

26 05 05 BACNET AND OTHER DEVICE INTERFACES INTEGRATION

1 - GENERAL

1.01 Related Sections

- 1.01.1 Section 01 31 13.31 - BACnet and Other Device Interface Integration
- 1.01.2 Section 25 00 13 - All Trades Work Responsibilities

1.02 Controls Coordination Meeting at the Call of the General Contractor

- 1.02.1 This Division and Equipment Suppliers carried by the Division, shall attend the Controls Co-ordination Meeting specified in 01 31 13.13 and in Division 25. This Division shall require that all Contractors (and/or Manufacturer's representatives) who are supplying equipment with packaged controls that are to be integrated with the BAS, to coordinate details of the integration, to attend this meeting.
 - 1.02.1.1 The purpose of this meeting shall be to ensure that there are no unresolved issues regarding the integration of the supplied equipment packaged controls with the BAS device network prior to submission of equipment Shop Drawings.
 - 1.02.1.2 Submittals for these products shall not be approved prior to the completion of this meeting.
- 1.02.2 Following this meeting, this Division and the Subcontractors/Subtrades reporting to this Division are responsible for providing, via the Submittal process, the BACnet Interface Devices and/or Wired Connections (aux contacts)
 - 1.02.2.1 Each Subcontractor/subtrade under this Division shall provide the Owner and all effected Contractors with details of the proposed interface, including the PICS for BACnet interfaces, hardware and software identifiers for the interface points, network identifiers, wiring requirements, communication speeds, required network accessories, etc.

1.03 Shop Drawings and Submittals

- 1.03.1 The Equipment Supplier shall provide product data sheets illustrating the equipment packaged controls interface(s) to be integrated with the BAS device network in the Work. The data sheets shall detail:
 - 1.03.1.1 Equipment packaged controls interface type, wiring requirements.
 - 1.03.1.2 Equipment packaged controls native protocol (if not native BACnet, also provide a complete listing of packaged controls native data objects and their operating parameters).
 - 1.03.1.3 BACnet PICS listing for the BACnet Interface Device(s).
 - 1.03.1.4 BACnet Objects listing.
 - 1.03.1.5 Installation and configuration requirements (packaged controls interface and/or gateway)
 - 1.03.1.5.1 Where the BACnet Interface Device is a gateway between a proprietary protocol such as Modbus, Equipment Suppliers in this Division shall provide a Modbus register list for review and markup by the Lake County BAS Consultant. The Equipment Supplier shall then provide a list of the mapped BACnet Object Types that represent the Modbus or proprietary registers/points.
- 1.03.2 If the Equipment Supplier is providing a proprietary protocol to BACnet gateway from an OEM supplier, both suppliers shall jointly warrant in writing that the gateway can successfully parse the equipment packaged controls native protocol to BACnet MS/TP or BACnet/IP. All gateways shall be authorized by and provided by the Equipment Supplier. Unauthorized gateways are not allowed in the Work.

1.04 BACnet and Non-BACnet Interfaces

- 1.04.1 The following equipment shall be supplied with BACnet interfaces or shall come with aux contacts or shall have stick-built controls by Division 25. See the following Division 25 Sections for these

requirements that are the responsibility of this Division to supply, install and commission to the Lake County BAS Consultant's and the Owner's satisfaction:

- 1.04.1.1 25 20 26.28.16 Integrated Automation – BACnet Interface Device (Gateways/Native BACnet Devices) –Enclosed Switches and Circuit Breakers (All Types).
- 1.04.1.2 25 20 26.29.23 Integrated Automation – BACnet Interface Device (Gateways/Native BACnet Devices) – Variable Frequency Drives (All Types).
- 1.04.1.3 **25 20 28.31.11 Integrated Automation - BACnet Interface Device (Gateways/Native BACnet Devices) - Fire Detection and Alarm (All Types). This section is assigned to Division 26.**

1.05 Application of the Division 25 BACnet Single Line Diagram and the Responsibility Matrix

- 1.05.1 The Work responsibilities outlined in the Division 25 BACnet Single Line Diagram and the Responsibility Matrix apply to this Division. See 25 00 13 and Division 25 Schedule 3 for details.

2 - PRODUCTS

2.01 General BACnet Interface Requirements

- 2.01.1 All equipment supplied by this Division and other Divisions that are to be integrated with the BAS device network shall come with packaged controls that provide either a BACnet MS/TP or BACnet/IP interface. All other BACnet interface protocols are not allowed in the Work without the written permission of the Lake County BAS Consultant.
- 2.01.2 The equipment packaged controls interface(s) shall permit the Division 25 to map all available BACnet objects into the BAS Front End. The Front End shall monitor alarms and events and shall have control over BACnet Objects as permitted by the supplier of the equipment packaged controls interface(s).
- 2.01.3 If the equipment packaged controls have a native BACnet interface, all BACnet Objects must be represented externally on the BAS network using BACnet Objects and Services.
- 2.01.4 If the equipment packaged controls have a native Modbus, LonWorks, or proprietary interface requiring a BACnet gateway, the BACnet gateway shall support mapping all proprietary equipment and interface data to BACnet AV, BV and MSV Objects.
- 2.01.5 The equipment packaged controls (and gateways where supplied) shall retain configuration data indefinitely if primary power is lost for extended periods.
- 2.01.6 All Device Names, Instance Numbers, Network Numbers and Device Object Names shall be approved by the Lake County BAS Consultant and Owner prior to any installation Work being done.

3 - EXECUTION

3.01 General

- 3.01.1 All BACnet Objects used to configure the equipment interface or to assign administrative passwords in supplied equipment packaged controls must be available to the Owner. The Owner will create read only rights passwords for the Owner's staff so the equipment can be monitored during the warranty period.

3.02 Prohibited Locations for BACnet Interface Devices

- 3.02.1 Do not locate any BACnet device in a comms closet or Server Room without prior written permission of the Owner. This applies to all devices provided by this Division and/or this Division's Equipment Suppliers.

3.03 BACnet Interface Supplier Responsibility

- 3.03.1 Supply a panel enclosure (tub) that is suitably sized for the BACnet interface and the required power supply, if supplied separately from the supplied equipment. Supply a separate low voltage power supply for the BACnet interface (if required).
- 3.03.2 Supply any additional remote panels/equipment required to provide connectivity between the BACnet interface and the supplied equipment packaged controls.

- 3.03.3 For devices with Non-BACnet Wired Connection the Equipment Supplier shall supply details on the auxiliary contacts provided with the packaged equipment.
- 3.03.4 Each supplier of equipment with a BACnet interface is responsible for the configuration, programming, start-up, and testing of that product to comply with the requirements set out in the Specifications and Drawings for the Work. Create and assign passwords and access levels within the interface.
- 3.03.5 If the equipment packaged controls has a native Modbus, LonWorks, or proprietary interface requiring a BACnet gateway, the Equipment Supplier shall verify that all proprietary equipment and interface data has been mapped to BACnet AV, BV and MSV Objects.
- 3.03.6 Assist the Division 25 in verifying communications connectivity between the BACnet interface and the BAS network at the Place of the Work.
- 3.03.6.1 If the Equipment Supplier's device comes with an embedded Webserver, the Equipment Supplier shall identify this in the Submittal. The Webserver may need a separate IP drop and/or a separate IP address. Co-ordinate this Work with the General Contractor. The embedded Webserver is covered by the Division 25 commissioning and testing requirements.
- 3.03.7 Participate in the joint commissioning of the BACnet interface with the Division 25, to the satisfaction of the Owner or the designated Commissioning Authority. The Work includes the complete commissioning of all network visible objects according to the procedures outlined in Section 25 08 00 and 25 08 03 using the relevant Commissioning Forms for each BACnet Object.

3.04 Graphics Responsibility of This Division

- 3.04.1 Division 25 BAS Contractor is responsible for all Alarms, Trends, Schedules, Reports and Graphics specified in the Division 25 Specification.
- 3.04.2 The Division 25 Specification has samples of Graphics and Reports that Division 25 shall use as a guide to produce acceptable Graphics and Reports.
- 3.04.3 All Alarms, Trends, Schedules, Reports and Graphics shall be approved via the Submittal process. Submit samples of same for review and approval by the Lake County BAS Consultant and Owner.
- 3.04.4 Where a sample Graphic has not been provided in the Division 25 Specification, Division 25 shall produce graphics on the BAS Front End that are visually similar to and emulate the functionality of the equipment local interface.
- 3.04.4.1 Equipment Suppliers in this Division shall provide Division 25 with a picture(s) of the equipment local interface (e.g., annunciator panel, LCD display, GUI interface) used to configure, monitor and/or control the equipment supplied. The picture(s) shall clearly show all information presented by the local interface.
- 3.04.4.2 This Division shall provide as-built AutoCAD drawings showing the location of all devices to Division 25 so Division 25 can create floor plan graphics.
- 3.04.4.3 Equipment Suppliers in this Division shall review the related Front End graphic(s) with Division 25 to ensure that all local interface capabilities of the supplied equipment have been accurately reproduced on the Front End.

End of Section