# part1. GEneral

## Scope

### The general requirements for the supply and installation of all process control equipment as specified herein and as shown in the drawings are covered in the various sections of Division 13.

### The requirements for the programming in the SCADA system, including the integration into the existing SCADA system and related services and supplies, shall be performed by the Region’s System Integrator (referred to as “SCADA System Integrator”).

### Comply with the requirements of Division 1.

### Refer to Division 11- Equipment, Division 15- Mechanical and Division 16- Electrical for additional requirements.

### Refer to the Contract Drawings to ensure completeness of installation for all items and that these items are compatible with the control and operational intent of the design of this project.

### Without limitation to the following sections of this division, the equipment supplied shall be complete with all accessory items, whether specifically mentioned or not, so as to provide completeness of installation, controls and operation as intended. All equipment installation shall be as recommended by the equipment manufacturer or as described in the installation drawing.

### Process control equipment and wiring as specified, or as shown on the drawings, are sized for the process, electrical and mechanical equipment as specified, or as may be necessary in the future. **Any additional expense incurred because of approved substituted process control equipment from that specified shall be borne by the Contractor.**

### Provide all necessary equipment, tools, and labour for installing and testing all equipment supplied under this Division.

### Modify and/or remove existing equipment as shown on the Contract Drawings.

## Submittals

### Comply with the requirements of Division 1. Detailed requirements for instrument submittal requirements are in Section 13105 – General Instrumentation Requirements.

### Working drawings must be submitted and reviewed for all equipment in Division 13, before ordering or fabrication.

### Provide a complete listing of recommended spares for each type of supplied equipment.

### PAC and Network Access Closet (NAC) panel wiring diagrams:

#### Submit PAC and NAC panel shop drawings for review.

#### Final updated PAC and NAC panel shop drawings shall be submitted in AutoCAD format.

## Measurement and Payment

### The work of this Section will not be measured separately for payment. All costs associated with the work of this Section shall be included in the Contract Price.

## Project Coordination

### Comply with the requirements of Division 1.

## Standards

### All equipment and workmanship shall conform to the applicable standards established by ASTM, CEC, OESC, IEEE, ISA, CGSB, CSA, OBC and the Electrical Safety Authority, including all bulletins issued by the standards authority. Where conflicting standards occur, the more stringent standard shall be applied.

### All field devices shall be rated as noted on the Device Data Sheets. All field devices are to be suitable for the area classification in which they are installed.

### Comply with all the applicable Municipal, Provincial, and Federal regulations and by-laws including Ontario Building Code, Ontario Electrical Safety Code, Canadian Electrical Code and other applicable regulations. Provide all necessary licenses, permits, approvals and certificates.

### Provide regular inspections and a final inspection with the local Electrical Safety Authority office(s).

## General Requirements

### Provide all supplies used during and prior to acceptance of equipment. In addition, provide an estimated one year’s supply of materials necessary for normal operation and scheduled maintenance of all equipment.

#### Supplies shall be furnished in the original sealed containers, correctly identified as to brand and grade, and with reference to the particular piece of equipment for which it is intended.

#### Refer to the individual equipment specifications for additional details on required supplies.

### The equipment specified shall generally be an "all electronic" control system, with 4-20mA DC linear outputs from all instruments, unless otherwise noted. Equipment shall be suitable for 120 VAC, 60 Hz, single phase operation, or 24 VDC operation as shown on the drawings. Where noted the equipment shall also be capable of digital communication to the PAC (Process Automation Controller) using the protocol identified in the individual equipment specifications.

### Transmitting equipment shall generally be based on the force balance principle with minimum movement of any part and having receiving and control equipment compatible with the transmitting equipment. All equipment shall have a demonstratively good maintenance record.

### Supply and install all required current isolators, signal conditioners, or other converters, which may or may not be shown, but which are required for the entire control and instrumentation system to operate as intended.

### Supply and install all intrinsically safe relays (ISRs) required for equipment installed in hazardous locations. ISRs are to be installed in separate panels and are not to be installed in PAC panels.

### The entire system has been designed for operation on standby power. All instrument components shall have ample margin to withstand transient and other surge voltages which may occur, including transient periods under change over conditions.

### All instrument local indicators shall be in metric engineering units unless specified otherwise.

### All instruments requiring wet taps shall be installed plumb such that all wetted parts are below the elevation of the lowest pipe wall tap. All process connections shall be 25 mm NPT - female, with pressure instruments to 25 mm NPT - male.

### All panels and instruments shall be complete with factory applied finishes. Repaint all damaged factory applied finishes.

## Warranty

### Refer to Division 1.

## Supplements

### The supplement listed below, following “End of Section”, forms part of this Specification.

#### 13010-01 I/O List

**END OF SECTION**