-interlocking controller and the LCP in accordance with rack layout provided in the Contract Drawings.
- B. Load all programmable and configurable modules with application software and perform any configuration necessary.

3.03 FIELD QUALITY CONTROL

- A. Conduct all applicable tests as recommended in AREMA C&S Manual Parts 2.4.1 and 7.4.1 to ensure proper operation of the signal and grade crossing warning systems.
- B. Conduct tests to ensure that the signal system conforms to CFR 49, Part 236.
- C. Conduct all tests required under Section 18600, Signal Systems Testing.

- D. Testing, including pre-testing, shall include operating all switch machines and lighting all signals. The use of lamp simulators in lieu of, or in parallel with, signal lamps will not be allowed in pre-testing. An exception may be authorized by the Engineer where a signal or switch machine is in service and will be reconfigured for final cutover or cannot be installed or wired until final cutover.

END OF SECTION