



BACnet Gateway for Pertronic Intelligent Fire Alarm Panels

Overview

The BACnet Gateway facilitates communication between a Pertronic intelligent fire alarm panel* and a building management system (BMS). Using the BACnet (Building Automation and Control Networks) protocol, the gateway gives the building management system read-only access to information from the fire alarm panel.

The gateway system consists of a Contemporary Controls BASGatewayLX Gateway Module connected to a Pertronic Industries GPIB-M Modbus Interface. The system is normally installed inside the fire alarm cabinet. It connects to the BMS physical network via an Ethernet port.

Fire Alarm Panel

Install and configure the fire alarm panel according to project requirements.

Note that the gateway configuration software (Perl script) will configure the BACnet Gateway to report System Events such as “Mains Fail” or “External Defect”, only if those system events have been mapped in the Fire Alarm Panel to an LED. When configuring the panel, ensure that all the relevant System Events are mapped to LEDs. Refer to the Fire Alarm Panel Technical Manual for a complete list of System Events.

Also note that the gateway configuration software will not create BACnet objects for individual devices. Any device that is required to be visible to BACnet must be configured to a zone. The gateway configuration software is designed to create an ALARM and ISO object for each zone. Use the Panel Configuration Utility software to copy the panel configuration data to a file on a personal computer or laptop.

Device Profile

The Device Profile is a *.csv file. It is created with a Perl script that processes the Fire Alarm Panel's Configuration Data.

The Device Profile is a set of BACnet objects that map:

- Modbus registers containing the zone ALARM and ISO states.
- System events in the fire alarm panel that are configured to output directly to an LED.
- Panel status bits in the GPIB Modbus Panel Status Register (The F120 Modbus Interface Technical Manual contains a complete list of Panel Status Bits).

To create the Device Profile:

1. Obtain the Perl script file BACNetDevProfileGen.pl
2. Download and install Strawberry Perl from <http://www.perl.org/get.html>
3. Put the Perl script file BACNetDevProfileGen.pl and the panel configuration data file (in txt format) in a convenient folder.
4. Double click the Perl script file. If Perl is installed, the script should run automatically.
5. When prompted, enter the full name of the panel configuration data file including the file extension, followed by ENTER.
6. When prompted, enter the full name of the profile output file, including the file extension .csv
7. When prompted, choose which events and statuses are to be mapped to BACnet objects. Type Y or N followed by ENTER for each prompt.
8. When prompted, choose to map all zones (1-255), or only those with configured descriptors. Type Y or N followed by ENTER.

* Pertronic intelligent fire alarm panels include all variants of the F100, F120, & F220 types.

9. The script will create a .csv file and save it in the folder used in 3 above. This file is the Device Profile. It will be used to configure the Gateway Module.

If necessary, BACnet object mapping names and/or descriptions may be modified. To change any of the automatically-generated descriptions or object names edit the *.csv file (columns C and J respectively) as desired.

Any objects that are not required can be deselected when configuring the Gateway Module. Refer to the BASGatewayLX application note for a definition of the columns in the *.csv file.

Modbus Interface

The Modbus Interface is a Pertronic General-Purpose Interface Board (GPIB) running firmware "GPIB MBF120" (Currently v2.20).

To set up the Modbus Interface, connect a PC to the RS232 port following the instructions in the F120 Modbus Interface Manual, page 7.

Preferred Options

Modbus mode	RTU (binary)
Modbus port	RS485
Modbus port speed	FAST (19200)
Modbus slave address	1
Device State Decoding	To suit project specification (state 0 must be NORMAL)
Mimic Emulation	LED mimic, address 1 to 8 or LCD mimic, address 1 to 16
Maximum queue number	255

Setting "Mimic Emulation" to LCD or LED programmes the Modbus Interface to respond when polled by the fire alarm panel. This allows the fire alarm panel to report a fault if the Modbus Interface fails to respond.

Gateway Module

Ensure that the Termination Jumper T is fitted, see BASGatewayLX Installation Guide page 4. Remove the RS-485 Bias Jumpers D and U. Bias is supplied by the non-isolated RS-485 port on the Modbus Interface.

Connect the computer to the gateway Ethernet port (BASGatewayLX Installation Guide p. 12.).

Configure the Gateway Module following the instructions in the online video:

<http://www.ccontrols.com/video/basgatewaylxconfig.htm>

- Ensure that the Gateway Module's modbus parameters match the Modbus Interface settings.
- Load the Device Profile.
- Select all registered objects that are required by the Building Management System.
- Deselect any created objects that are not required.

This completes the configuration of the BACnet Gateway system.

Reference documents

Contemporary Controls

Application Note

<http://www.ccontrols.com/pdf/AN-BASGTWY0B.pdf>

BASgatewayLX Installation

<http://www.ccontrols.com/pdf/TD1003000I.pdf>

BASgatewayLX Data Sheet

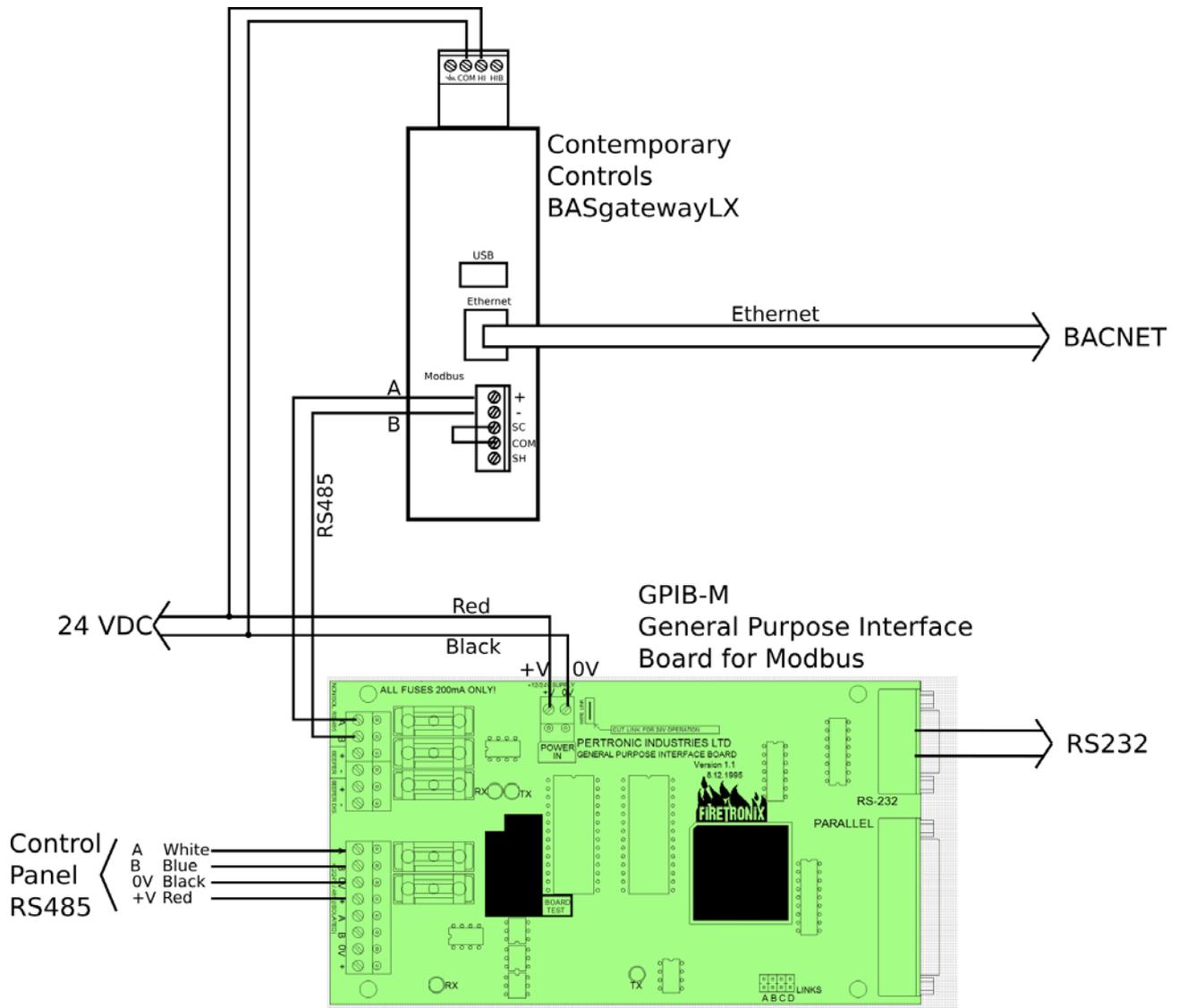
<http://www.ccontrols.com/pdf/ds/DS-BASGTWY0B.pdf>

Configuration Video

<http://www.ccontrols.com/video/basgatewaylxconfig.htm>

Pertronic Industries

F120 Modbus Interface Manual



Wiring Diagram: Modbus + BACnet gateway.