Models:
IG03 BACnet Gateway

BACnet Gateway

Overview
The Innotech® BACnet Gateway is a protocol gateway between Innotech Controllers via the Innotech Net Comms network and BACnet devices via BAC/IP or MSTP networks.

The basic operation of the BACnet Gateway is to pass data between Innotech and BACnet networks. Points which are to be shared are mapped in the Innotech Fusion software and transferred to the Gateway.

The operation of the Gateway is to interrogate both the Innotech and BACnet networks to store the current value of the mapped points. The value is then regularly updated to the mapped point on the opposing network.

Features
- 2 x Isolated RS485 serial Net Comms Network ports (PC and NET)
- 1 x Isolated BACnet MSTP RS485 port
- 1 x Isolated Ethernet (10baseT) port
- User selectable Baud rate on RS485 Net Comms Network ports
- User selectable Baud rate on BACnet MSTP network port
- All wires connected by pluggable screw terminals
- Program resides in non-volatile flash RAM
- Real-Time Clock (battery backed)
- Visual indication of power, system and communication activity
- Provides two-way communications between networks

Approvals
The Innotech BACnet Gateway conforms to:
- EN 61326:2013 for CE Marking and RCM Labelling
- Title 47 CFR, Part 15 Class A for FCC Marking
- UL listed to UL916, File Number E242628

Applications
The Innotech BACnet Gateway allows points on Innotech controllers to be directly mapped with objects on BACnet Networks. The BACnet Gateway supports mappings between Innotech and BACnet BAC/IP networks OR between Innotech and BACnet MSTP networks.

The Innotech BACnet Gateway does not function as a BACnet Router between BAC/IP and MSTP networks.

Installation
The BACnet Gateway should be installed in an environment that does not exceed the maximum operating parameters of the device. It should be mounted in a dry, clean and vibration free environment.

The small size of the Gateway also gives it the advantage of being installed in space reduced environments.

Specifications
Power Supply
- 24VAC ± 10% @ 50/60 Hz
- Power consumption: 4VA
- 24VDC ± 10%
- Power consumption 2.3W
- Recommended transformer rating of 8VA or greater.

The operating voltage must meet the requirements of Safety Extra Low Voltage (SELV) to EN60730. The transformer used must be a Class 2 safety transformer that has the energy and voltage limiting characteristics as described in the National Electrical Code, ANSI/NFPA70. It must also be sized and fused in compliance with local safety regulations.

Battery
Contains a lithium type battery, dispose of properly.
(In accordance with local regulations)
- Type CR-2032 Lithium Battery
- Nominal voltage 3 Volts
- Shelf life 5 years, dependent on ambient temperature

Caution: Risk of Explosion if battery is replaced by an incorrect type.

Temperature Ratings
- Storage: -5 to 50°C non-condensing
- Operating: 0 to 50°C non-condensing

Enclosure/Mounting
The BACnet Gateway is housed in a rectangular case suitable for DIN Rail mounting. The housing is moulded from flame retardant plastics recognised by UL as UL 94-V0.

Colour: Grey
Dimensions (max): 71mm x 115mm x 67mm

LED Indication

Power (Red LED)

- Indicates power is supplied to the device

Heartbeat (Green LED)

- Regular flashing indicates device is operational

Comms (3 x Bicolour LEDs)

- Indicate RS485 network activity on each channel. The LEDs for each channel are physically aligned with the appropriate comms connector for that channel.
- Transmit = Red, Receive = Green

Link (Orange LED, RJ45 Socket)

- Indicates connectivity to Ethernet

Activity (Green LED, RJ45 Socket)

- Indicates network activity

Communications

The BACnet Gateway acts as the network master managing communications on the Innotech Net Comms Network. As such, all Innotech Net Comms traffic must pass through the Gateway.

iComm Communications Server must be configured to communicate to the Innotech device network through the "PC" RS485 port or Ethernet port on the Gateway. The Device Network must be connected to the "NET" RS485 port.

PC

RS485 Serial communications channel for interfacing with Innotech Head End Software. Connectivity is provided through a 5-way pluggable screw terminal connector on the front of the product.

Net

RS485 Serial communications channel for interfacing with Innotech Network Devices. The BACnet Gateway will manage the communications required for correct Gateway operation and Communications from iComm
Connectivity is provided through a 5-way pluggable screw terminal connector on the front of the product.

BACnet MSTP

RS485 Communications channel for interfacing directly with a BACnet MSTP network. Connectivity is provided through a 3-way pluggable screw terminal on the bottom right of the device. Termination is provided by the use of a jumper next to the connector if this is required for the BACnet MSTP network.

Ethernet

Ethernet communications channel which can be used for dedicated data transmission of Innotech data to iComm and provide a BAC/IP connection for the BACnet Gateway. Connectivity is provided through an RJ45 socket on the top right of the product.

The BACnet Gateway is pre-programmed with the following TCP/IP parameters:

Address Type: Static
IP Address: 192.168.2.100
Gateway: 0.0.0.0
Subnet Mask: 255.255.255.0

Wiring

- Note the polarity of the RS485 signal lines
- The tails of the cable screens should be made as short as possible (max 30mm) to maintain signal integrity and effective protection against electrical interference
- 0VAC/DC Supply terminal must be earthed

Innotech Comms Cabling

The comms cabling must be organised as a bus topology, ie. starting at one end, devices are connected until the other end of the cable is reached, there can be NO stubs.

To connect a device to the cable, a cut is made in the cable at the point where the device is to be situated. The two new ends of the cable are wired into the device. The shields from the two new ends are then terminated into the terminals marked SHLD.

A minimum of 3 wires is required for reliable comms operation:

- +RS485
- - RS485
- SHLD

For further information, refer to the Installation Manual for Innotech Device Network Cabling, DS 99.04.

The default communications speed is 57600 baud.

BACnet MSTP Comms Cable

Innotech recommends wiring the comms signal as above. However, specific BACnet device wiring instructions take precedence at all times.

Configuration

The BACnet Gateway is configured with the use of Innotech Fusion Software. This software provides an interface for Innotech and BACnet points to be mapped and configured. A completed Mapping Project must be programmed into the Gateway by Fusion before the gateway is functional.

The BACnet Gateway is compatible with Genesis Controllers with firmware versions of 6.10A or greater and Maxim Controllers with firmware versions of 6.20A or greater.

User Interface

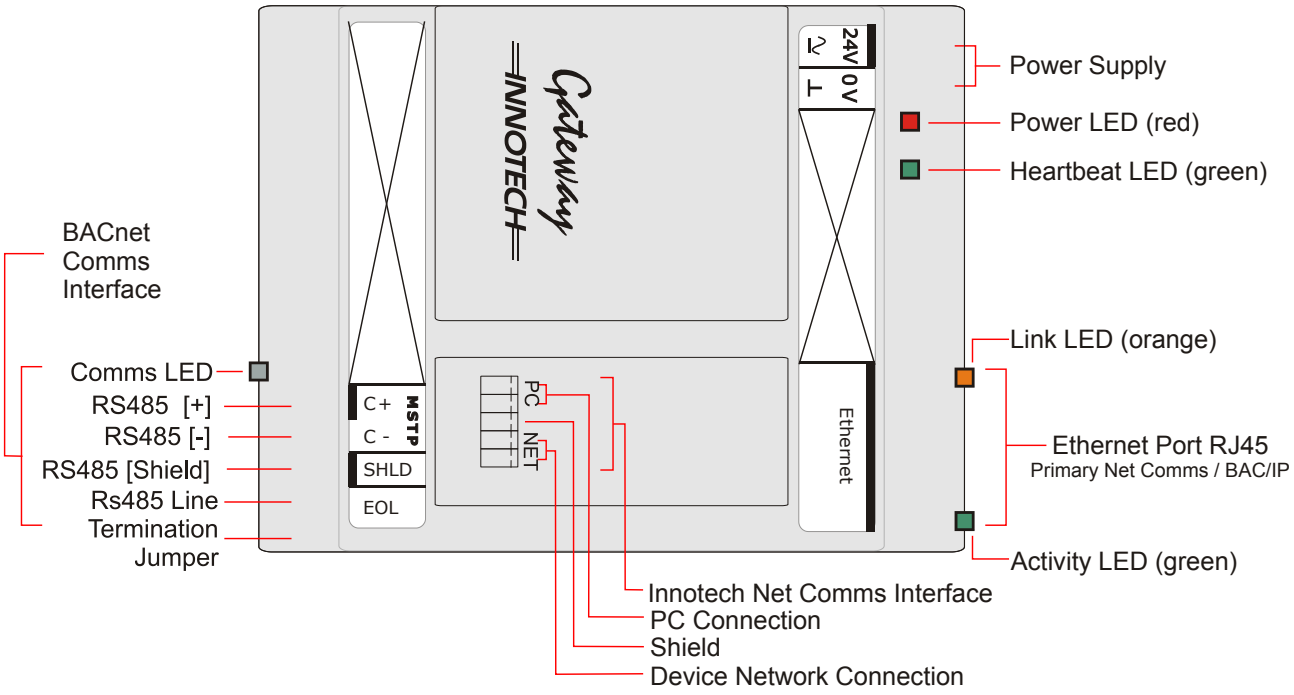
The user interface for the BACnet Gateway is through an embedded web page stored on the controller. This is accessible with Microsoft® Internet Explorer 7 or greater.

The Web Page Interface provides access to view and modify the general settings of the device as well as view specific performance information.

Java™ Runtime Environment version 6.1 or greater must also be installed on the computer accessing the embedded web page.

For PC's configured to use a proxy server an exception rule must be set for the embedded web page to load correctly. For further information refer to the Ethernet Setup Manual for Innotech Device Communications DS99.05 V1.0 or later.

IG03 Connection Diagram



FCC Class A Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

Note – This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Modifications to this device, may void the authority granted to the user by the FCC to operate this equipment.

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