Babel Buster 3
MODEL MX-71-SP
NETWORK GATEWAY

CONTROL SOLUTIONS MINNESOTA

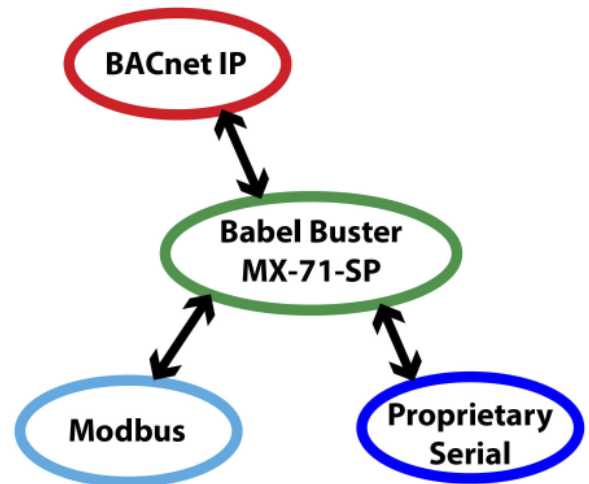Put proprietary serial devices on a BACnet IP network

Control Solutions' Babel Buster MX-71-SP is a BACnet IP client/server device that functions as a Modbus RTU master/slave and/or Modbus TCP client/server. A large number of BACnet objects gives you flexibility in mapping Modbus registers to any combination of BACnet objects. Packed Modbus registers may be parsed to multiple BACnet objects when reading. Multiple BACnet objects may be packed into a single Modbus register when writing. All standard Modbus register types are supported.

Input objects will poll their assigned Modbus register at the interval you specify, and provide the Modbus data as the Present Value when read. Commandable Output objects are used to write Modbus registers, and will update the Modbus device each time BACnet is updated.

The MX-71-SP is a special version of the BB3-7101 that allows one to repurpose the serial communication port to be used for a proprietary serial protocol instead of Modbus RTU. When used for interpreting a proprietary protocol, a Script Basic program would be written to send and receive via the serial port as applicable, and interact with the local BACnet objects under user program control.

The MX-71-SP allows you to BACnet enable enable serial devices that otherwise have no network connection. Combined with rule templates, Script Basic can generate BACnet COV notifications. Script Basic also has access to TCP and UDP connections, and can potentially interpret proprietary IP protocols as well.

Babel Buster MX-71-SP Object Summary

• *Analog Input, Analog Output, Analog Value*
• *Binary Input, Binary Output, Binary Value*
• *Multi-State Input, Output, Value*

• *Typically at least 1,000 Objects*

• *Objects from pool can be assigned to any of above types*
• *Maximum of 1024 states for multi-state, includes state text (actual value supported varies by resource usage per object)*

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Built-In Secure Web Server for Configuration and Programming


```
on error goto GotThisError
open "COM:9600" for comm as 1
enable = getreg (9)
'
while enable > 0
line input #1, data$
split data$ by " " to toss$,chan,value

if chan >= 1 and chan <= 4 then
reg = chan * 2 - 1
setreg reg, value
end if

enable = getreg (9)
wend
close 1
end

GotThisError:
errCode = Error()
setreg 11, errCode
sleep (30)
resume
stop
```

Script Basic can program your MX-71-SP to be a passive listener capturing data from something like a data logger. Script Basic can also program your MX-71-SP to be an active polling device to query your serial device and interpret the response to provide data to BACnet (or Modbus TCP).

Configuration of the MX-71-SP gateway is done via the web pages served by the internal web server. You simply fill in templates. The entire configuration is saved in the internal Flash file system in XML format. This file may be exported to replicate additional copies of the configured device, or for backup.

BACnet Protocol Implementation Conformance Statement (Abbreviated)

Date: 28 June 2021
Vendor Name: Control Solutions, Inc.
Product Name: Babel Buster MX-71-SP
Product Model Number: MX-71-SP
Applications Software Version: 3.15
Firmware Revision: 3.15
BACnet Protocol Revision: 15

Product Description: Network gateway allowing Modbus RTU and TCP devices to be accessed via BACnet IP and vice versa.

BACnet Standardized Device Profile (Annex L):
► *BACnet Application Specific Controller (B-ASC)*
► *BACnet Gateway (B-GW)*

List all BACnet Interoperability Building Blocks Supported (Annex K):
DS-RP-B, DS-RPM-B, DS-WP-B, DS-COV-B, DS-COVP-B, DM-DDB-B, DM-DOB-B, DM-RD-B,GW-EO-B

Segmentation Capability: Request & response, window size 8

Standard Object Types Supported:
Object types: AI, AO, AV, BI, BO, BV, MSI, MSO, MSV, DEV (all static)
See additional documentation for optional & proprietary properties.

Read/Write just about anything as a BACnet Property Value, or vice versa!

FEATURES

- Script Basic programming for custom serial protocols
- Read/Write any standard Modbus register via BACnet objects
  - Up to 5,000 objects
  - Analog, Binary, Multi-State object types
  - Input, Output, Value objects
- BACnet slave can be Modbus RTU master or vice versa
- MX-71-SP is also Modbus TCP client/server
- Bidirectional data exchange between BACnet and Modbus
- Direct import of CSV files for faster point mapping
- Supports Modbus "coils", input registers, holding registers
- Single or double Modbus registers, signed, unsigned, IEEE 754
- Modbus register mapping configured via secure web interface
- Modbus registers may be scaled (x10, x100, x0.1, x0.01, etc.)
- Modbus (master) polling interval configurable per point
- Commandable BACnet objects implement priority array
- Hardened EIA-485 transceiver for Modbus RTU (or serial comm)
- 10/100BaseT Ethernet for BACnet IP and Modbus TCP
- Powered by 10-30VDC or 24VAC 50/60 Hz
- Power Consumption: 0.1A @ 24VDC
- Panel mount, 70mm H x 131mm W x 38mm D
- Pluggable screw terminal block for power & RTU network
- Operating temperature -20°C to +75°C
- Humidity 5% to 90% non-condensing
- FCC Class A, CE Mark

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