# Part1. GEneral

## General

### Provide and install Programmable Automation Controllers (PACs) as specified on the Contract Drawings and as identified in the Bill of Materials

### Procurement of PACs shall be from the following manufacturers:

#### Rockwell Automation Inc. Allen-Bradley Logix Family - ControlLogix and CompactLogix.

### For selection of the type of Logix controller refer to the Contract Drawings for all design and implementation requirements and selection criteria.

### All PACs shall be from the same manufacturer and model number based on current available technology from the approved supplier (Rockwell Automation Inc. Allen-Bradley Logix family of controllers).

### All PACs shall be supplied with firmware Version 20.

### The warranty for all PAC and OIT components to be honoured by a local Canadian distributor in the York Region.

### Provide all necessary interconnecting cables, all accessories, and all appurtenances as indicated or as required for proper operation of the system.

### Refer to Input/Output List for the required I/O listing to be followed in the generation of the PAC Panel drawings.

# PRODUCTS

## Hardware

### Procurement of local Operator Interface Terminals (OIT) shall be from the following manufacturer:

#### Industrial PC with GE iFix embedded as per the Bill of Materials in the Contract Drawings.

### Each PAC shall have a local OIT where identified on the Contract Drawings.

### Refer to the Bill of Materials on the panel drawings for part numbers, options and quantities.

## Inputs/Outputs

### Provide PAC I/O as identified on the contract drawings.

### Spare Slots and I/O:

#### 20% spare I/O per I/O type shall be provided within each PAC panel.

#### Minimum of four spare slots within the racks shall be provided.

#### Minimum of two spare points of each I/O type shall be provided.

### Refer to the Bill of Materials on the panel drawings for part numbers and quantities.

## Rack Layout

### For consistency, the Region has standardized on the rack layout for ControlLogix. Additional racks shall be connected to the main PAC CPU rack through a dedicated Ethernet card.

### For systems which have more than two racks connected to the main PAC CPU rack a device level ring shall be used to connect the racks together.

### I/O shall be distributed based on device using multiple cards for common devices.

### Rack layout shall be as shown in the Contract Drawings.

## SCADA Software

### All PAC & HMI development, testing and implementation will be completed by the Region’s SCADA Systems Integrator.

### Allow for coordination with the Consultant and the Region’s representative to ensure a fully functional system.

# EXECUTION

## Installation

### Supply, install, test, program and commission PAC components, OIT, communication equipment, and associated equipment to ensure functionality of the complete network and control system. Report all construction defects, which will affect the progress of the work to the Region and Consultant.

### The drawings have been developed on a conceptual basis. Provide devices, components and accessory items necessary for the operation of the control system.

### Existing systems shall remain functional at all times. Shut down of any of the existing equipment or system only to be performed under the direction of the Region and Consultant.

### All replaced, removed or extra equipment shall be delivered to the Region upon completion of the Contract.

### Communication system and PAC panel modifications shall be completed, tested, and operational prior to Site Acceptance Testing and commissioning.

### Factory Acceptance Testing to be carried out in accordance with Section 13311.

### Site Acceptance Testing and commissioning to be carried out in accordance with Section 13930.

## Field Quality Control

### Perform tests in accordance with Division 1, Division 13, and Division 16.

### Depending upon magnitude and complexity, divide control system into convenient sections, energize one section at a time and check out operation of section.

### Upon completion of sectional test, undertake group testing.

### Check out complete system for operational sequencing.

### Submit to Consultant one copy of test results.

### Provide a written list of all passwords, keywords, serial numbers, configurations, that are encountered during the installation of the operating system and application software.

### Assign all warranties, licenses and product registration to the Region’s PCS/SCADA Manager.

### Turn over to the Region all installation software, user manuals, accessory cables, calibration units, or any other material accompanying the installed equipment.

**END OF SECTION**