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| Version | Date | Description of Revisions |
| 1 | November 1, 2011 | Standard Specification Release |
| 2 | April 20, 2015 | General formatting |
| 3 | May 19, 2017 | Corrected spelling error |
| 4 | January 6, 2020 | Removed obsolete references (BM) |

NOTE:

This is a CONTROLLED Document. Any documents appearing in paper form are not controlled and should be checked against the on-line file version prior to use.

**For each project the Consultant is responsible for the correct application of the specifications and for updating and modifying all highlighted items, as well as updating and modifying those sections that are directly applicable to the project. All updates and modifications to this standard document are to be highlighted to the Region for review and acceptance on each project.**

**Notice:** This Document hardcopy must be used for reference purpose only.

**The on-line copy is the current version of the document.**

# GEneral

## References

### The following is a list of standards which may be referenced in this section:

#### The Instrumentation, Systems and Automation Society (ISA): S50.1, Compatibility of Analog Signals for Electronic Process Instruments.

#### National Electrical Manufacturers Association (NEMA):

##### 250, Enclosures for Electrical Equipment (1000 Volts Maximum).

##### AB 1, Molded Case Circuit Breakers and Molded Case Switches.

##### ICS 2, Industrial Control Devices, Controllers and Assemblies.

#### Canadian Standards Association (CSA):

##### C22.2 Electrical Safety Code

#### Ontario Electrical Safety Code (OESC).

#### National Fire Code, National Fire Protection Association (NFPA): 820, Fire Protection in Wastewater Treatment Plants.

#### Underwriters Laboratory, Inc. (UL): 508, Standards for Safety, Industrial Control Equipment.

## References

### Comply with the requirements of Section 13310 for Panels and 13400 for Programmable Automation Controllers.

### York Region PCS Requirements Manual.

### Coordinate with Division 15. The requirements identified within these specifications apply to any mechanical packaged vendor equipment supplied with a PAC and to be integrated into control network and SCADA system.

### Coordinate with Division 16 for Electrical requirements.

## System Description

### Assemble panels and install instruments, plumbing, and wiring in equipment manufacturer’s factories.

### FAT Test panels and panel assemblies for proper operation prior to shipment from equipment manufacturer’s factory. Region, Consultant and SCADA System Integrator to attend. Refer to Section 13311 Panel Factory Acceptance Testing

## Submittals

### Shop Drawings:

#### Bill of material, catalog information, descriptive literature, wiring diagrams, and Shop Drawings for components of control system.

#### Catalog information on electrical devices furnished with system.

#### Shop Drawings, catalog material, and dimensional layout drawings for control panels and enclosures.

#### Panel elementary diagrams of prewired panels. Include in diagrams control devices and auxiliary devices, for example, relays, alarms, fuses, lights, fans, and heaters.

#### Plumbing diagrams of preplumbed panels and interconnecting plumbing diagrams.

#### Interconnection wiring diagrams that include numbered terminal designations showing external interfaces.

#### Refer to Section 13310 for Panel requirements.

### Information Submittals:

#### Manufacturer’s Certificate of Proper Installation.

#### Programmable Controller Submittals:

##### Complete set of user manuals.

##### Fully documented ladder logic listings. Paper and electronic copy.

##### List of addresses to be interfaced to SCADA system.

##### Function listing for function blocks not fully documented by ladder logic listings. Paper and electronic copy.

##### Cross-reference listing. Paper and electronic copy.

##### Process Control Narrative.

#### Manufacturer’s list of proposed spares, expendables, and test equipment.

#### Provide process control narrative detailing the functional operation in accordance with the PCS Requirements Manual.

### Allow for minimum of five (5) days for coordination between vendor and SCADA System Integrator unless noted otherwise in the contract documents.

### The vendor is to provide all PAC and local OIT programming, testing and commissioning required for the vendor package. The SCADA System Integrator will be developing the SCADA system screens and database points for the vendor package. The vendor is to provide a list of PAC addresses to the SCADA System Integrator for development of the SCADA screens and database.

### The vendor is to coordinate with the System Integrator for development of the SCADA screens and provide the System Integrator with copies of the package PLC and OIT programs.

### All vendor programming for the PAC and OIT development is to be to conform to the York Region PCS Requirements Manual.

## Delivery, Storage, and Handling

### Prior to shipment, removed PAC CPU and I/O cards for separate shipment. Re-install after panel installation is complete.

## Extra Materials

### Spares, Expendables, and Test Equipment:

#### Selector Switch, Pushbutton, and Indicating Light: 20 percent, one minimum, of each type used.

#### Light Bulb: 100 percent, 2 minimum, of each type used.

#### Fuse: 100 percent, 20 minimum, of each type used.

### Surge Suppressors: 20 percent, one minimum, of each type used.

# PRODUCTS

## General

### Panel products are to meet requirements of Section 13310 Panel Specifications. Deviations from Section 13310 are permitted if approved by the Consultant and Region.

### Allen-Bradley CompactLogix PACs are permitted for single rack installations unless otherwise noted on the drawings and specifications. For multiple rack installations, ControlLogix PACs with separate remote I/O network cards are to be used unless otherwise noted on the drawings and specifications.

## Quality Assurance

### Refer to Section 13310 Panel Specifications.

# EXECUTION

## Installation

### Refer to Section 13310 Panel Specifications for requirements.

### Local network switches installed in package control panels are not permitted. A Work Area Outlet (WAO) as specified in 13510 PCS SCADA Local Area Network is to be installed in the package control panel. All ports on the WAO are to be home run back to the Network Access Closet or PCS switch. Patch cables to be installed in the package control panel for connection of Ethernet equipment to the WAO.

### Factory Acceptance Testing as specified in Section 13311 Panel Factory Acceptance Test (FAT) is to be completed prior to panel shipment and must be conducted on a fully functional system.

### Upon completion of onsite installation, Vendor shall conduct their own functional tests and assist in functional tests integrated into overall SCADA system with the SCADA System Integrator.

## Electrical Power and Signal Wiring

### Refer to Section 13310 Panel Specifications for requirements.

## Integration

### Vendor PAC shall include functionality to provide communications handshaking or heartbeat with the plant PAC or SCADA system. The handshaking is intended to provide a method to monitor communications with the vendor package.

### Vendor to allow for coordination and on-site testing/verification with the SCADA System Integrator for SCADA screen development, testing and commissioning.

### Editable copy of Vendor Process Control Narrative is to be provided to SCADA System Integrator for integration into overall facility Process Control Narrative.

**END OF SECTION**